CLASS 102, AMMUNITION AND EXPLOSIVES

SECTION I - CLASS DEFINITION

This is the residual class for ammunition propelled by explosives and explosives methods or means which includes:

Missile, blasting means, payload, pyrotechnic, gun ammunition and/or miscellaneous explosive means.

Gun barrel cleaning means which are propelled through the barrel by explosive or fluid under high pressure.

Fluid under high pressure, other then chemical reaction, which escape very rapidly.

Material which burns or combusts which is intended to be projected, dropped, thrown, or propelled is proper for the class. (1) By releasing a combustion material to the atmosphere, e.g., gas, incendiary shell, grenade, etc. (2) By generating heat to damage an object, e.g., thermite means.

Subcombinations peculiar to the class which are not classified in other classes, e.g., cartridge case, primer ignitor, fuse, sabot, rifling band, wad, propellant form, etc.

Dummy, practice, drill, training ammunition, etc., is classified with the conventional ammunition.

Patents issued prior to 1950 have not in all instance been classified by their claimed disclosure but by their total disclosure so that placement of these older patents does not necessarily indicate lines of classification.

The Search Notes below also contain classification lines.

SECTION II - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

29, Metal Working, subclass 421.2 for shaping by direct application of explosive pressure.

42, Firearms, for guns and gun ammunition combinations.

72, Metal Deforming, subclass 53 for shaping metal by shot-blasting; and subclass 56 for shaping metal by an explosive.

86, Ammunition and Explosive-Charge Making, for the processes of making explosive charges or ammunition for firearms, ordnance, pyrotechnic, blasting charges, etc.

89, Ordnance, for guns of the class type and subclass 1.14 for explosive-operated apparatus, e.g, explosive and door hinge, tool explosively actuated, band release, expansion of tube, cable cutter, etc.

109, Safes, Bank Protection, or a Related Device, subclasses 36+ for safe, bank protection and related devices combined with explsive means.

114, Ships, subclasses 20.1+ for marine torpedoes having self-propulsion; and subclass 221 for chain cutting.

116, Signals and Indicators, subclasses 11, 15, 17, 23, 78, 83, 87+, and 105 for detonating alarms adapted to be fired by intruders or by the occurrence of some event.

122, Liquid Heaters and Vaporizers, subclass 24 for explosive-type fluid boilers.

123, Internal-Combustion Engines, subclasses 24 and 183 for internal-combustion engines and engines starters employing gun-powder charges.

149, Explosive and Thermic Compositions or Changes, for explosive and thermic composition.

166, Wells, subclass 299 for well processes using explosives; subclass 55.1 for well-tubing perforators operated by explosives combined with a disparate feature and perforator which do not act inherently to penetrate the formation; and subclass 63 for well apparatus with an explosive means.

169, Fire Extinguishers, subclasses 28 and 58 for explosive fire extinguisher.

175, Boring or Penetrating the Earth, subclasses 1 and 2+ for process or apparatus for boring a hole into the earth including a below-ground explosion or for subject matter relating to a gun or shape charge device for penetrating an earth formation or perforating a casing or other wall member in an inaccessible hole in the earth, see the class definition of Class 175 for the line between classes (102) and 175.

181, Acoustics, subclass 116 for geophysical or subsurface exploration using an explosive.

206, Special Receptacle or Package, subclass 524.1 for ammunition receptacles.

224, Package and Article Carriers, subclasses 191+ for cartridge belts.

228, Metal Fusion Bonding, subclass 2.5 for explosive welding means; and subclass 107 for the process of using explosive energy for bonding.

239, Fluid Sprinkling, Spraying, and Diffusing, subclasses 2.1 and 14.1 for rain producing methods and apparatus.

244, Aeronautics and Astronautics, subclasses 3.1+ for trajectory control or stabilizing means for propelled or thrown explosive weapons or for missiles; and subclass 14 for air-sustained, self-propelled aerial torpedoes; and subclass 117 for heat shields.

246, Railway Switches and Signals, subclasses 210+ and 487 for railway torpedoes.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 3 for processes of shaping or treating explosive or propellent articles.

280, Land Vehicles, subclasses 728+ for air bag type passenger safety guard attachments.

299, Mining or In Situ Disintegration of Hard Material, subclass 13 for process of disintegrating by explosives; and subclass 20 for expansible breaking-down devices.

361, Electricity: Electrical Systems and Devices, subclasses 627+ for distribution or control panel boards with fuses.

362, Illumination, subclass 34 for chemiluminescent lighting.

367, Communications, Electrical: Acoustic Wave Systems and Devices, subclass 145 for means to cause underwater shock wave by an explosion.

431, Combustion, subclasses 357+ for a flashing charge type illuminating burner; subclasses 288+ for a candle or candle apparatus; and appropriate subclass for a residual process or structure specialized to combustion or combustion starting and not specifically provided for in Class 110 or in some other class.

SECTION III - GLOSSARY

EXPLOSIVE

The term is used to include a detonating, deflagrating, or thermic composition of the type defined in the class definition of Class 149, Explosive and Thermic Compositions or Charges.

MISSILE

Any object thrown, dropped, projected, or propelled for the purpose of making it damage a target.

PAYLOAD

A container for holding explosive, research, reconnaissance, or counter measure equipment, animal life, parachute, etc., which is propelled into the air by an explosive means.

SUBCLASSES

200 IGNITING DEVICES AND SYSTEMS: This subclass is indented under the class definition. Subject matter for initiating the combustion or detonation of explosive or thermic compositions or charges.

(1) Note. The explosive or thermic compositions or charges of this subclass type are the same as those defined in the class definition of Class 149, Explosive and Thermic Compositions or Charges.

(2) Note. Illustrative of the devices and systems of this subclass type are missile and ordnance fuzes, both mechanical and electrical, and priming and igniting devices and systems not specifically provided for elsewhere in this class.

(3) Note. Systems, as used in this subclass and the subclasses indented hereunder, refer to a plurality of electrical, mechanical and/or explosive elements all acting in a pattern or sequence to cause detonation or combustion of a main explosive such as a war head or propellant. Typical of such systems is the type commonly referred to as a firing train.

SEE OR SEARCH THIS CLASS, SUBCLASS:

7, for fuses and ignitors, per se, for marine type drop bombs, specially designed for operation in water, e.g., those operated by water flow or by hydrostatic pressure.

7.4, for drop bombs having a target contact anticipator for controlling or operating an ignitor.

16+, for igniting devices for marine-type mines.

19.2, for igniting devices for mines other than the marine type involving the use of electricity, magnetic wave, or radiant energy.
27+, for igniting devices for blasting cartridges and devices.
45+, for primers for gun cartridges.
49.7, for ignitors for missile rocket motors.

SEE OR SEARCH CLASS:
123, Internal-Combustion Engines, subclasses 143+ for ignition systems in internal-combustion engines.
149, Explosive and Thermic Compositions or Charges, for explosive compositions, per se, which may be used for igniting other explosives.
361, Electricity: Electrical Systems and Devices, subclasses 247+ for circuits, per se, for igniting explosives.
431, Combustion, appropriate subclasses for igniting devices used in combustion.

201 Laser or light initiated:
This subclass is indented under subclass 200. Subject matter in which the explosive is ignited by visible radiant energy.

(1) Note. Not included herein are devices which detect light (i.e., photocell circuits) and then cause ignition of an explosive.

202 Propellant ignitors:
This subclass is indented under subclass 200. Subject matter for initiating the combustion of a charge for driving missiles in which the driving charge travels with the missile.

