CLASS 337, ELECTRICITY: ELECTROTHERMALLY OR THERMALLY ACTUATED-SWITCHES

SECTION I - CLASS DEFINITION

This class is restricted to the structure of electric current switching devices of general application for closing or opening electrical circuits which devices depend upon the heating effect of a current or of the ambient temperature of the surrounding medium for their operation.

This class also includes miscellaneous elements, or subcombinations of elements, restricted for use in and with the class type switches and which have not reached the status of separate classification elsewhere.

This class also includes implements or handling devices specifically adapted for use with the class type switches and not provided for elsewhere in a separate class.

Electrical systems or circuits which include electrothermally or thermally operated switches, comprising the subject matter of this class, are excluded from this class. These systems or circuits are classified in the various electrical or art classes depending upon the type of system or apparatus controlled.

SECTION II - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclass 232 for combined building and fuse.

60, Power Plants, subclasses 513, 523 and 528 for expansion and contraction type thermoelectric motors.

62, Refrigeration, subclasses 132+ for automatic controls utilizing thermostatic devices.

74, Machine Element or Mechanism, appropriate subclasses for mechanical operators of general application particularly subclasses 519+ for toggle arrangements and 527+ for detents and related mechanism.

81, Tools, subclass 3.8 for special tools adapted as fuse pullers.

99, Foods and Beverages: Apparatus, subclasses 324+ for cooking apparatus with thermostatic control.

102, Ammunition and Explosives, appropriate subclasses for detonators in general.

116, Signals and Indicators, subclasses 101+ for thermal alarms and subclasses 216+ for thermal indicators, such as fuses.

122, Liquid Heaters and Vaporizers, subclasses 451.1+ for thermally controlled automatic feeders and subclass 504.1 for fused safety devices for liquid heaters and vaporizers.

137, Fluid Handling, subclass 457 for valves with thermostatic cut off.

140, Wireworking, subclass 71.5 for wireworking apparatus for manufacturing space discharge device electrodes.

149, Explosive and Thermic Compositions or Charges, appropriate subclasses for explosive fusible material compositions.

165, Heat Exchange, subclasses 200+ for temperature or pressure actuated automatic control devices for heating and cooling.

169, Fire Extinguishers, subclass 23 for alarm or signal devices combined with extinguishing systems and subclass 42 for fusible elements, per se, and subclass 61 for systems having condition responsive electrical controls.

174, Electricity: Conductors and Insulators, subclasses 50 through 64 for boxes and housings with electric device or mounting means for housings or casings with fuse receptacles.

200, Electricity: Circuit Makers and Breakers, subclasses 81+ for fluid pressure responsive mechanical switches where the operating means is responsive to the flow of a fluid as distinguished from those which are responsive to the static pressure of the fluid and those in which the pressure is generated by expansion of the fluid by heat.

219, Electric Heating, subclasses 509+ for electric heating devices automatically controlled by thermally responsive switching means.

236, Automatic Temperature and Humidity Regulation, subclasses 79 through 87, especially 86 and 87 for thermostatic fluid operating motors utilizing expanding fluid and expanding solids and subclasses 91-104 for thermostatic controls generally.

252, Compositions, subclass 70 for thermostatic compositions.

307, Electrical Transmission or Interconnection Systems, subclasses 117+ for heat responsive switching systems.

313, Electric Lamp and Discharge Devices, appropriate subclasses, and 314, Electric Lamp and Discharge Devices: Consumable Electrodes, appropriate subclasses for electric space discharge devices designed to pass an electric cur-

rent (e.g., spark, arc, etc.,) between two electrodes spaced apart in a vacuum or a gas or vapor atmosphere (including in atmospheric air). See Class 314 where the discharge device is provided with an electrode which is consumed during the operation and has means to feed the electrodes together to compensate for the consumption of the electrode. Class 313 is the generic class for space discharge devices. See Class 313, subclasses 146+ for discharge devices which are provided with a movable electrode. Some discharge devices are closely analogous in structure to some types of circuit makers and breakers. See section the class definition of Class 313 for the distinction between a space discharge device and circuit maker and breaker.

314, Electric Lamp and Discharge Devices: Consumable Electrodes, see the reference to Class 313, above.

315, Electric Lamp and Discharge Devices: Systems, subclasses 56+ and the subclasses specified in the notes to the definitions of those subclasses, for other electric space discharge devices which have structurally combined therewith a circuit maker and breaker. See the reference to Class 200, Electricity: Circuit Makers and Breakers, in the class definition of Class 315, particularly the reference to subclass 113.5 for the line between Class 315 and Class 337.

318, Electricity: Motive Power Systems, subclass 117 for thermo-electric motors comprising a member which undergoes substantial changes in shape, position and/or dimensions when heated, and means for electrically heating the member, subclasses 471+ for thermally controlled automatic starting or stopping of a motor.

320, Electricity: Battery or Capacitor Charging or Discharging, subclasses 166+ for charging or discharging a capacitor, per se.

322, Electricity: Single Generator Systems, subclasses 33+ for thermally responsive systems for automatic control of the generator or driving means.

324, Electricity: Measuring and Testing, subclass 106 for testing devices (meters) having means whose temperature is varied in accordance with the electricity being measured.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 1 for combined diverse switches where the diverse switch may be of the thermal or thermal current type, subclass 23 for automatic circuit breakers with combined magnetic and thermally actuated latch or trip means, subclass 31 for latching means with thermally actuated resetting or reclosing means, subclass 39 for magnetic tripping means with thermally actuated time delay, subclasses 43+ for thermally actuated tripping or latching means, subclass 66 for electromagnetically controlled switches, with electrothermal delay means and subclasses 141+ for combined electromagnetic and electrothermal actuating means.

338, Electrical Resistors, appropriate subclasses for electrical resistors, particularly subclasses 7+ for resistors whose resistance value is temperature compensated and 25+ for resistors whose resistance value is ambient temperature responsive.

340, Communications: Electrical, subclasses 593+ for a thermal alarm circuit having a switch-type sensor.

361, Electricity: Electrical Systems and Devices, subclasses 161+ for electric circuits for relays with thermal control.

373, Industrial Electric Heating Furnaces, subclasses 102+ and 136 for electric furnaces with thermal control means.

374, Thermal Measuring and Testing, subclasses 187+ and 201+ for temperature measuring devices utilizing expanding solid or expanding fluid elements respectively.

428, Stock Material or Miscellaneous Articles, subclasses 375+ for coated electrical conductors which may include contacts and switches, but which are recited solely as a base with a particular coating thereon, and subclasses 616+ for composite metallic thermostat material having heat-deflectable characteristics.

439, Electrical Connectors, appropriate subclasses for an electrical connector, generally; including a connector for use with an electrothermally or thermally actuated switch. A switch of this class (Class 337) is distinguished from a connector of Class 439 in that, a switch is a “permanent” assembly of component parts fixed together so that each time a contact is brought into mating engagement with a cooperating contact, it moves along the same predetermined path; whereas, an electrical connector is a member that mates with a distinct mating part from which it is physically removed each time the connection is broken.

SUBCLASSES

1 WITH DIVERSE ART-TYPE DEVICE:
This subclass is indented under the class definition. Subject matter wherein an electrothermal or thermally actuated switch is combined with another device having an added purpose or utility independent of the switch and in which the utility of the other art device is not destroyed by the removal of or deactivation of the switching device and which claimed combination does not include sufficient specific structure of the other art device as to be classified either with the other art device, per se, or elsewhere.

(1) Note. See the appropriate other art class in the Manual of Classification for specific other art devices which may be combined with switching means.

2 WITH SEPARATE DISTINCT DIVERSE ART-TYPE SWITCHING DEVICE (E.G., FLUID- OR MECHANICAL-ACTUATED):
This subclass is indented under the class definition. Subject matter wherein the structure includes at least two independent separate and distinct switches, one or more of which is of the type classifiable in this class combined with at least one diverse art type switch classifiable in another art class.

(1) Note. Example (1) Fuses connected or associated with automatic circuit breakers of the mechanical type. The fused means being adapted to open an electric circuit breaker means opens or closes the same circuit independently of the fuses under certain other conditions.

SEE OR SEARCH THIS CLASS, SUBCLASS:
1 for specific art type electrothermal device combined with other art type.

SEE OR SEARCH CLASS:
62, Refrigeration, subclass 4, for refrigerator devices utilizing combined expansible fluid actuated switches with other art types.
74, Machine Element or Mechanism, subclasses 471+ for control lever and linkage systems controlling multiple elements and utilizing multiple switches.
123, Internal-Combustion Engines, subclass 198 for control devices utilizing combined electrothermal and magnetic switches.
200, Electricity: Circuit Makers and Breakers, subclass 3 for mechanical multiple circuit control devices with thermal current means.
219, Electric Heating, subclasses 482+ for power supply and voltage or current regulatory systems for electric heaters which may utilize plural diverse switches.
236, Automatic Temperature and Humidity Regulation, appropriate subclasses particularly subclasses 2+ for electric heaters of different art types combined with an operative in an incubator and subclasses 91+ for various thermostatic controls which may combine two or more types.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 1 for magnetically actuated switches combined with electrothermal or thermally actuated switch, subclasses 141+ for magnetically actuated switches with additional electrothermal means.

3 Bimetallic device with other:
This subclass is indented under subclass 2. Subject matter wherein the art type switch comprises or utilizes at least one thermally responsive element consisting of a composite of two dissimilar metals which expand different amounts under the influence of heat and whereby associated circuit contacts are opened or closed as a result of the bending of the element.

SEE OR SEARCH THIS CLASS, SUBCLASS:
13 for thermally actuated switches utilizing a bimetallic element combined with other diverse actuating means such as a magnet.
16 for shunt circuit completion devices with bimetallic elements.

35 for plural bimetallic actuating means in a single switch.
36 for electrothermal switches in general using bimetallic elements.

4 Fusible element device with other:
This subclass is indented under subclass 2. Subject matter wherein the art type switch comprises or utilizes a device capable of melting and thereby causing the interruption of an electric circuit when abnormally heated by the current in the electrical circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:
142+, for electrothermal switches of the fusible type.
299 for thermally actuated fuses combined with diverse similar art type devices.
401+, for thermal switches utilizing fuses for the principal operating means.

SEE OR SEARCH CLASS:
218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 22+ for mechanical magnetic blowout switches which may employ fusible elements.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 142 for magnetically operated switches with fuses.
361, Electricity: Electrical Systems and Devices, appropriate subclasses for safety and protection devices which may utilize fuses combined with mechanical means.

5 Diverse art-type switching device responsive to the condition of fusible element:
This subclass is indented under subclass 4. Subject matter including structure whereby the operative condition of the other art switching device is directly controlled by the condition of the fusible element.

(1) Note. Example: A spring controlled mechanical circuit closing device the operation of which takes place upon the rupture of a fusible device which normally completes the circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:
143 for electrothermal switches having a fuse controlling mechanical contact control means.
402 for thermally actuated fuses controlling mechanical contact control means.

6 With automatic circuit-interrupting device:
This subclass is indented under subclass 4. Subject matter wherein the other art switching device comprises means whereby normally closed contacts are automatically opened upon the occurrence of an abnormal circuit condition.

(1) Note. This subclass also includes patents where the fusible element device is claimed in detail and the other art type switch is specifically described as a circuit breaker, providing plural distinctive switches are in fact claimed and the combination is not classifiable in another art.

SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, subclasses 103+ for automatic circuit breakers, and subclasses 161+ for thermal controls for relays.

7 Multiphase of multipole:
This subclass is indented under subclass 6. Subject matter wherein the other art switching device is further described as comprising a plurality of individual conductors which comprise the conductors of a polyphase or plural conductor transmission line.

(1) Note. See the note to the definition of subclass 6 above.

SEE OR SEARCH THIS CLASS, SUBCLASS:
45+, for bimetallic element operated electrothermal switches of the multipole or polyphase type with manual control.
146 for fusible element actuated electrothermal switches of the multipole or polyphase type.

8 Manually operable mechanical device:
This subclass is indented under subclass 4. Subject matter wherein the other art switch device is recited as comprising a manually operated circuit controller.

SEE OR SEARCH THIS CLASS, SUBCLASS:
143+, for electrothermally actuated fuses combined with and controlling manual or other mechanical contact operating means.
402+, for thermally actuated fuses controlling manually operated contact control means.

9 Knife or blade switch:
This subclass is indented under subclass 8. Subject matter wherein the manually operable other art device is specifically recited as a knife or blade switch wherein the movable element, a hinged blade, enters or embraces the contact clips.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 554+ for mechanical knife switches which may be protected by fuses.

10 Rotary or reciprocating mechanism:
This subclass is indented under subclass 8. Subject matter wherein the manually operated other art device is specifically recited as comprising rotary or reciprocating mechanical contact actuating structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
64 for bimetallic element electrothermal switch with reciprocating spring actuated actuating device.
111 and 149, respectively, for reciprocating or rotary mechanical actuators for fusible element type electrothermal switches.
200+, and 410, respectively, for reciprocating or rotary mechanical actuators of thermal switches of the fusible, combustible or explosive material type.
238 for bimetallic element electrothermal switch with rotary or oscillatory motion spring actuated operator.
347+, and 348, respectively, for rotary or reciprocating mechanical actuators for bimetallic element thermally operated switches.
398+, and 401, respectively, for reciprocating or rotary mechanical actuators for expansible or vaporizable fluid actuated thermal switches.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 465+ for mechanical switches with rotating contact control means which may be protected by fuses.

11 With multiple circuit connector device (e.g., multiple mechanical):
This subclass is indented under subclass 4. Subject matter wherein the other art device is specifically described as a device in which a plurality of contacts are arranged to control two or more independent electrical circuits.

(1) Note. The subject matter in this subclass should not be confused with the other art type devices in subclass 7 above in which a plurality of conductors comprise a single circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:
59+, for electrothermal bimetallic element switch with multiple contacts and mechanical actuator.
145 for electrothermal fuse means controlling multiple contact or plural circuit control means.
337+, for thermal bimetallic element switches of the multiple contact type and with mechanical actuator.
406 for thermally actuated fuses controlling multiple contacts or plural circuit control means.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 1+ for mechanical multiple circuit control devices which may be protected by fuses.
361, Electricity: Electrical Systems and Devices, subclasses 1+ and 114+ for mechanical safety and protective

devices which may control a multiplicity of circuits.

12 WITH DIVERSE ART-TYPE ACTUATOR FOR SINGLE SWITCH:

This subclass is indented under the class definition. Subject matter including at least one contact actuating means of the type classifiable in this class in combination with a diverse type actuating means of a type classifiable elsewhere in another art class and each one acting singly or conjointly to control the same single set of switch contacts. The two or more actuating means may be physically located in the same housing or casing and may have cooperative features as long as each one is operative independent of the other. Some examples of diverse type switch actuating means are the mechanical special application switches in Class 200.

(1) Note. For similar subject matter including the combination of electromagnetic or magnetic control means combined with thermal-current responsive means, search will be in Class 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 141+ and in the classes and subclasses referred to in the search notes under the subclass definition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54 and 90, for electrothermally actuated bimetallic switches which operate with a snap action and have additional magnetic flux sources to act as holding or biasing means.

134 for longitudinally expansible element devices with magnetic biasing or holding means.

344 and 366, for thermally actuated bimetallic switch devices with magnetic holding or biasing means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, appropriate subclass for special application switches which may also include electrothermal or thermal actuating means.

219, Electric Heating, subclass 491 for heating devices with combined regulating or control means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 141+ for electromagnetically actuated switches which include additional electrothermal or thermal actuating means.

13 Bimetallic with other:

This subclass is indented under subclass 12. Subject matter wherein one of the claimed thermally responsive elements is specifically recited as being a bimetallic element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3 above for a bimetallic element actuated switch combined with a diverse art type switch (e.g., fluid actuated).

14 ELECTROTHERMALLY ACTUATED SWITCHES:

This subclass is indented under the class definition. Devices relating to structure operative to open or close an electric circuit or circuits and the combination of those devices; the operating means whereby the opening or closing function is accomplished by a thermal device directly inserted in the circuit and traversed by the controlling current. The circuit generally is the circuit which is to be controlled.

(1) Note. The electrothermal actuated switches of subclasses 14+ are distinguished from the thermally actuated switches in subclasses 298+ in that in the latter group the devices are principally responsive to heat from an external source, for instance the heat in a surrounding medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:

2+, for electrothermal switches combined with diverse art type switches.

SEE OR SEARCH CLASS:

99, Foods and Beverages: Apparatus, subclasses 324+ for cooking apparatus with electrothermal control.

219, Electric Heating, subclasses 482+ for electrothermally controlled heating

devices and subclasses 507+ for heating devices.

313, Electric Lamp and Discharge Devices, appropriate subclasses, especially subclasses 11+ for discharge devices with temperature modifying means.

314, Electric Lamp and Discharge Devices: Consumable Electrodes, subclasses 89+ for glow discharge devices with thermostatic operator means.

315, Electric Lamp and Discharge Devices: Systems, appropriate subclasses for discharge device systems with electrothermal control means combined with a discharge device load.

318, Electricity: Motive Power Systems, and subclasses 471+ for thermally controlled automatic starting and/or stopping systems.

320, Electricity: Battery or Capacitor Charging or Discharging, subclasses 166+ for charging or discharging a capacitor, per se.

322, Electricity: Single Generator Systems, subclasses 33+ for thermally responsive automatic control means for a single generator.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 23 for circuit breakers with combined magnets and thermal latch or trip means and subclasses 141+ for electromagnetically actuated switches combined with electrothermal actuating means.

340, Communications: Electrical, subclasses 584+ for alarms and signal systems which are temperature controlled.

361, Electricity: Electrical Systems and Devices, subclasses 161+ for thermal controls for relays, subclasses 247+ for ignition systems with a spark gap igniter, and subclasses 627+ for distribution boards with fuse means.

388, Electricity: Motor Control Systems, art collections 934 for motor control systems responsive to a thermal condition.

15 Shunt or short circuit completion devices:

This subclass is indented under subclass 14. Subject matter including means whereby upon the failure of any selected portion of an electrical circuit or a device within the selected portion, an electrical conducting shunt circuit is automatically established around the device or the selected portion of the circuit.

(1) Note. The devices found here are especially adapted for use in closing a shunt circuit around a translating device or a loop circuit when such translating device becomes inoperative or the loop circuit is broken. These devices are generally used in series lighting circuits so that in case a lamp breaks or burns out a shunt circuit is completed around the lamp in order to keep the main circuit closed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

125 for electrothermal switch with longitudinally expansible element type with electrical shunting means.

221 for electrothermal switch of the fusible element type with electrical shunt circuit means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, for shunt circuit closing devices for multiple control (loop), subclass 51.5 for short circuit closing devices actuated by the separation of coupling members and subclass 51.11 for shunt circuit closing devices wherein the switch is in parallel with the coupling contacts.

315, Electric Lamp and Discharge Devices: Systems, subclasses 74+ and 119+ for electric lamp and electric space discharge device systems, provided with automatic shunt circuit closing means.

16 Bimetallic means:

This subclass is indented under subclass 15. Subject matter wherein the shunt circuit completing means comprises at least one bimetallic device, i.e., an element consisting of at least two solid strips or bars formed of materials having different coefficients of expansion.

SEE OR SEARCH CLASS:

290, Prime-Mover Dynamo Plants, subclass 38 for electrical starting motors which may have bimetallic means shunting the starting resistance.

315, Electric Lamp and Discharge Devices: Systems, appropriate subclasses, especially subclasses 74 and 83 for load devices with electrical circuits and temperature modifying means utilizing bimetallic shunting means.

324, Electricity: Measuring and Testing, subclasses 105+ for electrical measuring devices with bimetallic shunting means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 12 for automatic circuit interrupting devices with shunting contacts and subclasses 35+ for plural means for operating automatic trip means one of which may be a shunt contact operated by bimetallic means.

338, Electrical Resistors, subclass 31 for resistors with mechanical variation means which is thermally responsive and subclass 215 for a resistance with a switch, i.e., shunt.

361, Electricity: Electrical Systems and Devices, subclasses 139+ for electric circuits for relays and electromagnets, especially subclasses 163+ for bimetallic elements shunting a resistance.

17 Fusible material combined with gap:

This subclass is indented under subclass 15. Subject matter relating to a device wherein during normal conditions of a circuit at least two contacts or electrodes are separated by an insulating gap which is bypassed by a fuse and upon the occurrence of abnormal conditions in the circuit causing failure of the fuse current is allowed to pass directly between the contacts or electrodes. The thermo responsive fusible means usually comprises latching or holding means releasable, when subject to overheating, to allow the main contacts to close.

SEE OR SEARCH THIS CLASS, SUBCLASS:

31 for fusible structure combined with a spark gap or lighting arrester means.

SEE OR SEARCH CLASS:

338, Electrical Resistors, subclass 215 for fusible elements shunting a resistance.

18 Gaseous space discharge gap (e.g., air gap):

This subclass is indented under subclass 17. Subject matter wherein the insulating gap is an air gap.

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, subclasses 115+, especially subclasses 124+ for lightning arresters with fusible links.

19 Gap with thin film dielectric (e.g., voltage-responsive):

This subclass is indented under subclass 15. Subject matter including contacts or electrodes separated from one another by a film of dielectric material which is adapted to break down upon the impression thereof of an abnormal voltage thereby allowing the setting up of a conductive arc.

20 With significant housing or casing structure:

This subclass is indented under subclass 15. Subject matter relating to a device under the definition of subclass 15 with significant details of a housing or casing structure peculiarly adapted for the claimed device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34 for electrothermal switches of the space discharge type with housing or casing.

112+, for electrothermal switches of the bimetallic type with housing or casing.

121 for electrothermal switches of the expansible fluid actuated type with housing or casing.

186+, for electrothermal switches of the fusible element actuated type with housing or casing.

327+, for thermally actuated switches of the expansible fluid type with housing or casing.

380+, for thermally actuated switches of the bimetallic type with housing or casing.

398 for thermally actuated switches of the longitudinally expansible solid element type with housing or casing.

414+, for thermally actuated switches of the fusible element type with housing or casing.

21 Conductive fluid devices:

This subclass is indented under subclass 14. Subject matter wherein the continuity of an electrical circuit is normally maintained through a conductive liquid. Upon the occurrence of an excessive current in the circuit the liquid is vaporized or otherwise dispersed or displaced whereupon the circuit is interrupted. In this subclass the conductive liquid comprises the electrothermal element which is directly in the circuit to be controlled which circuit is completely opened when the liquid is in its operated state.

SEE OR SEARCH THIS CLASS, SUBCLASS:

80 for electrothermally responsive bimetallically actuated switches with mercury or other conductive liquid contact means.

331 for thermally responsive expansible or vaporizable fluid actuated switches with a conductive liquid comprising the contact material.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, appropriate subclasses, especially subclasses 61.47, 81.6, and 182+ for mechanical switches with mercury or other liquid contacts.

219, Electric Heating, subclasses 510+ for automatically operated heating device current supply means with thermally responsive means.

315, Electric Lamp and Discharge Devices: Systems, appropriate subclasses, especially subclass 362 for a discharge device with a mercury switch in the circuit.

22 Fluorescent lamp-starting devices:

This subclass is indented under subclass 14. Subject matter relating to structure whereby the voltage or current applied to a fluorescent lamp device is controlled in such a manner as to establish a discharge through the lamp device.

SEE OR SEARCH CLASS:

315, Electric Lamp and Discharge Devices: Systems, subclasses 94+, especially subclass 100 for discharge devices with a thermostatic switch in the cathode heater supply circuit.

23 With significant heating means:

This subclass is indented under subclass 22. Subject matter including at least one metallic resistance or other heating means whereby a thermostatic contact actuating means is heated by the current passing through the resistor or other heating means.

(1) Note. For other heating means employed in the devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclasses 103+.

24 With shunt or short-circuiting means (for resistor):

This subclass is indented under subclass 23. Subject matter including significant structure whereby an electrical shunt circuit is established around the heating means or whereby the heater contacts may be short circuited.

SEE OR SEARCH THIS CLASS, SUBCLASS:

15+, for electrothermal switches with electrical shunt or short circuit completion devices.

125 for electrothermal switches of the longitudinally expansible solid element type with electrical shunting means.

221 for electrothermal switches of the fusible element type with electrical shunting means.

25 Electric discharge means (e.g., electron-emissive):

This subclass is indented under subclass 22. Subject matter including at least two switch contacts designed to contact with each other to open and/or close an electrical circuit, one of the switch contacts being mounted so as to be moved by a thermostatic element, the contacts, their supports, or lead-in means being electron emissive so that an electric space discharge can be established between the electron emissive substance and the cooperating contact, when

the switch contacts are in open circuit position, to heat the thermostatic element thereby actuating the movable contact or contacts.

(1) Note. In some of the patents in this subclass the switch contacts are normally separated when no current is being supplied to the circuit which includes the switch contacts. The electric space discharge being established when the current is supplied to the circuit, the space discharge then heating the thermostatic element so that the switch contacts are moved to circuit closing position to establish a conductive path through the electrodes and thereby short circuiting the electric space discharge. This subclass also includes patents where the switch includes means other than the glow discharge, such as electric heating means, the glow discharge being used in conjunction with the other heating means to cause the switch contacts to be moved into open or closed circuit condition.

(2) Note. The circuit makers and breakers in this subclass are often used with glow discharge lamps which require preheating of the filamentary electrodes before an electric space discharge can be established between such filamentary electrodes.

(3) Note. The circuit makers and breakers in this subclass are somewhat analogous in structure to electric space discharge devices of the arc drawing type having two electrodes, at least one of which is electron emissive, which are normally in contact when the supply circuit is open and which are separated by any suitable means, such as thermostatic means, to establish the space discharge when potential is applied to the discharge device. For such discharge devices, Search Classes 313 and 314 in the appropriate subclasses.

26 With significant contact structure or composition:

This subclass is indented under subclass 22. Subject matter including specific details of contact arrangement, structure or composition of material.

(1) Note. Contact structure or composition will also be found in the following subclasses of this class.

SEE OR SEARCH THIS CLASS, SUBCLASS:

109 electrothermally actuated switches of the bimetallic type.
122 electrothermal switches of the expansible fluid type.
137 electrothermally actuated switches of the longitudinally expansible solid type.
251+, electrothermally actuated switches of the fusible element cartridge or tube type.
268+, electrothermally actuated switches of the fusible element plug type.
273+, thermally actuated switches of the bimetallic type.
329+, thermally actuated switches of the expansible fluid type.
399+, thermally actuated switches of the longitudinally expansible solid type.
413 thermally actuated switches of the fusible element type.

27 Bimetallic element:

This subclass is indented under subclass 26. Subject matter wherein the contact structure includes at least one bimetallic element whereby an electrical path through the switch is controlled by the heating and/or cooling of the bimetallic element functioning directly as one of the current carrying contact.

SEE OR SEARCH THIS CLASS, SUBCLASS:

85+, for electrothermally actuated switches of general application wherein the movable contact, or contacts, is directly attached to the bimetallic element.

28 Space discharge device (gaps, lightning arrester, etc.):

This subclass is indented under subclass 14. Subject matter relating to the structure of an electrothermal current device under the class definition combined with further protective means comprising a normally open gap whereby a discharge may take place between the line contacts when open or between one of the line contacts and ground.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, appropriate subclasses for electric space discharge devices in general.

315, Electric Lamp and Discharge Devices: Systems, subclasses 56+ for discharge devices acting as a load and combined with an impedance and subclasses 119+ for discharge devices with a cut out.

361, Electricity: Electrical Systems and Devices, subclasses 117+ for lightning arresters generally.

439, Electrical Connectors, subclass 182 for a lamp or electron tube socket including arc suppressing means, which means may comprise a protective air gap type discharge device; and subclass 620.26 for an electrical connector combined with a named fuse or comprising a casing, housing, or holder for receiving and fully enclosing a fuse.

29 Plural:

This subclass is indented under subclass 28. Subject matter including at least two or more electrothermal switching devices combined with at least one protective gap or at least two or more protective gaps combined with a single art type switching device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

42+, for electrothermally actuated plural switches of the bimetallic type.

338+, for thermally actuated plural switches of the bimetallic type.

30 With explosive or combustible material:

This subclass is indented under subclass 28. Subject matter including structure comprising an arc gap in combination with an explosive charge whereby should the arc gap fail to interrupt the current flow the explosive charge will be detonated. The subject matter to be found here may include (a) arresters with an explosive or (b) an arrester in combination with any art type circuit interrupter such as fuses, bimetallic means, etc., with the further addition of an explosive charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:

243 for electrothermally fusible link actuated switches with chemical (e.g., explosive) indicating means.

401+, for thermally actuated switches of the fusible combustible or explosive material.

SEE OR SEARCH CLASS:

315, Electric Lamp and Discharge Devices: Systems, subclasses 111.01+ for discharge device load with fluent material supply to the discharge space.

361, Electricity: Electrical Systems and Devices, subclasses 124+ for lightning arrester with electrothermal fusible or explosive material.

31 With fusible element (e.g., cutout means):

This subclass is indented under subclass 28. Subject matter relating to significant spark gap structure in combination with fusible cut out means or a fusible material controlled switch means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

4+, for fusible element device and diverse art type switching device.

17+, for electrothermal switch having fusible material combined with gap.

142+, for electrothermal switches of the fusible element actuated type in general.

401+, for thermally actuated switches in general of the fusible, combustible or explosive material type.

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, subclasses 124+ for lightning arrester with fusible means.

32 With grounding means:

This subclass is indented under subclass 31. Subject matter including a plate or other grounding terminal means, whereby, upon the occurrence of an abnormal voltage, a current discharge takes place to ground with the gap resuming a nonconducting condition when the voltage returns to normal value.

SEE OR SEARCH THIS CLASS, SUBCLASS:

199 for electrothermal, fusible element actuated switch having a housing, casing or support with electrical ground, shield or barrier.

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, appropriate subclasses, particularly subclasses 38+, 117+ 124+, and 131+ for protective devices of the discharge gap type with grounding means in addition to a fused cut out.

33 With common structural elements (e.g., fuse provides support or element of spark gap structure):

This subclass is indented under subclass 31. Subject matter including structural elements forming an integral part of or common to both the fusible element cut out means or fusible element controlled switch and the space discharge device. For example; the spark gap structure may provide a mounting or support for the fuse or one fuse cap may also be an electrode in the spark gap circuit.

34 Housing, casing, mounting or support means:

This subclass is indented under subclass 28. Subject matter including significant structural details of housing, casing, mounting or support means peculiarly adapted for use with the subclass 28 type switch or switches.

(1) Note. Housings, casings or supports for devices of this class are provided for in many subclasses herein. For the list of such subclasses, see subclass 20 under SEARCH THIS CLASS, SUBCLASS.

35 Plural diverse similar art-type devices in single switch:

This subclass is indented under subclass 14. Subject matter including significant details of two or more thermal current responsive devices cooperatively acting to control a single switch whereby an electrical circuit is opened or closed as a result of existing conditions in both or all of the thermal current responsive devices.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38+, for plural electrothermal bimetallic elements combined with a single mechanical contact operating means.

144 for plural electrothermal fuses in a single switch.

335+, for plural thermal actuated bimetallic devices in a single switch.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 516+ for expansion and contraction type power plants with plural diverse electrothermal switches in the control circuit.

200, Electricity: Circuit Makers and Breakers, appropriate subclasses, especially subclasses 81+ for fluid pressure control switches with plural operators.

219, Electric Heating, subclasses 510+ for electrical heating devices with plural electrothermal operated switches in the supply circuit.

236, Automatic Temperature and Humidity Regulation, subclasses 91+ for thermostatic control or regulating means with plural thermally operated elements.