(1) Note. For devices such as impact or friction primers for igniting propelling charges of the type that do not travel with the missile, e.g., for propelling gun cartridges, search this class, subclass 204 or 205.

SEE OR SEARCH THIS CLASS, SUBCLASS:
49.7, for ignitors in combination with a missile rocket motor.

SEE OR SEARCH CLASS:
60, Power Plants, subclasses 39.821+ for ignition devices in combination with power plants; and subclass 256 for ignitors in combination with rocket motors.
89, Ordnance, subclasses 1.813+ for ignition devices for rockets in launching devices.

202.1 Accidental fuse ignition prevention means:
This subclass is indented under subclass 200. Subject matter which includes a device, to set off an explosive or thermic composition or charge, which includes means to prevent an unwanted energization of the device.

(1) Note. Electrical and nonelectrical primers and igniters are included in the term “device”.

202.11 Having an electric matchhead:
This subclass is indented under subclass 202.5. Subject matter wherein the composition or charge burns to produce a flame when ignited by the electrical igniting device and the composition or charge is integral with the electrical igniting device.

(1) Note. There may or may not be a housing to encompass the matchhead.

SEE OR SEARCH CLASS:
44, Fuel and Related Compositions, subclasses 507+ or matches.

202.12 Assemblies (e.g., packaging):
This subclass is indented under subclass 202.5. Subject matter wherein the recited elements form an electric blasting cap having leads to supply power to the igniting or detonating device and there is a support member to (a) support the blasting cap within or on the support member or (b) permit the coiling of the lead wires about, within, or on the support member to form a compact unit when not in use or (c) there is an electric blasting cap with leads long enough to coil the lead wires into a wire bundle with the cap inserted within the bundle, in either case, to form a packaged item before use.

(1) Note. The support member may also be designed to hold a explosive charge as a stick of dynamite as well as the blasting cap.

SEE OR SEARCH CLASS:
206, Special Receptacle or Package, subclasses 701+ for a special receptacle or package for an electrical component.

202.13 Having a powder train time delay:
This subclass is indented under subclass 202.5. Subject matter which additionally includes in a common unit a combustible chemical composition which is ignited or detonated by the explosive or thermic material when it is ignited or detonated to cause a delay in the time a further explosive or thermic composition will be ignited in the same unit as a result of the detonated or ignited composition.

SEE OR SEARCH THIS CLASS, SUBCLASS:
275.3, for a fuse cord with a connector having a combustible time delay.
275.9, for nonelectric fuses having a combustible time delay.
277.1+, for munition type combustible time delays.

202.14 With housing:
This subclass is indented under subclass 202.5. Subject matter wherein the explosive or thermic composition or charge and the electrical igniting or detonating device are within a common container.

(1) Note. Blasting caps having an electric bridgewire igniting device and an explosive charge in a common container are here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.7, for a detonator having an exploding bridgewire and an explosive or thermic charge within a container.
202.8, for a spark gap and an explosive or thermic charge or a conductive explosive ignitor or detonator within a container.
202.11, for an electric matchhead and an explosive or thermic charge within a container.
202.13, for an electric igniting or detonating device, a combustible time delay, and an explosive or thermic charge within a container.
322, for contained blasting charges with a primer or ignitor having an explosive or thermic charge with an electric detonating or igniting device in a common container.

SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, subclasses 264+ for igniting systems for explosive devices having incandescent ignition.

202.2 Having electromagnetic field effects diminishing or elimination means:
This subclass is indented under subclass 202.1. Subject matter wherein the device has lead wires connected thereto and means forming part of the device to attenuate or eliminate (a) the effects of electromagnetic radiation on all or part of the device, (b) the passage of unwanted frequencies of alternating currents or voltages through the lead wires or the device, (c) the passage of unwanted current or voltage through the lead wires or the device.

SEE OR SEARCH CLASS:
174, Electricity: Conductors and Insulators, subclasses 32+ for anti-inductive structures.
439, Electrical Connectors, subclasses 607.01 through 607.05 for quick make and break connectors having a screen to reduce or eliminate the self-inductance of a connector or external magnetic fields on a connector.

202.3 Fuse device resistive shunt:
This subclass is indented under subclass 202.1. Subject matter wherein the device includes bare lead wires and a resistive shunt connected between the wires or between a wire and a casing of the device so that the bulk of the current caused by accidental abnormal voltages is diverted through the shunt to prevent the ignition of the device.

(1) Note. The shunt may or may not be removed when the device is energized.

(2) Note. The shunt, per se, is here.

(3) Note. The term “lead wires” include terminals.

(4) Note. Here the resistance of the shunt is fixed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.5, for resistances which change due to high voltage breakdown.
202.1, for devices to short circuit the bare leads of the device.

202.4 Voltage responsive variable resistance shunt (e.g., semiconductor shunts):
This subclass is indented under subclass 202.3. Subject matter wherein the resistive shunt has a high resistance to normal operating voltage and a lower resistance to higher than normal voltage present between the wires or a wire and the casing to pass most of the currents caused by the higher voltage through the shunt.

(1) Note. The shunt may be a gas which conducts when the higher voltage ionizes the gas or a semiconductive material that breaks down and passes current.

(2) Note. Here are spark gaps.

SEE OR SEARCH CLASS:
252, Compositions, subclasses 63+ for dielectric or electrically insulating compositions.
313, Electric Lamp and Discharge Devices, subclass 325 for miscellaneous discharge devices.

202.5 Electric primer or ignitor:
This subclass is indented under subclass 200. Subject matter which includes an explosive or thermic composition or charge and an electrical igniting or detonating device to cause the composition or charge to attain its combustion or detonation point.

(1) Note. In this group of subclasses are electrically energized ignitors or detonators not contained in a container. If there are components in addition to the detonating or igniting device forming an electric circuit within the container common unit and wires or terminals leading outside the unit to some continuation of the circuit, the claim will be classified within this group of subclasses. If electrical components are claimed in addition to the lead wires outside of common unit, the claim will be classified under subclasses 206+.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.1+, for accidental fuse ignition prevention means.
206+, for electrical ignition or detonation circuits.
275.9, for in name only electrical primers claiming a housing with an explosive therein.
305+, for detonation wave modifying.
311+, for patterned blasting.
313, for borehole loading.
322, for a contained blasting charge with an electric primer or ignitor.
332, for a blasting charge with an electrical primer or ignitor.
380, for a reaction motor having a propellent charge ignitor.
419+, for electrically fired mines.
472, for electric primer means with breech end cartridge case structure.

SEE OR SEARCH CLASS:
86, Ammunition and Explosive-Charge Making, subclass 1 for methods of making fuses.
181, Acoustics, subclasses 116+ for seismic wave generation explosive devices.
219, Electric Heating, subclasses 260+ for resistive ignitors.
361, Electricity: Electrical Systems and Devices, subclasses 248+ for igniting systems for explosives.
367, Communications, Electrical: Acoustic Wave Systems and Devices, subclass 145 for underwater explosive type transmitter signal transducers.
431, Combustion, subclasses 258+ for a burner having an electrical heater or igniter.

202.6 Having an additional ignitor or water destructible fuse:

This subclass is indented under subclass 202.5. Subject matter wherein there is (a) a second igniting or detonating device to cause the composition or charge to burn or detonate, or (b) means, including a housing for enclosing the composition or charge and the igniting or detonating device, affected by water to cause the igniting or the detonating device from energizing or the composition or charge from igniting or detonating.

(1) Note. The term "burn" includes deflagrating charges or compositions.