340, Communications: Electrical, subclasses 584+ for alarm systems with diverse temperature sensors.

36 With bimetallic elements (i.e., motion takes place in a plane at right angles to its major axis):

This subclass is indented under subclass 14. Subject matter including at least one electrothermal temperature responsive composite element consisting of two different metals, bonded together, and having different coeffi-

cients of expansion such that when heated by a thermal current a bending motion of the composite element results. The resultant motion is utilized either directly or through an intermediate mechanical means to control the opening and/or closing of an electrical circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3 for electrothermal responsive switching means combined with a diverse art switching means.

13 for an electrothermal element combined with a diverse art control means cooperatively operating the same set of contacts.

35 for plural diverse similar art type electrothermal operating means in a single switch.

333+, for thermally actuated bimetallic actuated switches.

SEE OR SEARCH CLASS:

219, Electric Heating, subclass 494 for heaters with current control means including bimetallic elements and subclass 510 for electric heaters with bimetallic element actuated switch means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 145 for electromagnetically actuated switches with bimetallic elements.

361, Electricity: Electrical Systems and Devices, subclasses 1+, especially subclasses 23+ for electrical safety and protective systems including bimetallic switch means, and subclasses 161+ for electric circuits for relays and electromagnets including bimetallic switches.

37 With manual or other mechanical contact controlling means:

This subclass is indented under subclass 36. Subject matter comprising manual or other mechanical means acting conjointly or cooperatively with at least one bimetallic device, or which acts as an intermediary between an electrothermal responsive bimetallic element and at least one movable contact thereby opening or closing an electrical circuit. The manual means may be a handle or push button actuated means, for instance, or the other mechanical means may be a motor, for example.

SEE OR SEARCH THIS CLASS, SUBCLASS:

334+, for thermally responsive bimetallic actuating means combined with manual or other contact control means.

SEE OR SEARCH CLASS:

219, Electric Heating, subclass 491 for electric heaters with combined bimetallic and electro-mechanical automatic control means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 23 for magnetically actuated circuit breakers having combined bimetallic latch trip means, and subclass 43 for bimetallic latching or tripping means combined with mechanical contact actuating means.

38 Plural elements combined with single mechanical means:

This subclass is indented under subclass 37. Subject matter including at least two or more electrothermal current responsive bimetallic elements, combined with a further single mechanical contact controlling means. The bimetallic elements may operate jointly or individually to control the movable contact or contacts through the agency of the mechanical means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

335 for plural thermally actuated bimetallic elements in a single switch.

SEE OR SEARCH CLASS:

99, Foods and Beverages: Apparatus, subclasses for cooking apparatus of the electric heater type having electrothermal control or switch means.

200, Electricity: Circuit Makers and Breakers, subclass 3, for multiple circuit control devices with plural electrothermal means, and subclasses 81+ for fluid pressure actuated switched with plural operators of which two or more may be temperature responsive.

361, Electricity: Electrical Systems and Devices, subclasses 62+, 71+, 88+, and 103+ for electrical protective devices with plural operators which may be bimetallic.

39 Independently operative bimetallic elements:

This subclass is indented under subclass 38. Subject matter wherein each of the electrothermal current responsive elements is adapted to operate independently of each of the others in a manner to cause the operation of the movable contact or contacts.

40 Individually responsive to diverse conditions or diverse characteristics:

This subclass is indented under subclass 38. Subject matter wherein each of the electrothermal current responsive elements is responsive to diverse environmental conditions; such as, thermal current and atmospheric conditions, or of diverse operating characteristics whereby the opening or closing of an electrical circuit is a resultant of the operative condition of all the elements.

41 Multiple contact or plural circuit control means:

This subclass is indented under subclass 37. Subject matter including a plurality (three or more) of contacts associated with a single continuous electric circuit to be controlled or includes means whereby two or more continuous electric circuits are controlled by the contact controlling means.

(1) Note. This subclass includes subject matter under subclass 37 wherein the structure includes a plurality of devices falling under the definition of subclass 37 but forming a single assembly or single entity under the class definition or a single device having a plurality of pairs of contacts whereby two or more separate and distinct electrical circuits may be completed through the device. This subclass does not include those devices which comprise a single movable contact which alternately contacts with each of two fixed contacts whereby varying the direction of current in the two conductors of a single circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

11 for fusible element switching device with multiple circuit connector and diverse art type switch.

145 for electrothermal fusible element multiple contact switches.

338+, for thermally actuated switches of a similar construction.

406 for thermally actuated fusible, combustible or explosive material switches with multiple contacts.

42 Plural switches:

This subclass is indented under subclass 41. Subject matter comprising at least two or more separate distinct and independently operative switch devices whereby two or more separate and distinct electrical circuits may be controlled.

(1) Note. For devices wherein one set of contacts or one electrical circuit controls a heater means for one or more electrothermal current responsive actuating means. See subclasses 102+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

29 for plural electrothermal switches with space discharge devices.

144 for electrothermal fuses with single mechanical control means.

338 for similar devices actuated by thermally responsive bimetallic elements.

43 With interlocking means:

This subclass is indented under subclass 42. Subject matter including means whereby the plural switching devices are rendered interdependent, one or the other, thereby being caused to operate alternately, successively, or selectively, the operation of each depending upon conditions in at least one other. For example, one device is prevented from operation while another is in an operated position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

339 for similar devices with thermally responsive bimetallic means.

44 Selectively or alternately actuated:

This subclass is indented under subclass 41. Subject matter including significant means whereby each of a plurality of contact pairs may be actuated selectively, alternately or sequentially. The movable contact may be a single contact common to each pair, i.e., may constitute the movable contact for each pair selectively.

SEE OR SEARCH THIS CLASS, SUBCLASS:

340 for switches of similar type with thermally responsive bimetallic element actuator.

SEE OR SEARCH CLASS:

99, Foods and Beverages: Apparatus, subclasses 325+ for cooking apparatus with automatic control utilizing thermoelectric means controlling a plurality of circuits.

200, Electricity: Circuit Makers and Breakers, subclasses 35+ for mechanical clock train operated switches with plural contacts and bimetallic latching or holding means.

219, Electric Heating, subclasses 510+ for electric heating devices with thermally controlled switching means having plural contacts.

307, Electrical Transmission or Interconnection Systems, subclasses 112+, especially subclasses 116+, for electrical switching systems having heat responsive means which may be bimetallic.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 106+ for magnetically actuated switches of the plural contact type.

45 Single multipole or polyphase control devic:

This subclass is indented under subclass 41. Subject matter comprising a plurality of individual conductors with contact pairs associated with each conductor, a contact actuating means for each contact actuating means for each contact pair, each contact pair completing a circuit through one branch of a polyphase or plural conductor electrical circuit. Devices which are known as bipole or double pole and which complete the circuit in each conductor of a direct current circuit will also be found here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

7 for diverse art type switch and multipole circuit breaker with bimetallic device.

146 for similar electrothermal multipole or polyphase switches of the fusible element actuated type.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 3 for multiple circuit control devices of the mechanical type with bimetallic elements, subclasses 411+, 415, and 424 for snap type circuit breakers with thermally actuated latch trip means.

307, Electrical Transmission or Interconnection Systems, subclass 117 for switching systems with electrothermally actuated means.

318, Electricity: Motive Power Systems, appropriate subclasses for automatic electric motor control devices operating from three phase sources and including electrothermal elements.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 8+ for electromagnetically circuit breakers with thermally actuated latch or trip means subclasses 35+ for plural latch or trip means including thermally actuated means.

361, Electricity: Electrical Systems and Devices, subclasses 1+ for protective systems and devices of special types which may be combined with the bimetallic elements.

46 With common mechanical actuating or tripping means:

This subclass is indented under subclass 45. Subject matter including a single means whereby the plurality of phase or leg contact pairs are simultaneously actuated to or from a closed circuit condition or maintained in a first position until released whereupon the plurality of contact pairs are allowed to move to another condition simultaneously.

SEE OR SEARCH THIS CLASS, SUBCLASS:

55 for electrothermal snap action bimetallic element switches with latch.

70 for electrothermal bimetallic element switch with latch.

128+, for electrothermal switches of the longitudinally expansible element type with latching or tripping means.

150+, for electrothermal switches of the fusible element type with latch, trip or holding means.

174+, for electrothermal switches of the fusible element type with cut out or drop out having latch, trip or holding means.

356+, for thermally actuated bimetallic element switches with latch.

385 for thermally actuated expansible element switches with latch.

411 for thermally actuated fusible, combustible or explosive material actuated switches with latch, trip or holding means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, appropriate subclasses, especially subclass 401, for polyphase mechanical circuit breakers with a common operating means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 6+ for electromagnetically actuated polyphase circuit breakers with a common control means.

361, Electricity: Electrical Systems and Devices, subclasses 23+ and 103+ for circuit breakers systems in general which may be combined with electrothermal means.

47 With separate latching or tripping means in each phase:

This subclass is indented under subclass 45. Subject matter including individual latching or tripping means associated with each separate phase or leg contact pairs thereof. Each individual latch or trip means may operate individually on its corresponding contact pair or may upon operation actuate a tripping bar whereby the remaining contact pairs are permitted to move to another position.

(1) Note. Latches, trips or holding means therefore for devices of this class are provided for in many subclasses herein. See SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

46 for a list of subclasses providing for latches, trips or holding means therefor for devices of this class.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 9 for electromagnetically controlled circuit breakers with individual separate latch or trip means in each phase.

48 With common trip-bar means:

This subclass is indented under subclass 47. Subject matter including a single bar or other device operatively connected to each of the individual latching or tripping means whereby upon actuation of any one of the means all of the contact pairs are allowed to move to another position.

49 Slidable or reciprocal bar:

This subclass is indented under subclass 48. Subject matter wherein the tripping structure comprises a bar means operable in a slidable or reciprocal manner in a fixed path common with the longitudinal axis of the bar.

50 Rotatable:

This subclass is indented under subclass 48. Subject matter wherein the tripping structure comprises a means whose primary motion is a circular or rotating motion about a fixed axis.

51 Cyclically or periodically actuated:

This subclass is indented under subclass 37. Subject matter including significant details of means whereby a circuit is intermittently or cyclically opened and closed at constantly recurring intervals under the influence of a thermal current responsive bimetallic device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

92+, for electrothermally actuated bimetallic elements directly actuating the movable contact of a switch in a cyclic or periodic manner.

369 for thermally actuated bimetallic, cyclic or periodic type switch.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for periodic switches which may include electrothermal elements.

219, Electric Heating, subclasses 490+ for heating devices with automatic timing or cycling control means.

236, Automatic Temperature and Humidity Regulation, subclass 46 for automatic temperature control devices with timing means and subclasses 91+ for thermostatic controls which may be cyclic or periodically operative.

307, Electrical Transmission or Interconnection Systems, subclass 132 for electrical switching systems with repetitive operation and subclass 141 for switch operating means with time delay.

315, Electric Lamp and Discharge Devices: Systems, subclasses 209+ for systems comprising a lamp or discharge device with a periodic switch in the supply circuit.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 87+ for electromagnetically actuated periodic switches, for instance vibrators.

340, Communications: Electrical, subclasses 914+ for time cycling traffic systems, subclasses 81+ for flashing signal light systems.

52 With spring or other energy storage device:

This subclass is indented under subclass 37. Subject matter including spring or other potential energy storage means whereby a major portion of the force exerted in actuating the contacts of the switch from one condition to another is derived.

(1) Note. The actuating force is usually transmitted to the movable contact structure through mechanical means upon the spring being released from its energy storage position. Devices in which the spring means acts only as a biasing means or a source of contact pressure will not be classified here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

67 for devices in which the spring means acts only as a biasing means or a source of contact pressure.

239+, for electrothermal fuse with spring tensioned fuse link.

317+, for thermal expansible fluid switch with spring means.

342+, for similar type switches with thermally responsive bimetallic actuating means.

388+, for thermal expansible element switch with spring means.

407 for thermal fusible element switch with spring means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 402+ for mechanical snap action switches with spring means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 6+ for electromagnetically operated automatic circuit breakers utilizing a tensioned spring in the contact actuating means and subclass 188 for specifically claimed snap acting contact control structure.

53 Snap-action:

This subclass is indented under subclass 52. Subject matter comprising means whereby a movable contact or contacts, may be operated from a first position to a second position quickly, as by a snap action, the contacts motion being independent of the rate of movement of the operator. This is usually accomplished by a spring connection between the operator and the contact carrier so arranged that the initial movement of the operator places the spring under tension whereby upon release

of a holding means the contact is snapped from one position to another by action of the spring.

SEE OR SEARCH THIS CLASS, SUBCLASS:

89+, for electrothermal bimetallic element switch with snap action.

131+, for electrothermal longitudinally expansible element switch with snap action means.

147 for electrothermal fusible element switch with snap action means.

318 for thermally actuated expansible fluid snap action switch.

343 for similar devices with thermally responsive bimetallic actuating means.

365+, for thermally actuated bimetallic element snap action switches.

390+, for thermally actuated longitudinally expanding element snap action switch.

54 With magnetic flux source (e.g., magnetic armature):

This subclass is indented under subclass 53. Subject matter including means for setting up a field of magnetic flux whereby the actuation of the movable contact, or contacts, is at least in part influenced by magnetic force operative within the flux field.

SEE OR SEARCH THIS CLASS, SUBCLASS:

90 for electrothermal, bimetallic element snap action switch with magnetic armature.

134 for electrothermal, longitudinally expansible element snap action switch with magnetic biasing or holding means.

344 for similar devices with thermally actuated bimetallic elements.

366 for thermally actuated bimetallic snap action switch with magnetic flux source.

55 With latching or holding means:

This subclass is indented under subclass 53. Subject matter including means whereby at least one set of contacts may be restrained in one of the two normal conditions (open or closed). The latching or holding means usually consists of a thermal current responsive bimetallic element adopted for mechanically maintaining a snap acting contact actuating means, such as a toggle arrangement, in a given position independently of other control means so that once the contacts are opened closed they will be constrained to remain in this position until the occurrence of an abnormal condition causes the actuating means to be released.

(1) Note. Latches or trips for devices of this class are provided for in many subclasses herein. See under SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

46 for a list of subclasses providing for latches, trips or holding means therefor for devices of this class.

343+, for similar devices utilizing thermally responsive bimetallic devices.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 167+ for latching means for electromagnetically operated switches.

56 With reclosing or reset means:

This subclass is indented under subclass 53. Subject matter including significant means whereby after the movable contact, or contacts, of the device has been actuated from one original condition to another operated condition, due to an abnormal thermal current condition in the device, or by manual manipulation, the contacts may be returned to the original condition either automatically or manually, or means whereby a latching or holding mechanism is reset to an operative condition wherein the contact control means will be rigidly held in the original condition until released by operation of the thermal current responsive device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

91 for electrothermal bimetallic element snap action switch with reset means.

348 for similar art devices utilizing thermally responsive bimetallic devices.

367 for thermally actuated bimetallic snap action switch with reset means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 26+ for electromagnetically operated circuit breakers with reclosable or resetting means.

57 With adjusting or calibration means:

This subclass is indented under subclass 53. Subject matter including means whereby some operative characteristic of the specific snap acting contact controlling structure or the thermal current responsive element may be adjusted at will or calibrated.

SEE OR SEARCH THIS CLASS, SUBCLASS:

319 for thermal, expansible fluid, snap action switch with adjusting, calibrating or compensating means.

347 for similar devices utilizing thermally responsive bimetallic elements.

368 for thermally actuated bimetallic element snap action switch with adjustment or calibration means.

58 Compound motion means:

This subclass is indented under subclass 52. Subject matter wherein the mechanical contact controlling means consists of structure comprising a mechanical linkage whereby the movement of a movable contact or contacts results from a force applied thereto as a final result of a conversion of a force applied in a first direction to a force applied in a second direction; for example, a linear first motion may be converted to a rotary motion about a fixed origin or pivot as by a toggle linkage.

SEE OR SEARCH THIS CLASS, SUBCLASS:

313 for thermal expansible fluid actuated switch with compound motion linkage.

350 for similar devices utilizing thermally responsive bimetallic elements.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 191 for compound motion contact actuating means for electromagnetic switches.

59 Toggle:

This subclass is indented under subclass 58. Subject matter relating specifically to toggle mechanism.

SEE OR SEARCH THIS CLASS, SUBCLASS:

53 for snap acting switches which may employ toggle mechanisms.

132 for longitudinally expansible element actuated snap switches with toggle spring.

345 for thermally responsive, bimetallic element switch actuating means operating a toggle linkage.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 520+ for mechanical movements comprising toggle structure.

60 Floating lever:

This subclass is indented under subclass 58. Subject wherein at least one structural element, comprising the mechanical contact controlling means, consists of a lever of the first, second or third class with no fixed pivot, that is, when forces are applied at two points motion takes place about a third point, the third point being movable in space, the torque about the third point being variably related to its position.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 519+ for mechanical movements comprising lever structure.

61 Rotary or oscillatory motion device (e.g., spring motor):

This subclass is indented under subclass 52. Subject matter including means whereby contact opening or closing is accomplished by operation of a mechanical device moving in a rotary or oscillatory manner in a single plane; for example, circular movement in a horizontal or vertical plane with a reversal of direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:

10 for electrothermal or thermal switch of this class with diverse art type switch including rotary mechanism.

149 for electrothermal fusible element switch with rotary actuator.

316 for thermal expansible fluid operated switch with rotary or oscillatory device.

351 for similar devices utilizing thermally responsive bimetallic elements.

410 for thermal switches of the fusible element type with rotatable contact actuator.

SEE OR SEARCH CLASS:

185, Motors: Spring, Weight, or Animal Powered, subclasses 37+ for spring motors, per se.

200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for periodic mechanical switches utilizing a rotary motion and subclasses 465+ for mechanical rotary switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 76 for electromagnetically operated switches with spring motor means.

62 Reciprocating or slidable motion device:

This subclass is indented under subclass 52. Subject matter wherein the mechanical actuating means comprises structure whereby contact opening or closing results from a sliding or reciprocating motion in a single plane by the contact carrier. The contact carrier or actuating means is generally spring biased to open position and held closed by a latch under the influence of a bimetallic element, which upon heating releases the latch and allows the contact control means to move the contacts to open position under the influence of the spring means.

(1) Note. Reciprocating or slidable motion mechanisms of this class are provided for in many subclasses herein. See under SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

10 for a list of such subclasses providing for reciprocating or slidable motion mechanisms of this class.

335 below, for similar devices utilizing thermally responsive bimetallic elements.

63 With lost motion coupling means:

This subclass is indented under subclass 62. Subject matter wherein the mechanical contact controlling structure includes significant details of means whereby upon application of force to a driver element a certain interval of time elapses, or a certain amount of motion of the driver takes place, before the driving force becomes effective to actuate the movable contact means.

64 With camming or wedging means:

This subclass is indented under subclass 62. Subject matter wherein the mechanical contact controlling structure includes camming or wedging means whereby a force is transmitted from a driver element to a driven element through the principle of friction in such a manner that the contacts are positioned from a first or operated condition to a second nonoperated condition as a direct result of the frictional force generated.

65 With contact guiding or alignment means:

This subclass is indented under subclass 62. Subject matter wherein the mechanical contact controlling structure includes guiding means whereby the movable contact carrier is restricted to a fixed reciprocatory path.

66 With push-button actuating means:

This subclass is indented under subclass 62. Subject matter wherein the manual or other mechanical contact controlling means is specifically recited as comprising manual push button means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 520+ for mechanical push button switches.

67 With contact pressure maintaining or adjusting means:

This subclass is indented under subclass 37. Subject matter wherein the contact controlling structure includes significant details of means whereby a predetermined or constant pressure is applied to the contacts while in the circuit

closing position or whereby such contact pressure may be adjusted at will.

SEE OR SEARCH THIS CLASS, SUBCLASS:
349 for similar devices utilizing thermally responsive bimetallic devices.

SEE OR SEARCH CLASS:
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 194+ for contact pressure maintaining or adjusting means for electromagnetically operated switches.

68 With direct contact separating means (e.g., plunger camming means):
This subclass is indented under subclass 37. Subject matter wherein the manual or other mechanical contact controlling means includes plunger or other means whereby the electrical circuit is completed or interrupted by the insertion between or withdrawal of an intermediate member directly between the contacts.

SEE OR SEARCH THIS CLASS, SUBCLASS:
148 for electrothermally actuated switches with fusible elements combined with a plunger or striker pin for separating the contacts.

69 Independently operative (nontrip-free):
This subclass is indented under subclass 37. Subject matter including significant structure of both bimetallic and either manual or other contact actuating or controlling means, the different means being operative separately and distinctly to open and close the contacts, independently each of the other.

(1) Note. Subclass 74 provides for mechanisms of the so called trip free type where the mechanical means actuates the contacts into open or closed position and the bimetallic means controls the mechanical means via latching or tripping means. In that type of device the actual control of the contacts is by mechanical means the relationship being such that the contacts cannot be independently manually reclosed as in the device set forth in this subclass (69) while an overload condition exists.

(2) Note. The mechanical operating means to be actuated by the bimetallic element may comprise means released by the bimetallic means acting as a latch whereby the contacts are mechanically operated or closed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
355 for similar devices with thermally responsive bimetallic actuating means.

70 Latch or latch-release means:
This subclass is indented under subclass 37. Subject matter wherein the mechanical structure includes significant details of operating means whereby the contacts may be retained in a first condition by a latch or detent adapted to be released by the operation of an electrothermal current actuated device. The contacts are usually held latch in a circuit closing position and tripped to open position.

(1) Note. Latches or trips for devices of this class are provided for in many subclasses herein. See under SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
46 for a list of subclasses providing for latches, trips or holding means therefor for devices of this class.
128+, for similar devices with longitudinally expansible electrothermal responsive actuating elements.
356+, for similar devices with thermally responsive bimetallic elements.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, appropriate subclasses, especially subclasses 3, 81, and 318+, for mechanical switch operators with thermally responsive latch trip means.
219, Electric Heating, subclasses 510+ for electrical heaters with electrothermally actuated switches in the supply circuit utilizing mechanical operating means with a latch.

236, Automatic Temperature and Humidity Regulation, appropriate subclasses, especially subclasses 3+, 32, 41+, 46, and 91+, for automatic temperature control circuits utilizing thermostatic latch or trip means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 21+, 141+, 167+, and 172+ for electrothermally responsive bimetallic latch or trip means for operation with electromagnetic switches.

71 Plural or responsive to diverse effects:

This subclass is indented under subclass 70. Subject matter wherein the latching or latch releasing structure includes significant details of a bimetallic device cooperatively combined with another art or a similar art device or wherein the device is responsive to more than a single actuating condition. For example; the latch means may be actuated by or released by a thermal current responsive device assisted by a mechanical impact member, or by a magnetic field means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for electromagnetically actuated latch or trip means combined with electrothermal elements in a magnetic circuit breaker.

72 With reclosing or reset means:

This subclass is indented under subclass 70. Subject matter including significant details of means whereby the claimed latch or latch tripping device may be returned to its normal operative condition after having completed the transition to an unoperative condition.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for similar devices combined with or adapted for use with an electromagnetic switch.

73 Automatic:

This subclass is indented under subclass 72. Subject matter wherein the reclosing or reset structure includes significant details of means whereby the reclosing or resetting action takes place automatically.

74 Trip-free:

This subclass is indented under subclass 70. Subject matter wherein the latch or latch release structure includes significant details of means which is operative, upon the occurrence of an abnormal condition in the controlled circuit, to prevent the main contacts from remaining closed or the latch from functioning regardless of the operation of a contact closing means, or wherein the main contacts are automatically opened upon the occurrence of an abnormal circuit condition independently of the position of a manual or other contact closing means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 24+ for similar devices combined with or particularly adapted for use in electromagnetic circuit breakers.

75 Bimetallic element unitary with or comprising latch means:

This subclass is indented under subclass 70. Subject matter wherein the latch structure comprises at least one bimetallic element which directly constitutes the latching means by which the main switch contacts are prevented from moving from one condition to another. The actual detent means may be rigidly attached to the bimetallic element in such a manner as to form a continuation thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

359 for similar devices utilizing thermally actuated bimetallic elements.

76 Performs dual functions (e.g., main contact):

This subclass is indented under subclass 70. Subject matter wherein the bimetallic element is specifically described as performing another function other than the primary or latching

function. For example, the element may constitute a contact bridging means or even one of the main switch contacts.

(1) Note. The line between the apparatus found in this subclass and that to be found in the subclasses 85+ and 362+ is: in this subclass the latch and/or trip comprises a part of a mechanical operating means interposed between the bimetallic actuating means and the main contacts while in the subclasses 85+ and 362+ the bimetallic element actuates at least one movable contact directly without the intervention of any mechanical means.

77 With external or auxiliary heater:

This subclass is indented under subclass 70. Subject matter including auxiliary heating means whereby the bimetallic element is heated from an external source in addition to the current passing directly therethrough.

(1) Note. For other heating means employed in devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

102+, for bimetallic elements in general used as actuating elements and having auxiliary heating means.

103+, for other heating means employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS.

78 Utilizing plural bimetallic elements:

This subclass is indented under subclass 70. Subject matter wherein the latch or latch release structure includes significant details of at least two or more bimetallic elements acting conjointly on a single latch or trip device.

(1) Note. Subclass 101 provides for those devices where the second bimetallic element serves only as an ambient temperature compensating device for the first.

79 With signal or indicating means:

This subclass is indented under subclass 37. Subject matter including significant details of audible or visual means whereby the operative condition, i.e., opened or closed, of the switch is readily ascertainable.

SEE OR SEARCH THIS CLASS, SUBCLASS:

206 for electrothermal fusible element switch with operational condition indicator.

241+, for electrothermal cartridge or tubular fuses with indicating or inspecting means.

265+, for electrothermal plug fuses with indicator.

332 for thermal expansible fluid actuated switch with signal, alarm, or visual indicator.

376 for thermal bimetallic element switch with signal or indicator.

417 for indicators in general specifically adapted for use with electrothermal and thermally actuated switches.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 308+ for indicators peculiar to circuit makers and breakers of the mechanical type.

340, Communications: Electrical, subclasses 635+ for signals and indicators which are automatically responsive to the condition of electrical apparatus.

80 With mercury or other conductive liquid circuit completion means:

This subclass is indented under subclass 37. Subject matter wherein the mechanical contact controlling structure includes significant details of means whereby at least one electrical circuit is completed by means of a conductive liquid such as mercury.

SEE OR SEARCH THIS CLASS, SUBCLASS:

21 for electrothermal actuated switches in in which the electrothermal element itself comprises a conductive fluid.

331 for thermal expansible fluid actuated switch utilizing conductive liquid (e.g. mercury) contact means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 182+ for mercury switches in general.

313, Electric Lamp and Discharge Devices, subclasses 163+ for electric discharge devices which have a liquid electrode.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 47+ for electromagnetic switches with liquid contacts.

81 Retarded or delayed action type:

This subclass is indented under subclass 37. Subject matter including significant details of means whereby the act of opening or closing of the main switch contacts takes place at an appreciable interval or intervals of time after an actuating force is applied to the contact actuating means or the operative interval is controlled by varying the energizing current applied to the thermal current responsive device; i.e., bimetallic element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

88 for electrothermal bimetallic element switch with operation retarding or delaying means.

127 for electrothermal longitudinally expansible element switch with delayed action or timing means.

163+, for electrothermal fusible element switch of the delayed action type.

301+, for thermal switches with mechanical timing means.

341 for thermal bimetallic element switch with time delay.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 33+ for retarded or delayed acting mechanical switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 59+ for retarded or delayed type electromagnetic switches.

361, Electricity: Electrical Systems and Devices, subclasses 89, 91.3, and 94+ for safety systems and devices of the time delay type of actuators, and subclasses 195+ for electric circuits for relays and electromagnets with time delay means.

82 With operating range calibration or adjustment means:

This subclass is indented under subclass 37. Subject matter including significant details of means whereby the operative current value, or range of values, sufficient or necessary to actuate the main contact control means and thereby produce an opening or closing thereof action is predeterminedly fixed, varied at will or calibrated.

SEE OR SEARCH THIS CLASS, SUBCLASS:

2 for thermal longitudinally expansible element switch with operating range calibration or adjusting means.

57 for snap acting contact operating means with adjusting or calibration means.

94 for similar devices where the contacts are directly operated by a thermal current responsive bimetallic element.

129 for electrothermal longitudinally expansible element switch with latch or trip calibration means.

319 for thermal expansible fluid element snap action switch with adjusting or calibrating means.

323 for thermal expansible fluid actuated switch with operating calibration or adjustment means.

347 for thermal bimetallic element snap action switch with adjusting or calibration means.

360+, for similar devices with thermally responsive bimetallic elements.

368 for thermal bimetallic element snap switch with adjustment or calibration means.

SEE OR SEARCH CLASS:

219, Electric Heating, subclass 515 for electric heaters with adjustable thermally responsive operative means in the current supply circuit.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 45 for electromagnetic tripping means having regulating, adjusting or calibrating means.

83 Comprising electric shunt or short-circuiting means:

This subclass is indented under subclass 82. Subject matter wherein the calibration or adjustment means whereby an electrical shunt circuit is established in parallel with the current path through the bimetallic element or whereby the electrothermal controlling means is short circuited, thereby determining the amount of operative current necessary to actuate the main circuit contacts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

15+, for electrothermal switches with shunt or short circuit completion devices.

84 Comprising mechanical means:

This subclass is indented under subclass 82. Subject matter wherein the calibration or adjustment means comprises mechanically adjustable elements of structure adapted to be adjusted at will.

85 Bimetallic element unitary with or directly actuates movable contact means:

This subclass is indented under subclass 38. Subject matter wherein the bimetallic element operated switch consists of at least one bimetallic element with direct connection to a movable contact; which contact makes or breaks an electrical circuit under the influence of, or as a result of, the thermal current through the element. Generally, both the bimetallic element and the fixed contact are series connected in the controlled circuit when in a closed circuit condition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

362+, for similar devices with thermally actuated bimetallic elements.

SEE OR SEARCH CLASS:

219, Electric Heating, subclasses 510+ for electric heaters with thermally responsive automatic switch means in the supply circuit which may comprise a bimetallic element directly controlling a movable contact.

307, Electrical Transmission or Interconnection Systems, subclass 117 for heat responsive switching systems utilizing bimetallic elements directly operating a movable contact.

361, Electricity: Electrical Systems and Devices, subclasses 23+, 26, 99, 103+, and 161+ for protection systems and devices or electric circuits for relays and electromagnets which utilize bimetallic elements directly controlling at least one movable contact.

86 Plural contacts or external circuit connection means:

This subclass is indented under subclass 85. Subject matter including significant details of at least three or more contacts operative in such a manner that at least two or more separate and distinct electrical circuits may be controlled by the bimetallic contact actuating means. One of the plurality of contacts may be common to more than a single contact pair.

SEE OR SEARCH THIS CLASS, SUBCLASS:

41 for electrothermally responsive bimetallic means combined with mechanical means for actuating a plurality of contacts or controlling a plurality of circuits.

362 for similar devices utilizing thermally responsive bimetallic elements.

87 Alternately or selectively actuated:

This subclass is indented under subclass 86. Subject matter including significant details of means whereby individual contact pairs connected to external circuits may be actuated in such a manner that a plurality of individually controlled circuits are completed through the switching device selectively, sequentially or alternately.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44 for similar devices utilizing an electrothermally actuated bimetallic device combined with mechanical contact control means.

364 for similar devices utilizing thermally responsive bimetallic actuating means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 3 for mechanical multiple circuit control with thermal current actuated means and subclasses 175+ for telephone type automatic multiple contact selection means which may include electrothermally operated means.