(2) Note. Here the composition or charge and the two means to ignite or detonate the composition or charge are in a common housing.

(3) Note. Munition and blasting fuses are in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

265+, for multiple mode fuses.
426, for automatic deactivation or self-destructing mines.

202.7 Having an exploding bridgewire:

This subclass is indented under subclass 202.5. Subject matter wherein the electrical device is an electrically conductive wire or semiconductor which vaporizes when electrically energized and produces a shock wave of high pressure or high temperature which causes the composition or charge to detonate, deflagrate or burn.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 61.08 for destructible circuit makers or breakers.
337, Electricity: Electrothermally or Thermally Actuated Switches, subclasses 227+ for electrothermal fusible elements having a fuse link carrier or holder; and subclasses 290+ for electrothermal fusible links or element structure or material.

202.8 Having a spark gap or conductive composition or charge:

This subclass is indented under subclass 202.5. Subject matter wherein the device produces an electric arc to ignite or detonate the composition or charge or the composition or charge is electrically conductive so that in an electric energized circuit the charge or composition is self-detonating or igniting.

SEE OR SEARCH CLASS:

149, Explosive and Thermic Compositions or Charges, for pertinent subclass(es) as determined by schedule review.
219, Electric Heating, subclasses 383+ for nonmetal arc heating devices; and subclasses 552+ for heating element structure.
252, Compositions, subclasses 500+ for electrically conductive compositions.
313, Electric Lamp and Discharge Devices, subclasses 306+ for discharge devices having three or more electrodes; subclass 309 for discharge devices having a multi-pointed or serrated edge electrode; and subclass 325 for miscellaneous discharge devices.
314, Electric Lamp and Discharge Devices: Consumable Electrodes, generally.
315, Electric Lamp and Discharge Devices: Systems, subclasses 326+ for discharge device loads.
431, Combustion, subclasses 264+ for a burner with a spark electrode.

202.9 With electric terminals:

This subclass is indented under subclass 202.5. Subject matter wherein the electric igniting or detonating device has an electric power connection of the quick make or break type to connect the device with an appropriate source of power.

SEE OR SEARCH THIS CLASS, SUBCLASS:

202.14, for an igniting or primer device with a housing having wires to connect the device with an energizing electrical source.

SEE OR SEARCH CLASS:
439, Electrical Connectors, subclasses 775+ for a metallic connector having a movable or resilient securing part.

204 Percussion primers or ignitors:
This subclass is indented under subclass 200. Subject matter comprising means to ignite an explosive by mechanical force.

SEE OR SEARCH THIS CLASS, SUBCLASS:
29, for percussive actuated explosives to initiate blasting explosives.
45, for percussive actuated explosives to initiate gun cartridges.

205 Heat, friction, or chemical primers or ignitors:
This subclass is indented under subclass 200. Subject matter comprising heating, friction, or chemical means to ignite an explosive.

206 Ignition or detonation circuit:
This subclass is indented under subclass 200. Subject matter comprising an electrical circuit, or components of an electrical circuit to supply electrical energy to an igniting device.

SEE OR SEARCH THIS CLASS, SUBCLASS:
11, for circuits for selectively firing units of mines in fields or groups.
16, for marine mine firing circuits.
19.2, for nonmarine mine firing circuits.
20+, for circuits for firing well explosives.

SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, subclasses 247+ for similar circuits.

207 Including activated generator:
This subclass is indented under subclass 206. Subject matter including means to selectively convert nonelectrical energy into electrical energy.

(1) Note. Subject matter for supplying electrical energy which is excluded from this subclass includes, for example, storage batteries and capacitors merely switched into a circuit. Subject matter included in this subclass includes, for example, tribo-electric generators and thermal and deferred-action batteries.

SEE OR SEARCH CLASS:
310, Electrical Generator or Motor Structure, appropriate subclasses for electrical generators, per se.
429, Chemistry: Electrical Current Producing Apparatus, Product, and Process, subclasses 110+ for deferred-action batteries, per se.

208 Turbine:
This subclass is indented under subclass 207. Subject matter wherein the electrical generator comprises a rotating member driven by fluid flow.

SEE OR SEARCH CLASS:
310, Electrical Generator or Motor Structure, subclasses 10+ for dynamoelectric generators, per se.

209 Magnetic:
This subclass is indented under subclass 207. Subject matter wherein electricity is generated by relative movement between a coil and magnetic material.

SEE OR SEARCH CLASS:
310, Electrical Generator or Motor Structure, subclasses 10+ for dynamoelectric generators, per se.

210 Piezoelectric crystal:
This subclass is indented under subclass 207. Subject matter wherein the electrical generator comprises a piezoelectric crystal.

SEE OR SEARCH CLASS:
310, Electrical Generator or Motor Structure, subclass 311 for piezoelectric generators, per se.

211 Proximity fuze:
This subclass is indented under subclass 206. Subject matter which comprises a means for sensing the distance or proximity of a target, such sensing means causing ignition of an explosive.

212 Magnetic:
This subclass is indented under subclass 211. Subject matter wherein the sensing means is a device for sensing the magnetic properties of a target.

SEE OR SEARCH THIS CLASS, SUBCLASS:
18, for magnetic sensing devices in marine mines.
19.2, for magnetic sensing devices in non-marine mines.

213 Light or infrared:
This subclass is indented under subclass 211. Subject matter wherein the sensing means includes an optical or infrared detecting means.

SEE OR SEARCH CLASS:
356, Optics: Measuring and Testing, subclasses 3+ for optical range-finding devices.

214 Radio wave:
This subclass is indented under subclass 211. Subject matter wherein target proximity is determined by the use of radio waves.

SEE OR SEARCH CLASS:
342, Communications: Directive Radio Wave Systems and Devices (e.g., Radar Radio Navigation), subclass 68 and 166 for similar proximity fuzes and appropriate subclasses for distance measuring devices.

215 Including logic means:
This subclass is indented under subclass 206. Subject matter including a computer or logic device (e.g., AND gate, OR gate, etc.).

216 Including impact or inertia switch:
This subclass is indented under subclass 206. Subject matter including a switch activated by inertia or target impact.

217 Plural sequentially fired ignitors or detonators:
This subclass is indented under subclass 206. Subject matter including a plurality of igniting devices activated one after another.

218 Electronic switch discharges capacitor:
This subclass is indented under subclass 206. Subject matter in which a switching means discharges a capacitor through the igniting device.

219 Ionized gas, i.e., glow tube or thyratron:
This subclass is indented under subclass 218. Subject matter in which the switching means includes a gas to be ionized, such as the gas in a glow tube or thyratron.

220 Silicon controlled rectifier:
This subclass is indented under subclass 218. Subject matter in which the switching means includes a silicon controlled rectifier.

SEE OR SEARCH CLASS:
327, Miscellaneous Active Electrical Nonlinear Devices, Circuits, and Systems, appropriate subclasses for miscellaneous circuits which employ silicon controlled rectifiers.

221 Arming devices:
This subclass is indented under subclass 200. Subject matter which includes means selectively rendering the igniting device or system capable of igniting an explosive.

(1) Note. The means of this subclass type, for example, renders an igniting device or system incapable of igniting an explosive until the means is either activated or withdrawn.

(2) Note. Restrained impacting devices which are released upon striking a target or similar object are not considered arming devices of this subclass type and are classifiable in subclass 272 below.

(3) Note. Arming devices combined with art provided for elsewhere in this class are classified with such art.