315, Electric Lamp and Discharge Devices: Systems, subclass 154 for plural load devices selectively controlled by radiant energy (heat) responsive devices.

88 Retarded or delayed type:

This subclass is indented under subclass 85. Subject matter including means whereby the opening or closing, of the switch contacts takes place at an appreciable interval of time after an actuating force (overcurrent) is applied to the bimetallic contact actuating means or the timing of the contact open or contact closed interval is effected by varying the energizing current applied to the devices.

(1) Note. For other retarding or delaying means employed in devices of this class, see SEARCH THIS CLASS, SUBCLASS.

SEE OR SEARCH THIS CLASS, SUBCLASS:

81 for other retarding or delaying means employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS.

SEE OR SEARCH CLASS:

99, Foods and Beverages: Apparatus, appropriate subclasses particularly subclass 325 for cooking apparatus with thermally actuated automatic control means with timing or time delay means.

200, Electricity: Circuit Makers and Breakers, particularly subclasses 33+ for mechanically actuated switches with time delay means.

219, Electric Heating, subclass 329 for electric water heaters with bimetallic switch control means including time delay means, subclass 334, for water heaters with automatic power supply or current control means including timing means and subclasses 492+ for automatic power supply or control means for electric heaters in general with timing or cycling means.

315, Electric Lamp and Discharge Devices: Systems, appropriate subclasses, especially subclass 77 for electric discharge device systems with thermostatically operated time delay means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 66 for electromagnetically operated switches with electrothermal time delay means.

361, Electricity: Electrical Systems and Devices, appropriate subclasses, especially subclasses 89, 91.3, 94+ and subclasses 161+ for thermally actuated control devices with timing or delay means.

89 Snap-action:

This subclass is indented under subclass 85. Subject matter including means whereby the movable contact, or contacts, may be operated from a first position to a second position quickly, as by a snap action, with the contact motion being independent of the rate of movement of the operator. This may be accomplished by means of a spring, by a permanent magnet or other appropriate means such as an inherent characteristic or structure of the bimetallic element itself.

(1) Note. See the search this class, subclass note below for the line between this subclass and others in this class.

(2) Note. For other snap action mechanisms employed in devices of this class, see SEARCH THIS CLASS, SUBCLASS.

SEE OR SEARCH THIS CLASS, SUBCLASS:

53+, the structure to be found in this subclass (89) is distinguished from that in subclasses 53+ as follows: In the snap

actions provided for in subclasses 53+ the contacts are operated by some manual or mechanical means in addition to being operated by the bimetallic element, the contacts not being directly attached to the bimetallic elements in this and the indented subclasses, that is to say the circuit is either open or closed depending entirely on the operative condition of the element. For other snap action mechanisms employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 53.

365 for similar devices utilizing thermally responsive bimetallic elements.

90 With magnetic armature or holding means:

This subclass is indented under subclass 89. Subject matter including means for establishing a field of magnetic flux whereby the actuation of the movable contact, or contacts, is at least in part influenced by magnetic force operative within the flux field. The magnetic flux source is usually a permanent magnet.

(1) Note. For other snap action mechanisms with magnetic control or holding means employed in devices of this class, see SEARCH THIS CLASS, SUBCLASS.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54 for other snap action mechanisms with magnetic control or holding means employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS.

344 for similar devices utilizing thermally actuated bimetallic elements.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 402+ for mechanical snap switches with holding means.

236, Automatic Temperature and Humidity Regulation, appropriate subclasses, especially subclasses 1, 9, 46, 68, and 91+ for automatic temperature control systems employing bimetallic actuating means with holding means.

290, Prime-Mover Dynamo Plants, subclass 38 for electric starting motors employing snap switches with holding means.

313, Electric Lamp and Discharge Devices, appropriate subclasses, especially subclasses 153+ for electric discharge devices with electrothermal snap switches in the control circuit which employ magnetic means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 141+ for electromagnetically operated switches having electrothermal means which may comprise bimetallic snap switches.

91 With reset means:

This subclass is indented under subclass 89. Subject matter wherein the claimed structure includes significant means whereby; after the movable contact, or contacts, has been actuated from one condition to another condition, the contacts may be returned to the original condition either automatically or manually.

SEE OR SEARCH THIS CLASS, SUBCLASS:

56 above for similar devices employing electrothermal bimetallic actuating means combined with mechanical snap acting means.

368 below for similar devices employing thermally actuated bimetallic means.

92 Cyclic or repetitively operative (e.g., flashing):

This subclass is indented under subclass 85. Subject matter including significant details, specifically recited, of means whereby the contacts of at least one electrical circuit control device are intermittently or cyclically (at regular intervals) opened and closed directly under the influence of a bimetallic actuating element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51 for similar devices utilizing thermally responsive bimetallic actuating means.

116 for electrothermal expansible fluid actuated switch of the cyclically or periodically operated type.

138 for electrothermal expansible solid element switch of the cyclically or periodically operated type.

302+, for thermal switch with mechanical timing means of the periodic or cyclic type.

369 for similar devices utilizing thermally responsive bimetallic actuating means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for periodically actuated mechanical switches, subclasses 61.27+ for turn indicator type switches with flashing means and subclasses 402+ for cyclically operated snap switches.

219, Electric Heating, appropriate subclasses, especially subclasses 492+, for electric heaters with automatic regulating or control means employing cyclically operative switches.

307, Electrical Transmission or Interconnection Systems, subclass 132 for repetitive make and break switches.

315, Electric Lamp and Discharge Devices: Systems, subclass 72 for discharge device loads combined with a periodic electric switch.

340, Communications: Electrical, subclasses 468+ for vehicle signal light systems including those with cyclic light flasher switches.

93 With interval predetermining or adjustment means:

This subclass is indented under subclass 92. Subject matter including significant details of means whereby the period of the complete operational cycle of the switch device may be predetermined or adjusted at will by an operator.

SEE OR SEARCH THIS CLASS, SUBCLASS:

303 for thermal switch with mechanical timing means of the periodic or cyclic type with means for adjusting the period or timing of the cycle of operation.

94 With operating range, calibration or adjusting means:

This subclass is indented under subclass 85. Subject matter including significant details of means whereby the operative current value, or range of values, sufficient or necessary to operate the main contacts from a first (open) to a second (closed) position, predetermined, varied at will or calibrated.

(1) Note. For other calibration or range adjusting means employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 82.

SEE OR SEARCH THIS CLASS, SUBCLASS:

82 for similar devices employing electrothermal responsive bimetallic elements combined with mechanical contact operating means. See (1) Note above.

360 for similar devices employing thermally responsive bimetallic elements.

95 With plural or combined elements:

This subclass is indented under subclass 85. Subject matter including significant details of at least two or more separate and distinct bimetallic elements acting conjointly or cooperatively to control a set of electrical contacts from a first condition to a second condition.

(1) Note. Subclass 101 provides for plural bimetallic element switches in which one or more bimetallic elements act simply as a means for compensation for ambient temperature, or for other external conditions to which the switch is subjected.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38+, above for plural electrothermally responsive bimetallic elements controlling a single switch through mechanical contact operating means.

335+, for similar devices utilizing plural thermally responsive bimetallic elements combined with mechanical contact control means.

370+, for similar devices having the contacts directly controlled by a plurality of thermally responsive bimetallic elements.

96 Responsive to diverse conditions or of diverse operative characteristics:

This subclass is indented under subclass 95. Subject matter wherein at least two of the claimed electrothermal responsive bimetallic elements are described as responsive to diverse environmental conditions, such as operating temperature (e.g., thermal circuit) and atmospheric conditions, or as being of diverse operating characteristics whereby the opening or closing of an electrical circuit takes place as a result of the operating condition of all the elements, acting as a whole.

SEE OR SEARCH THIS CLASS, SUBCLASS:

336 for plural bimetallic elements thermal switches wherein the elements are individually responsive to diverse conditions.

97 With switch structure protective means:

This subclass is indented under subclass 36. Subject matter including significant details of means whereby the switch device is protected from electrical or physical damage; such as contact welding, burning or pitting, physical breakage or damage due to jar, overheating, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

222+, for electrothermal fusible element switches with switch protective means.

SEE OR SEARCH CLASS:

307, Electrical Transmission or Interconnection Systems, subclasses 134+ for electrical switching systems with self protective features.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 156+ for electromagnetically operated switches with protective means for the switch or contacts and subclass 193 for significant contact actuating with means for preventing vibration, bounce or chatter.

98 With contact operation inhibiting means (e.g., meltable or magnetic):

This subclass is indented under subclass 36. Subject matter including significant details of positive locking or holding means whereby the main contacts are inhibited or restrained from movement by external sources or influence; for instance shock, or accidental motion. The locking devices to be found here generally comprise either mechanical or magnetic devices which may be either manually or automatically operated independent of any latching means which may be present in the device.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 6+ for pivoted contact switches with holding coil means and subclasses 43.01+ for switches with unauthorized use prevention devices comprising locks.

307, Electrical Transmission or Interconnection Systems, subclass 142 for switch actuating means with locking, holding or breaking features.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 77 for motor actuated switches with lock, latch or trip means, subclass 113 for multiple contact automatic telephone switches with holding, locking or latching means, subclasses 157+ for electromagnetic switches with operation inhibiting means and subclasses 167+ for latching means with unwanted contact actuation prevention means.

361, Electricity: Electrical Systems and Devices, subclass 194 for electric circuits for relays and electromagnets and including holding means.

379, Telephonic Communications, subclass 195 for automatic telephone switching systems with lockout.

99 With voltage or ambient temperature compensation means:

This subclass is indented under subclass 36. Subject matter including significant details of means whereby any tendencies toward varia-

tion of the operative characteristics of a switch device; due to changes in voltage applied to or in external condition, such as the temperature of the surrounding atmosphere, are prevented.

SEE OR SEARCH THIS CLASS, SUBCLASS:

124 for electrothermal, longitudinally expansible solid element switch with voltage or ambient temperature compensation means.

378 for similar devices utilizing thermally responsive bimetallic elements.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 44 for thermally controlled latch or trip means with ambient temperature compensation means.

361, Electricity: Electrical Systems and Devices, subclass 140 and 164 for electric circuits for relays and electromagnets including means for compensating for thermal changes.

100 Auxiliary heating means:

This subclass is indented under subclass 99. Subject matter wherein the compensating structure includes at least one auxiliary heating means whereby the operating characteristics of the switch are prevented from changing due to variations in the ambient medium.

(1) Note. For other heating means employed in devices of this class, see SEARCH THIS CLASS, SUBCLASS.

SEE OR SEARCH THIS CLASS, SUBCLASS:

102+, for electrothermally operated switches employing bimetallic elements and including further external or auxiliary heating means in addition to the thermal current whereby the operative characteristics of the switch are controlled. Also, for other heating means employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS

377 for similar devices utilizing thermally responsive bimetallic elements.

101 Bimetallic means:

This subclass is indented under subclass 99. Subject matter wherein the compensating structure includes at least one bimetallic element which is wholly responsive to the ambient surroundings.

102 With external or auxiliary heating means:

This subclass is indented under subclass 38. Subject matter including significant details of structure comprising heat generating or concentrating means; such as heating coils or high resistance elements, serving to augment the heating effect of the thermal current traversing the switch.

SEE OR SEARCH THIS CLASS, SUBCLASS:

23+, for fluorescent lamp starting device with heating means.

77 for electrothermal bimetallic switch with latch means having an auxiliary heater.

100 for electrothermal bimetallic switch with voltage or temperature compensation means.

120 for electrothermal expansible fluid actuated switch with external heating means.

182+, for electrothermal fusible element switch with auxiliary or external heating means.

324 for thermal expansible fluid actuated switch with auxiliary heater.

377 for similar devices utilizing thermally responsive bimetallic elements and including electrical heating means which augments the heat derived from the ambient space surrounding the bimetallic element.

SEE OR SEARCH CLASS:

60, Power Plants, subclass 529 for the combination of a bimetallic thermostatic bar with electric heating means, per se.

62, Refrigeration, subclass 4 for refrigerator control systems utilizing a bimetallic thermal element with electric heater means.

99, Foods and Beverages: Apparatus, subclasses 324+ for cooking apparatus with automatic control systems

utilizing bimetallic elements with heaters.

123, Internal-Combustion Engines, subclass 146.5 for bimetallic sparking devices with electric heaters.

200, Electricity: Circuit Makers and Breakers, appropriate subclasses, especially subclasses 3 and 52+ for mechanical switches utilizing thermal current responsive bimetallic elements with heater means.

219, Electric Heating, subclass 511 for automatically operated switching devices for electric heaters, utilizing bimetallic elements with heaters.

236, Automatic Temperature and Humidity Regulation, appropriate subclasses, particularly subclasses 1, 46, and 68 for automatic temperature control systems utilizing bimetallic elements with external heating means.

290, Prime-Mover Dynamo Plants, subclass 38 for electric starting motors with bimetallic switches with external heaters.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 145 for electromagnetically operated switches, with bimetallic actuating means and having an external heater.

103 With heater-adjusting, shunting or short-circuiting means:

This subclass is indented under subclass 102. Subject matter wherein the heating means includes significantly recited structure whereby the operating characteristics of the heater may be varied as by adjusting, shunting or short circuiting means.

104 Plural heating means:

This subclass is indented under subclass 102. Subject matter wherein the heating means consists of at least two or more separate and distinct heating devices capable of acting individually or coordinately to influence the action of at least one bimetallic element.

105 With electrical power supply or current control means:

This subclass is indented under subclass 102. Subject matter wherein the heater structure includes means whereby the current traversing the heating device is maintained at a value between predetermined limits, is caused to flow at predetermined intervals of time or is caused to flow or to be cut off when certain predetermined conditions occur in the switch device.

106 Inductive means (e.g., transformer):

This subclass is indented under subclass 105. Subject matter wherein the power supply or current control means comprises an inductive current source. The inductive current source may comprise inductor windings whose excitation current is derived from the current traversing the bimetallic element.

107 Significant heating element structure or composition:

This subclass is indented under subclass 102. Subject matter wherein the heating structure includes significant details of a basic heating unit adapted to form an element or a subcombination of a more comprehensive combination and adapted for use in a thermal current switch under the class definition.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 610.1+ for processes of mechanical manufacture of electrical resistors, per se.

338, Electrical Resistors, appropriate subclasses for electrical resistors, per se.

108 Arc or spark gap:

This subclass is indented under subclass 107. Subject matter including means whereby the bimetallic element is heated by the arc or discharge current occurring between two electrodes separated by an open gap.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, appropriate subclasses, especially subclasses 118+ for spark plug type discharge devices.

361, Electricity: Electrical Systems and Devices, subclasses 117+ for high voltage dissipating gaps to the lightning arrester type, and subclasses 253+ for electric spark gap igniters.

109 Contact composition or structure:
This subclass is indented under subclass 36. Subject matter including significant details of contact structure, composition of material or arrangement peculiarly adapted to be operated through the agency of at least one bimetallic electrothermal current responsive element. The structure usually includes adjustment screw or other means whereby the relative position of the contacts may be varied automatically or at the will of an operator.

(1) Note. For other contact structure or contacts of particular composition employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 26.

SEE OR SEARCH THIS CLASS, SUBCLASS:
373+, for significant contact structure particularly adapted for use in switches utilizing thermally responsive bimetallic devices.

SEE OR SEARCH CLASS:
29, Metal Working, subclasses 874+ for processes of mechanical manufacture of electrical contacts.
178, Telegraphy, subclasses 79+ for telegraph transmitters with particular contacts and subclasses 101+ for telegraph keys with significant contact means.
200, Electricity: Circuit Makers and Breakers, subclasses 275+ for contact structural details.
252, Compositions, subclasses 500+ for electrically conductive compositions.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 57+ for electromagnetic switches with liquid contacts, subclass 83 for polarity responsive switches with particular contact structure, subclasses 97+ for periodic switches with particular contact structure, subclasses 133+ for particular contact structure or arrangement in multiple contact switches, subclass 154 for vacuum switches with particular contact structure and subclasses 196+ for significant details of the composition of matter or mechanical structure of contact assemblies peculiarly adapted for use in electromagnetic switches.

110 With arc-suppression or blowout means:
This subclass is indented under subclass 36. Subject matter including significant details of means for preventing the formation of an electric arc when a circuit is broken or smothering such an arc once it forms.

SEE OR SEARCH THIS CLASS, SUBCLASS:
273+, for electrothermally responsive fusible element actuating switches with arc suppression or extinguishing means.

SEE OR SEARCH CLASS:
218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 1+ for mechanical switches with arc preventing and extinguishing means.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 201 for electrothermally controlled switches with arc suppression or extinguishing means.
361, Electricity: Electrical Systems and Devices, subclasses 2+ for protective devices with arc-suppression, and subclasses 117+ for high voltage dissipator, per se.

111 Bimetallic structure or composition of material:
This subclass is indented under subclass 36. Subject matter relating specifically to the physical structure of or the composition of matter utilized in the bimetallic element or elements.

SEE OR SEARCH THIS CLASS, SUBCLASS:
379 for particular bimetallic structure or composition of material for thermally responsive switches.

SEE OR SEARCH CLASS:
428, Stock Material or Miscellaneous Articles, subclasses 577+ for an intermediate metallic article or blank, and subclasses 615+ for plural layered

metallic stock defined in terms of the composition of its layers.

112 Housing, casing or support means:
This subclass is indented under subclass 36. Subject matter including significant details of housing, casing or support structure, peculiarly adapted for use with electrothermal bimetallic actuated switches.

SEE OR SEARCH THIS CLASS, SUBCLASS:
- 20 for electrothermal shunt or short circuit switches with housing or casing.
- 34 for electrothermal switch and space discharge device with housing or casing.
- 121 for expansible or vaporizable fluid actuated switches with significant housing, casing or support structure.
- 186+, for fusible element actuated switches with housing, casing or support means.
- 327+, for thermal, expansible fluid actuated switch with housing or casing.
- 380+, for similar type switches with significant housing, casing or support means.
- 398 for thermally responsive longitudinally expansible solid actuated switches with housing, casing or support.
- 414+, for thermally actuated fuses with housing, casing or support.

SEE OR SEARCH CLASS:
- 174, Electricity: Conductors and Insulators, appropriate subclasses, especially subclasses 17, 18, and 50+ for electrical boxes and housings not limited to use with switches.
- 200, Electricity: Circuit Makers and Breakers, subclasses 293+ for mechanical switches with particular casings or bases.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 151+ for vacuum or hermetically sealed electromagnetic switches.

113 With external circuit connection means:
This subclass is indented under subclass 112. Subject matter including significant means associated with the housing or casing whereby an external electrical circuit; which is to be protected, is completely through the switch via housing or casing. As an example the housing may be similar in construction to a fuse cartridge or plug.

SEE OR SEARCH THIS CLASS, SUBCLASS:
- 187+, for housing, casing or support means for electrothermally actuated fusible switches with significant external circuit connection means.
- 381 for thermally responsive bimetallically operated switches with housing, casing or support with external circuit connector means.

SEE OR SEARCH CLASS:
- 307, Electrical Transmission or Interconnection Systems, subclasses 112+ for switching systems comprising a switch with terminals.
- 439, Electrical Connectors, appropriate subclasses for a detachable electrical connector.

114 Expansible or vaporizable fluid-actuated (e.g., mercury vapor):
This subclass is indented under subclass 14. Subject matter wherein the electrothermal responsive circuit opening or closing means consists of at least one element which utilizes a fluid medium capable of expanding or vaporizing upon the application of a voltage, potential or heating current thereto, the operation of the contact controlling means being accomplished either directly or through additional means, thereby opening or closing a circuit to be controlled.

SEE OR SEARCH THIS CLASS, SUBCLASS:
- 306+, below for similar devices with thermally responsive means.

SEE OR SEARCH CLASS:
- 60, Power Plants, subclasses 632+ for one shot explosion actuated expansible chamber type motors.

92, Expansible Chamber Devices, appropriate subclasses for an expansible chamber device, per se.

99, Foods and Beverages: Apparatus, subclass 325 for cooking apparatus with automatic control actuated by an expansible fluid.

200, Electricity: Circuit Makers and Breakers, subclasses 81+, for switches in which the operating means is responsive to pressure of a liquid, gas or vapor, the pressure being caused by a confined fluid or fluid flow.

219, Electric Heating, subclasses 490+ (particularly subclass 496) for electric heating devices with current regulation or current control means which may include pressure responsive devices and subclass 513 for electric heaters with automatic switching means comprising temperature responsive expansible fluid actuated devices.

236, Automatic Temperature and Humidity Regulation, subclasses 79+ for fluid operated motor means for automatic regulation systems.

307, Electrical Transmission or Interconnection Systems, subclass 118 for fluid pressure actuated switching systems and subclass 144 for fluid pressure switch actuator, per se.

318, Electricity: Motive Power Systems, subclass 481 for automatic motor control systems which are responsive to pressure in a fluid.

322, Electricity: Single Generator Systems, subclass 35 for automatic generator control devices which are responsive to a fluid pressure.

340, Communications: Electrical, subclass 592 for automatic alarm systems with an expanding fluid sensor.

374, Thermal Measuring and Testing, subclasses 201+ for expanding fluid type thermometers.

115 With manual or other mechanical contact actuating means:

This subclass is indented under subclass 114. Subject matter including at least one electrothermally responsive device combined with further manual or other mechanical contact actuating means, both said device and means controlling the same contacts. Usually the contacts are directly controlled by the manual or mechanical means which is in turn under the control of the electrothermally responsive device. However, devices in which the contacts may be opened or closed by the separate means independently are also classified here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37+, for electrothermal bimetallic element switches having manual or mechanical contact controlling means.

126+, for electrothermal, longitudinally expansible element switch with manual or mechanical contact actuating means.

143+, for electrothermal, fusible element switches with manual or mechanical contact control means.

312+, below for similar type devices with thermally responsive actuating means.

334+, for thermal, bimetallic element switches with manual or other mechanical contact control means.

384+, for thermal, longitudinally expansible solid element switch with manual or other mechanical contact control means.

402+, for thermal, fusible, combustible or explosive material actuated switch with manual gravity actuated, or other mechanical contact control means.

116 Cyclically or periodically operative:

This subclass is indented under subclass 115. Subject matter including significant details of means whereby a circuit is intermittently or cyclically opened and closed at constantly recurring intervals under the influence of an electrothermally responsive vaporizable or expansible fluid device.

(1) Note. For other intermittently or cyclically controlled means employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 92.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for periodic mechanical switches and sub-

classes 81+ for fluid pressure responsive switches which may be periodically operated.

219, Electric Heating, subclass 492 for automatic regulating and control means for electric heaters with timing or cycling means.

236, Automatic Temperature and Humidity Regulation, subclasses 99+ for thermostatic controls utilizing expanding fluid and which may be periodically operative.

307, Electrical Transmission or Interconnection Systems, subclass 132 for repetitive make and break switches.

315, Electric Lamp and Discharge Devices: Systems, subclass 72 for a load device with periodic electric switch.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 87+ for periodically operated electromagnetic switches.

340, Communications: Electrical, subclasses 468+ for vehicle signal light systems including those with cyclic light flasher switches.

117 Utilizing diaphragm or bellows means:

This subclass is indented under subclass 115. Subject matter including specific details of at least one expansible bellows or diaphragm device whereby a thrust force is transmitted to a contact control means upon a change of state or dimension of the actuating fluid.

SEE OR SEARCH THIS CLASS, SUBCLASS:

320+, for similar devices utilizing thermally actuated fluid means.

SEE OR SEARCH CLASS:

73, Measuring and Testing, subclasses 715+, especially subclass 729, for fluid pressure gauges utilizing diaphragm or bellows structure.

74, Machine Element or Mechanism, subclass 17.8 for devices for the transfer of motion through a flexible seal or diaphragm and subclasses 18+ for devices where the motion transfer takes place through a moving rod or casing.

91, Motors: Expansible Chamber Type, appropriate subclasses for expansible chamber motors with diaphragm or bellows.

92, Expansible Chamber Devices, appropriate subclasses, especially subclasses 34+ for bellows structure.

200, Electricity: Circuit Makers and Breakers, subclass 83 for fluid pressure actuated switches with diaphragm.

381, Electrical Audio Signal Processing Systems and Devices, subclasses 355+ for telephone type transmitters with diaphragm and subclasses 176, 186, and 398+ for diaphragm structure, per se.

118 With restoring or resetting means:

This subclass is indented under subclass 115. Subject matter including significant details of means whereby a continuous electrical connection through the switch device may be re-established either automatically or at the will of an operator, after having been broken through the action of the switch.

SEE OR SEARCH THIS CLASS, SUBCLASS:

56 for electrothermal, bimetallic element switch with mechanical snap action having reclosing or reset means.

72 for electrothermal, bimetallic element switch with latch means having reclosing or reset means.

91 for electrothermal, bimetallic element switch having snap action with reset means.

130 for longitudinally expansible solid element switch having latch or trip with reset means.

155 for electrothermal, fusible element switch with mechanical reclosing or resetting means.

348 for thermal, bimetallic element switch having snap action means with reclosing or reset means.

367 for thermal, bimetallic unitary contact type switch having snap action means with reset means.

119 Utilizing capillary tube or bore means:

This subclass is indented under subclass 114. Subject matter including significant details of a capillary tube or bore at least partially filled by a vaporizable liquid conductor the bore being of such caliber that the liquid is either caused to vaporize at a predetermined current value or to shift its position within the bore thereby disconnecting the contacts of the device. Generally the devices act in a similar manner to a conventional fuse, acting to open a circuit between contacts upon the vaporization of the liquid.

SEE OR SEARCH THIS CLASS, SUBCLASS:

321 for similar devices utilizing thermally responsive liquid actuating means.

SEE OR SEARCH CLASS:

219, Electric Heating, subclasses 510+, especially subclass 511, for automatic thermally responsive fluid actuated switches for electric heaters utilizing capillary tube means.

236, Automatic Temperature and Humidity Regulation, subclasses 95 and 99+ for thermally responsive expanding fluid actuated temperature regulating systems utilizing capillary tubes.

361, Electricity: Electrical Systems and Devices, subclasses 161+ for a mercury column type thermostat in an electrical circuit for relays and electromagnets.

120 With external heating means (external from fluid; may be the container):

This subclass is indented under subclass 114. Subject matter including heat concentrating or generating means, such as heating coils or high resistance elements, responsive to the current in a circuit to be controlled, and whereby the change in condition of the contact controlling fluid is brought about.

SEE OR SEARCH THIS CLASS, SUBCLASS:

324 for similar devices utilizing thermally responsive fluid actuating means.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 516+ for expansion and contraction power plants with expansible fluid heated by external means.

165, Heat Exchange, subclasses 200+, especially subclasses 223+ and 257, for anticipating type thermostatic controls with auxiliary heater.

200, Electricity: Circuit Makers and Breakers, subclasses 81+ for fluid pressure switch which may have auxiliary heating means.

219, Electric Heating, subclass 511 for thermally responsive expansible fluid actuated switches for electric heaters and having auxiliary heating means.

236, Automatic Temperature and Humidity Regulation, subclass 86 for thermostatic expanding operated motor type temperature regulators which may have auxiliary heaters.

361, Electricity: Electrical Systems and Devices, subclasses 161+ for thermoelectric switch in the control circuit of a relay or electromagnet and having external heater means.

121 With housing or casing:

This subclass is indented under subclass 114. Subject matter including significant structural details of housing, casing, mounting or support means peculiarly adapted for use with the subclass 114 type switch or switches.

(1) Note. For other housings or casings employed in devices of this class, see the subclasses listed, under SEARCH THIS CLASS, SUBCLASS in subclass 20.

SEE OR SEARCH THIS CLASS, SUBCLASS:

327+, for similar devices utilizing thermally responsive fluid actuating means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 293+ for details of casing or bases for mechanical switches.

122 With contact or electrode structure or material (e.g., carbon):

This subclass is indented under subclass 114. Subject matter including significant details of the mechanical structure, or material of construction, of the contact assembly, or its attachment to or support on the thermally responsive switch device.

(1) Note. For other contact structures, or contact composition, employed in devices of this class, see subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 26.

SEE OR SEARCH THIS CLASS, SUBCLASS:

329 for similar contact structure utilized with thermal responsive liquid actuated switches.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 874+ for the process of manufacturing of electrical contacts and terminals.

200, Electricity: Circuit Makers and Breakers, subclasses 238+ for details of contact construction for mechanical switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 133+ for contact structure for use in multiple contact switches of the electromagnetic type and subclasses 196+ for contact composition of structure in general for use in electromagnetic switches.

439, Electrical Connectors, especially subclasses 884+ for a contact of particular configuration.

123 With longitudinally expansible solid element (e.g., rod, wire strip, etc.):

This subclass is indented under subclass 14. Subject matter wherein the electrothermally actuated switching device comprises at least one monometallic longitudinally expansible solid element whose coefficient of expansion along its major axis is utilized to cause the opening or closing of an electrical circuit as a result of the change in dimension of the element. The element may be fixedly secured at both ends, around its circumference or at one end, according to the design of the switch.

SEE OR SEARCH THIS CLASS, SUBCLASS:

382+, below for similar devices utilizing thermally responsive solid elements.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 527+ for expansion and contraction type power plants with solid elements.

219, Electric Heating, subclass 512 for automatic switching arrangements in the circuit of an electric heater and utilizing linearly expansible metal.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 141 for electromagnetically operated switches with thermally responsive expandable solid.

374, Thermal Measuring and Testing, subclasses 187+ for expanding solid thermometers.

124 With voltage or ambient temperature compensation means:

This subclass is indented under subclass 123. Subject matter including means whereby the operational mode of the deformable solid actuating means is controlled or modified by the temperature of the surrounding medium (atmosphere) or the value of the voltage drip across the terminals of the switching device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

99+, for electrothermal, bimetallic actuated switch with voltage or ambient temperature compensation means.

378 for thermal, bimetallic actuated switch with compensation means (e.g., ambient temperature).

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, subclasses 161+ for electric circuits for relays or electromagnets including thermally actuated longitudinally expansible solid elements.

125 With electrical shunting or short-circuiting means:

This subclass is indented under subclass 123. Subject matter including a normally open electrical circuit in series across the input and output terminals of the device and adapted when closed to complete an electrical circuit in parallel relationship with the thermal contact actuating means. For instance; the shunting or short circuiting means may comprise a switch arm operative by a relay armature operative when the potential applied across the relay winding exceeds a preselected value. The type of switching devices found here are most commonly used as Flashers.

(1) Note. Where the shunting or short circuiting device is for the purpose of voltage compensation the patent will be placed in subclass 124 above and officially cross referenced in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

15+, for electrothermal actuated switches with shunt or short circuit completion devices.

221 for electrothermal fusible element switches with electrical shunt circuit means.

SEE OR SEARCH CLASS:

307, Electrical Transmissions or Interconnection Systems, appropriate subclasses, especially subclasses 117, 131, 132, and 141.4 for switching systems in which the actuating means may be shunted or short circuited.

315, Electric Lamp and Discharge Devices: Systems, subclasses 74+ for a combined discharge device load device and an automatic shunt circuit closing means.

126 With manual or other mechanical contact actuating means:

This subclass is indented under subclass 123. Subject matter including at least one electrothermally responsive device, combined with further manual or other mechanical contact actuating means, both said device and means cooperatively acting to control the switch contacts. Usually the contacts are directly controlled by the manual or mechanical means which is in turn under the control of the temperature responsive device. However, devices in which the contacts may be opened or closed by the separate means independently are also classified here.

(1) Note. For other manual or mechanical switch control means employed in devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

115 for other manual or mechanical switch control means employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 115.

384 for similar devices utilizing thermally responsive elements.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 3 for mechanical switches with thermally responsive cut outs or fuses.