222 Blocking or interrupting type:
This subclass is indented under subclass 221. Subject matter wherein ignition requires the cooperation of at least two elements, and wherein the arming means includes movable means which selectively either prevents or permits cooperation of the two elements.

223 Fluid pressure operated:
This subclass is indented under subclass 222. Subject matter in which the blocking or interrupting means is activated or rendered operative by fluid pressure.

224 Fluidic device:
This subclass is indented under subclass 223. Subject matter including a fluidic device, i.e., a fluid amplifier or fluid oscillator.

SEE OR SEARCH CLASS:
137, Fluid Handling, subclasses 803+ for fluidic devices in general.

225 Rotating vane:
This subclass is indented under subclass 223. Subject matter including a member rotated about an axis by the fluid pressure to move or permit movement of the blocking or interrupting means.

SEE OR SEARCH CLASS:
416, Fluid Reaction Surfaces (i.e., Impellers), for vane structures per se.

226 Rotor or slide release:
This subclass is indented under subclass 225. Subject matter in which the blocking or interrupting means is slidable or rotatable.

(1) Note. Subject matter of this subclass type includes, for example, an element either carrying an explosive or having an aperture initially out of alignment in a firing train which subsequently moves the explosive or aperture into alignment with the firing train.

227 Impacting device release:
This subclass is indented under subclass 225. Subject matter in which the rotating vane releases means for creating an impulse of mechanical force, e.g., firing pin, inertial weight, etc.

228 With or including a timing device:
This subclass is indented under subclass 223. Subject matter including means activated or operated by the fluid pressure to delay the functioning of some element of the igniting device or system.

(1) Note. The timing device of this subclass type, although included in the igniting device or system, need not necessarily be included in the blocking or interrupting means.

229 Rotor or slide:
This subclass is indented under subclass 223. Subject matter in which the blocking or interrupting means is slidable or rotatable.

230 Impacting device release:
This subclass is indented under subclass 223. Subject matter in which a means for creating an impulse of mechanical force is released by the fluid pressure.

231 Centrifugal and setback operated:
This subclass is indented under subclass 222. Subject matter in which the blocking or interrupting means arms the igniting device or system by a combination of centrifugal force and an inertial force due to linear acceleration.

(1) Note. The term “setback” as used in the art generally refers to accelerating force acting on an inertial mass caused by the launching of a missile.

(2) Note. The acceleration of this subclass type always increases velocity. Acceleration of the type which decreases velocity is referred to as deceleration (see for example subclass 246 below) and does not form a basis for classification in this subclass.

232 With or including a timing device:
This subclass is indented under subclass 231. Subject matter including means to delay the functioning of some element in the igniting device or system.

(1) Note. The timing device of this subclass type, although included in the igniting device or system, need not necessarily be included in the blocking or interrupting means.

233 With setback latch:
This subclass is indented under subclass 232. Subject matter having means to hold the timing means inoperative until released by setback force.

234 Impacting device release:
This subclass is indented under subclass 231. Subject matter in which a means for creating an impulse of mechanical force is caused to be released by the centrifugal and/or setback force.

235 Rotor or slide with setback latch:
This subclass is indented under subclass 231. Subject matter in which the blocking or interrupting means is rotatable or slidable and which has means to prevent the blocking or interrupting means from rotating or sliding until released by a setback force.

236 Firing pin is latch:
This subclass is indented under subclass 235. Subject matter in which the rotor or slide setback release is also an impacting device which imparts an impulse of mechanical force to an explosive charge.

237 Centrifugal operated:
This subclass is indented under subclass 222. Subject matter in which the blocking or interrupting means arms the igniting device or system by centrifugal force.

SEE OR SEARCH THIS CLASS, SUBCLASS:
231, for blocking and interrupting-type arming devices operated by both centrifugal and setback forces.

238 With or including a timing device:
This subclass is indented under subclass 237. Subject matter including means to delay the functioning of some element of the igniting device or system.

(1) Note. The timing device of this subclass type, although included in the igniting device or system, need not necessarily be included in the blocking or interrupting means.

239 Latch for impacting device:
This subclass is indented under subclass 237. Subject matter which includes means for holding inoperative a means for creating an impulse of mechanical force until released by centrifugal force.

240 Spiral band:
This subclass is indented under subclass 239. Subject matter in which the latching device is a spirally wrapped flexible band.

241 Pivoted weight:
This subclass is indented under subclass 239. Subject matter in which the latch includes a weight or inertia responsive member attached at and pivotable about a point and acted on by the centrifugal force to release the impacting device.

242 Spring biased piston:
This subclass is indented under subclass 239. Subject matter in which the latch includes a plurality of members movable by centrifugal force and each acted on by a separate resilient means tending to counteract the centrifugal force.

243 Expanding weight:
This subclass is indented under subclass 239. Subject matter in which the latch includes weighted or inertia responsive members which move outwardly relative to one another under the influence of centrifugal force and which are interconnected circumferentially by resilient means which tends to counteract the centrifugal force.

244 Rotor or slide:
This subclass is indented under subclass 237. Subject matter in which the blocking or interrupting means includes a rotatable or slidable means actuated or operated by centrifugal force.

245 Centrifugally released latch:
This subclass is indented under subclass 244. Subject matter in which the rotor or slide is restrained by a means which releases the rotor or slide in response to centrifugal force.

246 Deceleration released latch:
This subclass is indented under subclass 244. Subject matter in which the rotor or slide is released in response to a decelerating force.

247 Inertia operated:
This subclass is indented under subclass 222. Subject matter in which the blocking or interrupting means is activated or operated by the reaction of a mass to an accelerating or decelerating force.

SEE OR SEARCH THIS CLASS, SUBCLASS:
231, for blocking and interrupting-type arming means operated by both centrifugal and setback forces.

248 With or including a timing device:
This subclass is indented under subclass 247. Subject matter including means to delay the functioning of some element of the igniting device or system.

(1) Note. The timing device of this subclass type, although included in the igniting device or system, need not necessarily be included in the blocking or interrupting means.

249 With setback latch:
This subclass is indented under subclass 248. Subject matter having means to hold the timing device inoperative until released by a setback force.

(1) Note. The term "setback" as used in this subclass is defined in subclass 231 above.

250 Fluent material:
This subclass is indented under subclass 248. Subject matter in which the timing device includes a fluid-like material, i.e., a liquid or granular material.

(1) Note. Subject matter of this subclass type includes, for example, sand, small balls, etc.

251 Rotor or slide with setback release:
This subclass is indented under subclass 247. Subject matter in which the blocking or interrupting means is rotatable or slidable and is held inoperative by means which releases the blocking or interrupting means in response to a setback force.

(1) Note. The term "setback" as used in this subclass is defined in subclass 231 above.

252 Impacting device latch:
This subclass is indented under subclass 247. Subject matter in which a first means (i.e., latch) holds inoperative a second means (i.e., impacting device) for creating an impulse of mechanical force until the first means is caused to release the second means by a setback force.

(1) Note. The term "setback" as used in this subclass is defined in subclass 231 above.

253 Ball and detent:
This subclass is indented under subclass 252. Subject matter in which the latching means includes a cooperating ball and detent.

254 Slide and rotor:
This subclass is indented under subclass 222. Subject matter in which the blocking or interrupting means is rotatable or slidable.

SEE OR SEARCH THIS CLASS, SUBCLASS:
226, (1) Note, for examples of rotors or slides of this subclass (254) type.

255 Timing device operated:
This subclass is indented under subclass 254. Subject matter in which the rotor or slide is actuated or operated by a delay causing means.

256 Spring operated:
This subclass is indented under subclass 254. Subject matter in which the rotor or slide is operated by a spring means.

257 Timer operated impacting device latch:
This subclass is indented under subclass 222. Subject matter in which the blocking or interrupting means is a timing device which oper-

ates or releases a means for creating an impulse of mechanical force.

258 Externally released latch:
This subclass is indented under subclass 222. Subject matter in which the blocking or interrupting means includes a means either physically removable from the device to be armed or actuated from outside the device to be armed.

259 Bore riding pin:
This subclass is indented under subclass 258. Subject matter in which the device to be armed is a missile launched by a device having a missile guiding bore and in which the blocking or interrupting means includes a latch which is held in its restraining position by the bore of the launching device and which moves to its release position after the missile leaves the bore of the launching device.

260 Manually released:
This subclass is indented under subclass 258. Subject matter in which the latch is released by hand.

261 To actuate impacting means:
This subclass is indented under subclass 260. Subject matter in which the release of the latch actuates a means for creating an impulse of mechanical force.

262 Switch:
This subclass is indented under subclass 221. Subject matter which includes an electrical switching means which opens or closes an arming circuit.

263 Vane or fluid pressure operated:
This subclass is indented under subclass 262. Subject matter in which the switching means is caused to be opened or closed by a rotating vane or by fluid pressure.

264 Timing device operated:
This subclass is indented under subclass 262. Subject matter wherein the switching means is opened or closed by a timing device.

265 Multiple mode fuzes:
This subclass is indented under subclass 200. Subject matter which includes a plurality of igniting devices or systems which may operate independently of one another.

266 Impact and time delay:
This subclass is indented under subclass 265. Subject matter in which one of the igniting devices or systems is actuated upon impact with a target and another one of the igniting devices or systems detonates the main charge after a predetermined time delay.

(1) Note. Subject matter of this subclass type includes, for example, self-destruct type fuzes.

267 Spin decay:
This subclass is indented under subclass 266. Subject matter in which the armed device is carried by a missile and in which the delay mode actuation is caused by the slowing down of the spinning of the missile carrying the armed device.

268 Mechanical time delay:
This subclass is indented under subclass 266. Subject matter in which the time delay is caused by a mechanical timing means.

269 Powder train delay:
This subclass is indented under subclass 266. Subject matter in which the time delay is caused by the burning of a predetermined length of explosive.

270 Mode selecting means:
This subclass is indented under subclass 265. Subject matter in which the armed device is carried by a missile and which includes a means for selecting the igniting device or system before the missile is launched.

271 Delay or impact:
This subclass is indented under subclass 270. Subject matter in which the choice of modes is between an igniting device or system which detonates the main explosive on target impact and one which detonates the main explosive after a predetermined delay from launch.

272 Impacting devices:
This subclass is indented under subclass 200. Subject matter including a device to impart an impulse of mechanical force to a percussion sensitive explosive.

273 Graze or multiangle:
This subclass is indented under subclass 272. Subject matter in which the impacting device is actuated by a sliding (i.e., grazing) hit or a hit other than head on.

(1) Note. Subject matter of this subclass type may be referred to in the art as "all-way fuzes" and "multiangle fuzes".

274 Spring driven with latch:
This subclass is indented under subclass 272. Subject matter in which the impacting device is urged toward ignition, but is held back by a releasable means.

275 With frangible restraint:
This subclass is indented under subclass 272. Subject matter in which the impacting device is held by a restraint which fractures or gives way to release the impacting device when subjected to a predetermined force.

275.1 Fuse cord (e.g., blasting cord):
This subclass is indented under subclass 200. Subject matter for setting off explosive or thermic charges which includes an indefinite length of flexible material including a combustible substance along the length of the material which substance when ignited or detonated causes the ignition or detonation to travel the length of the combustible substance to transfer the ignition or detonation to an explosive or thermic charge.

(1) Note. The term "indefinite length" includes cords, ropes, tapes, and tubes.

(2) Note. The term "combustible" includes burning, deflagrating, and detonating.

(3) Note. Included are safety fuses, igniter cords, timing fuses, and detonator cords.

(4) Note. Included are connectors, per se, which join fuse cords together to form an explosive circuit to fire a main charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200, for protective covers for a blasting cap joined to a fuse.
277.1+, for powder trains, fixed or variable.

SEE OR SEARCH CLASS:
86, Ammunition and Explosive-Charge Making, subclass 1 for methods and apparatus for making fuse cords.
149, Explosive and Thermic Compositions or Charges, subclasses 71+ for a composition having a nitrogen and oxygen containing salt, carbon, and sulfur.

275.11 Initiating devices:
This subclass is indented under subclass 200. Subject matter which includes nonelectric devices, per se, used to ignite and explosive or thermic composition or charge of the primer or ignitor type.

(1) Note. Here are manually operated initiators.

SEE OR SEARCH THIS CLASS, SUBCLASS:
204, for percussive primers or ignitors.
205, for heat, friction, or chemical primers or ignitors.
275.6, for a fuse cord with an igniting device.

SEE OR SEARCH CLASS:
44, Fuel and Related Compositions, subclasses 506+ for a solid fuel having a friction igniting mass or surface and subclass 519 for a solid fuel composition or product having a wick or fuse.
431, Combustion, subclasses 267+ for frictional, chemical, or percussive type ignitors; and subclasses 288+ for candles.

275.12 Holders for fuse or fuse cord to blasting cartridge, igniting device or detonator:
This subclass is indented under subclass 200. Subject matter which includes devices, per se, to secure a fuse cord to a detonating or igniting device or a fuse cord with or without a detonating or igniting device to a blasting cartridge or other explosive charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200, for protective covers for detonators.
202.12, for electric primer or ignition assemblies.

275.7, for a fuse cord with a cord coupling device.

275.2 With one-way connector or arrangement:
This subclass is indented under subclass 275.1. Subject matter which include (a) a connector joining the combustible substance of the indefinite length of fuse material to another indefinite length of fuse material by means to permit a one-way transfer of the detonation or burning proceeding along one indefinite length to the other indefinite length, or (b) the joining of the combustible substance of the indefinite length to a second combustible length of fuse material to permit only the passage of the burning or detonation one-way.

275.3 With combustible time-delay cord connection means:
This subclass is indented under subclass 275.1. Subject matter which includes a connector containing a combustible time delay joining an end of the indefinite length of material including the combustible substance to an end of a second indefinite length of material including a combustible substance in a series arrangement.

(1) Note. The connector, per se, with the contained combustible time delay is placed as an original in this subclass.

(2) Note. To have a detonator or safety fuse cord ignite the combustible time delay, an explosive with or without other thermic materials may be necessary in the connector, and they may or may not be claimed.

(3) Note. The first and the second cord or only one of these cords may be claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
277.1+, for time controlled munition powder trains.

275.4 To or from connector having booster charge:
This subclass is indented under subclass 275.1. Subject matter which includes a booster explosive charge containing connector to join the combustible substance of the indefinite length material to the charge to (a) detonate the charge, or (b) to have the charge detonate the combustible substance of the indefinite length material.

(1) Note. Here are the connectors per se.

(2) Note. The combination of a fuse cord to a booster charge containing connector to one or more fuse cords is here.

(3) Note. The detonator fuse cord and the charge containing connector may set off a main charge not claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
311, for a fuse cord and a booster to set off a blasting charge at each of several locations.
313, for a fuse cord and a booster charge to set off a blasting charge placed or inserted in a borehole.
318, for a fuse cord and a booster charge to set off a blasting charge.
322, for a fuse cord and a booster charge to set off a blasting charge.