219, Electric Heating, subclass 512 for automatic switches for electric heaters utilizing linearly expansive metal elements combined with mechanical means.

236, Automatic Temperature and Humidity Regulation, subclasses 101+ for automatic temperature control apparatus comprising an expanding solid element with mechanical contact control means.

307, Electrical Transmission or Interconnection Systems, subclasses 116+, especially subclasses 117 and 139+ for switching systems in general utilizing mechanical means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 141+ for electromagnetic switches with combined electrothermal actuating means.

340, Communications: Electrical, subclasses 584+ for temperature responsive signal systems, particularly subclasses 593+ for a switch sensor therein.

127 With delayed action or timing means:
This subclass is indented under subclass 126. Subject matter including means whereby the opening, or the closing, of the switch contacts takes place at an appreciable interval of time after an actuating force is applied to the contact actuating means or the timing of the contact open or contact closed interval is effected by varying the energizing current applied to the device.

(1) Note. For other delayed action or timing means employed in devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
81 for similar devices utilizing electrothermally responsive bimetallic elements. See (1) Note above. For other delayed action or timing means employed in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS of subclass 81.
163+, for similar devices utilizing fusible elements.
341 for similar devices utilizing thermally responsive bimetallic elements.

SEE OR SEARCH CLASS:
34, Drying and Gas or Vapor Contact With Solids, subclasses 562+ for drying apparatus with automatic control of the timing cycle.
116, Signals and Indicators, subclasses 22+, 101+, and 216+ for periodic mechanical signals and indicators with thermal control means.
165, Heat Exchange, subclasses 232; 238+; 262; 267+ for heat exchange systems with timing or programming means.
200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for nonthermal periodic switches and subclasses 33+ for nonthermal time switches and subclasses 33+ for nonthermal time switches.
307, Electrical Transmission or Interconnection Systems, subclasses 141+ for switch actuators in general with time delay or retardation means.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 59+ for electromagnetic switches with time delay means.
340, Communications: Electrical, subclasses 309.1+ for electric signalling systems with timer control.
361, Electricity: Electrical Systems and Devices, subclasses 195+ for control circuits for electromagnetic devices with time delay means.
379, Telephonic Communications, subclasses 111+ and 190+ for telephone type switches or registers with time control.

128 Latching or tripping means:
This subclass is indented under subclass 126. Subject matter including significant details of means whereby the switch contacts may be restrained in an open or closed condition by a latch or detent which may be tripped by the action of the electrothermally responsive expansible device. The contacts are usually held in circuit closing position and tripped to open position when the tripping means is operated.

(1) Note. For other latch or trip means used in devices of this class, see subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 46.

SEE OR SEARCH THIS CLASS, SUBCLASS:
385 for similar devices utilizing thermally responsive elements.

SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, subclasses 2+ for automatic latch or trip mechanisms and subclasses 527+ for mechanical latching or detent devices in general.
200, Electricity: Circuit Makers and Breakers, subclasses 411+, 415, 424+, 470, and 471 for mechanical snap switches with latch and/or trip means, subclass 83 for fluid pressure switches

of the diaphragm type with latching means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses; particularly subclasses 21+, 77, 113, 164, 165, 166, 167+, and 172+ for electromagnetically operated switches with latching or tripping means.

361, Electricity: Electrical Systems and Devices, subclasses 139+ for control circuits for electromagnetic devices with latch mechanisms.

129 With adjustment or calibration means:

This subclass is indented under subclass 128. Subject matter wherein the latching or trip structure includes significant means whereby the current value necessary to cause the operation of the actuating device, may be regulated, readily adjusted or calibrated.

SEE OR SEARCH THIS CLASS, SUBCLASS:

357 for thermally responsive bimetallic actuated switches with adjusting means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses, particularly subclasses 42, 45, and 176 for circuit control means of the electromagnetic type adjustable latch or tripping means.

130 With reset or reclosing means:

This subclass is indented under subclass 128. Subject matter including significant details of means whereby after an automatic or manual disconnection of the main switch contacts the contacts are reclosed, or means whereby the latching mechanism is reset to an operative condition in which the contacts will be rigidly held in the normal operating condition of the device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

72+, for electrothermal, bimetallic element switch having latch means with reset means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 318+ for mechanical switch devices with specific latch details.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 26+ for automatic circuit interrupting devices with resetting or reclosing means, subclass 150 for moving coil type switch operators with reset or restoring means and subclass 166 for latch or trip reset means for electromagnetically actuated switches in general.

361, Electricity: Electrical Systems and Devices, subclasses 59+ for safety and protective devices with subsequent automatic restoration means, and subclass 93.4 for abnormal current condition protection including automatic circuit reset after interruption of electric system.

131 Snap-action (e.g., bistable):

This subclass is indented under subclass 126. Subject matter including significant details of means whereby the opening or closing contact motion is caused to take place abruptly and is not dependent on the rate of movement of the electrothermal actuating means. The contact movement is usually accomplished by a spring connection between the operator and the movable contact in such a manner that the initial movement of the thermal element or other actuating means places the spring under tension until released whereupon the movable contact is snapped to open or closed position by the energy stored in the spring.

(1) Note. For snap action means utilized in the devices of this class, see the list of subclasses under SEARCH THIS CLASS, SUBCLASS in subclass 53.

SEE OR SEARCH THIS CLASS, SUBCLASS:

390 for similar snap action devices utilizing thermally responsive expansible elements. See (1) Note above.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 97.1 and 100.1 for mechanical snap actions.

200, Electricity: Circuit Makers and Breakers, appropriate subclasses 402+ under "SNAP" for various mechanical switches of the snap type.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 188 for snap action contact actuating means in electromagnetic switches.

361, Electricity: Electrical Systems and Devices, subclasses 152+ for control circuits for electromagnetic devices which may be of the snap type.

132 With toggle spring:

This subclass is indented under subclass 131. Subject matter wherein the snap action structure comprises means comprising a toggle point influenced by a tensioned spring whereby when force is applied to a knee of the joint the energy of the spring is applied to open or close an electric circuit through a moveable contact. The spring in itself by its connection to a rigid element may form the only toggle joint.

SEE OR SEARCH THIS CLASS, SUBCLASS:

59 for electrothermally responsive bimetallic element actuated switches with toggle.

345 for similar devices utilizing thermally responsive bimetallic means.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 520+ for toggle linkages, per se.

200, Electricity: Circuit Makers and Breakers, subclass 401 for quick make and break switches that may utilize toggles.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 191 for electromagnetic switch actuating mechanism comprising toggle means.

133 With stop means (e.g., motion limiting):

This subclass is indented under subclass 131. Subject matter including significant means whereby the range of movement of the actuation means or the movable contact is restricted to particular limits. The stop means may be permanently fixed in position or its position adjustable.

134 With magnetic biasing or holding means:

This subclass is indented under subclass 131. Subject matter including means whereby a field of magnetic flux is set up in the vicinity of the main contacts. The force exerted by the magnetic flux field is utilized either to detract from or add to the force exerted by a mechanical actuating means resulting in a rapid movement of the contacts upon the magnetic force or the spring force being overcome one by the other.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54 and 90, for electrothermally responsive bimetallic element actuated snap switches with magnetic means.

344 for thermal, bimetallic element snap action switch with magnetic flux source.

366 for similar devices with thermally responsive actuation means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 153 for reed type vacuum enclosed switches with permanent magnet structure.

135 With flexiable vane or plate:

This subclass is indented under subclass 131. Subject matter including significant details of a flexible vane or plate means whereby the snapping action of the contacts is caused to take place. The vane or plate may control the action of a movable contact, or contacts, by its inherent tendency to change curvature when heated or it may be under the influence of a further temperature responsive element such as a wire or ribbon which exerts a deforming force on the vane or plate upon the passage of a heating current therethrough.

SEE OR SEARCH THIS CLASS, SUBCLASS:

391 for similar devices with thermally responsive means.

396 for diaphragm, strip or ribbon structure, per se, which is expansible with heat.

136 With present deformation:

This subclass is indented under subclass 135. Subject matter wherein the vane or plate is specifically formed with a predistorted portion or portions in such a manner that it is movable with a snap action in response to thermal extension of an actuating means. The actuating means is usually an expansible wire or ribbon having a different coefficient of expansion than the vane or plate.

137 Contact structure or composition:

This subclass is indented under subclass 123. Subject matter including significant details of contact structure, composition of material or arrangement peculiarly adapted to be or specifically recited as, operative through the agency of at least one longitudinally expansive electrothermal current responsive element. The structure usually comprises adjustment screw or other means whereby the relative position of the contacts may be varied automatically or at the will of an operator.

(1) Note. For contact structure or contact composition of material used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 26.

(2) Note. Consult the classes and subclasses listed under the search notes to subclass 109, above, for a complete listing of the classes containing similar subject matter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

109 for particular contact structure in electrothermally responsive bimetallic element actuated switches.

399+, for significant contact structure for use in similar devices utilizing thermally responsive solids. See (1) Note above.

138 Cyclically or periodically operated (e.g., flasher):

This subclass is indented under subclass 123. Subject matter wherein the structure is specifically recited as consisting of a device comprising means whereby an electrical circuit is completed and broken intermittently or cyclically at constantly recurring intervals under the influence of an electrothermally responsive deformable solid element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51 for electrothermally responsive bimetallic element actuated switches, cyclically operative by mechanical means. Also consult the search notes, for a list of classes containing similar subject matter.

92+, for similar devices actuated by a bimetallic element directly.

116 for similar devices actuated by expansible or vaporizable fluid actuating means.

302 for thermally actuated switches periodically or cyclically operative by mechanical timing means.

369 for switches significantly recited as actuated by a thermally responsive bimetallic element directly.

139 With significant expansible element structure or composition or material:

This subclass is indented under subclass 123. Subject matter relating specifically to the physical structure or the composition of matter utilized in the longitudinally deformable thermal responsive element or elements.

SEE OR SEARCH THIS CLASS, SUBCLASS:

393+, for similar subject matter in thermally actuated switches.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 516+ for thermal motors with expansion and contraction devices.

310, Electrical Generator or Motor Structure, subclass 306 for nondynamoelectric thermal motors.

361, Electricity: Electrical Systems and Devices, subclasses 161+ for thermoelectric devices in control circuits for electromagnets.

374, Thermal Measuring and Testing, subclasses 187+ for a thermometer having an expanding solid sensor.

428, Stock Material or Miscellaneous Articles, subclasses 616+ for composite metallic stock having heat-deflectable characteristics.

140 Wire or other stranded element:

This subclass is indented under subclass 139. Subject matter wherein the electrothermally responsive longitudinally deformable element is specifically recited as comprising a wire or other stranded element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

395 for similar subject matter in thermally actuated switches.

141 With external or auxiliary heating means:

This subclass is indented under subclass 123. Subject matter including significant heat concentrating or generating means, such as heating coils or high resistance elements, to increase or augment the heating effect of the thermal current primary heating source.

SEE OR SEARCH THIS CLASS, SUBCLASS:

102+, for similar devices utilizing electrothermally responsive bimetallic elements.

120 for expansible or vaporizable fluid actuated switches with heater means.

182 for fusible element actuated switches with heater means.

324 for thermally responsive expansible or vaporizable fluid actuated switches with heater.

377 for thermally responsive bimetallic element actuated switches.

142 Fusible element actuated:

This subclass is indented under subclass 14. Subject matter wherein the electrothermal current responsive element, or elements, consists of a material (usually a wire or strip) which melts or otherwise disintegrates under the influence of heat due to excess current, thereby interrupting the electric circuit carrying the current.

SEE OR SEARCH THIS CLASS, SUBCLASS:

4+, for fusible element switch combined with other art device switch.

17+, for electrothermal, fusible element and gap, shunting or short circuit completion devices.

30 for electrothermal, space discharge, explosive or combustible material type switches.

31+, for electrothermal, fusible element switch device with space discharge device means.

401+, for similar devices utilizing thermally responsive fuse elements (e.g. susceptible to the temperature of the surrounding medium, such as air or liquid).

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclass 232 for static structure combined with fusible material.

73, Measuring and Testing, subclasses 1.42+ for instrument calibrating means with fusible timing apparatus.

102, Ammunition and Explosives, subclasses 262, 416+, and 424+ for explosive material fuses.

116, Signals and Indicators, subclass 106 for fused alarms.

122, Liquid Heaters and Vaporizers, subclasses 507+ for liquid heaters with fusible control safety devices.

126, Stoves and Furnaces, subclass 287.5 for dampers with fusible release.

137, Fluid Handling, subclasses 67+ for fluid handling systems with destructible or deformable element control means.

169, Fire Extinguishers, subclass 42 for fire extinguishers with fusible connections.

200, Electricity: Circuit Makers and Breakers, appropriate subclasses, especially subclasses 6, 61.08, 61.48, 81, 82, and 83 for mechanical switches with fuses.

219, Electric Heating, subclass 517 for electric heaters with fusible link controlled switch.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 142 for electromagnetic switches with fusibles.
340, Communications: Electrical, subclasses 590+ for a temperature alarm with a fusible sensor.
361, Electricity: Electrical Systems and Devices, subclasses 1+ for safety and protective systems and devices with fusible elements.
493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, subclasses 269+ for manufacture of a fuse tube.

143 With manual or other mechanical contact control means:

This subclass is indented under subclass 142. Subject matter comprising manual or other mechanical means acting conjointly or cooperatively with, at least one fusible element, or which acts as an intermediary between the fusible element and at least one movable contact thereby opening or closing an electrical circuit. The manual or mechanical means may act independently of the fuse device as long as they are each in the same circuit and the circuit is completed when both are in the circuit closing position. For example the combination may include a blade switch in series with a cartridge fuse.

(1) Note. For other manual or mechanical switch control means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 115.

SEE OR SEARCH THIS CLASS, SUBCLASS:
402 for similar devices with thermally responsive fuses. See (1) Note above.

SEE OR SEARCH CLASS:
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 142 for electromagnetically operative switches with fuses.

144 Plural fuses combined with single mechanical means:

This subclass is indented under subclass 143. Subject matter including at least two or more fusible devices combined with a further single manual or other mechanical contact controlling means. The fusible elements may operate jointly or individually to control the movable contact or contacts through the agency of the further means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
412 for similar devices utilizing a plurality of thermally responsive fuses.

145 Multiple contact or plural circuit control means:

This subclass is indented under subclass 143. Subject matter including a plurality of (three or more) contacts associated with a single continuous electric circuit to be controlled, or includes means whereby at least two or more continuous electric circuit are controlled by the contact controlling means.

(1) Note. For a more comprehensive description of multiple circuit control means, see the search notes below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
41 (1) Note for a more comprehensive description of multiple circuit control means.
406 for similar devices utilizing thermally responsive fuses.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 3 for mechanical multiple circuit control means with fusible elements.

146 Multipole or polyphase:

This subclass is indented under subclass 145. Subject matter comprising a plurality of individual conductors with contact pairs associated with each conductor, a contact actuating means for each pair of contacts, each contact pair completing a circuit through one branch of a polyphase or plural conductor electrical circuit. Devices which are known as bipole or double

pole and which complete the circuit in each conductor of a direct current circuit will also be found here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

7 for multiphase or polyphase automatic circuit interrupters of the fusible element type combined with diverse art type switches.

45+, for electrothermal, bimetallic element actuated multipole or polyphase type switch.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 1+ for mechanical multipole or polyphase circuit control devices.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 8+ for electromagnetically actuated multipole switches.

361, Electricity: Electrical Systems and Devices, subclasses 627+ and 641+ for mechanical switching systems, per se, which may be multipole or polyphase.

147 Snap-action mechanical device:

This subclass is indented under subclass 143. Subject matter wherein the mechanical contact control structure comprises means whereby a movable contact, or contacts, may be operated from a first position to a second position quickly by a snap action. This is usually accomplished by a spring connection between an operator and a contact carrier so arranged that the initial movement of the operator places the spring under tension whereby upon release of a holding means the movable contact is snapped from one position to another.

SEE OR SEARCH THIS CLASS, SUBCLASS:

53 for other snap action means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 53.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 402+ and below under "SNAP" for mechanical snap switches in general for quick break mechanical switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 188 for snap action contact control means for use with electromagnetic switch.

148 Reciprocal or rectilinear sliding motion actuating means (e.g., spring loaded plunger or striker pin):

This subclass is indented under subclass 143. Subject matter including mechanical means whereby the contact opening or closing operation results from a rectilinear sliding or reciprocating motion of the operating means. The contact actuating means is generally spring biased to open position and held closed by a latch means which is under the influence of a fusible element which when heated to the melting point allows the contact control means to move the contacts to open position under the influence of the spring.

(1) Note. For other reciprocal or rectilinear motion actuators used devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

10 for other reciprocal or rectilinear motion actuators used devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 10.

408+, for similar devices utilizing thermally responsive fusible devices.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 16 for mechanical switches with reciprocating contacts.

149 Rotary or oscillatory motion device:

This subclass is indented under subclass 143. Subject matter including significant means whereby contact opening or closing is accomplished by means of a mechanical device moving in a rotary manner in a single plane, for example, circular or oscillatory motion in a horizontal or vertical plane. The structure usually consists of a rotary means supported by a shaft which shaft is supported in a bearing or

bearings and prevented from moving by a thin film of fusible material until released by heat.

(1) Note. For other rotary or reciprocatory actuators used in devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

10 for other reciprocal or rectilinear motion actuators used devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 10.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 6+ for mechanical switches with rotary or oscillatory contact operation means.

150 Latching trip or holding means (actuated by condition by fuse element):

This subclass is indented under subclass 143. Subject matter wherein the mechanical structure includes significant details of operating means whereby the contacts may be retained in a first condition by a latch or detent capable of being tripped by a thermal current responsive fuse element. The contacts are generally held latched in a circuit closing position and tripped to open position upon operation of the fuse element.

(1) Note. For other latch or trip means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 46.

SEE OR SEARCH THIS CLASS, SUBCLASS:

70+, for latch or latch release means actuated by electrothermally responsive bimetallic elements.

128 for similar latch or latch release means actuated by longitudinally expansible elements.

356 for similar devices with thermally responsive bimetallic elements.

151 Ratchet and pawl:

This subclass is indented under subclass 150. Subject matter wherein the latching or holding structure comprises significant details relating to ratcher and pawl means whereby the contacts are released upon the release of the ratchet wheel for rotation about its axis.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 595+ for pawl and ratchet mechanisms, per se.

200, Electricity: Circuit Makers and Breakers, subclasses 81+ for fluid operated switches with ratchet and pawl type thermally released latching means.

152 Thin film or resoldering (e.g., eutetic alloy):

This subclass is indented under subclass 150. Subject matter wherein the holding means is specifically recited as consisting of self-soldering or resoldering material rigidly connecting two relatively movable members when cold.

153 With external or auxiliary heating means:

This subclass is indented under subclass 150. Subject matter including significant details of heating means cooperating with but distinct from the fusible material whereby the fusible material is additionally heated by a thermal current traversing the heating means independently of the heat derived from the current directly traversing the fusible material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

77 for electrothermal, bimetallic element latch controlled switch with external or auxiliary heater for the latch.

154 Tripping or release means:

This subclass is indented under subclass 150. Subject matter relating specifically to tripping or release means operative directly by fusible means under the influence of a thermal heating current. The mechanical latching or holding means is generally recited broadly with the tripping or release means recited in specific terms.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 39+ for retarded action switches with latch trip and subclasses 411+, 470, 424+ for mechanical snap switches with latch trip.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 172+ for latch tripping structure, per se, adapted for use in electromagnetic switches.

155 With reclosing or reset means:

This subclass is indented under subclass 143. Subject matter including in addition to the fuse structure significant means whereby; after the movable contact, or contacts, of the device has been actuated from one original condition to another operated condition as a result of an abnormal thermal current condition (or manual manipulation) the contacts may be returned to the original condition either automatically or manually, or means whereby a latching or holding mechanism is returned to an operative condition wherein the contact control means will be rigidly held in the original condition upon the actuation of the contacts to the original condition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

72+, for electrothermally actuated bimetallic element controlled latch or trip means with reclosing or reset means.

130 for longitudinally expansible element actuated latch or trip means with reset.

358 below for thermally responsive bimetallic element actuated latch or trip means with reset means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 26+ for electromagnetically operated circuit breakers with reclosing or resetting and subclass 166 for latch or trip with reset means.

361, Electricity: Electrical Systems and Devices, subclasses 59+ for automatic safety devices with automatic restoration, and subclass 93.4 for abnormal current condition protection including automatic circuit reset after interruption of electric system.

156 Manually operated shunting, disconnect or load-break device:

This subclass is indented under subclass 143. Subject matter wherein the mechanical contact control means consists of means independent of the fuse structure which is adapted to be manually manipulated at will to (1) complete a shunt circuit around the fusible element, (2) isolated the circuit or apparatus protected by a fuse after the current has been interrupted by the fuse or (3) cause the circuit to be opened through the fusible device without actually blowing the fusible element. The patents found here generally include the open cut out or disconnect type fuse devices combined with means whereby an operator from a distance, by means of a switch stick, may insert a mechanical circuit completion conductive device between the main contacts or may directly break the circuit through the fuse.

SEE OR SEARCH CLASS:

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 8+ for auxiliary type switches and subclasses 43+ for air-current blowout type switches.

439, Electrical Connectors, especially subclasses 507+ for an electrical connector comprising a jumper.

157 Mechanical fuse link rupturing means:

This subclass is indented under subclass 156. Subject matter including means whereby the fuse link may be physically broken or otherwise ruptured by mechanical means entirely independent of any melting action due to current passing therethrough and without causing the displacement of the fuse contacts relative to the main line contacts.

158 Current limiting devices (e.g., high voltage fuses):

This subclass is indented under subclass 142. Subject matter including a fusible device with the ability to limit a short circuit current to an initial peak magnitude well below the peak magnitude of the current which the protected circuit would be capable of developing under

like conditions if a link of negligible resistance and sufficient capacity to survive at least a half cycle of current without melting, were employed in the place of the current limiting fuse device used. The instantaneous value of the current causing the fuse to blow is usually determined by a physical resistor of the desired characteristic or by the use of a particular filler material.

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, subclasses 103+ for safety devices utilizing thermal (e.g., fuses) means with granular means for the cooling of vapors resulting from the arc of rupture.

159 Comprising significant fuse link or element structure or arrangement:

This subclass is indented under subclass 158. Subject matter wherein the current limiting structure is specifically recited as consisting of a fuse link, or links, of a particular physical structure or arrangement.

SEE OR SEARCH THIS CLASS, SUBCLASS:

229 for cartridge fuses with a plurality of fusible elements.

280 for fuses with means for extinguishing an arc by cooling, condensing or absorbing means.

290 for particular fusible element of particular construction.

160 With fusible metal overlay (e.g., alloy-forming):

This subclass is indented under subclass 159. Subject matter wherein the fuse link is specifically described as having at least one point of reduced cross sectional area with a link destroying low fusing point material deposited on the link in the vicinity of the reduced cross sectional area or a fuse link of a first material adapted to alloy with the first material upon the application of excessive heat.

SEE OR SEARCH THIS CLASS, SUBCLASS:

295 for fusible elements of particular geometrical shape.

296 for fuse links of composite material (i.e., with overlay).

161 Plural elements:

This subclass is indented under subclass 159. Subject matter wherein the significantly recited fuse link structure includes at least two or more separate links, each providing a current carrying path through the fuse device. The fuse links are usually parallel connected, but may be series connected with each being capable of opening the protected circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

292 for particular fuse link construction comprising a plurality of series connected elements.

293 for a plurality of parallel connected elements.

162 With diverse characteristics:

This subclass is indented under subclass 161. Subject matter wherein the plurality of fuse links or elements are recited as of diverse characteristics, such as different composition of material, melting points, physical characteristics, dimensions or electrical resistivity.

163 Delayed action (i.e. time lag):

This subclass is indented under subclass 142. Subject matter including fuses with delayed blowing action, the blowing taking place only if an overload current persists a predetermined period of time, depending upon the magnitude of the overload.

(1) Note. For other retarding or delay means used in the devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 81.

164 Utilizing plural fusible elements:

This subclass is indented under subclass 163. Subject matter including at least two or more separate fuse links or fusible elements. Usually the device comprises a first slow acting element; adapted to fuse or melt upon the passage of a moderate overload current for an extended length of time, and a fast acting element adapted to blow instantaneously upon the passage of a fault or short circuit current.

SEE OR SEARCH THIS CLASS, SUBCLASS:

292 for fusible link structure including plural elements connected in series.

293 for plural elements connected in parallel.

165 With biased direct circuit opening means:

This subclass is indented under subclass 163. Subject matter including significant details of metallic contact means normally completing an electric circuit through the fusible element device with means whereby, the metallic contacts are physically forced to an open position upon failure of the fusible element due to the passage of a heating current therethrough.

166 With heat absorptin, conducting or storage means:

This subclass is indented under subclass 163. Subject matter including significant details of means whereby the delay function of the device is accomplished, at least in part, by the absorption or storage of heat generated in the fusible element or elements.

167 Convertible (e.g., fused to nonfused):

This subclass is indented under subclass 142. Subject matter including means whereby the mode of operation of the switch device may be changed at will by an operator. The switch may be changed from a fused to a nonfused device, from a fused cut out to a disconnect device or from a drop out operating mode to a nondrop out mode, etc.

168 Cutout or disconnect type (an assembly) of a fuse support and fuse holder with or without a fuse link):

This subclass is indented under subclass 142. Subject matter wherein the structure relates to a device adapted to interrupt the flow of current through any particular apparatus or instrument, either automatically or manually, and consisting of a fuse support and a fuse holder with a fuse link. The fuse holder (generally a cartridge) has conducting contacts, connected by a fusible link, adapted to be electrically connected to the terminals of a distribution line and to separate therefrom either mechanically or automatically upon the rupture of the fuse link as a result of an excessive load current.

SEE OR SEARCH THIS CLASS, SUBCLASS:

403+, for automatic cut out devices utilizing thermally responsive fusible elements.

SEE OR SEARCH CLASS:

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 89+ for high potential type switches adapted for use as pole switches.

219, Electric Heating, subclass 517 for automatic switches for electrical heating devices utilizing fusible elements.

307, Electrical Transmission or Interconnection Systems, subclasses 125+ for switching devices responsive to electrical conditions such as power, voltage or current.

314, Electric Lamp and Discharge Devices: Consumable Electrodes, subclasses 10+ for electric lamp or discharge device with cut out.

315, Electric Lamp and Discharge Devices: Systems, subclasses 74+ and 119+ for electric discharge device systems with cut out.

361, Electricity: Electrical Systems and Devices, subclasses 1+ for safety and protection systems and devices with cutout, especially subclasses 103+.

169 With kickout means:

This subclass is indented under subclass 168. Subject matter including specifically recited mechanism whereby the fuse contacts are forcibly and automatically separated from at least one line terminal upon rupture of the fuse link. The kick out means may be operated by gas pressure, mechanical spring means, magnetically or otherwise.

170 Fusible element controlled:

This subclass is indented under subclass 169. Subject matter wherein the kick out structure is recited as being operatively controlled in response to the blowing or separating of the fusible element. For instance, the kick out device may form an operative part of a spring biased link extraction means which in turn is operatively responsive to the condition of the fuse link.

171 With dropout features (i.e., the fuse tube will be separated, or drop away from, at least on the main circuit contacts):
This subclass is indented under subclass 168. Subject matter including means whereby the fuse carrier (tube) structure changes its position upon the rupture of a fuse link in such a manner as to present an air gap between at least one fuse contact and the corresponding line terminal. The motion of the fuse assembly may be along its axial direction (sliding) or in a plane about a perpendicular to the tube axis (rotary). The drop out action is usually gravity actuated upon the rupture of a fuse link and the resulting freeing of some latching means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
217+, for so-called expulsion type fuse devices which are fuse devices wherein the remains of the fuse link, after failure takes place, are forcibly removed from the tube by some means such as gaseous pressure or mechanical means.

172 Utilizing combined mechanical motions (e.g., sliding with pivotal):
This subclass is indented under subclass 171. Subject matter including specifically recited structure by means of which the fuse assembly is caused to assume its final or dropped out position as a result of a combination of mechanical motions; for example, pivotal motion followed by longitudinal sliding movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:
59+, for electrothermal, bimetallic element switch with compound motion actuating mechanism.
313 for thermal, expansible fluid actuated switch with compound motion mechanism.
350 for thermal, bimetallic element switch with compound motion means.

173 Utilizing sliding or reciprocating motions:
This subclass is indented under subclass 171. Subject matter including specifically recited structure by means of which the fuse assembly is caused to assume its final or drop out position as a result of a single longitudinal sliding motion.

(1) Note. For other reciprocating or sliding mechanisms used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 10.

174 With holding, latch or trip means:
This subclass is indented under subclass 171. Subject matter including significant details of means whereby the fuse contacts are operatively retained in electrical conductive relationship with the line terminals by latch, detent or other holding means until released as a result of excessive electrothermal current, manually at the will of an operator, or a combination of both. The latching or holding means is usually maintained in an operative position by the tension of a fuse link but may be operated by any appropriate thermal current responsive means; for instance, a bimetallic element or even an auxiliary fuse device.

(1) Note. For other latching or holding mechanisms used in the devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 46.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 318+ for details of latch structure in general.

175 Combined latch or trip:
This subclass is indented under subclass 174. Subject matter wherein the holding, latching or tripping structure includes means whereby at least two modes of releasing operation are accomplished or at least two or more separate means whereby the fuse contacts are maintained in the controlled electric circuit. For instance, the release means may be either manually or automatically operated or the latching means may be dually controlled by means of fuse tension and a bimetallic element, etc.

176 Fusible element controlled:
This subclass is indented under subclass 174. Subject matter wherein the holding, latching or tripping structure is specifically described as comprising a means held in operative position

solely by the tension in a fuse link or element and which is automatically released upon the rupture of the fuse element.

177 With fuse link extracting means:
This subclass is indented under subclass 176. Subject matter wherein the holding, latch or tripping means includes structure whereby the remaining portion of the fuse link is physically extracted from the tube upon actuation of the latch release means following rupture of the fusible element.

SEE OR SEARCH THIS CLASS, SUBCLASS:
217 for significant fuse extraction means, not a part or connected with latching or latch releasing means, and applicable to fusible element actuated switches in general.

178 Spring biased:
This subclass is indented under subclass 176. Subject matter including spring biasing means whereby the operation of the latch or the fuse link extracting device is positively influenced toward an operated condition.

179 With delayed action:
This subclass is indented under subclass 176. Subject matter including significant means whereby the movement of the fuse tube is delayed for a predetermined time interval after the melting or blowing of the fuse element. The time interval is generally designed to be sufficiently long for the expelled gases from the tube to become adequately dispelled and/or deionized to an extent where they are no longer conducting.

180 Line terminal or contact structure:
This subclass is indented under subclass 168. Subject matter including structural details of a cut out or disconnect type switch with significant emphasis on means comprising line terminals or contacts which are particularly adapted to complete the circuit through or support such a switch.

(1) Note. The terminal structure in this subclass is confined to cut out or disconnect devices utilizing fusible elements. In subclasses 187+ the housing or casing is not restricted to use with a particular type fuse device, but is adapted to support fuse devices in general and having means whereby the protected electrical circuit is connected to the contacts of the fuse device.

SEE OR SEARCH CLASS:
174, Electricity: Conductors and Insulators, subclasses 59+ for boxes and housings with connectors.
200, Electricity: Circuit Makers and Breakers, subclasses 238+ for contact structures in general utilizable with mechanical switch devices.
439, Electrical Connectors, appropriate subclasses for an electrical connector, generally.