275.5 With explosive charge:
This subclass is indented under subclass 275.1. Subject matter which includes an explosive charge connected to the combustible substance of the indefinite length material so that the ignited or detonated combustible substance will ignite or detonate the explosive charge or vice versa.

(1) Note. Explosive charge includes deflagrating material.

(2) Note. No main charge is claimed in this subclass.

(3) Note. A fuse cord with a integral booster charge, a blasting cap, or other detonator is here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
305+, for detonation wave modifying and shaped charges ignited or detonated by a fuse cord and a detonator.
311, for patterned blasting involving plural locations set off by a fuse cord and a detonator.

313, for an inserted or placed blasting charge in a borehole set off by a fuse cord and a detonator.
322, for a contained blasting charge set off by a fuse and detonator.
332, for a blasting charge set off by a fuse and a detonator.

275.6 With igniting means:
This subclass is indented under subclass 275.1. Subject matter which includes combustible material attached to or part of the indefinite length material so that the combustible material when ignited will cause the ignition of the combustible substance of the indefinite length material.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.5+, for electric ignition of a fuse cord.
204, for percussion primers or ignitors.
205, for heat, friction, or chemical primers or ignitors.
275.11, for nonelectric initiating devices to ignite or detonate an explosive or thermic composition.
322, for a contained blasting charge with a primer or ignitor.
332, for a blasting charge with a primer or ignitor.
499+, for shells with ignition means.
530+, for jacketed or cartridge gas generators sources with igniting means.

SEE OR SEARCH CLASS:
44, Fuel and Related Compositions, subclasses 506+ for a solid fuel having a friction igniting mass or surface and subclass 519 for a solid fuel composition or product having a wick or fuse.
431, Combustion, subclasses 267+ for frictional, chemical, or percussive type ignitors; subclass 287 for a combustion starting assistant; and subclasses 288+ for candles.

275.7 With cord holding device to couple cords:
This subclass is indented under subclass 275.1. Subject matter wherein the indefinite length of material with a combustible substance is a detonator cord and there is a holder to place the detonator cord in relation to another detonator cord so that the shock wave traveling in one cord and induce a shock wave in the other cord.

(1) Note. The second detonator cord may or may not be claimed.

(2) Note. The holder, per se, is here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
275.3, for a connector with a booster and a combustible time delay between detonator cords.
275.4, for a connector with a booster explosive to join two cords.

275.8 Detonator cord:
This subclass is indented under subclass 275.1. Subject matter wherein the combustible substance is one which detonates to produce a shock wave which is used to detonate a shock sensitive explosive charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.5, for electrically detonated detonator cords.
275.5, for a detonator cord detonated blasting cap.
305, for detonation wave modifying including shaped charges with a detonator cord primer.
311, for patterned blasting at plural locations using a detonator cord primer.
313, for placing or inserting a blasting charge in a borehole to be set off by a detonator cord.
322, for a contained blasting charge set off by a detonator cord.
332, for a blasting charge set off by a detonator cord.

SEE OR SEARCH CLASS:
149, Explosive and Thermic Compositions or Charges, subclasses 105+ for detonator cord compositions.

275.9 Fuse:
This subclass is indented under subclass 200. Subject matter which includes methods and apparatus involving nonelectric devices for setting off a larger explosive or thermic charge not classified elsewhere in the class.

(1) Note. Here are casings containing an ignitor or a primer charge with no means

to ignite or detonate the ignitor or detonator charge.

(2) Note. Here are electric blasting caps with a casing, bridge plug, and an explosive or thermic charge with no electrical features or ignitor claimed.

(3) Note. Casings, per se, for a fuse are here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.1, for accidental fuse ignition prevention means.
202.5, for electric primers or ignitors.
204, for percussive primers or ignitors.
205, for heat, friction, or chemical primers or ignitors.
275.1, for igniting, detonating, or safety fuses.

276 Time controlled:
This subclass is indented under subclass 200. Subject matter which includes a timing or delay causing means.

277 With fluent material:
This subclass is indented under subclass 276. Subject matter in which the timing or delay causing means includes a fluid, fluid-like or granular material.

277.1 Munition powder train:
This subclass is indented under subclass 276. Subject matter wherein the timing or delay causing means includes a path of powder having ends so that the powder, when ignited, burns along the path to an end where the burning can be transferred to an explosive or thermic charge.

(1) Note. Here are mainly shell munition fuses.

(2) Note. The means to ignite the powder may or may not be claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.13, for an electric primer or ignitor with a powder train time delay.
269, for a multiple mode fuse including a powder train time delay.
275.1, for detonator, ignition, and safety fuse cords, particularly subclass 275.3 for a fuse cord with a combustible time delay cord connector means.

277.2 Train length selection means:
This subclass is indented under subclass 277.1. Subject matter wherein there is included means to adjust the length of powder path between its ends to be ignited so as to create a variable combustible time fuse.

281 EXPLOSIVE CAPS FOR TOY GUNS:
This subclass is indented under the class definition. Subject matter which comprises explosive packets or containers commonly referred to as “caps” for merely producing a noise when used with a toy gun or other impacting means.

282 PROPELLENT CHEMICAL CHARGE CONTAINER:
This subclass is indented under the class definition. Subject matter which includes apparatus and corresponding methods involving a container to hold a propellent charge.

(1) Note. Consumable and partly consumable powder bags are here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
314+, for a contained blasting charge, particularly subclass 323 for a charge with a rupturable or expansible casing.
324, for a charge having a flexible tube or bag container.
331, for blasting charge cases.
464+, for cartridge cases.
530+, for jacketed or cartridge gas generator sources for blank shells or cartridges, and gas-powered tools or means.

SEE OR SEARCH CLASS:
383, Flexible Bags, appropriate subclasses for a flexible bag.

283 POWDER FORM:
This subclass is indented under the class definition. Subject matter which includes method and apparatus including a chemically reactive combustible composition having more than a nominal solid propellent form for the purpose of changing the burning rate or the manner of burning when ignited.

(1) Note. The "solid propellent form" is defined here as being a unitary mass of solid propellent composition or a plurality of individual propellent forms united to define a unitary or composite form which includes: (a) an external or internal surface of specific configuration; (b) a burning rate modifier structure which directs a flame front through the form (the "flame front" is intended to be the actual burning surface of the solid propellent form at any particular instant in the total burning period); or (c) reinforcing or form support means attached to or imbedded within or in immediate contact with the propellent form, or forming a portion of the unitary structure.

The solid propellent composition includes all detonating and deflagrating compositions, including immediately adjacent oxidizer and fuel compositions (see "(1) Note", Class 60, Power Plants, subclass 205), which react under combustion to detonate or deflagrate. It further includes a solid fuel or solid oxidizer composition which is adapted to be brought in immediate contact with a solid or fluid oxidizer or fuel, respectively, when combustion is desired. For example, the solid propellent form used in reaction motors of the type classified in Class 60, Power Plants, subclass 251 would be included under this definition. The solid propellent composition referred to above excludes manufactured fuel of general utility, such as fuel briquets which are provided for elsewhere, see the search notes below.

(2) Note. A "granule" of propellent is defined here as synonymous with finely divided particulate or powdered material, and further includes an individual propellent form which is disclosed as used in combination with other unconnected granules of an identical or similar shape, size, or composition which produce a combined gas producing result upon combustion. Each granule burns individually with its own individual characteristics depending upon its shape, size, and composition. The individual characteristics of each granule are combined with the characteristics of other unconnected granules to produce a total desired result upon combustion.