181 Directly connected by fusible element (e.g., in line-type fuse):
This subclass is indented under subclass 180. Subject matter including terminals or contacts adapted to complete and maintain closed an electrical circuit directly through contact with a fusible means. The fusible means acts as a holding means for the terminals or contacts until ruptured or destroyed by an excess current. When the fuse is ruptured the contacts are allowed to separate under the influence of spring or other biasing means thereby opening the circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:
190 for a combination of a fuse with a housing casing or support where the support includes fusible element tensioning means, which means may be released when the fusible element is ruptured.

182 With external or auxiliary heating means:
This subclass is indented under subclass 142. Subject matter including significant details of heat concentrating or generating means external of and separate from the fuse element adapted to increase or augment the electrothermal heating effect of the current traversing the fusible element.

(1) Note. For other external or auxiliary heating means used in devices of this class, see the subclasses listed under

SEARCH THIS CLASS, SUBCLASS in subclass 102.

SEE OR SEARCH CLASS:

122, Liquid Heaters and Vaporizers, subclasses 504+ for fusible controlled safety devices for liquid heating devices which have external heating means.

219, Electric Heating, subclass 51 for thermally controlled switching means for an electrical heater and having auxiliary heating means and subclass 517 when the thermally controlled device is a fusible link.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 142 for electromagnetically operated switch with electrothermal fuse which may be heated by the current in the coil winding.

183 Resistive heater:

This subclass is indented under subclass 182. Subject matter wherein the heating structure comprises resistor means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

102+, for electrothermally actuated switches utilizing bimetallic elements with external heating means which may be a resistor.

184 Directly in series with or completing controlled circuit:

This subclass is indented under subclass 183. Subject matter wherein the resistor means is recited as being directly in series with or completing the controlled electric circuit.

185 Comprising or including heat storage or accumulator means:

This subclass is indented under subclass 182. Subject matter wherein the heating means consists at least in part of a heat absorbing or storage material whereby upon reaching a predetermined temperature heat is transmitted to a fuse or fuses thereby causing an electrical circuit to be opened or closed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

166 for time lag fuses having heat absorption or storage means.

186 Housing, casing or support means:

This subclass is indented under subclass 142. Subject matter wherein the fusible electrothermally responsive circuit opening or closing means is specifically described as combined with significant protective housing, casing or support means. The subject matter to be found here comprises an entire switch assembly in combination with unique protective or support means especially adapted for the protection or support of fuse type switching or circuit interrupting devices under the subclass 142 definition. The housing, casing or support means found here form no part of the fuse structure, per se, but are adapted to interchangeably receive fuse devices and operatively maintain them in position until bodily removed.

(1) Note. For other housing, casing or support means for devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 20.

SEE OR SEARCH CLASS:

191, Electricity: Transmission to Vehicles, subclass 39 for devices wherein the support means for the fusible device comprises an overhead trolley wire or insulator.

200, Electricity: Circuit Makers and Breakers, subclasses 293+ for casings and bases, per se, for mechanical switches.

310, Electrical Generator or Motor Structure, subclasses 68+ for fusible switching devices incorporated in or supported by a dynamoelectric machine.

313, Electric Lamp and Discharge Devices, appropriate subclasses, especially subclasses 567+ for fusible switches combined with electric discharge devices.

315, Electric Lamp and Discharge Devices: Systems, subclass 74 for a load device combined with fusible cut out means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 202 for housing or support structure for electromagnetic switches.

361, Electricity: Electrical Systems and Devices, subclasses 103+ for safety and protection systems with a fuse in combination with the device to be protected, subclasses 275.1+ for fuses combined with capacitors, and subclasses 600+ for switchboards with fusible components.

362, Illumination, subclasses 162+ for fuses in portable safety lanterns.

363, Electric Power Conversion Systems, subclasses 50+ for current conversion systems with fusible protective means.

439, Electrical Connectors, subclass 620.26 for an electrical connector combined with a named fuse or comprising a casing, housing, or holder for receiving and fully enclosing a fuse; and subclass 698 for an electrical connector specially adapted to receive and support an elongated fuse-like device, e.g., a cartridge type fuse, etc., having end contacts.

187 With external circuit connection means:

This subclass is indented under subclass 186. Subject matter including terminal or connector means whereby a continuous electrical circuit may be completed from an input terminal through at least one fuse device and out to an output or load terminal when the fusible element is intact.

SEE OR SEARCH THIS CLASS, SUBCLASS:

113 for electrothermally responsive bimetallic element actuated switches with housings including external circuit connection means.

121 for similar subject matter utilizing expansible or vaporizable fluid.

381 for thermally responsive switches with external circuit connector means.

188 Plural conductor connector means:

This subclass is indented under subclass 187. Subject matter including means whereby a plurality of conductors may be connected to both the input and output terminals of the housing or whereby a single pair of input terminals may be connected to a plurality of output terminals through the fuse device contained in the housing. For instance, a plurality of single conductors comprising a two wire or three wire electrical circuit may each pass through an individual fuse or a single input circuit may be connected to a plurality of individual output circuits either through a single fuse or a plurality of fuses individual to the output circuits.

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, subclasses 627+ for switchboards with switch and fuse, subclasses 823+ for switchboards with terminals, and subclasses 833+ for switchboards with fuses.

439, Electrical Connectors, appropriate subclasses for an electrical connector, generally.

189 Distribution or load center type (e.g., plural outputs):

This subclass is indented under subclass 188. Subject matter wherein the circuit connector structure is so arranged that the current or power input form a single source may be distributed to a plurality of loads by means of a plurality of output terminals. Each of the output or load circuits may be individually fused or may be connected to the input terminals through a single fuse device.

SEE OR SEARCH CLASS:

307, Electrical Transmission or Interconnection Systems, subclasses 11+ for distribution systems with plural load circuits which may be supplied from a single source and subclasses 43+ for systems having plural supply sources.

190 With fuse element tensioning or clamping means:

This subclass is indented under subclass 187. Subject matter wherein the external circuit connector structure comprises two or more line terminals having means specifically recited, whereby a fuse link or element is either held in the operative position or is maintained under tension by means of the terminal structure. The devices found usually comprise insulator structure combined with or forming a support for

flexible contact members conductively maintained intension by the ends of a conductive fuse link which, upon rupture of the fuse, is released from the flexible contacts.

SEE OR SEARCH CLASS:
- 174, Electricity: Conductors and Insulators, subclass 145 for insulators combined with connector means.
- 361, Electricity: Electrical Systems and Devices, subclasses 38+ for combined transformer and fusible protective means.

191 Cable or busbar attachment means:
This subclass is indented under subclass 187. Subject matter wherein the connector means includes significantly recited structure whereby the device is peculiarly adapted for connection in a circuit consisting of bus bar or cable type conductors.

SEE OR SEARCH THIS CLASS, SUBCLASS:
- 415 for thermally responsive fusible switches incorporated in a flexible cable.

SEE OR SEARCH CLASS:
- 174, Electricity: Conductors and Insulators, subclasses 50+ especially subclasses 59+ for boxes and housings for electrical devices with connectors.
- 200, Electricity: Circuit Makers and Breakers, subclasses 293+ for casings and bases for mechanical switches with connector means.
- 338, Electrical Resistors, appropriate subclasses, especially subclass 197 for a resistor with support, subclass 199 for a resistor with housing, subclasses 200+ for a resistor with switch, subclass 215 for a resistor with switch having cable connections and subclass 216 for a heater in a coaxial line or wave guide and subclasses 226+ for a resistance which is encased, embedded or housed.
- 361, Electricity: Electrical Systems and Devices, subclasses 627+ and 830+ for fusible switch housings adapted for connection to cables or panel board assemblies.
- 439, Electrical Connectors, appropriate subclasses for an electrical connector, per se.

192 Socket or thimble:
This subclass is indented under subclass 191. Subject matter wherein the connector means is specifically recited as comprising socket or thimble means whereby circuit connections are made to the bare ends of cable conductors.

193 Line tap, hook or clamp:
This subclass is indented under subclass 191. Subject matter wherein the circuit connector means comprises line tap, hook or clamp structure whereby the device as a whole may be suspended from a bare conductor, such as a trolley or other overhead power line, thereby permitting current to be taken from the line through a fusible device within the housing or casing.

SEE OR SEARCH CLASS:
- 439, Electrical Connectors, appropriate subclasses for an electrical connector, per se; especially subclasses 477+ for a temporary connector adapted to be utilized with an overhead line by means of a handle or other manipulating means.

194 With relatively movable cooperative elements (e.g., pull out):
This subclass is indented under subclass 187. Subject matter wherein the connector structure comprises relatively movable, slidable or otherwise cooperative elements whereby an electrical circuit may be completed from an input terminal to an output terminal through at least one fuse device.

SEE OR SEARCH CLASS:
- 439, Electrical Connectors, appropriate subclasses, especially subclasses 775+ for an electrical connector in general having a movable or resilient securing part.

195 With spring biasing means:
This subclass is indented under subclass 194. Subject matter wherein the connector structure includes spring or other resilient biasing means whereby contact pressure is maintained between the relatively movable elements when in the circuit closing position. An example of

the structure to be found here includes fixed spring clips attached to input and output circuit terminals and adapted to engage knife blade type fuse contacts.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclass 620.26 for an electrical connector combined with a named fuse or comprising a casing, housing, or holder for receiving and fully enclosing a fuse; subclass 698 for an electrical connector specially adapted and support an elongated fuse-like device having end contacts; and subclasses 830+ for a metallic connector having a resilient securing part designed specifically to receive the end contact of an elongated fuse.

196 Door or closure controlled:
This subclass is indented under subclass 194. Subject matter wherein the connector structure includes means whereby the circuit open or closed condition through the fusible device is governed by, and directly responsive to the manipulation of a door or closure means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
212 for a housing with door supported fuse carrier means.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, appropriate subclasses, particularly subclass 56 for mechanical switches with means for insuring a predetermined sequence of operation of a switch and a casing cover, and subclasses 293+ for casings and bases generally.

197 Plural diverse (e.g., male and female connectors):
This subclass is indented under subclass 187. Subject matter wherein the connector structure includes both male and female elements whereby external connections may be made through a fusible device. The subject matter to be found here relates, for the most part, to devices of the type generally known as “utility outlets”, wherein at least one fuse is housed in the casing and having spring clip contact means, in addition to fixed contacts, whereby the male prongs of a service cord may be inserted.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclass 620.26 for an electrical connector combined with a fuse or comprising a casing, housing, or holder for receiving and fully enclosing a fuse.

198 Prong or blade (e.g., plug-type housing):
This subclass is indented under subclass 187. Subject matter wherein the connector structure includes a housing of the attachment plug type having means whereby a fuse is fixedly connected at one end to a conductor by a binding post, screw or other means and at the other end to a prong or prongs whereby electrical connection is made to the female elements of a receptacle. For example, the device may consist of a fused service cord connector.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclasses 586+ for an electrical coupling part including flexing insulation; and subclass 620.26 for an electrical connector combined with a fuse or comprising a casing, housing, or holder for receiving and fully enclosing a fuse.

199 With electrical ground, shield or barrier:
This subclass is indented under subclass 186. Subject matter wherein the housing, casing or support structure comprises means; (1) whereby a conductive connection is established between the support and ground or other conducting body serving as ground, (2) a dielectric structure whereby any discharge between conducting surfaces within the structure is prevented, or (3) a metallic covering or screen whereby any electrical leakage fields outside the casing are prevented. For example, a corona shield.

SEE OR SEARCH THIS CLASS, SUBCLASS:
32 for fusible element with grounding means combined with space discharge device.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclass 5 for conductors and insulators with shock hazard protective means, subclasses 6+ for grounding devices, subclasses 50+ for boxes and housings hermetically sealed, or with grounding means.

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 1+ for arc preventing and extinguishing devices.

338, Electrical Resistors, subclasses 64+ for resistors with electrical shield.

361, Electricity: Electrical Systems and Devices, subclasses 816+, 825 and 829+ for switchboards and analogous devices having shielding or grounding means.

439, Electrical Connectors, subclasses 92+ for an electrical connector with safety grounding provision; subclasses 607.01- 607.05 for an electrical connector having or providing an inductive or capacitive shield.

200 Ceiling block fixture type (e.g., Rosette):

This subclass is indented under subclass 186. Subject matter including means whereby the housing may be attached to an overhead structure, such as a ceiling, and whereby a connection is provided from an enclosed fuse structure to a drop light or other load fixture.

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclass 537 for an electrical connector including a suspension housing for an electric lamp.

201 With plural interfitting or interlocking sections:

This subclass is indented under subclass 186. Subject matter wherein the structure is recited as comprising plural sections which are formed in such a manner as to interfit or interlock with each other to constitute a complete housing or casing structure when assembled.

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, subclasses 601+ for sectional housings.

202 Bushing or insulator:

This subclass is indented under subclass 186. Subject matter wherein the structure comprises bushing or insulator means. The bushing or insulator structure generally serves a dual purpose such as the support for a high voltage terminal or terminals, seal for oil switch tanks, etc.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclasses 17+ for conductor housings with bushings, terminal or lead in structure and subclasses 137+ for insulator or bushing structure, per se.

203 With gaseous venting or expulsion means (from the housing):

This subclass is indented under subclass 186. Subject matter including means whereby any gas originating within the housing or casing as a result of the operation of the fusible device is either slowly vented or rapidly expelled.

204 With oil or other liquid:

This subclass is indented under subclass 186. Subject matter including housing means with a filler of oil or other liquid.

(1) Note. The subject matter classified here is very similar to that in subclass 277. In this subclass the oil or other liquid is claimed in combination with housing, casing or other support structure as a cooling or other protective means such as insulation. In the devices to be found in subclass 277, the liquid is specifically recited as an arc quenching medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:

277 for fusible element actuated switches using liquid dielectric as an arc extinguishing medium. See (1) Note above.

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, subclasses 38+ for oil enclosed transformer having a fusible protective means.

205 With locking, sealing or guard means:

This subclass is indented under subclass 186. Subject matter wherein the housing, casing or support structure includes means whereby the housing or casing, (1) may be locked against accidental or unauthorized opening, (2) sealed against the entrance of air or moisture or the escape therefrom of gases or vapors, (3) the contents of the housing are protected from damage from the elements or (4) the device is provided with means to prevent physical contact with live parts by personnel.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclass 5 for electrical shock hazard preventive devices, subclasses 37+ for underground conductor housings, subclasses 50+ for hermetically sealed boxes and housings, subclasses 66+ for cover or face plate structure and subclasses 68.1+ for conductors in ducts or conduits.

200, Electricity: Circuit Makers and Breakers, subclasses 43.01+ for unauthorized use preventive means, subclasses 50.02+ for a switch and an associated element such as a casing cover and subclass 168 for casing or base structure, per se.

220, Receptacles, subclasses 2.1+ for envelopes for electric lamps or similar devices and subclasses 200+ for metallic receptacle closures.

324, Electricity: Measuring and Testing, subclass 110 for meter control or fraud preventing devices.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 202 for electromagnetic switches with housing, casing or support means.

361, Electricity: Electrical Systems and Devices, subclasses 600+ for housings and mounting assemblies with plural diverse electrical components and including protective or anti-tampering means, subclass 268 for transformers with integral switch, and subclass 269 for transformers with locking means.

206 With operational condition indicating means:

This subclass is indented under subclass 186. Subject matter including means attached to or comprising a part of the housing, casing or support whereby the condition of the fusible element or elements or other electrical apparatus within the housing may be readily determined visually or audibly. The indicating means may be a light, a bell, buzzer, semiphore, or any appropriate means.

(1) Note. For other signal or indicating means used in the devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS: in subclass

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 308+ for indicators in general for mechanical switches.

336, Inductor Devices, subclass 45 for position indicating means for movable inductor elements.

340, Communications: Electrical, subclasses 635+ for signals and alarms which are electrical apparatus condition responsive, particularly subclasses 638+ for fuse or circuit breaker indication.

439, Electrical Connectors, subclasses 488+ for an electrical connector with indicating or identifying means.

207 With external support or attaching means (e.g., hook):

This subclass is indented under subclass 186. Subject matter wherein the housing, casing or support structure includes significantly recited details of means whereby the housing or casing is adapted to be attached to or supported from an external surface or object. For example, the housing may be attached to a cross-arm, a rail, an electrical conductor, etc.

(1) Note. In subclasses 187+ the electrical circuit to be protected is completed through the components within the housing. The connector means may serve also as an attaching means as in indented subclass 193, for example. The attaching means in subclass 207 is merely a means

of supporting the housing and is independent of any electrical connector structure.

208 With fuse carrier attachment means:
This subclass is indented under subclass 186. Subject matter wherein the housing, casing or support structure includes means for attaching the carrier, such as a cartridge or plug, to the support. The attaching means may or may not be unitary with the electrical contact means; for instance, spring contacts.

209 Adaptor means:
This subclass is indented under subclass 208. Subject matter wherein the attachment structure comprises adaptor means whereby fusible devices of different physical structure or dimensions may be interchangeably inserted into or supported on a common attachment device or whereby fuses of diverse current voltage rating may be interchangeably attached to a single support means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
226 for fuse adaptors which provide for fuses designed for use with a particular circuit, excluding all other fuses.

210 Combined with lockout or other circuit closure prevention means:
This subclass is indented under subclass 208. Subject matter including details of means whereby, (1) upon the insertion of a fuse carrier in any position except the correct one, completion of the protected electric circuit is prevented, or (2) includes elements within the housing adapted to cooperate with elements of the fuse carrier to prevent completion of the electrical circuit when the fuse carrier is inserted into the housing.

211 With pull out or ejector means (for tube):
This subclass is indented under subclass 208. Subject matter including mechanical means connected to the fuse carrier, or the housing, in such a manner as to cause the bodily removal of the fuse carrier from the attachment means when actuated and thereby breaking continuity of an electrical circuit between external circuit connector means. The pull out means usually consists of a handle or bail structure while the ejector means may be a mechanism automatically operable upon the opening of a door or closure for removing the fuse contacts from the support.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclasses 775+ for a metallic electrical connector having a movable or resilient securing part.

212 Door-supported:
This subclass is indented under subclass 208. Subject matter wherein the housing or casing structure includes a door or cover having attached thereto or unitary therewith means whereby a fuse carrier is supported by the door and movable as a unit therewith into and out of operating position.

SEE OR SEARCH THIS CLASS, SUBCLASS:
196 for connector means for fusible element means placed in an open or closed circuit condition by movement of an associated door or closure means.

213 Peculiarly adapted for cartridge fuse:
This subclass is indented under subclass 208. Subject matter including means peculiarly adapted for the securing of a cartridge type fuse, or fuses, to the housing, casing or support device.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclasses 830+ for a metallic electrical connector for receiving and resiliently gripping the end contact of an elongated fuselike component.

214 With clamping, latch, or other attachment means:
This subclass is indented under subclass 213. Subject matter including latch or other attachment means adapted to prevent the fuse carrier from separating from its support means until such time as the latch, or other attachment device is either automatically or manually released.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclass 832 for a resilient fuse clip with a movably

attached user manipulated locking, contact retaining, or spring spreading means.

215 Spring clip:
This subclass is indented under subclass 214. Subject matter wherein the clamping or latching means consists of a spring clip.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclasses 830+ for a metallic electrical connector for receiving and resiliently gripping the end contact of an elongated fuselike component.

216 Peculiarly adapted for plug-type fuse carrier (e.g., fuse block):
This subclass is indented under subclass 208. Subject matter comprising means specifically adapted for the attachment of a plug type fuse carrier in the housing, casing or support. These devices are usually referred to as fuse blocks.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclass 620.26 for an electrical connector combined with a named fuse or comprising a casing, housing, or holder for receiving and fully enclosing a fuse; and subclass 698 for an electrical connector specially adapted to receive and support an elongated fuselike device, e.g., a cartridge-type fuse, etc., having end contacts.

217 Fuse link extraction or expulsion means:
This subclass is indented under subclass 142. Subject matter comprising means whereby the unfused portion of a fuse link is automatically withdrawn from the fuse carrier upon the severing of the fusible element, or the remaining ends of the fusible element are separated upon failure or burning of the fusible section.

(1) Note. The fuse element generally constitutes one component of the fuse link, the fuse link embraces all the components from a first contact to the second contact such as contact, attaching means, conductor, fusible element, conductor, second contact, while the fusible element is restricted to that material which is meltable upon the application of excess heat.

218 Combined with contact structure:
This subclass is indented under subclass 217. Subject matter wherein the fuse link extraction means is specifically described as cooperatively combined with or forming an integral part of at least one contact means which acts to complete the electrical circuit when the fuse is in the unblown condition.

(1) Note. In the fuse tensioning means in subclass 190, the flexible main live contact members act when engaged with the fuse to maintain the fuse link in a state of tension, but no means is provided for withdrawing the fuse link except the effect of gravity. In the devices in subclass 218 a further positive means, for physically withdrawing the fuse link, is combined with the movable contact and performs its function independently of the circuit opening operation.

219 Spring means:
This subclass is indented under subclass 217. Subject matter wherein the extraction or expulsion means comprises, at least in part, a spring biasing means whereby a force is exerted to eject the remains of a fuse link after rupture of the fusible portion takes place.

SEE OR SEARCH THIS CLASS, SUBCLASS:
275 below, for arc extinguishing means wherein rod type contacts directly attached to the fusible elements are bodily forced apart when the fuse is blown under the influence of a tensioned spring means.

SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, subclasses 1+ for safety and protection of systems and devices, subclasses 15+, 38+, and 275.1+ for fusible elements combined with particular devices to be protected.

220 Pressure responsive:
This subclass is indented under subclass 217. Subject matter including means whereby the fuse link is expelled under the influence of gaseous pressure generated upon rupture of the

element or by explosive or expansible material heated by current traversing the fuse.

(1) Note. For devices utilizing deionizing gas or vapor generating material for the purpose of blowing out an arc and in which expulsion of the fuse link occurs in the process of or incidental to the blowing out of the arc, search subclasses 273+ particularly indented subclass 281.

SEE OR SEARCH CLASS:

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 43+ for arc extinguishing means utilizing an air current and in which fuse extraction may accompany the blow out function.

221 With electrical shunt circuit means (may also be fusible):

This subclass is indented under subclass 142. Subject matter including significant details of means whereby a shunt circuit is provided in parallel with the fusible element thereby increasing the maximum fusing current of the device. The devices to be found here are generally of the high voltage type.

(1) Note. When the sole purpose of the shunting circuit is to conduct current through a light or other indicating means, classification will be in subclass 241 as an indicating device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

158+, for fuses claimed as “high voltage” or “current limiting” and employing a resistance in parallel with the fusible element or elements.

SEE OR SEARCH CLASS:

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 8+ for arc prevention means comprising an auxiliary shunt circuit combined with fuse means.

222 The switch protective means (for fuse structure):

This subclass is indented under subclass 142. Subject matter comprising means whereby the fusible element actuated switch as a whole, or some elements thereof, is protected from electrical or physical damage due to either electrical or outside conditions; for example, against shock, recoil, excessive heat or corona effects.

(1) Note. The protective means in this subclass excludes housing or casing structure, such as classified in subclasses 186+, comprising structure apart or separate from a mere housing, whereby damage to the switch is prevented. Note that even the shunt circuit means in subclass 221 may furnish some measure of protection against overload.

SEE OR SEARCH THIS CLASS, SUBCLASS:

97 for electrothermal, bimetallic element switch with switch structure protective means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 156 for electromagnetically actuated switches with protective means.

439, Electrical Connectors, subclasses 190+ for an electrical connector having a retainer or passageway for fluent material; subclasses 382+ for an electrical connector including vibration cushioning or absorbing means; subclasses 449+ for an electrical connector with stress relieving means; subclasses 485+ for an electrical connector with provision to dissipate, remove, or block the flow of heat; subclasses 519+ for an electrical connector with provision the restrict environmental effects; and subclasses 607.01 - 607.05 for a connector having or providing an inductive or capacitive shield.

223 Against shock or recoil:

This subclass is indented under subclass 222. Subject matter wherein the protective means is specifically recited as adapted to prevent damage resulting from shock, vibration or recoil.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 193 for electromagnetic switches with contact vibration, bounce or chatter prevention means.

439, Electrical Connectors, subclasses 382+ for an electrical connector including vibration cushioning or absorbing means.

224 Against corona (e.g., shield):

This subclass is indented under subclass 222. Subject matter comprising means whereby the fusible element actuated switch device is protected against damage due to the ionization of the surrounding atmosphere, caused by a voltage gradient above a critical value. These devices, for the most part, comprise corona shields.

SEE OR SEARCH THIS CLASS, SUBCLASS:

199 for fusible element switch having a housing, casing, or support with electrical ground, shield or barrier.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclass 127 for conductor structure with corona prevention.

225 With overfusing or tamper prevention means:

This subclass is indented under subclass 142. Subject matter including (1) means specifically adapted for limiting the capacity of the fuse which can be used in the device, (2) means for limiting a fuse carrier to use only with a particular fuse element designed for use therewith, (3) means to prevent the unauthorized removal or tampering with a fuse once it has been inserted into a holder or means to prevent the substitution of a metallic nonfusible device in a fuse holder.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 43.01+ for mechanical switches with means for preventing unauthorized use.

361, Electricity: Electrical Systems and Devices, subclasses 627+ and 644+ for panel boards with selective means which prevents interchangeability of circuit control devices.

226 Special adaptor or other selective means:

This subclass is indented under subclass 225. Subject matter including adaptor or rejector means which will, when inserted or incorporated in a housing, casing or socket, will operate to exclude the use of all fuses except those designed for use in the particular electric circuit which is to be protected.

SEE OR SEARCH THIS CLASS, SUBCLASS:

209 for fuse adaptors designed to permit ready interchange of diverse types of fuses.

SEE OR SEARCH CLASS:

361, Electricity: Electrical Systems and Devices, subclasses 627+ and 644+ for panel board structure designed to prevent interchangeable insertion of diverse circuit breaking devices.

439, Electrical Connectors, appropriate subclasses; especially subclasses 133+ for an electrical connector with unauthorized connection preventer, e.g., key or combination lock; subclasses 304+ for means to retain a coupling part in engagement, including a “key” or combination lock to prevent separation from a mating part; and subclass 831 for a resilient spring clip adapted to receive the end contact of an elongated, fuselike component, which spring clip is combined with a contact rejection feature or an adapter.

227 Fuse link carrier or holder:

This subclass is indented under subclass 142. Subject matter wherein the structure specifically relates to a subcombination of elements consisting of at least one fusible link combined with enclosing or holding means, which enclosing means is adapted to provide a continuous electrical circuit between clips or other terminal means through the fuse links. The holder is generally of two types: (1) a tube of insulating material, or (2) a plug of insulating material adapted to screw into a conductor

socket. However, the holder may take other forms such as a wafer or grasshopper type.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 623 for the assembly and manufacture of electrical devices including fuse cartridges.

361, Electricity: Electrical Systems and Devices, subclasses 271+ for electrical capacitor structure with housing or tube structure similar to that used with fuses.

493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, subclasses 269+ for manufacture of a fuse tube.

228 Cartridge or tube:

This subclass is indented under subclass 227. Subject matter wherein the carrier or holder means is specifically recited as comprising a cartridge or tube.

229 With plural fuse links or elements:

This subclass is indented under subclass 228. Subject matter wherein the claimed structure includes at least two or more fusible elements or links in combination with a cartridge or tube and each being adapted to be inserted in an electrical circuit to be protected.

SEE OR SEARCH THIS CLASS, SUBCLASS:

144 for plural electrothermally responsive fuses combined with a single mechanical contact control means.

412 for a plurality of thermally actuated fuse elements combined with a single circuit completion means.

230 Selectively or successively insertable in common circuit:

This subclass is indented under subclass 229. Subject matter including means whereby individual ones of the plurality of fusible elements may be selectively or successively inserted between the terminals of a common electric circuit which is to be protected.

SEE OR SEARCH THIS CLASS, SUBCLASS:

284+, for plural independent complete fuses which may be selectively or sequentially inserted in the same protected circuit.

231 With fuse link attaching support or securing means:

This subclass is indented under subclass 228. Subject matter including significantly recited means whereby at least one fusible link or element is securely attached to or supported within a cartridge. The securing means generally comprises cooperative elements whereby a continuous electrical circuit is completed between the securing means through the fusible element.

232 Soldered or brazed joint:

This subclass is indented under subclass 231. Subject matter wherein the attaching or securing means is specifically recited as consisting of a soldered or brazed joint.

233 Rigid bar means:

This subclass is indented under subclass 231. Subject matter wherein the attaching or securing means is specifically recited as including a rigid bar member upon which a fusible element is supported in a manner to prevent undue stress in the element. The bar usually consists of a rigid member of insulating material supporting at each end one end of a low tensile strength fuse element.

234 Locking or clamping means:

This subclass is indented under subclass 231. Subject matter wherein the attaching or securing means includes significant details of cooperative interfitting elements combined with or attachable to the fuse element and the cartridge whereby when a fusible link or element is inserted therebetween and the cooperating elements are drawn together (as by screw threads, for example) the fusible element is caused to be locked or clamped in operative position.

235 Threaded screw or stud:

This subclass is indented under subclass 231. Subject matter wherein the attaching or securing means includes significant details of at least one threaded screw or stud device whereby the fusible element is rigidly attached to a contact or other current conductive element upon assembly of the device.

236 Wedging or camming means:
This subclass is indented under subclass 231. Subject matter wherein the attaching or securing means includes significant details of means whereby the fusible link or element is secured by wedging or camming action between the associated parts of the device.

237 Replaceable or readily interchangeable:
This subclass is indented under subclass 231. Subject matter wherein the attaching or securing means includes significant details of means whereby the fuse link or element may be readily detached, replaced or interchanged at the will of an operator.

238 With fuse link tensioning means:
This subclass is indented under subclass 228. Subject matter including significant details of means associated with the tube or cartridge whereby the fuse link or element is maintained in the tube under the tension when in the unfused condition. The fuse tensioning means may and generally does act to separate the ends of the fusible element when melting takes place.

SEE OR SEARCH THIS CLASS, SUBCLASS:
217+, for fuse structure with extraction or explusion means whose primary function is to remove the unblown remnants of the fuse element after rupture, but which may incidently serve as fuse element tensioning means.

239 Spring or other energy storage means:
This subclass is indented under subclass 238. Subject matter wherein the tensioning means is specifically recited as consisting of or comprising spring or other energy storage means.

240 The strain member:
This subclass is indented under subclass 239. Subject matter including a flexible fusible element, as one component of the fuse link, in combination with a wire or other strain member. The strain member is designed to take the full force of the spring tensioning means as long as the fuse is conducting thereby protecting the fuse from any tensile stress. Usually, as soon as the fuse ruptures and becomes nonconducting, the strain wire becomes heated and in turn is ruptured thereby allowing the ends of the fusible element to be separated.

241 With indicating or inspection means:
This subclass is indented under subclass 228. Subject matter wherein the cartridge or tube structure is recited as including means whereby the physical condition of the fusible element may be readily ascertained, as by visual or audible perception.

(1) Note. For other signals or indicators used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 79.

SEE OR SEARCH THIS CLASS, SUBCLASS:
265+, for plug type fuse carriers with indicating means. See (1) Note above.

SEE OR SEARCH CLASS:
340, Communications: Electrical, subclasses 638+ for electrical signals and/or alarms responsive to the condition of a fuse.

242 Glow lamp:
This subclass is indented under subclass 241. Subject matter wherein the indicating means is specifically recited as being a glow lamp.

SEE OR SEARCH THIS CLASS, SUBCLASS:
266 for plug type fuse carriers with glow lamp indicating means.

243 Chemical means:
This subclass is indented under subclass 241. Subject matter wherein the indicating means is specifically recited as consisting of a chemical composition which is capable of changing state or color upon the application of heat due to rupture of the fusible element, as, for example, pyrotechnic compositions.