(3) Note. A "solid propellent form" claimed with only a nominal shape is provided for elsewhere, see the search notes below. However if the "solid propellent form" is characterized by structure or size such that there is imparted to the form the capacity to function as an individual unit to produce or alter a particular detonation or deflagrating effect the form is not regarded as nominal and is classified under this definition.

The following examples have been considered to be significant inclusion of structure and if included would cause classification in this class (102): (a) a generally perforated propellent mass combined with a specific density; (b) a broadly configured mass (i.e., a sheet) with at least one specific dimension; and (c) a porous propellent mass claimed in combination with a capillary perforation extending therethrough.

SEE OR SEARCH THIS CLASS, SUBCLASS:

200+, for igniting devices or systems with an explosive, deflagrating, or igniting composition.
305, for a detonation wave modifying explosive.
314+, for a contained blasting charge.
332, for a blasting charge having a definite structural form used for blasting purposes.
335+, for pyrotechnics including flares in subclasses 336+.
372+, for a radially directed propelling means.
374+, for a reaction motor with a payload.
401+, for mines.
430+, for cartridges which include a casing with gun powder.
464+, for cartridge cases.
473+, for shells having an explosive within.
530+, for a jacketed or cartridge gas generator source with or without an ignitor.

SEE OR SEARCH CLASS:

44, Fuel and Related Compositions, subclasses 530+ for a fuel product having a defined shape or structure.

60, Power Plants, subclass 39.47 for a solid propellent form in combination with nominal reaction motor casing structure with no nozzle claimed; subclass 251 for a reaction motor with a specific form of an oxidizer or fuel charge within a reaction motor and which charge is adapted to be brought in contact with a fluid fuel or oxidizer, respectively, upon ignition; subclass 252 for a reaction motor with a specific form of a gel propellant within a reaction motor; and subclasses 253+ for a reaction motor having a solid propellant.

86, Ammunition and Explosive-Charge Making, subclasses 1 and 20 for methods and apparatus of making a propellent form by other than molding.

149, Explosive and Thermic Compositions or Charges, subclasses 2+ for structure or arrangement of component or product.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 3+ for explosive or propellant article shaping or treating.

284 Spiral type:

This subclass is indented under subclass 283. Subject matter wherein the form is wound circularly to make a curve that constantly increases in size or the form has a portion that circles about a point in a curve that constantly increases in size.

SEE OR SEARCH THIS CLASS, SUBCLASS:

285, for layer-type powder forms.

332, for sheet-type blasting charges.

SEE OR SEARCH CLASS:

149, Explosive and Thermic Compositions or Charges, subclass 3 for a coating and a base or a support; and subclasses 14+ for superimposed or contiguous layers of different compositions or different properties.

285 Composite type:

This subclass is indented under subclass 283. Subject matter which includes a unitary solid propellent form composed of a plurality of members.

(1) Note. Here are single grain composite gas generator sources for (a) rocket motors, (b) weapons, and (c) gas-powered tools where the grain is not in a housing.

(2) Note. The oxidizer and the reducing chemicals may be in each of the members or one member may contain the oxidizer and the other member may contain the reducing chemical.

(3) Note. Generally, the propellent form has a solid oxidizer and reducing agent, but one of the two can be a liquid.

SEE OR SEARCH THIS CLASS, SUBCLASS:

374, for reaction motors with a payload.

430+, for cartridges which have a contained powder charge.

472, for spiral-type powder forms.

530+, for jacketed or cartridge gas generator sources.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 39.01+ for methods and apparatus for using combustion products as a motive fluid; subclass 219 for methods using solid material in reaction zone of reaction motor; subclasses 253+ for reaction motors using a solid propellent; and subclasses 632+ for one shot explosion actuated expansible chamber-type motors.

149, Explosive and Thermic Compositions or Charges, subclasses 3+ for coated component of a structure or arrangement of component or product; and subclasses 14+ for contiguous layers or zones of a structure or arrangement of component or product.

244, Aeronautics and Astronautics, subclass 74 for explosive jet aircraft propulsion; and subclass 171.1-171.6 for spacecraft with propulsion.

411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener, subclasses 440+ for fasteners having means to facilitate the explosive driving of the fastener.

286 Having different burning rates:
This subclass is indented under subclass 285. Subject matter wherein the propellent form includes members having different speeds of combustion.

287 Rocket motor type:
This subclass is indented under subclass 296. Subject matter wherein the propellent form is a rocket propellent grain.

288 Powder grain shape formed of fixed shape segments:
This subclass is indented under subclass 285. Subject matter wherein each of the plurality of members are of fixed shape and when only the members are place together, form a single unitary configuration whose overall solid propellent form is different than any of the parts.

(1) Note. The overall form may be cylindrical, hexagonal, star shaped, cruciform, etc.

289 Having embedded reinforcing or burning control means:
This subclass is indented under subclass 283. Subject matter including structural means within the form to (a) strengthen the form, (b) change the surface burning area of the form, or (c) change the burning rate of the form.

(1) Note. The form material can be heated to the ignition temperature where it contacts the structural means heated by conduction from the burning propellent or heated by the ignited structural means ignited by the burning form. This heating changes the burning surface area of the form and the burning rate of the form.

(2) Note. The "structural means" excludes flakes, powders, chips, or particles of metal used as a burning rate additive in the propellent composition.

(3) Note. The "structural means" includes metallic wires, fiber glass strands, sheets of corrugated metal, wire screen, hardware cloth, or the like.

(4) Note. The "structural means" includes form supporting means which inherently reinforces the form or it may be a burning front guide means which functions to direct the flame front through a preselected path in the propellent form.

SEE OR SEARCH THIS CLASS, SUBCLASS:
286, for a fixed shape propellent form composed of fixed segments having different burning rates.
290, for powder forms having burning inhibiting means having a different rate than the propellent form placed on the surface of the form.

SEE OR SEARCH CLASS:
149, Explosive and Thermic Compositions or Charge, subclass 89 for compositions or charges having a fuel component having a metal, metalloid, metal hydride, metalloid with a hydrocarbon or halogenated hydrocarbon.

290 Having burning inhibiting means:
This subclass is indented under subclass 283. Subject matter wherein the propellent form has surfaces limiting the physical extent of the form and includes a medium, to control the burning area of the form, selectively placed on one or more of the surfaces to control the amount of the surface and the shape of the surface that can be burned at any instant of time.

(1) Note. The medium to inhibit may be combustible but it burns at a slower rate than the propellent form.

SEE OR SEARCH THIS CLASS, SUBCLASS:
286, for composite propellent forms having different burning rates.
289, for burning control means within the propellent form.

SEE OR SEARCH CLASS:
60, Power Plants, subclass 253 for reaction motors of the solid type having inhibiting means to produce a particular burning.

291 Rocket propellent grain:

This subclass is indented under subclass 283. Subject matter wherein the solid propellent form is a powder charge which, when ignited, will create a hot gas which is the moving force of a reaction motor.

(1) Note. Here are the propellent grains, per se, used to propel missiles, rockets, aircraft, and spacecraft.

SEE OR SEARCH THIS CLASS, SUBCLASS:

202, for propellent ignitors with a propellent rocket grain which travels with a missile.

202.5+, for an electrically ignited powder form.

347+, for pyrotechnic rockets of the fireworks type.

374+, for reaction motors, particularly subclass 380 for a reaction motor with an ignitor means having a payload.

531, for jacketed or cased rocket propellent grains.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 200.1+ for reaction motors, particularly subclass 219 for methods of operating a reaction motor by using solid material in the reaction zone.