SEE OR SEARCH CLASS:
149, Explosive and Thermic Compositions or Charges, subclasses 37+ for pyrotechnic compositions, per se, useful as indicating means.

244 Movable or displaceable element (e.g., plunger or semaphore):

This subclass is indented under subclass 241. Subject matter wherein the indicating or inspection means comprises a mechanical device capable of changing its position in response to a blown condition of the fusible element. For example, the indicating means may consist of a slidable plunger or semaphore.

(1) Note. In several of the patents classified herein, the plunger type indicator comprises a striker pin device which may or may not perform another function such as an actuator for some external device. These are classified here on the assumption that the primary function of the striker pin is as an indicator of the condition of the fuse element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

267 for plug type fuse carriers with plunger or semaphore type indicators.

SEE OR SEARCH CLASS:

116, Signals and Indicators, subclasses 216+ for fusible thermal indicators.

200, Electricity: Circuit Makers and Breakers, subclasses 308+ for indicator structure for mechanical switches.

340, Communications: Electrical, subclasses 638+ for automatic signals and/or indicators which are responsive to the blown condition of a fuse and employ plunger means.

245 With handle or other manipulating means:

This subclass is indented under subclass 228. Subject matter wherein the cartridge or tube structure includes a handle or other manual manipulating device rigidly attached to or united therewith, whereby the cartridge or tube may be manipulated at the will of an operator.

246 Cartridge or tube structure or material of construction:

This subclass is indented under subclass 228. Subject matter wherein the cartridge or tube is specifically recited as comprising particular structural elements or consisting of a particular composition of matter; as, for instance, a ceramic mixture or synthetic resin compound.

SEE OR SEARCH THIS CLASS, SUBCLASS:

273 especially indented subclass 279, for arc suppression or extinguishing means comprising a tubular structure containing gas or vapor generating material.

SEE OR SEARCH CLASS:

493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, subclasses 269+ for making a paper fuse tube.

501, Compositions: Ceramic, appropriate subclasses for ceramic materials which are used as electric insulators, especially subclasses 127+ and 134+ for clay containing compositions; and subclasses 141+ for titanates and similar material containing compositions.

247 Plural tubes (e.g., telescoping):

This subclass is indented under subclass 246. Subject matter wherein the cartridge or tube structure is recited as comprising at least two separate tubular elements interfitted one with the other. The tubes may be fixedly related or relatively movable. They may be of diverse electrical or material characteristics, as for example, a frangible tube within a metallic or other reinforcing tube.

SEE OR SEARCH THIS CLASS, SUBCLASS:

273+, for devices having a liner consisting of gas evolving material whose sole purpose in the combination is for the prevention of or smothering of an arc.

248 Ferrule, cap or other seal means:

This subclass is indented under subclass 228. Subject matter wherein the cartridge or tube structure includes significantly recited ferrule, cap or seal means in cooperative relationship with the cartridge or tube. For example, (1) the sealing means may be a means for hermetically sealing a dielectric tube or cartridge, (2) the cap means may be frangible and adapted to rupture upon the destruction of the fuse element, (3) a cap and seal combination may serve

to prevent the escape of gases upon the rupture of the fuse.

SEE OR SEARCH THIS CLASS, SUBCLASS:

251+, for cartridge type fuse structure consisting of metallic ferrules or caps serving as a means for completing an electrical circuit through the fuse device.

249 With gas expulsion means:

This subclass is indented under subclass 228. Subject matter wherein the cartridge or tube structure includes significant details of means adapted for the expulsion of any gas from the cartridge or tube resulting from the rupture or destruction of the fusible element, thereby facilitating the breaking of a protected circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

203 for apparatus consisting of a electrothermally responsive fuse combined with a housing structure with means for expulsion or venting of gases from the housing.

281 for gaseous blowout means for arc suppression.

250 Venting, cooling or deionizing:

This subclass is indented under subclass 249. Subject matter wherein the gas expulsion structure includes significant details of means comprising an opening or passage to the outside atmosphere thereby relieving pressure inside the tube, means for cooling the gas (as by an expansion chamber) or deionizing means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

279 for arc suppression or extinguishing means utilizing deionizing gas generating material.

280 for cooling means for the arc.

251 Contact or terminal structure:

This subclass is indented under subclass 228. Subject matter wherein the cartridge or tube structure includes significantly recited metallic cap, ferrule or other conducting means normally attached to the tube and serving to complete an electrical circuit from one line terminal to another through the fuse element.

(1) Note. For other contact or terminal structures used in devices of this class, see the subclasses listed under subclass 26.

SEE OR SEARCH THIS CLASS, SUBCLASS:

248 for similar subject matter where the primary function of the ferrule or cap is to act as a seal.

413 for thermally responsive fuse devices with significant contact structure or composition of material.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 874+ for processes of manufacture for contacts and terminals and subclass 756 for manufacturing apparatus for assembling electrical apparatus which may be a cartridge fuse.

200, Electricity: Circuit Makers and Breakers, subclasses 275+ for details of switch structure in general including contact structure.

439, Electrical Connectors, appropriate subclasses for electrical terminal or contact structure.

252 Attaching or securing means (to the tube or to the fusible element):

This subclass is indented under subclass 251. Subject matter including significantly recited means comprising cooperative elements on the tube or cartridge and on the contact or terminal means whereby the contact or terminal structure is rigidly affixed to the tube or cartridge.

253 Locking, clamp or wedge means:

This subclass is indented under subclass 252. Subject matter wherein the attaching or securing means includes locking, clamp or wedge means, such as a bayonet connection for instance.

254 Knife blade contact withslotted disk:

This subclass is indented under subclass 253. Subject matter including knife blade type contacts cooperatively associated with slotted desk elements.

255 Plug:
This subclass is indented under subclass 227. Subject matter wherein the structure is significantly recited as consisting of a plug type container adapted to be screwed or slidably connected in an electric circuit.

(1) Note. The subject matter classified herein usually consists of a plug combined with at least one fusible element and adapted to be screwed or otherwise inserted into a matching socket carrying electrical contacts adapted to cooperate with the plug in such a manner as to complete an electrical circuit through the fusible element when the plug is fully inserted in the socket.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclasses 660+ for an electrical connector of the plural contact plug or receptacle type.

256 Plural fusible elements in a single carrier:
This subclass is indented under subclass 255. Subject matter including at least two or more separate fusible elements combined with a single plug type carrier.

SEE OR SEARCH THIS CLASS, SUBCLASS:
283+, for plural independent fuses independently operative.
290+, for fuse link structure, per se, consisting of plural elements.
412 for thermally responsive fuse actuated devices having a plurality of independent fuse elements with a single circuit completion means.

257 Selectively or successively insertable in protected circuit:
This subclass is indented under subclass 256. Subject matter including significantly recited means whereby the individual fusible elements may be selectively or successively inserted into a common electric circuit. The selection means may be either automatic or manually operated.

258 Selection means:
This subclass is indented under subclass 257. Subject matter comprising means peculiarly adapted to perform the selection operation whereby the separate fusible elements are inserted into the electric circuit.

259 Rotatable relatively movable:
This subclass is indented under subclass 258. Subject matter wherein the selection means comprises relatively movable, rotatable, mechanical elements as, for example, a rotatable spider rotating about a fixed axis or pivot.

260 With fuse element attachment or securing means:
This subclass is indented under subclass 255. Subject matter comprising significantly recited means whereby at least one fusible element is attached to or secured within the plug type carrier in fixed engagement with contact means thereby completing a conductive circuit therebetween.

SEE OR SEARCH THIS CLASS, SUBCLASS:
231+, for similar structure combined with a cartridge or tube.

261 Resilient biasing or retaining means:
This subclass is indented under subclass 260. Subject matter wherein the attachment or securing means is recited as comprising resilient spring or other biasing means whereby the fusible element may be retained in an operative position under tension until ruptured.

262 Particularly adapted for specific fuse element:
This subclass is indented under subclass 260. Subject matter including significantly recited selective means consisting of complementary or cooperative mechanical features on the plug and fuse element whereby the use of any fusible element except one specifically adapted for that particular plug type carrier is prohibited; for example, the device may be constructed to take only a ribbon fuse of a certain width or other dimension.

SEE OR SEARCH THIS CLASS, SUBCLASS:

225 for similar subject matter with overfusing or tamper prevention means, and consult the "SEARCH CLASS" notes thereunder for a field of search in other classes.

263 Cartridge or capsule enclosed:

This subclass is indented under subclass 262. Subject matter including significant details of means whereby the plug type carrier is adapted to accommodate only a fusible element which is sealed or enclosed in a further cartridge or capsule type container.

264 Readily replaceable or detachable element:

This subclass is indented under subclass 260. Subject matter wherein the attachment or securing means includes mechanical structure whereby a fuse element may be readily detached or replaced. The devices to be classified herein are of the type known as "renewable fuses".

SEE OR SEARCH THIS CLASS, SUBCLASS:

237 for similar subject matter relating to cartridge fuses.

265 With indicating means:

This subclass is indented under subclass 255. Subject matter including significant details of means associated with or forming an integral part of the structure of the plug type fuse carrier, whereby the physical condition of the fusible element may be readily ascertained as by visual or audible perception.

(1) Note. For other signals or indicators used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 79.

SEE OR SEARCH THIS CLASS, SUBCLASS:

241+, above the cartridge fuse devices with indicating or inspection means. See (1) Note above.

SEE OR SEARCH CLASS:

116, Signals and Indicators, subclass 106 for fusible controlled thermal alarms and subclasses 216+ for visual indicators operable by changes of temperature.

200, Electricity: Circuit Makers and Breakers, subclasses 308+ for indicators for switches in general.

340, Communications: Electrical, subclasses 638+ for automatic alarms responsive to the condition of a fuse.

374, Thermal Measuring and Testing, subclasses 106 and 160 for indicative devices wherein a fusible element constitutes an indicator.

266 Glow lamp or other incandescent means:

This subclass is indented under subclass 265. Subject matter wherein the indicating means is specifically recited as being a glow lamp or other incandescent means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

242 for similar subject matter in a cartridge type fuse.

267 Plunger or semaphore type:

This subclass is indented under subclass 265. Subject matter wherein the indicating means includes significantly recited details of a mechanical plunger or semiphore device whose position visually indicates the condition of a fusible element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

244 for similar subject matter in a cartridge type fuse device.

268 Contact or terminal structure:

This subclass is indented under subclass 255. Subject matter wherein the carrier structure includes significant details of contact or terminal structure whereby an electrical circuit is normally completed through the fuse link or element when the plug is inserted into a socket.

(1) Note. For other contact or terminal structure used with devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 26.

SEE OR SEARCH THIS CLASS, SUBCLASS:

186+, for the combination of a fuse plug in combination with a socket or connector and in which the housing has blade or prong type contacts adapted to be inserted into a service outlet and the socket or connector is intended only as a means for connecting the plug fuse into a circuit.

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclasses 660+ for an electrical connector comprising a plural contact plug or receptacle.

269 Plural diverse (e.g., male and female):

This subclass is indented under subclass 268. Subject matter including significant details of a combination of contacts or terminals (male and female) whereby the fuse plug may be utilized in the manner of a plug-in receptacle or a connector between an electrical outlet and an appliance cord. Note that the structure classified here usually has a double function with the main function being as a fuse carrier, the fuse being directly attached to or housed within the plug.

SEE OR SEARCH THIS CLASS, SUBCLASS:

197 for housed, fusible element switches with plural diverse connectors (e.g., male and female).

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclass 620.26 for an electrical connector combined with a fuse or comprising a casing, housing, or holder for receiving and fully enclosing a fuse.

270 Structure or composition of material:

This subclass is indented under subclass 255. Subject matter relating to significant features of construction of or composition of material in a plug type fuse carrier.

SEE OR SEARCH CLASS:

428, Stock Material or Miscellaneous Articles, subclass 686 for a metallic composite having adjacent components, each of which is claimed in terms of its function, e.g., low melting.

501, Compositions: Ceramic, appropriate subclasses for ceramic material which are used as electric insulating compositions, especially subclasses 127+ and 134+ for clay containing compositions; and subclasses 141+ for titanates and similar material containing compositions.

271 Part of or structurally adapted for use with particular socket means:

This subclass is indented under subclass 270. Subject matter wherein the plug structure is significantly recited as comprising structural features whereby the plug is restricted to use only with a particularly designed socket having cooperative or complementary parts adapted for mating connection with the plug.

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclasses 660+ for an electrical connector comprising a plural-contact plug or receptacle.

272 With venting means:

This subclass is indented under subclass 270. Subject matter including significant details of means whereby any gases generated within the plug, upon the operation of the fusible element, may be expelled through venting passages open to the atmosphere.

273 With arc suppression or extinguishing means:

This subclass is indented under subclass 142. Subject matter including significantly recited means whereby an electric arc or discharge which is established or tends to be established, between the ends of a fusible element when ruptured, or between contacts controlled by the fusible element, is either prevented from starting or is smothered or otherwise suppressed after starting.

SEE OR SEARCH CLASS:

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 1+ for arc preventing and extinguishing devices for mechanical switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 201 for electromagnetically actuated switches with arc suppression means.

361, Electricity: Electrical Systems and Devices, subclasses 2+ for safety and protective devices with contact arc suppression means.

274 Plural (e.g., auxiliary fuse):

This subclass is indented under subclass 273. Subject matter wherein the arc suppression of quenching structure includes at least two or more means adapted to act conjointly or independently to suppress or smother the arc. For example, the separate means may comprise gas evolving material acting conjointly with magnetic means, etc., or may include the so-called "multibreak" devices in which a series of arcs are generated, thereby providing arc extinguishing gas blasts at each point of break or rupture.

SEE OR SEARCH CLASS:

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 2+ for multiple break arc preventing and extinguishing means for mechanical switches.

275 With draw-out rod:

This subclass is indented under subclass 274. Subject matter wherein at least one of the suppression or extinguishing means consists of a draw out rod. The draw out rod devices usually consist of a relatively massive metallic rod functioning as a movable contact normally connected in the circuit by a fuse and being withdrawn instantly, upon the blowing of the fuse, through a chamber or passage wherein the arc is extinguished by one or more means.

276 Dielectric filler material or compound (e.g., quartz):

This subclass is indented under subclass 273. Subject matter wherein the suppression or extinguishing means includes or consists of a dielectric material surrounding the fusible element.

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, appropriate subclasses, particularly subclasses 163.01+ for arc extinguishing materials containing a cellulose or derivative.

277 Liquid (e.g., hydrocarbon):

This subclass is indented under subclass 276. Subject matter wherein the specifically recited dielectric material comprises a liquid. The liquid generally is of a hydrocarbon.

SEE OR SEARCH THIS CLASS, SUBCLASS:

204 for housed, fusible element switches immersed in arc insulating liquid, usually for cooling purposes.

SEE OR SEARCH CLASS:

208, Mineral Oils: Processes and Products, subclass 14 for an insulating oil comprising only mineral oil components.

252, Compositions, subclasses 570+ for fluent dielectric compositions containing a nonhydrocarbon material.

585, Chemistry of Hydrocarbon Compounds, subclasses 6.3+ for an all-hydrocarbon insulating oil containing more than mineral oil fractions.

278 Dielectric gap or barrier means (e.g., wedging dielectric):

This subclass is indented under subclass 276. Subject matter including a dielectric material forming a gap or barrier between the two extremities of the arc when the fuse is blown thereby acting to snuff the arc.

SEE OR SEARCH CLASS:

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 89+ for arc preventing or extinguishing means comprising a non-conductive barrier.

279 Deionizing gas or vapor generating material:

This subclass is indented under subclass 273. Subject matter wherein the suppression or extinction means consists of a material capable

of generating a deionizing gas or vapor when heated.

SEE OR SEARCH CLASS:
- 174, Electricity: Conductors and Insulators, appropriate subclasses, especially subclasses 102+ for armored conductors with arc extinguishing vapor generating filler material.
- 218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 1+ and 89+ for vapor generating nonconducting material.
- 252, Compositions, subclasses 2+, especially subclass 8 for fire or arc extinguishing materials charged with volatile liquid or gas.
- 361, Electricity: Electrical Systems and Devices, subclasses 117+ for protective devices utilizing a gas generating arc quenching material.

280 Cooling, condensing or absorbing means:
This subclass is indented under subclass 273. Subject matter wherein the suppression or extinguishing means comprises means whereby the heated gases resulting from and sustained by the arc are cooled, condensed or completely absorbed.

281 Blowout means (e.g., gaseous):
This subclass is indented under subclass 273. Subject matter wherein the suppression or extinguishing means comprises means whereby a blast of air is directed across an arc to extinguish it or whereby a magnetic field is generated when the circuit is broken, the field acting to repel and break the arc.

SEE OR SEARCH CLASS:
- 218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 22+ for magnetic blow out devices for arc blow out in mechanical switches.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 201 for electromagnetically operated switches with magnetic blow out means.
- 361, Electricity: Electrical Systems and Devices, subclasses 133+ for safety and protection systems and devices with magnetic means for snuffing an arc.

282 Arcing chamber or passage structure:
This subclass is indented under subclass 273. Subject matter including significant details of chamber or passage structure wherein the arcing is confined or caused to take place or into which it is drawn for purposes of extinction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
- 275 for structure including an arc draw out rod operating in an arcing chamber, usually a cylindrical cavity.

SEE OR SEARCH CLASS:
- 218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 1+ for similar structure in a mechanical circuit breaker device.

283 Plural independent fuses:
This subclass is indented under subclass 142. Subject matter including details of at least two or more separate and distinct fuses operative independently to break an electrical circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:
- 292 and 293, for single fuse structure having a plurality of fusible elements connected in series or parallel arrangement, respectively.

284 Selectively or sequentially inserted in same protected circuit:
This subclass is indented under subclass 283. Subject matter including details of means whereby each of the individual fuses may be separately inserted in a single electric circuit in sequence or selectively at the will of an operator.

SEE OR SEARCH CLASS:
- 307, Electrical Transmission or Interconnection Systems, subclass 141.8 for series connected switches with time delay means which may comprise fusible elements.
- 361, Electricity: Electrical Systems and Devices, subclasses 103+ for thermally actuated protective devices

comprising plural fuse means in parallel.

285 Automatic selective means (e.g., repeater type):

This subclass is indented under subclass 284. Subject matter wherein the selection means is specifically recited as automatically operative.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 142 for an electromagnetically operated switch with a plurality of automatically selective fuses.

286 With delayed action selective means:

This subclass is indented under subclass 285. Subject matter wherein the automatic selective means includes structure whereby a preselected interval of time is caused to elapse between the blowing of a first fuse and its replacement by a second.

287 Hydraulic or pneumatic:

This subclass is indented under subclass 286. Subject matter wherein the time delayed selection apparatus consists of hydraulic or pneumatic means.

288 Transfer or interlock means:

This subclass is indented under subclass 285. Subject matter wherein the selective structure includes significant details of means whereby the insertion of any one fuse in a circuit is dependent upon the condition of at least one other fuse or whereby the insertion of a second fuse is prevented for as long as one other previously inserted fuse is in operative condition.

289 Rotary selector means:

This subclass is indented under subclass 284. Subject matter wherein the selector structure includes means whereby a plurality of fuses are mounted in such a way that they may be rotated around a common axis to successively or selectively connect the fixed contacts of an electrical circuit. The structure to be found here also includes devices where a plurality of fuses are fixedly mounted in such a way that at least one movable contact may be rotated into conductive relationship with each of the fuses selectively or sequentially at the will of an operator.

290 Fusible link or element structure or material:

This subclass is indented under subclass 142. Subject matter including significant details of fuse link or fuse element structure or material of construction. The subject matter to be found here relates to the structure, including a fusible element, which serves to complete a conductive path from an input terminal of a fuse to the output terminal and which structure does not form a subcombination of a more comprehensive combination classifiable elsewhere in the class or in another art class.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 623 for processes for manufacture of electrical devices including fusible elements.

102, Ammunition and Explosive Devices, subclass 262 for explosive devices comprising fuses and igniting devices.

149, Explosive and Thermic Compositions or Charges, appropriate subclasses for thermic compositions.

169, Fire Extinguishers, subclass 42 for fusible connections.

252, Compositions, subclasses 500+ for electrically conductive or emissive compositions.

420, Alloys or Metallic Compositions, for alloys suitable for fusible elements.

291 With strain-relief means:

This subclass is indented under subclass 290. Subject matter including at least one element of appreciable tensile strength parallelly connected to a fusible element of comparative weak tensile strength. The strain relief member is utilized to protect the fusible element against tensile stresses which tend to rupture it under normal conditions of usage. The strain element is usually of conducting material capable of carrying a certain amount of current both before and after the fusible element has been ruptured.

SEE OR SEARCH THIS CLASS, SUBCLASS:

240 for cartridge fuses with tensioning means including a strain relief member.

292 Plural series-connected conductive elements forming a single link:

This subclass is indented under subclass 290. Subject matter wherein the fuse link structure comprises at least two or more conductive segments, series connected, at least one or more being of a readily fusible material. The devices classified herein usually comprise high melting point elements connected at their inner ends by low melting point material such as solder or other alloy.

293 Plural parallel fusible elements:

This subclass is indented under subclass 290. Subject matter including at least two or more fusible elements parallelly connected between the fuse contacts and forming parallel current paths.

SEE OR SEARCH THIS CLASS, SUBCLASS:

161+, for high voltage current limiting fuse devices utilizing plural fusible elements.

294 Continuous strand adapted for successive insertion in protected circuit:

This subclass is indented under subclass 290. Subject matter wherein the fusible element consists of a continuous strand or wire adapted for successive insertion of undamaged portions thereof between the contacts of an electrical circuit to be protected.

SEE OR SEARCH THIS CLASS, SUBCLASS:

416 for similar structure in thermally actuated fuse controlled switches.

SEE OR SEARCH CLASS:

362, Illumination, subclass 6 for a combined light and structure utilizing a continuous strand of volatilizable material as a source of light flashes.

295 With particular geometrical shape or configuration:

This subclass is indented under subclass 290. Subject matter wherein the fusible element is described as being of particular geometrical shape or configuration.

SEE OR SEARCH THIS CLASS, SUBCLASS:

159 for current limiting fuse devices utilizing fuse elements of significant shape.

296 Composite (e.g., with overly):

This subclass is indented under subclass 290. Subject matter wherein the fusible element is described as comprising a composite structure made up of at least two or more conductive materials, as, for example, a fusible ribbon with an overlay of a more readily meltable mass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

160 for similar structure in a current limiting device.

163+, for similar structure in a delayed action fuse.

297 With nonconductive core e.g., printed circuit:

This subclass is indented under subclass 290. Subject matter wherein the fuse link structure includes significant details of at least one fusible link which is coated upon or otherwise attached to a non conducting core.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 620 for processes for the manufacture of resistors by coating resistive material on a base.

174, Electricity: Conductors and Insulators, subclass 250 for printed electrical circuits, per se.

338, Electrical Resistors, subclass 308 for an electrical resistance element printed on a base.

439, Electrical Connectors, subclasses 55+ for an electrical connector combined with a preformed panel circuit arrangement (e.g., a printed circuit board).

298 THERMALLY ACTUATED SWITCHES:

This subclass is indented under the class definition. Subject matter comprising circuit controlling means which is wholly, or for the major part, responsive to heat from the sur-

rounding atmosphere or material (i.e., thermally actuated).

(1) Note. See the definition of subclass 14 of this class for the distinction between electrothermally actuated switches and this group of thermally actuated switches.

SEE OR SEARCH THIS CLASS, SUBCLASS:

14+, for switching devices responsive to heat derived, to a major degree, from an electrical current traversing the device. See (1) Note above.

SEE OR SEARCH CLASS:

99, Foods and Beverages: Apparatus, subclasses 325+ for automatic control means for cooking apparatus, the means being thermally responsive.

219, Electric Heating, subclasses 494+ for thermally responsive means for automatically controlling the power supply or controlling the current in electric heater devices and subclasses 510+ for thermally responsive automatically operated switching means for electric heaters.

236, Automatic Temperature and Humidity Regulation, subclasses 91 through 104 for thermostatic control means for automatic temperature and humidity regulation devices.

307, Electrical Transmission or Interconnection Systems, subclass 117 for electrical switching systems responsive to light, heat, etc.

320, Electricity: Battery or Capacitor Charging or Discharging, subclasses 166+ for charging or discharging a capacitor, per se.

361, Electricity: Electrical Systems and Devices, subclasses 103+ for protective circuits with thermally responsive actuating means, and subclasses 161+ for control circuits for electromagnetic devices with thermal control means.

374, Thermal Measuring and Testing, subclasses 100+ for thermometers, per se.

439, Electrical Connectors, subclass 161 for an electrical connector having an element responsive to temperature to effect varying pressure on the contact surfaces.

299 Plural diverse actuating means in single switch:

This subclass is indented under subclass 298. Subject matter including at least two or more thermally responsive devices of diverse type cooperatively combined in a single switch device for controlling a common set of contacts. For example, the device may have an expansible fluid bellows structure combined with an expansible rod member.

SEE OR SEARCH THIS CLASS, SUBCLASS:

35 above for similar subject matter in electrothermally actuates switches.

300 Responsive to plural external conditions (e.g., temperature and humidity):

This subclass is indented under subclass 298. Subject matter wherein the thermally responsive structure is significantly described as being responsive to plural external conditions. For example, to both temperature and humidity.

SEE OR SEARCH CLASS:

236, Automatic Temperature and Humidity Regulation, appropriate subclasses especially subclasses 4, 5, 18, 19, 32, 33, 40, and 91-104 for plural condition responsive thermostatic controls.

301 With mechanical timing means (e.g., clockwork):

This subclass is indented under subclass 298. Subject matter including mechanical means, such as a clock or motor whereby the contacts of a controlled circuit are maintained closed for a definite period of time, are opened and/or closed at regular cyclic intervals, the operating range of a thermostatic device (i.e. the minimum and maximum operative temperature at which it operates) is varied at predetermined intervals of time, or whereby the thermostatic device may be prevented from functioning during certain hours. The motor structure for operating the timing means may be electric, magnetic, or spring wound.

(1) Note. For other delaying or timing means used in the devices of this class,

see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 81.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, particularly subclasses 19.01+, for periodically operated circuit breakers, per se.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 68+ for electromagnetic switches with motor operator.

302 Periodic or cyclically operative:
This subclass is indented under subclass 301. Subject matter comprising means whereby a circuit is completed and broken intermittently or cyclically at constantly recurring intervals.

(1) Note. For other cyclic or periodic actuators used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 92.

SEE OR SEARCH THIS CLASS, SUBCLASS:
51 for similar subject matter utilizing electrothermally responsive bimetallic means.
116 for similar subject matter in expansible or vaporizable fluid actuated switches.
138 for cyclically operated longitudinally expansible element actuated switches.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for periodic circuit breakers generally.
307, Electrical Transmissions or Interconnection Systems, subclass 132 for repetitive make and break switching systems.
315, Electric Lamp and Discharge Devices: Systems, subclasses 209+ for systems having a periodic switch in the supply circuit of a load or loads.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 87+ for periodically operated electromagnetic switches (e.g. vibrators).
363, Electric Power Conversion Systems, subclass 110 for an inverter system comprising a vibrator.

303 With predetermined operative cycle adjusting means:
This subclass is indented under subclass 302. Subject matter including means whereby the interval of time during which the thermally responsive device is active or inactive, to control the contacts of a circuit, may be predeterminedly fixed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
93 for cyclically controlled electrothermal, bimetallic element switches with means to adjust cyclical period.

304 With predetermined operative temperature range:
This subclass is indented under subclass 301. Subject matter including significant details of means whereby the range of temperature values which determined the operational characteristics of the device may be predeterminedly fixed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82 for electrothermally responsive bimetallic means combined with manual or mechanical contact control means and whose operative range is adjustable.
94 for similar subject matter in a device in which the contacts are directly actuated by the metallic device.

305 Utilizing cam or eccentric:
This subclass is indented under subclass 304. Subject matter wherein the operative temperature range determining means includes rotatable cam or eccentric means.

SEE OR SEARCH CLASS:
219, Electric Heating, subclass 515 for adjustable, automatic thermally responsive switch means for an electric heater.

306 Expansible or vaporizable fluid actuated:
This subclass is indented under subclass 298. Subject matter wherein the circuit controlling means comprises a device utilizing an expansi-

ble or vaporizable fluid whereby the change of volume or the pressure generated thereby transmits an actuating force to a movable contact or contacts.

(1) Note. For devices in which an expansible liquid in a container, the container acting to complete a circuit or to prevent the completion of a circuit, as by propping the contacts open, is caused to explode the container to control the circuit, search will be in this class in subclass 416 even though the device is not in fact explosive or combustible as defined in that subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

114+, for similar subject matter in an electrothermally actuated switch.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 516+ for power plants utilizing expansible or vaporizable fluid.

73, Measuring and Testing, subclasses 700+ for fluid pressure gauges with motion transmitting means actuated by expansible fluids.

219, Electric Heating, subclass 513 for automatically operative switches for electric heaters utilizing thermally responsive expansible liquid.

236, Automatic Temperature and Humidity Regulation, subclasses 4, 18, 32, 42, 56+, 64+, 86, and 99 for automatic temperature regulating devices utilizing thermally expansive fluid.

307, Electrical Transmission or Interconnection Systems, subclass 118 for switching systems responsive to pressure in a fluid and subclass 144 for fluid pressure actuator, per se.

340, Communications: Electrical, subclass 592 for automatic alarms with fluid pressure sensitive thermo-mechanical sensing means.

374, Thermal Measuring and Testing, subclasses 201+ for a thermometer utilizing an expanding fluid.

307 Plural expansible elements with single switch:

This subclass is indented under subclass 306. Subject matter including at least two or more expansible or vaporizable fluid actuated devices acting either separately or conjointly to control a common set of contacts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38+, for plural electrothermally actuated bimetallic elements combined with a single mechanical contact control device.

144 for devices comprising a plurality of electrothermally actuated fuses combined with a single contact operating means.

335+, for plural thermally responsive bimetallic elements with a single contact control means.

308 Individually responsive to diverse conditions or of diverse characteristics:

This subclass is indented under subclass 307. Subject matter including at least two or more expansible elements, each of which is significantly described as responsive to diverse environmental conditions, such as immediate ambient temperature and external temperature for example, or of diverse operating characteristics whereby the opening and/or closing of an electrical circuit is a resultant of the operative condition of all the elements.

SEE OR SEARCH THIS CLASS, SUBCLASS:

40 for similar subject matter in devices utilizing a plurality of electrothermally responsive bimetallic elements.

336 for similar devices utilizing a plurality of thermally actuated bimetallic elements.

309 Multiple contacts or external circuit completion means:

This subclass is indented under subclass 306. Subject matter including a plurality (three or more) of contacts associated with a single continuous electric circuit to be controlled or includes means whereby two or more continuous electric circuits are controlled by the con-

tact controlling means. See (1) Note under the definition of subclass 41, above.

SEE OR SEARCH THIS CLASS, SUBCLASS:

86+, for similar subject matter in devices utilizing electrothermally responsive bimetallic elements directly controlling a plurality of contacts.

145+, for similar subject matter utilizing electrothermally responsive fusible elements.

337+, for thermally responsive bimetallic elements controlling plural contacts.

310 Plural independent switches:

This subclass is indented under subclass 309. Subject matter including at least two or more separate distinct and independently operative switch devices.

SEE OR SEARCH THIS CLASS, SUBCLASS:

42+, for similar subject matter utilizing electrothermally responsive bimetallic elements.

338+, for similar subject matter utilizing thermally responsive bimetallic elements.

SEE OR SEARCH CLASS:

62, Refrigeration, appropriate subclasses, especially subclasses 4 and 235.1 for refrigeration devices utilizing plural expansible fluid type switches.

200, Electricity: Circuit Makers and Breakers, subclass 81.4 for plural fluid pressure type switches.

307, Electrical Transmission or Interconnection Systems, subclasses 113+ for electrical switching systems utilizing plural switches.

315, Electric Lamp and Discharge Devices: Systems, subclasses 320+ for discharge device systems having plural discharge device loads with plural switches.

374, Thermal Measuring and Testing, subclass 203 for bellows type thermometers with multiple distinct elements.

311 Selective, sequentially or alternately actuated:

This subclass is indented under subclass 309. Subject matter including significant means whereby each of a plurality of contact pairs may be actuated selectively, alternately, or sequentially. The movable contact may be a single contact common to each pair, i.e., may constitute the movable contact of each pair selectively.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44 for similar subject matter in switches utilizing electrothermally responsive bimetallic elements.

87 for similar subject matter in electrothermally actuated switches in which a bimetallic element directly actuates the contacts.

SEE OR SEARCH CLASS:

62, Refrigeration, subclass 156 for automatic control of refrigerators by thermal means utilizing a plurality of contacts.

200, Electricity: Circuit Makers and Breakers, subclass 16 for multiple circuit control means with pressure actuated reciprocating contacts.

236, Automatic Temperature and Humidity Regulation, appropriate subclasses, especially subclasses 99+ for expanding fluid control devices with plural selectively actuated contacts.

374, Thermal Measuring and Testing, subclasses 188+.

312 With manual or other mechanical contact control means:

This subclass is indented under subclass 306. Subject matter including significant details of manual or other mechanical means which acts conjointly with or as an intermediary between at least one expansible fluid actuated device and at least one movable contact, thereby opening and/or closing an electric circuit.

(1) Note. For other manual or mechanical control means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 115.

SEE OR SEARCH THIS CLASS, SUBCLASS:

115+, for similar subject matter utilized in an electrothermally actuated switch. See (1) Note above.

313 Combined or compound motion device:

This subclass is indented under subclass 312. Subject matter including a mechanical linkage whereby the movement of a movable contact, or contacts, results from a force applied thereto as a result of a motion in a first direction converted to a motion in a second direction; for example, a linear first motion may be converted to a rotary motion about a fixed origin or pivot as by a toggle linkage.

SEE OR SEARCH THIS CLASS, SUBCLASS:

58+, for similar subject matter in an electrothermally operated switch utilizing bimetallic elements.

350 for similar subject matter in thermally operated switches utilizing bimetallic elements.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 191 for electromagnetic switches employing compound motion mechanical contact control means.

314 Reciprocating or sliding motion:

This subclass is indented under subclass 312. Subject matter wherein the contact control means includes structure whereby the opening and/or closing of an electric circuit is complete as a result of sliding or reciprocating motion by the mechanical means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

62+, for similar subject matter utilized in electrothermally responsive bimetallic element actuated switches.

148 for similar subject matter in electrothermally responsive fusible element actuated switches.

354 for similar subject matter in thermally responsive bimetallic element actuated switches.

408+, for similar subject matter in thermally responsive, fusible, combustible or explosive material element type switches.

315 Piston or plunger:

This subclass is indented under subclass 314. Subject matter wherein the reciprocating member is specifically recited as comprising a piston or plunger.

SEE OR SEARCH THIS CLASS, SUBCLASS:

409 for thermally responsive, fusible, combustible or explosive material element switches with reciprocating plunger or piston.

SEE OR SEARCH CLASS:

236, Automatic Temperature and Humidity Regulation, subclass 100 for expanding fluid thermostatic actuating means for temperature regulators utilizing a float or piston.

374, Thermal Measuring and Testing, subclass 202 for expanding fluid type thermometers with float or piston.

316 Rotary or oscillatory motion device:

This subclass is indented under subclass 312. Subject matter wherein the mechanical contact control means is specifically recited as comprising structure whereby contact opening and/or closing is accomplished as a result or rotary or oscillatory motion of the mechanical elements.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61 for similar subject matter in an electrothermally actuated switch utilizing bimetallic elements.

149 for similar subject matter in electrothermally actuated switches utilizing fusible elements.

351+, for similar subject matter in thermally actuated switches utilizing bimetallic elements.

410 for thermally responsive, fusible, combustible or explosive material element switches with rotatable actuator.

317 With spring or other energy storage means:
This subclass is indented under subclass 312. Subject matter wherein the contact control structure includes spring or other potential energy storage means whereby a major portion of the force used in actuating the contacts of the device. The actuating force is usually transmitted to the movable contact structure through mechanical means upon the spring being released from its energy storage position.

SEE OR SEARCH THIS CLASS, SUBCLASS:
52+, for similar subject matter in electrothermally actuated switches actuated switches utilizing bimetallic elements.
342+, for similar subject matter in thermally actuated switches utilizing bimetallic elements.
388+, for thermal, longitudinally expansible element type switch with spring or other energy storage means.
407+, for thermal, fusible, combustible or explosive material type switch with spring or other energy storage means.

318 Snap-action:
This subclass is indented under subclass 317. Subject matter wherein the contact control means is specifically recited as comprising a snap action device.

(1) Note. For other snap action mechanisms used in devices of this class see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 53.

SEE OR SEARCH CLASS:
62, Refrigeration, appropriate subclasses, especially subclasses 4, 5, 156, and 235.1 for refrigerator control devices utilizing a snap action switch of the bellows type.
200, Electricity: Circuit Makers and Breakers, subclasses 402+ for snap switches, per se, and subclass 83 for fluid pressure switches with diaphragm controlled snap action.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 188 for electromagnetic switches with snap action contact actuating means.
439, Electrical Connectors, subclass 180 for an electrical connector with provision for the contact thereof to move with respect to the rest of the device and away from the mating contact quickly, i.e., by snap or quick-break action.

319 With adjusting, calibrating or compensating means:
This subclass is indented under subclass 318. Subject matter wherein the snap action structure includes means whereby some operative characteristic of the device or the thermally responsive control element by which it is actuated, may be readily adjusted, calibrated or compensated.

SEE OR SEARCH THIS CLASS, SUBCLASS:
57 and 347, for similar subject matter in other art type switches.
368 for thermal, bimetallic snap action switch with adjustment or calibration means.

320 With diaphragm or bellows structure:
This subclass is indented under subclass 306. Subject matter wherein the thermally responsive element is specifically recited as comprising a pressure responsive diaphragm or bellows structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
117 for similar subject matter in an electrothermally actuated switch.

SEE OR SEARCH CLASS:
62, Refrigeration, appropriate subclasses, especially subclasses 5, 7, and 235.1 for refrigerator controls utilizing diaphragm or bellows type expansible liquid means.
200, Electricity: Circuit Makers and Breakers, especially subclass 83 for diaphragm controlled fluid pressure switches.
236, Automatic Temperature and Humidity Regulation, appropriate subclasses especially subclasses 9, 20, 49.1, 68, and 75 for automatic temperature control apparatus utilizing similar subject matter.

310, Electrical Generator or Motor Structure, subclass 68 for electric motor structure for expansible fluid overload switches.

340, Communications: Electrical, subclass 592 for automatic alarms with fluid pressure sensors utilizing a diaphragm or bellows.

374, Thermal Measuring and Testing, subclass 203 for bellows type expanding fluid thermometers.

321 Combined with capillary tube or bore:

This subclass is indented under subclass 320. Subject matter including specifically recited details of a capillary tube or bore for the expansible fluid whereby a change of volume results from a change in ambient temperature.

SEE OR SEARCH THIS CLASS, SUBCLASS:

119 for similar subject matter in electrothermally actuated switches.

SEE OR SEARCH CLASS:

236, Automatic Temperature and Humidity Regulation, appropriate subclasses, especially subclasses 9, 21, 32, and 99 for automatic temperature control devices utilizing capillary tube pressure transmittal means.

310, Electrical Generator or Motor Structure, subclass 68 for motor structure with electric safety devices utilizing capillary tube means.

340, Communications: Electrical, appropriate subclasses, especially subclass 592 for automatic alarms responsive to temperature which may include capillary tube pressure transmitting means.

374, Thermal Measuring and Testing, subclass 202 for expanding fluid thermometers utilizing capillary tube pressure transmitting means.

322 With Bourdon tube:

This subclass is indented under subclass 306. Subject matter wherein the temperature responsive actuating means is specifically recited as including a Bourdon tube device. The Bourdon tube is a tubular structure, usually of stainless steel or other similar material with a large coefficient of expansion and bent upon itself in the shape of a sector of a torus and when subjected to heat of pressure tends to straighten out, thereby actuating a movable contact structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

114+, for similar subject matter in an electrothermally actuated switch.

SEE OR SEARCH CLASS:

73, Measuring and Testing, subclasses 732+ for Bourdon tube type fluid pressure gauges.

200, Electricity: Circuit Makers and Breakers, subclass 81.6 for Bourdon tube type pressure actuated switches.

236, Automatic Temperature and Humidity Regulation, subclasses 30 and 57 for automatic temperature regulating devices utilizing Bourdon tubes.

374, Thermal Measuring and Testing, subclass 203 for a thermometer having a fluid filled Bourdon tube.

323 With operating range calibration or adjustment means:

This subclass is indented under subclass 306. Subject matter including significantly recited details of means whereby the operative current value, or range of values, sufficient or necessary to actuate the main contact control means and thereby produce an opening or closing action thereof is predetermined, varied at will or calibrated.

(1) Note. For other range adjustment or calibration means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 82.

SEE OR SEARCH THIS CLASS, SUBCLASS:

82+, and 94, for similar subject matter in electrothermally responsive bimetallic element actuated switches. See (1) Note above.

360+, below for similar subject matter in thermally actuated switches with bimetallic elements.

324 With auxiliary heater:
This subclass is indented under subclass 306. Subject matter including significant details of structure comprising heat generating or concentrating means, such as heating coils or high resistance elements, serving to augment the heating effect of the heating medium normally surrounding or influencing the expansible fluid actuating means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
120 for similar subject matter in electrothermally responsive expansible fluid actuated switches.

325 With latching, locking or holding means:
This subclass is indented under subclass 306. Subject matter comprising significant means whereby (1) the contact control means of the temperature responsive means may be prevented from movement when the operative temperature is either below or above certain limits, (2) the contact control means may be locked in either the circuit closed or circuit open position, irrespective of a change in a temperature condition, or (3) the contacts are prevented from accidental movement from a predetermined condition.

(1) Note. For other latching or holding means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 46.

SEE OR SEARCH CLASS:
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 157+ for similar subject matter in electromagnetically operated switches.

326 Fluid or fluid pressure generating means:
This subclass is indented under subclass 306. Devices relating specifically to a particular temperature responsive fluid or fluid generating means whereby pressure is generated sufficient to actuate contact control means upon the application of heat to the device.

SEE OR SEARCH CLASS:
374, Thermal Measuring and Testing, subclass 159 for a thermometer having a fluid undergoing a change of state (e.g., volatile), or having a temperature responsive sorption effect; and subclasses 201+ for other expanding fluid thermometers.

327 Housing, casing or support means:
This subclass is indented under subclass 306. Subject matter relating specifically to significant details of housing, casing or support means peculiarly adapted for use with expansible or vaporizable fluid actuated switches.

(1) Note. For other housing or casing structures used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 20.

SEE OR SEARCH THIS CLASS, SUBCLASS:
121 for similar subject matter in electrothermally actuated switches.

328 With pressure relief (e.g., venting):
This subclass is indented under subclass 327. Subject matter including specifically recited means for relieving excess pressure generated within the housing or the fluid container, as by venting.

SEE OR SEARCH CLASS:
73, Measuring and Testing, subclass 738 for fluid pressure gauges of the Bourdon type having pressure relief means.

329 Contact structure or composition of material:
This subclass is indented under subclass 306. Subject matter including significant details of contact structure, arrangement or composition of matter.

(1) Note. For other contact structures or compositions used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 26.

SEE OR SEARCH THIS CLASS, SUBCLASS:

26 109, 137, 273, and 399, for particular contact structure in other types of electrothermally and thermally actuated switches. See (1) Note above.

122 for similar subject matter in electrothermally responsive expansible fluid actuated switches.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 874+ for processes for the manufacture of electrical contacts.

200, Electricity: Circuit Makers and Breakers, subclasses 238+ for switch contact details in general.

252, Compositions, subclasses 500+ for electrically conductive compositions.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 196+ for contact composition or structure in electromagnetic switches.

330 With relative position adjustment means:

This subclass is indented under subclass 329. Subject matter wherein the contact structure includes details of means whereby the relative position of the contacts when in the nonoperative position may be adjusted at will by an operator.

SEE OR SEARCH THIS CLASS, SUBCLASS:

323 for devices wherein the operative temperature or range of temperatures is adjusted by varying the relative position of the contacts (i.e. the movable contact).

374+, for similar subject matter in thermally responsive, bimetallic element actuated switches.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 197+ for similar subject matter in electromagnetically operated switches.

331 Comprising conductive liquid (e.g., mercury):

This subclass is indented under subclass 329. Subject matter wherein at least one of the contacts is specifically recited as comprising a conductive liquid, such as mercury.

SEE OR SEARCH THIS CLASS, SUBCLASS:

21 for conductive fluid switches of the electrothermally actuated type.

80 for bimetallically actuated electrothermal switches with mercury contacts.

273 for similar subject matter in thermally responsive bimetallic element actuated switches.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 182+ for liquid contact mechanical switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 47+ for electromagnetically operated mercury switches.

332 With signaling, alarm or visual indicator means:

This subclass is indented under subclass 306. Subject matter including significant details of signal, alarm or other indicating means whereby the operative condition of the switch or some abnormal occurrence within the switch structure may be readily ascertained visually, audibly or by a combination of both.

(1) Note. For other signals or indicators used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 79.

SEE OR SEARCH CLASS:

116, Signals and Indicators, subclasses 102+ for thermally expansible fluid actuated alarms and subclasses 216+ for thermally actuated indicators of the mechanical type.

200, Electricity: Circuit Makers and Breakers, subclasses 81+ for fluid pressure actuated switches in general with indicator means and subclasses 308+ for indicators, per se.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 17 for electromagnetically actuated circuit breakers with indicating means.

340, Communications: Electrical, subclasses 584+ and 664 for automatic alarms responsive to a condition such as heat or electrical current.

333 With bimetallic element:

This subclass is indented under subclass 298. Subject matter including at least one thermal responsive composite element consisting of two different metals, bonded together, and having different coefficients of expansion, such that when heated, a bending motion of the composite element results. The resultant motion is utilized either directly or through an intermediate mechanical means to control the opening and/or closing of an electrical circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

36+, for corresponding subject matter utilizing electrothermally responsive bimetallic elements.

SEE OR SEARCH CLASS:

99, Foods and Beverages: Apparatus, subclasses 325+ for automatic control of food cooking utensils with bimetallic thermostatic control.

137, Fluid Handling, subclasses 457 and 468 for thermostatically controlled values.

219, Electric Heating, subclass 494 and 510+ for automatic control, regulating or switch means for electric heaters utilizing bimetallic thermostats.

236, Automatic Temperature and Humidity Regulation, subclasses 5, 19, 33, 43, 59, and 96 for automatic temperature regulators utilizing bimetallic thermostats.

252, Compositions, subclass 70 for thermostatic compositions.

314, Electric Lamp and Discharge Devices: Consumable Electrodes, subclasses 89+ for thermostatic operators for consumable electrodes.

315, Electric Lamp and Discharge Devices: Systems, subclass 72 for flashers utilizing a bimetallic periodic switch.

318, Electricity: Motive Power Systems, subclasses 471+ for automatic motor control devices with thermostatic means.

320, Electricity: Battery or Capacitor Charging or Discharging, subclasses 166+ for charging or discharging a capacitor, per se.

322, Electricity: Single Generator Systems, subclasses 33+ for automatic controls responsive to thermal conditions.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 145 for electromagnetic switches with bimetallic element.

340, Communications: Electrical, subclasses 593+ for automatic alarms responsive to temperature and utilizing thermostats.

361, Electricity: Electrical Systems and Devices, subclasses 103+ and 124+ for thermally actuated safety and protective devices comprising bimetallic elements.

374, Thermal Measuring and Testing, subclasses 205+ for expanding solid type thermometers utilizing bimetallic elements.

428, Stock Material or Miscellaneous Articles, subclasses 616+ for composite metallic stock having heat-deflectable characteristics.

334 With manual or other mechanical contact control means:

This subclass is indented under subclass 333. Subject matter comprising manual or other mechanical means acting conjointly or cooperatively with at least one bimetallic device, or which acts as an intermediary between the thermally responsive bimetallic element and at least one movable contact, thereby opening or closing an electrical circuit. The manual means may be a handle or push button actuated means, for instance or the other mechanical means may be any combination of mechanical elements, as a toggle for instance.

(1) Note. For other manual or mechanical controls used in this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 115.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37+, for similar subject matter in an electrothermally actuated switch. See (1) Note above.

335 Plural elements combined with single mechanical means:

This subclass is indented under subclass 334. Subject matter including at least two or more thermal responsive bimetallic elements, combined with a further single mechanical contact controlling means. The bimetallic elements may operate jointly or individually to control the movable contact or contacts through the agency of the mechanical means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38+, for similar subject matter in an electrothermally actuated switch.

336 Individually responsive to diverse conditions or of diverse operating characteristics:

This subclass is indented under subclass 335. Subject matter wherein each of the thermal responsive elements is significantly described as responsive to different environmental conditions such as, to a local heating medium and atmospheric conditions, or of diverse operating characteristics whereby the opening or closing of an electrical circuit is a resultant of the operative condition of all the elements, i.e., differential.

SEE OR SEARCH THIS CLASS, SUBCLASS:

40 for similar subject matter in an electrothermally actuated switch.

337 Multiple contact or plural circuit control means:

This subclass is indented under subclass 334. Subject matter including a plurality (three or more) of contacts associated with a single continuous electrical circuit, or includes means whereby two or more continuous electric circuits are controlled by the contact control means.

(1) Note. Under the definition of subclass 41 should be consulted in determining the scope of the subject matter contained in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

11 for fusible element switch with multiple circuit contact means combined with diverse art switch.

41+, for similar subject matter in an electrothermally actuated switch.

145+, for fusible element actuated switch with multiple circuit contact means.

338 Plural separate switches:

This subclass is indented under subclass 337. Subject matter comprising at least two or more separate distinct and independently operative switch devices whereby two or more separate and distinct electrical circuits may be controlled. See (1) Note under the definition of subclass 42 above to determine the scope of the subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

42+, for similar subject matter in an electrothermally actuated switch.

339 With interlocking:

This subclass is indented under subclass 338. Subject matter including means whereby the plural switching devices are rendered interdependent, one on the other, thereby being caused to operate alternately, successively, or selectively; the operation of each one depending upon conditions in at least one other; for example, one device is prevented from operating while another is in an operated position, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

43 for similar subject matter in an electrothermally actuated switch.

340 With contacts selectively, alternately or sequentially actuated:

This subclass is indented under subclass 337. Subject matter wherein the structure, whereby each of a plurality of contact pairs is con-

trolled, may be actuated selectively, alternately, or sequentially. The movable contact may be a single contact common to each pair, i.e., may constitute the movable contact for each pair selectively.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44 for similar subject matter in an electrothermally actuated switch.

341 With time-delay means:

This subclass is indented under subclass 334. Subject matter including significant details of means whereby the act of opening or closing of the main switch contacts takes place at an appreciable interval of time after an actuating force is applied to the contact actuating means, or the operative interval of the switch is controlled by varying the amount of heat or the rate of heating applied to the thermal responsive means.

(1) Note. For other delay or timing means used in devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

81 for similar subject matter in an electrothermally actuated switch. For other delay or timing means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS of subclass 81.

342 With spring or other energy storage means:

This subclass is indented under subclass 334. Subject matter wherein the structure includes spring or other potential energy storage means whereby a major portion of the force exerted in actuating the contacts of the switch from one condition to another is derived. The actuating force is usually transmitted to the movable contact structure through mechanical means upon the spring being released from its energy storage position.

(1) Note. For other spring or energy storage means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 317.

SEE OR SEARCH THIS CLASS, SUBCLASS:

52+, for corresponding subject matter in an electrothermally actuated switch. See (1) Note above.

349 for contact biasing, pressure control or adjusting means.

343 Snap-action:

This subclass is indented under subclass 342. Subject matter wherein the mechanical structure comprises means whereby a movable contact, or contacts, may be operated from a first position to a second position, quickly as by a snap action, the contact motion being independent of the rate of movement of the operator. This is usually accomplished by a spring connection between the operator and the contact carrier so arranged that the initial movement of an operator places a spring under tension whereby, upon release of a holding means, the contact is snapped from one position to another.

(1) Note. For other snap action mechanisms used in devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

53+, for corresponding subject matter in an electrothermal actuated switch. For other snap action mechanisms used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS.

344 With magnetic flux source (e.g., magnetic armature):

This subclass is indented under subclass 343. Subject matter including means for setting up a field of magnetic flux whereby the actuation of the movable contact, or contacts, is at least in part influenced by magnetic force operative within the flux field.

(1) Note. For other magnetic assist structures used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 54.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54 for similar subject matter in an electrothermally actuated switch. See (1) Note above.

345 With toggle linkage:

This subclass is indented under subclass 343. Subject matter including significant details of a device consisting of two elements joined together end to end at a knee joint and normally not in a common plane whereby upon the application of force to the knee tending to straighten the arrangement the parts which are abutting or joined will receive an endwise pressure thrust thereby operating the parts from a first overcenter (nonaligned) position to a second over center position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

59 for similar subject matter in an electrothermally actuated switch.

346 With frictional coupling or lost motion means:

This subclass is indented under subclass 343. Subject matter wherein the contact control structure includes frictional clutch connecting means or other elements connected in such a manner as to provide a significant time lag between the application of a force to the control means by the thermal responsive device and the transmittal of the applied force directly to the movable contact or contacts.

347 With adjusting or calibration means:

This subclass is indented under subclass 343. Subject matter including means whereby some operative characteristic of the snap acting contact controlling structure or the thermal responsive element may be adjusted at will or calibrated.

SEE OR SEARCH THIS CLASS, SUBCLASS:

57 for similar subject matter in an electrothermally actuated switch.

319 for thermal, expansible fluid actuated snap action switch with adjusting or calibration means for the snap action means.

368 for thermal, bimetallic element snap action switch with adjusting or calibration means for the snap action means.

348 With reset or reclosing means:

This subclass is indented under subclass 343. Subject matter including significant means whereby after the movable contact or contacts have been actuated from one original condition to another operated condition, due to heating of the thermal responsive device, or by manual manipulation, the contacts may be returned to the original condition either automatically or manually, or means whereby a latching or holding mechanism is reset to an operative condition wherein the contact control means will be rigidly held in the original condition until released by operation of the thermal responsive device.

(1) Note. For other snap action reset or reclosing means used in devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

56 for similar structure in an electrothermally actuated switch.

118 for other snap action reset or reclosing means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 118.

349 With contact biasing, pressure control or adjusting means:

This subclass is indented under subclass 334. Subject matter including significant details of means whereby a predetermined or constant pressure is applied to the contacts when in the circuit closing position or whereby such contact pressure may be adjusted at will.

SEE OR SEARCH THIS CLASS, SUBCLASS:

67 for similar subject matter in electrothermally actuated switches having bimetallic means combined with manual or mechanical contact control means.

342+, for structure whereby the movable contact is biased toward open or

closed condition by tension or compression of a spring, which spring acts as an agent for assisting in the reversal of contact positions, when such reversal takes place.

SEE OR SEARCH CLASS:

219, Electric Heating, subclass 515 for thermally responsive switches in electric heater circuits and having adjusting means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 194 for similar subject matter in electromagnetically operated switches.

374, Thermal Measuring and Testing, subclasses 141+ and 205+ for bimetallic thermometers combined with contact pressure control means.

350 Compound motion means:

This subclass is indented under subclass 334. Subject matter wherein the contact control means consists of structure comprising a mechanical linkage whereby the movement of a movable contact, or contacts, results from a force applied thereto as a final result of the conversion of a force applied in a first direction to a force applied in a second direction; for example, a linear first motion may be converted to a rotary motion about a fixed origin or pivot as by a toggle linkage.

SEE OR SEARCH THIS CLASS, SUBCLASS:

58+, above for similar subject matter in electrothermally actuated switches utilizing bimetallic elements.

313 for thermal, expansible fluid actuated switch with compound motion linkage.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for periodic switches with combined motion operating means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 191 for electromagnetic switches, with compound motion operating means.

351 Rotary or oscillatory motion means:

This subclass is indented under subclass 334. Subject matter including significant details of means whereby contact opening or closing is accomplished by the operation of a mechanical device moving in a rotary or oscillatory manner in a single plane for example, circulatory motion in a horizontal plane with a reversal of direction.

(1) Note. For other rotary or oscillatory mechanisms used in devices in this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 10.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61 for similar subject matter in electrothermally actuated switches utilizing bimetallic elements.

149 for similar subject matter in electrothermally actuated switches utilizing fusible elements.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 179 for automatic telephone type switches with rotary contact selection means, subclasses 19.06+ and 19.18+ for rotary periodic switches, subclasses 36+ for rotary controls in a retarded switch, subclasses 410+; for snap switches with rotary contacts and 564+ for rotating mechanical switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 71+ for electromagnetic switches with motor actuated contact control structure and subclass 114 for automatic telephone type switches with rotary selector means.

352 With frictional clutch drive means:

This subclass is indented under subclass 351. Subject matter wherein the mechanical control means includes at least one clutch or other frictional coupling means whereby the rotary torque generated by a thermal responsive device is transmitted to the contact control means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

387 for similar subject matter in a thermally actuated switch utilizing longitudinally expansible solid elements.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 180 for automatic telephone type switches with clutch means in the rotary selector structure.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 74+ for motor operated electromagnetic switches with a brake or clutch in the contact operating means.

353 Including cam and follower:

This subclass is indented under subclass 351. Subject matter including significant details of cam and follower mechanism whereby the torque generated by the thermal responsive device is transferred to the contact carrier or control means. For purposes of classification, a device comprising a pin and slot combination or a geneva wheel type movement are considered as cam and follower devices and are classified here.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 567+ for cam structure, per se.

200, Electricity: Circuit Makers and Breakers, subclasses 19.03+ for periodic switches with combined rotary and cam structure in the contact control means, subclasses 19.13+ for multiple contact periodic switches with cam and subclass 19.20 for periodic switches, per se, with cam, subclass 38 for retarded switches with cam operator.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 73 for motor driven electromagnetic switches with eccentric or cam means in the contact control means and subclass 190 for contact actuating means, per se, utilizing cam, roller or eccentric means.

354 Reciprocating or slidable motion means:

This subclass is indented under subclass 334. Subject matter wherein the mechanical control means comprises structure whereby contact opening or closing results from a sliding or reciprocating motion (in a single plane) by the contact carrier. The contact carrier or actuating means is generally spring biased to open position and held closed by a latch under the influence of a bimetallic element, which upon heating, releases the latch and allows the contact control means to move the contacts to open position under the influence of the spring means.

(1) Note. For other reciprocating or sliding motion means used in devices of this class, see the subclasses listed subclass 10.

SEE OR SEARCH THIS CLASS, SUBCLASS:

62 for similar subject matter in an electrothermally actuated switch utilizing bimetallic elements.

148 for similar subject matter in a fusible element actuated switch of the electrothermally actuated type.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 16 for multiple circuit control means utilizing reciprocating contacts, subclass 176 for automatic telephone type switches utilizing reciprocating selective means and subclass 449 for snap switches with reciprocating contacts.

355 Independently operative:

This subclass is indented under subclass 334. Subject matter including significant details of means whereby the movable contact or contacts may be operated directly by either the manual means or by the other mechanical means independently of the operative condition of the thermal responsive device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

69 for similar subject matter in electrothermally actuated switches utilizing bimetallic elements.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 3 for mechanical multiple circuit control means combined with thermal current actuated means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 143 for electromagnetic switches having independently operative electrothermal actuating means.

356 Latch or latch-release means:

This subclass is indented under subclass 334. Subject matter wherein the mechanical structure includes significant details of operating means whereby the contacts may be retained in a first condition by a latch or detent capable of being tripped by a thermal responsive device. The contacts are usually held latched in a circuit closing condition and tripped to open position.

(1) Note. For other latch mechanisms used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 46.

SEE OR SEARCH THIS CLASS, SUBCLASS:

70+, for similar subject matter in an electrothermally actuated switch utilizing bimetallic elements.

128 for similar subject matter in electrothermally actuated switches utilizing longitudinally expansible elements.

150 for latching or tripping structure in fusible element actuated electrothermal switches.

385 for similar subject matter in thermally actuated switches utilizing longitudinally expansive elements.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 39+, 318+, 411+, 415, 424+, 470, and 471 for latch or trip structure in various mechanical switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 21+ for magnetic circuit breakers with latch or trip structure, subclasses 167+ for latching means in general in electromagnetic switches and subclasses 172+ for tripping means in general.

357 Adjustable:

This subclass is indented under subclass 356. Subject matter wherein the latch or latch release structure is recited as adjustable.

SEE OR SEARCH THIS CLASS, SUBCLASS:

129 for similar subject matter in an electrothermally actuated switch utilizing a longitudinally expansible element.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 176 for a magnetically control latch tripping means with adjusting features.

358 With reclosing or reset means:

This subclass is indented under subclass 356. Subject matter including significant details of means whereby the claimed latch, or latch release device, may be returned to its normal operative condition after having completed the transition to an unoperative condition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

72+, for similar reclosing or resetting structure in an electrothermally actuated switch utilizing bimetallic elements.

130 for similar subject matter in electrothermally actuated switches with longitudinally expansible elements.

155 for fusible element actuated electrothermal switches with reclosing or reset means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 26+ for electromagnetic circuit breakers with reclosing or resetting structure and 166 for latch or trip reset means in general.

359 With bimetallic element comprising or unitary with latch:

This subclass is indented under subclass 356. Subject matter wherein a bimetallic element is the latch or forms part of or is unitary with the latch or latch release means.

360 With operating range calibration or adjustment means:

This subclass is indented under subclass 333. Subject matter including significant details of means whereby the operating temperature or range of temperatures sufficient or necessary to actuate the main contact control means, and thereby produce an opening or closing action thereof, is predeterminedly fixed, varied at will or calibrated.

(1) Note. For other operating range or calibration means used in the devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 82.

SEE OR SEARCH THIS CLASS, SUBCLASS:

82+, for similar subject matter in electrotherthermally actuated switches utilizing bimetallic elements. See (1) Note above.

323 for similar subject matter in thermally responsive expansible or vaporizable liquid controlled switches.

392 for similar subject matter in thermally responsive longitudinally expansible solid actuated switches.

361 Utilizing cam or roller:

This subclass is indented under subclass 360. Subject matter wherein the calibration or adjustment means is specifically recited as comprising cam and follower or roller structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

305 for thermally actuated switches with mechanical timing means and having cam or eccentric means for predetermining the operative temperature range.

323 for similar subject matter in thermally actuated switches utilizing expansive fluid elements.

392 for similar subject matter in thermally responsive longitudinally expansible solid element actuated switches.

362 Bimetallic element unitary with or directly actuates contacts:

This subclass is indented under subclass 333. Subject matter including at least one bimetallic element having a movable contact, unitary with or directly connected thereto, which movable contact is operative to open and/or close an electric circuit as a result of a movement of the bimetallic element when heated or cooled.

SEE OR SEARCH THIS CLASS, SUBCLASS:

85+, for similar subject matter in electrothermally actuated switches.

SEE OR SEARCH CLASS:

310, Electrical Generator or Motor Structure, subclasses 68+ for electric circuit making or breaking devices in combination with a motorwinding and comprising a bimetallically actuated contact means.

315, Electric Lamp and Discharge Devices: Systems, subclass 72 for a flasher in the circuit of a discharge device, the flasher constituting a bimetallic element and subclasses 209+ for discharge device systems with bimetallic periodic switches.

340, Communications: Electrical, subclass 594 for temperature responsive automatic alarm systems having bimetallic means.

363 Multiple contacts or external circuit control means:

This subclass is indented under subclass 362. Subject matter including significant details of at least two or more contact pairs operative in such a manner that at least two or more separate and distinct electrical circuits may be controlled by the bimetallic contact actuating means. One of the plurality of contacts may be common to more than a single contact pair.

SEE OR SEARCH THIS CLASS, SUBCLASS:

41+, for electrothermally actuated switches having bimetallic elements combined with mechanical contact operating means.

86+, for electrothermally actuated switches having a plurality of contacts directly driven by the bimetallic element or elements.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 3 for circuit makers and breakers for multiple circuit control with thermal current devices.

219, Electric Heating, subclasses 483+ for power supply, voltage or current regulating means for plural electrical heating units, especially subclass 494, subclasses 508 for plural heaters with switching means and 510+ for plural heaters automatically controlled by thermal means.

307, Electrical Transmission or Interconnection Systems, subclass 115 for switching systems with plural switches selectively actuated.

315, Electric Lamp and Discharge Devices: Systems, subclass 217 for plural electric discharge devices selectively connected to a supply circuit.

364 Alternately or selectively actuated:

This subclass is indented under subclass 363. Subject matter including significant details of means whereby individual contact pairs connected to external circuits may be actuated in such a manner that a plurality of individually controlled circuits are completed through the switching device selectively, sequentially, or alternately.

SEE OR SEARCH THIS CLASS, SUBCLASS:

87 for similar subject matter in electrothermally actuated switches.

365 Snap-action:

This subclass is indented under subclass 362. Subject matter wherein the claimed structure includes means whereby the movable contact, or contacts, may be operated from a first position to a second position quickly, as by a snap action with the contact motion being independent of the rate of movement of the operator. This may be accomplished by means of a spring, a permanent magnet, or other appropriate means, such as for example; an inherent characteristic or structure of the bimetallic element itself.

(1) Note. For other snap action means used in devices in this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 53.

SEE OR SEARCH THIS CLASS, SUBCLASS:

89+, above for similar subject matter in electrothermally actuated switches. See (1) Note above.

SEE OR SEARCH CLASS:

62, Refrigeration, subclass 4 for refrigerator defrosting apparatus utilizing bimetallic thermostatic elements operative with a snap action.

200, Electricity: Circuit Makers and Breakers, subclasses 402+ for mechanical snap switches.

236, Automatic Temperature and Humidity Regulation, subclass 48 for automatic temperature control devices with snap action.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 188 for electromagnetically actuated switches with snap action.

366 With magnetic flux source:

This subclass is indented under subclass 365. Subject matter including means for establishing a field of magnetic flux whereby the actuation of the movable contact, or contacts, in at least in part influenced by magnetic force operative within the flux field. The magnetic flux source is generally a permanent magnet.

(1) Note. For other magnetic assist means used in devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54 For other magnetic assist means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 54.

90 for similar subject matter in electrothermally actuated switches. See (1) Note, above.

367 With reset means:

This subclass is indented under subclass 365. Subject matter including significant means whereby, after the movable contact (or contacts) has been actuated from one condition to another condition, the contacts may be returned to the original condition either automatically or manually.

(1) Note. For other snap action reset means used in the devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

91 for similar subject matter in an electrothermally actuated switch. See (1) Note above.

118 for other snap action reset means used in the devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 118.

SEE OR SEARCH CLASS:

318, Electricity: Motive Power Systems, subclasses 471+ for automatic motor control devices responsive to thermal conditions, especially subclass 473.

368 With adjustment or calibration means:

This subclass is indented under subclass 365. Subject matter including means whereby some operative characteristic of the specifically recited snap acting contact controlling structure or the thermal responsive bimetallic element may be adjusted at will or calibrated.

SEE OR SEARCH THIS CLASS, SUBCLASS:

57 for electrothermally actuated switches utilizing mechanical snap acting contact control means with calibration or adjustment means.

319 for expansible fluid, thermally actuated switch with adjustable snap action means.

347 for thermally actuated switches utilizing mechanical snap action contact actuation means having adjusting or calibrating means.

369 Cyclically or repetitively operative:

This subclass is indented under subclass 362. Subject matter including significant details, specifically recited, of means whereby the contacts (of at least one electrical circuit) are intermittently or cyclically opened or closed directly under the influence of a thermal responsive bimetallic element.

(1) Note. For other cyclical or intermittent actuators used in devices of this class, see Search This Class, Subclass, below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

92+, for similar subject matter in an electrothermally actuated switch. For other cyclical or intermittent actuators used in devices of this class, see the subclasses listed under subclass 92.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for mechanical periodic switches.

307, Electrical Transmission or Interconnection Systems, subclass 132 for repetitive make and break switches.

315, Electric Lamp and Discharge Devices: Systems, subclass 72 for a load device combined with a periodic switch, and subclass 209 for discharge device systems with a periodic switch in the supply circuit of a discharge device or devices.

318, Electricity: Motive Power Systems, subclass 117 for periodic thermoelectric motor systems.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 87+ for electromagnetically operated vibrators.

340, Communications: Electrical, subclasses 593+ for automatic alarm systems with thermally responsive vibrators.

370 With plural bimetallic elements:
This subclass is indented under subclass 362. Subject matter including significantly recited details of at least two or more separate and distinct bimetallic elements acting conjointly or cooperatively to control a set of electrical contacts from a first condition to a second position. Each of the separate elements may carry one of the contacts or the elements may be connected to one another with one element carrying at least one movable contact.

SEE OR SEARCH THIS CLASS, SUBCLASS:
95+, for similar subject matter in electrothermally actuated switches.
378 for bimetallic element thermal switches in which one or more bimetallic elements acts simply as a compensation means.

SEE OR SEARCH CLASS:
374, Thermal Measuring and Testing, subclass 204 for bimetallic element thermometers with plural elements.

371 Of diverse operating characteristics or responsive to diverse conditions:
This subclass is indented under subclass 370. Subject matter wherein at least two of the bimetallic elements are described as responsive to diverse environmental conditions, such as ambient temperatures of as being of diverse operating characteristics whereby the opening or closing of an electrical circuit takes place as a result of the operating condition of all the elements acting as a whole.

SEE OR SEARCH THIS CLASS, SUBCLASS:
96 for similar subject matter in an electrothermally actuated switch.

372 Element attachment or mounting means:
This subclass is indented under subclass 362. Subject matter including significant details of the means by which at least one contact bearing thermal responsive bimetallic element is mounted on or attached to a housing or support.

373 Contact structure or composition of material (e.g., mercury):
This subclass is indented under subclass 333. Subject matter including significant details of contact structure, composition of material or arrangement peculiarly adapted for operation through the agency of at least one thermal responsive bimetallic element.

(1) Note. For other contact compositions or structures used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 26.

SEE OR SEARCH THIS CLASS, SUBCLASS:
109 for similar subject matter in electrothermally responsive switches. See (1) Note above.

SEE OR SEARCH CLASS:
29, Metal Working, subclasses 874+ for processes of mechanical manufacture of electrical contacts.
200, Electricity: Circuit Makers and Breakers, subclasses 238+ for details of contacts, per se.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 196+ for contact composition or structure in electromagnetically actuated switches.

374 With position adjusting means:
This subclass is indented under subclass 373. Subject matter wherein the contact structure includes means whereby the relative position of the contacts, when in the nonoperated or open position, may be adjusted by an operator at will.

SEE OR SEARCH THIS CLASS, SUBCLASS:
360+, for thermal bimetallic element switch with means to adjust operating temperature range of the switch.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 197 for adjustable contact structure in electromagnetically actuated switches.

375 Leaf spring with direct thrust element:

This subclass is indented under subclass 374. Subject matter wherein the adjustment means comprises a direct thrust element, such as a bearing or stud, adapted to adjustably contact a leaf spring acting as a contact carrier or support.

376 With signal or indicating means:

This subclass is indented under subclass 333. Subject matter including significant details of signal, alarm or other indicating means whereby the operative condition of the switch, or some abnormal condition within the switch structure, may be ascertained either visually, or audibly or by a combination of both.

(1) Note. For other signal or indicator means used in devices of this class, see Search This Class, Subclass below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

79 for electrothermally actuated switches utilizing bimetallic elements combined with mechanical contact actuating means, and having signal or indicating means. For other signal or indicator means used in devices of this class, see the subclasses listed under Search This Class, Subclass in subclass 79.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 308+ for indicator details of mechanical switches.

219, Electric Heating, subclass 506 for automatic regulating and control means for electric heaters with signal and indicating means.

236, Automatic Temperature and Humidity Regulation, subclass 94 for thermostatically operated automatic temperature regulator means with indicator or alarm means.

377 With auxiliary heating means:

This subclass is indented under subclass 333. Subject matter including significant details of structure comprising heat generating, radiating, or concentrating means, such as heating coils, high resistance elements, heat sinks or solar ray reflectors, which serve to augment the heating effect of the ambient material from which the device derives its main source of heat.

(1) Note. For other auxiliary heating means used in devices of this class, see Search This Class, Subclass below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

102+, for similar subject matter in electrothermally actuated switches with bimetallic elements. For other auxiliary heating means used in devices of this class, see the subclasses listed under Search This Class, Subclass in subclass 102.

SEE OR SEARCH CLASS:

219, Electric Heating, subclass 511 for thermally responsive automatically operated switch means for an electric heater and having auxiliary heating means for the thermal element.

378 With compensation means (e.g., ambient temperature):

This subclass is indented under subclass 333. Subject matter including significant details of means whereby any tendency toward variation of the operative characteristics of a switch device due to external conditions such as physical distortion due to ambient temperature, changes in external temperature, thermal current, etc. are compensated for.

SEE OR SEARCH THIS CLASS, SUBCLASS:

99+, for similar subject matter in electrothermally actuated switches.

124 for longitudinally expansible solid element switch with voltage or ambient temperature compensating means.

SEE OR SEARCH CLASS:

374, Thermal Measuring and Testing, subclass 197 for a mechanical thermometer with compensation, and subclasses 198+ for an adjustable mechanical thermometer.

379 Bimetallic element structure or composition of material:

This subclass is indented under subclass 333. Subject matter relating to specific details of the physical structure or the composition of matter utilized in the construction of a bimetallic element or elements significantly adapted for use in a thermally actuated switch.

SEE OR SEARCH THIS CLASS, SUBCLASS:

111 for similar subject matter in a thermoelectrically actuated switch.

SEE OR SEARCH CLASS:

29, Metal Working, appropriate subclasses, especially subclasses 400.1+ for methods of manufacture.

428, Stock Material or Miscellaneous Articles, subclasses 577+ for metallic intermediate articles and blanks, and subclasses 616+ for plural layered metallic stock which is deflectable by a temperature change and defined in terms of its composition.

380 Housing, casing or support structure:

This subclass is indented under subclass 333. Subject matter including significant details of housing, casing, or support structure peculiarly adapted for use with thermally actuated switches.

(1) Note. For other housing, casing, or support structures used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 20.

SEE OR SEARCH THIS CLASS, SUBCLASS:

112+, above for similar subject matter in electrothermally actuated switches. See (1) Note above.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 293+ for details of housings or bases for mechanical switches in general.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 202 for electromagnetically actuated switches with housings.

381 With significant external circuit connection means:

This subclass is indented under subclass 380. Subject matter wherein the housing, casing, or support structure includes means whereby an electrical circuit may be completed through the switch enclosed therein or supported thereby. The housing may comprise a flexible cord connector plug, for instance.

SEE OR SEARCH THIS CLASS, SUBCLASS:

113 above for similar subject matter in electrothermally actuated switches.

187+, for fusible element switches with housing, casing or support having external circuit connection means.

382 With longitudinally expansible solid element:

This subclass is indented under subclass 298. Subject matter wherein the thermally responsive switching device comprises at least one monometallic solid element whose coefficient of expansion along its major axis is utilized to cause the opening or closing of an electrical circuit as a result of the change in dimension of the element. The element may be fixedly secured at both ends, around its circumference, or at one end only, according to the design of the switch.

SEE OR SEARCH THIS CLASS, SUBCLASS:

123+, above for similar subject matter in an electrothermally actuated switch.

SEE OR SEARCH CLASS:

219, Electric Heating, subclass 512 for automatically operated switching means for an electric heater utilizing linearly expansible metal.

236, Automatic Temperature and Humidity Regulation, subclasses 5, 19, 33, 43, 59+, 66, 96, and 101+ for automatic temperature control devices utilizing expansible solid thermostats.

237, Heating Systems, subclass 8 for heating systems with automatic control with expansible metal.

374, Thermal Measuring and Testing, subclasses 187+ for expansible solid type thermometers.

383 With plural contacts or external circuit completion means:

This subclass is indented under subclass 382. Subject matter including significant details of at least two or more contact pairs operative in such a manner that at least two or more separate and distinct electrical circuits may be controlled by the longitudinally expansible element. One of the plurality of contacts may be common to more than a single contact pail.

SEE OR SEARCH THIS CLASS, SUBCLASS:

41+, for similar subject matter in electrothermally responsive bimetallic element actuated switches.

145+, for similar subject matter in fusible element actuated electrothermally responsive expansible fluid actuated switches.

309+, for similar subject matter in thermally responsive expansible fluid actuated switches.

337+, for similar subject matter in thermally responsive bimetallic element actuated switches.

406 for fusible, combustible or explosive material element switches with multiple contacts or plural circuit control means.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 3 for multiple circuit control devices combined with thermal current responsive devices.

307, Electrical Transmission or Interconnection Systems, subclass 39 for systems comprising plural load circuits selectively controlled by temperature responsive means, and subclass 117 for switching systems with heat responsive control means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 106+ for multiple contact type electromagnetic switches.

384 With manual or other mechanical contact control means:

This subclass is indented under subclass 382. Subject matter including manual or other mechanical means acting conjointly or cooperatively with at least one longitudinally expansible element or which acts as an intermediary between the thermally responsive expansible element and at least one movable contact thereby opening or closing an electrical circuit.

(1) Note. For other manual or mechanical control means used in the devices of this class, see SEARCH THIS CLASS, SUBCLASS below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

115 For other manual or mechanical control means used in the devices of this class, see the subclasses listed under Search This Class, Subclass in subclass 115.

126+, for similar subject matter in an electrothermally actuated switch. See (1) Note above.

385 Latching or tripping means:

This subclass is indented under subclass 384. Subject matter including significant details of means whereby the switch contacts may be restrained in an open or closed condition by a latch or detent which may be tripped by the action of the thermally deformable device. The contacts are usually held in circuit closing position and tripped to open position by release of the latching means.

(1) Note. For other latches or trips used in devices of this class, see Search This Class, Subclass below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

46 for other latches or trips used in devices of this class, see the sub-

classes listed under Search This Class, Subclass in subclass 46.

128+, for similar subject matter in an electrothermally actuated switch. See (1) Note above.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 43+ for thermally actuated latch or trip means in automatic circuit interrupters of the electromagnetic type.

386 Comprising mechanical advantage or force multiplying means:

This subclass is indented under subclass 384. Subject matter wherein the mechanical contact control structure includes means whereby the force applied to the intervening control structure by the operation of the thermal responsive element is multiplied or amplified when applied to the movable contact or contacts.

387 Comprising frictional clutch or lost motion means:

This subclass is indented under subclass 384. Subject matter wherein the contact control structure includes frictional clutch connecting means or other elements connected in such a manner as to provide a significant time lag between the application of a force to the control means, by the thermal responsive device, and the transmittal of the applied force directly to the movable contact or contacts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

352 for thermally actuated bimetallic element switches with frictional clutch in the drive means for a rotating oscillatory mechanism for the switch actuator.

388 With spring or other energy storage means:

This subclass is indented under subclass 384. Subject matter including spring or other potential energy storage means; whereby a major portion of the force used in actuating the contacts of the switch from one condition to another is derived independently of the thermal responsive device. Generally the movement of the movable contact in one direction is directly responsive to action by the thermal responsive element and in the other direction directly responsive to the tendency of the spring to resume its unstressed condition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

52+, for similar subject matter in electrothermally responsive bimetallic element actuated switches.

317+, for thermal, expansible fluid switch with operating mechanism having spring or other energy storage means.

342+, for similar subject matter in thermally responsive bimetallic element actuated switches.

407+, for fusible material element switch with operating mechanism having spring or other energy storage means.

389 Comprising resilient leaf spring:

This subclass is indented under subclass 388. Subject matter wherein the spring means consists of a resilient leaf, either carrying the movable contact directly, or directly acting upon a separate movable contact carrying leaf member.

390 Snap-action:

This subclass is indented under subclass 388. Subject matter including significant details of means whereby the opening or closing contact motion is caused to take place abruptly and is not dependent on the rate of movement of the thermally responsive element. The contact movement is usually accomplished by a spring connection between the operator and the movable contact in such a manner that the initial movement of the thermally responsive element or other actuating means places the spring under tension, as by a toggle, until released whereupon the movable contact is snapped to open or closed position by the energy stored in the spring.

(1) Note. For other snap action means used in devices of this class, see SEARCH THIS CLASS, SUBCLASS.

SEE OR SEARCH THIS CLASS, SUBCLASS:

53 For other snap action means used in devices of this class, see the subclasses listed under Search This Class, Subclass in subclass 53.

131+, above for similar subject matter in an electrothermally actuated switch with a longitudinally expansible element. See (1) Note above.

391 With flexible vane or plate:

This subclass is indented under subclass 390. Subject matter including significant details of a flexible vane or plate means whereby the snapping action of the contacts is caused to take place. The vane or plate may control the action of a movable contact, or contacts, by its inherent tendency to change curvature when heated or it may be under the influence of a further temperature responsive element such as a wire or ribbon which exerts a deforming force on the vane or plate when cold and releases the force when expanded by heat.

SEE OR SEARCH THIS CLASS, SUBCLASS:

135+, for similar subject matter in electrothermally actuated switches with longitudinally expansible elements.

392 With operating range calibration or adjusting means:

This subclass is indented under subclass 382. Subject matter including significant details of means whereby the operative temperature or range of temperature sufficient or necessary to actuate the main contact control means and thereby produce an opening or closing action thereof is predetermined, varied at will or calibrated.

(1) Note. For other adjusting or calibrating means used in the devices of this class, see SEARCH THIS CLASS, SUBCLASS.

SEE OR SEARCH THIS CLASS, SUBCLASS:

82 for other adjusting or calibrating means used in the devices of this class, see the subclasses listed under Search This Class, Subclass in subclass 82.

94 for similar subject matter in an electrothermally actuated switch having a bimetallic element directly actuating a movable contact.

323 for thermally actuated switches utilizing expansive or vaporizable fluid.

360+, for thermally actuated switches utilizing bimetallic elements. See (1) Note above.

393 Expansible solid structure or composition of material:

This subclass is indented under subclass 382. Subject matter relating specifically to the physical structure or the composition of matter utilized in the longitudinally deformable thermal responsive element or elements. One example of the structure to be found here includes “thermic couples”, consisting of two solid elements having the same or different coefficients of expansion and being rigidly attached at one or more points. When heated, one of the two elements moves relative to the other thereby providing an actuating force.

(1) Note. For a further filed of search in other classes see SEARCH THIS CLASS, SUBCLASS.

SEE OR SEARCH THIS CLASS, SUBCLASS:

139+, for similar structure in an electrothermally responsive device. For a further filed of search in other classes consult the SEARCH CLASS notes under the subclass definition of subclasses 139+.

394 Rod, tube or cylinder:

This subclass is indented under subclass 393. Subject matter wherein the expansible solid structure consists of a rod, tube or cylinder device.

395 Wire or stranded material:

This subclass is indented under subclass 393. Subject matter wherein the expansible solid structure consists of wire or other stranded material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

140 for similar subject matter in an electrothermally actuated switch.

396 Diaphragm, strip or ribbon:

This subclass is indented under subclass 393. Subject matter wherein the expansible solid structure consists of a diaphragm, strip, or ribbon device.

397 Plural deformable elements in single switch:
This subclass is indented under subclass 382. Subject matter including at least two or more thermally responsive expansible solid elements acting either singly, conjointly, or cooperatively in such a manner as to control the contact opening and/or closing operation in a single switch device.

SEE OR SEARCH THIS CLASS, SUBCLASS:
38+, for electrothermally actuated switches utilizing a plurality of bimetallic elements combined with a single contact operating means.
95+, for electrothermally actuated switches utilizing plural bimetallic elements directly actuating movable contacts.
307+, for thermally actuated switches utilizing plural expansible or vaporizable fluid devices.
335+, for thermally actuated switches utilizing plural bimetallic elements combined with a single mechanical means.

SEE OR SEARCH CLASS:
374, Thermal Measuring and Testing, subclass 204 for thermometers utilizing plural expanding solid elements.

398 Housing, casing or support means:
This subclass is indented under subclass 382. Subject matter wherein the claimed structure includes significant details of housing, casing, or support structure peculiarly adapted for use with switches of the thermal, expansible solid element type.

(1) Note. For other housing, casing, or support means for devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 20.

SEE OR SEARCH CLASS:
174, Electricity: Conductors and Insulators, subclasses 50 through 64 for housings with electric device and 145 for insulator structure combined with connector means.
200, Electricity: Circuit Makers and Breakers, subclass 293 for casing or base structure for mechanical switches.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 202 for electromagnetic switches with particular housing or support means.
439, Electrical Connectors, subclass 620.26 for an electrical connector combined with a fuse or comprising a casing, housing, or holder for receiving and fully enclosing a fuse.

399 Contact or terminal structural or composition of material:
This subclass is indented under subclass 382. Subject matter including significant details of the mechanical structure of composition of matter of the contact assembly, or its means of attachment either to the thermally responsive element or other supporting means.

(1) Note. For other contact structures or compositions used in the devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 26.

SEE OR SEARCH THIS CLASS, SUBCLASS:
109 for similar subject matter in electrothermally actuated switches with bimetallic elements.
122 for details of contact structure in expansible fluid actuated electrothermally responsive switches.
137 for details of contact structure in electrothermally actuated switches utilizing longitudinally expansible elements. See (1) Note above.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 238+ for details of contacts for mechanical switches.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses, especially subclasses 57, 83, 97, 133+, and 196+ for details of contact structure.

439, Electrical Connectors, appropriate subclasses for an electrical connector, generally.

400 With position adjustment means:

This subclass is indented under subclass 399. Subject matter wherein the contact structure includes significant details of means whereby the relative position of the contacts when at rest may be varied or adjusted at will.

SEE OR SEARCH THIS CLASS, SUBCLASS:

374+, for similar subject matter in thermally actuated switches utilizing bimetallic elements.

401 With fusible, combustible or explosive material:

This subclass is indented under subclass 298. Subject matter wherein the thermal responsive element, or elements, consists of material, usually a wire or strip, which melts or otherwise disintegrates under the influence of heat generated in its immediate surroundings, thereby causing the opening or closing of an electric circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

30 for electrothermal switch combined with space discharge device and including an explosive or combustible material control means.

142+, for similar subject matter in electrothermally actuated switches.

243 for cartridge fuse with a signal or indicator comprising explosive material.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclass 232 for building structures combined with a fuse.

73, Measuring and Testing, subclasses 1.42+ for timing apparatus for measuring and testing and containing a fuse.

116, Signals and Indicators, subclass 106 for fusible controlled signals and indicators.

122, Liquid Heaters and Vaporizers, subclasses 504.1 and 504.3 for fusible controlled safety devices in liquid heaters and vaporizers.

126, Stoves and Furnaces, subclass 287.5 for dampers with fusible release.

169, Fire Extinguishers, subclass 42 for fire extinguishers with fusible connections.

219, Electric Heating, subclass 517 for thermally responsive automatic connection or disconnection devices for electric heaters with fusible element control.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 142 for electromagnetic switches with fuse means.

340, Communications: Electrical, subclasses 638+ for fuse with automatic alarm responsive to the condition of the fuse.

493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, subclasses 269+ for fuse tube manufacturing.

402 With manual, gravity-actuated or other mechanical contact control means:

This subclass is indented under subclass 401. Subject matter including manual, gravity actuated or other mechanical means acting cooperatively or conjointly with at least one fusible element, or which acts as an intermediary between the fusible element and at least one movable contact thereby opening or closing an electrical circuit.

(1) Note. For other manual or mechanical contact control means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 115.

SEE OR SEARCH THIS CLASS, SUBCLASS:

143+, for similar subject matter in electrothermally actuated fuses. See (1) Note above.

403 Automatic cutout or disconnect type:

This subclass is indented under subclass 402. Subject matter wherein the mechanical contact control means is adapted to interrupt a controlled electrical circuit automatically upon the melting or otherwise destruction of the fusible element or elements. The separating means usually consists of spring or other energy stor-

age structure held under compression or tension until release by the melting of the fuse, whereupon the contacts are forcibly opened.

SEE OR SEARCH THIS CLASS, SUBCLASS:

168+, for similar subject matter in electrothermally actuated switches.

404 With fusible element directly connecting contacts:

This subclass is indented under subclass 403. Subject matter wherein the fusible element is directly interposed between the main circuit contacts, maintaining the contact control means immobile until melted or otherwise destroyed.

405 With fusible element opening the circuit (no mechanical contacts):

This subclass is indented under subclass 403. Subject matter wherein the fusible material comprises an integral part of an electrical circuit which is opened upon the melting or disintegration of the fuse element.

406 Multiple contacts or plural circuit control means:

This subclass is indented under subclass 402. Subject matter including at least two or more contact pairs associated with a single continuous electric circuit, to be controlled, or includes means whereby at least two or more continuous electric circuits are controlled by the contact controlling means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

145+, for similar subject matter in electrothermally actuated switches.

407 Utilizing spring or other energy:

This subclass is indented under subclass 402. Subject matter wherein the contact control means includes spring or other potential energy storage means whereby a major portion of the force exerted in actuating the switch contacts from one condition to another is derived.

SEE OR SEARCH THIS CLASS, SUBCLASS:

52+, for similar subject matter in electrothermally actuated switches utilizing bimetallic elements.

317+, for thermally responsive expansible fluid actuated switches with spring actuated contact control means.

342+, for similar subject matter in thermally actuated switches utilizing bimetallic elements.

388 for thermal expansible solid element switch with mechanical means having spring or other energy storage means.

408 Reciprocating or slidable motion device:

This subclass is indented under subclass 407. Subject matter wherein the contact control structure includes mechanical means whereby contact opening or closing results from a rectilinear sliding or reciprocating motion of the operating means under the influence of the spring means.

(1) Note. For other reciprocating or rectilinear sliding means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 10.

SEE OR SEARCH THIS CLASS, SUBCLASS:

148 for similar subject matter in electrothermally actuated switches with fusible elements. See (1) Note above.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 61.48 for switches of special application with oscillating control means which is fusibly held.

439, Electrical Connectors, subclasses 816+ for a metallic connector having a spring actuated or resilient securing part.

409 Plunger or piston:

This subclass is indented under subclass 408. Subject matter wherein the sliding or reciprocating structure is specifically recited as consisting of a spring biased plunger or piston device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

108 for similar subject matter in thermoelectrically actuated switches.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 2 for automatically controlled trip structure utilizing a fusibly held piston actuator means.

137, Fluid Handling, subclasses 72+ especially subclass 75, for heat destructible or fusible control means with spring biased plunger.

410 Rotatable:

This subclass is indented under subclass 407. Subject matter wherein the spring driven control means comprises elements rotating about a fixed axis and in a single plane.

(1) Note. For other rotatable or oscillatable means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 10.

SEE OR SEARCH THIS CLASS, SUBCLASS:

149 for similar subject matter in electrothermally actuated switches utilizing fusible elements. See (1) Note above.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 410 for mechanical snap switches with rotating contacts and subclass 465 for mechanical switches with rotating contacts.

411 Latch, trip or holding means:

This subclass is indented under subclass 402. Subject matter including significant details of means whereby the main switch contacts are latched, positively held or otherwise retained either in an operative or inoperative position. The latching means usually consists of mechanical means capable of being tripped or released upon operation of the thermal fuse.

(1) Note. For other latch, trip, or holding means used in devices of this class, see the subclasses listed under subclass 46.

SEE OR SEARCH THIS CLASS, SUBCLASS:

150+, for similar subject matter in electrothermally actuated switches. See (1) Note above.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 318+ for latch structure in mechanical switches.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 43+ for thermally actuated latch structure in electromagnetically actuated automatic circuit breakers and subclasses 167+ for latch structure in general in electromagnetically actuated switches.

412 Plural independent fuse elements with single circuit completion means:

This subclass is indented under subclass 401. Subject matter including at least two or more fusible elements acting independently, conjointly, or cooperatively to control the opening and/or closing of a single electrical circuit.

(1) Note. The subject matter to be found here generally relates to fire alarm type systems wherein a plurality of fusible devices are distributed over an area to be protected with the failure of any one or group of fuses completing or otherwise actuating an electrical circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

144 for similar subject matter in an electrothermally actuated switch.

SEE OR SEARCH CLASS:

116, Signals and Indicators, subclass 106 for fusible controlled alarms in general.

340, Communications: Electrical, subclasses 590+ for thermal condition responsive alarms with fusible sensors.

413 Contact structure or composition of material:

This subclass is indented under subclass 401. Subject matter relating to significant details of the mechanical structure, or composition of matter, of the contact elements or assembly of the switch.

(1) Note. For other contact structure or composition used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 26.

SEE OR SEARCH THIS CLASS, SUBCLASS:

251+, for cartridge fuses with significant contact or terminal structure.

268+, for plug fuses with significant contact or terminal structure.

329+, for contact structure in thermally actuated switches utilizing expansible fluid elements.

373+, for thermally actuated switches utilizing bimetallic elements.

399+, for thermally actuated switches utilizing longitudinally expansible solid means. See (1) Note above.

414 Housing, casing or support means:

This subclass is indented under subclass 401. Subject matter including significant details of housing, casing, or support structure whereby the switch structure is protectively housed or enclosed or support means whereby the switch device may be mounted or supported in a fixed manner.

(1) Note. For other housing, casing, or support means used in devices of this class, see the subclasses listed under SEARCH THIS CLASS, SUBCLASS in subclass 20.

SEE OR SEARCH THIS CLASS, SUBCLASS:

186+, for similar subject matter in an electrothermally actuated switch utilizing fusible elements. See (1) Note above.

415 Flexible or resilient:

This subclass is indented under subclass 414. Subject matter wherein the housing structure comprises flexible or resilient means of the cable type wherein the thermal responsive means and the associated circuit conductors are housed. The conductors are normally insulated and are bridged by the action of the fusible material.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclasses 70+ for cable conductor in general combined with other structure which may comprise fusible or meltable insulation.

416 Fusible, link or element structure or composition of material:

This subclass is indented under subclass 401. Subject matter relating specifically to significant details of the physical structure, or composition of material, of the fusible link or element.

(1) Note. For a complete field of search in other classes consult the notes under SEARCH CLASS in the subclasses 290+ search notes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

290+, for similar subject matter in electrothermally responsive fusible element actuated switches.

417 DETAILS:

This subclass is indented under the class definition. Subject matter wherein the subject matter relates to miscellaneous structures or details, peculiarly adapted for or intended for use in electrothermally or thermally actuated switches, and not forming a subcombination of a more complete or comprehensive combination to be found elsewhere in the class.

END