244, Aeronautics and Astronautics, subclasses 73 through 74 for devices relative to and combined with an aircraft using jets of air or other fluid for propelling aircraft; and subclass 171.1-171.6 for spacecraft with propulsion propulsion.

292 Powder grain:

This subclass is indented under subclass 283. Subject matter wherein the solid propellent form is a powder granule.

(1) Note. A granule here is a singularly shaped chemical powder having shape or structure for the purpose of modifying the rate of manner of burning or exploding.

SEE OR SEARCH THIS CLASS, SUBCLASS:

314+, for blasting cartridges which contain a plurality of propellent grains forming the blasting charge.

335+, for pyrotechnics including flares and fireworks made up of a plurality of granules to form a charge.

430+, for cartridges including shotgun shells having a charge made of a plurality of grains.

473, for shells containing a charge having a plurality of grains.

SEE OR SEARCH CLASS:

86, Ammunition and Explosive-Charge Making, subclasses 10+ for making caps and cartridges; and subclasses 20+ for loading bursting charges; and subclasses 23+ for ammunition loading having a charge of a plurality of grains.

149, Explosive and Thermic Compositions or Charges, subclasses 2+ for compositions or products having a particular shape or structure of one ingredient of the composition or product or the nominal shape and/or the physical characteristic of the composition or product. See the notes to this subclass, subclass 3, and the general notes to this class.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 3+ for methods for molding or treating a propellent form.

293 MISCELLANEOUS:

This subclass is indented under the class definition. Subject matter which is not provided for under any of the preceding subclass.

301 BLASTING:

This subclass is indented under the class definition. Apparatus and corresponding methods involving the breaking up or the destruction of natural or man-made objects or material by the use of a fluid under high pressure including means for (a) the sudden release of the fluid under high pressure resulting from a chemical reaction, or (b) a very rapid escape or release of the fluid under high pressure.

(1) Note. This and the indented subclasses include accessories, e.g., mats, plugs, etc., or subcombinations specialized in blasting.

(2) Note. This group of subclasses does not include ammunition for weapons. See "SEARCH THIS CLASS, SUBCLASS", for notes to subclasses.

(3) Note. The objects or material broken up or destroyed may be above or below the ground or underwater.

(4) Note. The blasting may be for mining, excavation, or demolition purposes. See "SEARCH CLASS" notes for classes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

283+, for powder forms.
363+, for fuel air explosives.
382+, for drop bombs.
401+, for mines.
530+, for jacketed or cartridge gas generator sources.

SEE OR SEARCH CLASS:

37, Excavating, subclass 201 for railway snow excavators of the blasting type.
72, Metal Deforming, subclass 56 for metal deforming by an explosive force.
86, Ammunition and Explosive-Charge Making, subclass 20 for methods and apparatus for placing of explosive compositions and devices to transport the composition into a blast hole without detonation of the composition; and subclass 22 for tools for cutting, capping, and placing fuses in a blasting charge.
89, Ordnance, subclass 1.14 for explosively operated apparatus including explosively operated splitting wedges.
109, Safes, Bank Protection, or a Related Device, subclass 1 for bomb exploding or removing devices.
149, Explosive and Thermic Compositions or Charges, particularly subclasses 2+ for structure or arrangement of component or product.
166, Wells, subclass 299 for a process involving an explosion; and subclass 63 for apparatus for causing an explosion in a well.
175, Boring or Penetrating the Earth, subclasses 2+ for boring with an explosion in an inaccessible hole.
250, Radiant Energy, subclasses 302+ for the testing for radiation tracing material in blasting charges.
264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 3+ for explosive or propellent article shaping or treating.
299, Mining or In Situ Disintegration of Hard Material, subclass 13 for processes involving explosives.
376, Induced Nuclear Reactions: Processes, Systems, and Elements, subclass 914 for nuclear explosives.

302 Terrain clearance:

This subclass is indented under subclass 301. Subject matter wherein the means for sudden release of the fluid is used to remove foliage.

(1) Note. The blasting means may act on another device to cause detonation or removal.

SEE OR SEARCH THIS CLASS, SUBCLASS:

403, for explosive mine clearing means.

303 Mat or deflector:

This subclass is indented under subclass 301. Subject matter which includes a covering, for placement over an explosive device, which catches or deflects solid material propelled by the detonation of an explosive device to prevent damage to people or property by the propelled material.

(1) Note. Mats for bombs are in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

301, for stemming material.
333, for blasting plugs.

SEE OR SEARCH CLASS:
109, Safes, Bank Protection, or a Related Device, subclass 1 for bomb disposal safes, and subclass 49.5 for shields and protectors.

304 Blasting plug including an opening for a fuse, fuse ignitor, or explosive:
This subclass is indented under subclass 301. Subject matter which includes means to seal the opening of a blast hole having a passageway for (a) a fuse cord or fuse ignitor, or (b) supplying or holding an explosive in the plug or blast hole.

SEE OR SEARCH THIS CLASS, SUBCLASS:
301, for stemming used to seal blast holes or combined with a charge not provided for elsewhere.
333, for blasting plugs.

305 Detonation wave modifying:
This subclass is indented under subclass 301. Subject matter wherein the means is an explosive charge and there is means to change the shape or direction of the detonation wave resulting from the detonation of the charge.

(1) Note. The means to change the shape or direction of the detonation wave may be integral with the explosive or separate therefrom.

(2) Note. The means to ignite or detonate the explosive charge may or may not be claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
475+, for a shell having focussed or directed detonation.

306 Shaped charge or charge with detonation wave cavity modifier:
This subclass is indented under subclass 305. Subject matter wherein the explosive charge (a) has a cavity in its external surface, or (b) has a material next to the charge with a cavity in its external surface, the charge upon detonation produces a detonation wave front determined by the shape of the cavity.

(1) Note. Included in this group of subclasses, per se, or combined with the cavity is a liner conforming to the shape of the cavity. The cavity upon detonation of the charge produces a wave front, dependent on the cavity shape which acts on the liner to propel the liner and shape the liner into a jet stream of high energy.

SEE OR SEARCH THIS CLASS, SUBCLASS:
331, for a container for a blasting charge.
476, for a shell having a shaped charge.

SEE OR SEARCH CLASS:
89, Ordnance, subclass 1.15 for well perforators of the shaped charge type.
175, Boring or Penetrating the Earth, subclass 4.6 for a shaped charge to attack the formation or wall member in a hole.

307 Linear or curvilinear cavity:
This subclass is indented under subclass 306. Subject matter wherein the cavity has two sides which taper outward from a line intersection of the two sides to form a through like linear or curvilinear cavity.

SEE OR SEARCH CLASS:
89, Ordnance, subclass 1.14 for explosively operated apparatus including material cutting devices using linear or curvilinear charges.

308 Tandem charge:
This subclass is indented under subclass 306. Subject matter wherein there are plural explosive charges, axially aligned, one next to the other, at least one being a shaped charge, the detonation of the one charge reinforces the other charge to produce a additive detonating effect at the same location.

(1) Note. One of the charges may be a booster.

(2) Note. The charges may be ignited simultaneously or sequentially.

SEE OR SEARCH THIS CLASS, SUBCLASS:

310, for plural shaped charges.

317, for axially aligned contained charges with structure to join the charges end to end.

320, for plural contained charges.

309 Having a barrier:

This subclass is indented under subclass 306. Subject matter which includes a member to direct and alter the detonation wave through the charge, when detonated, to the cavity.

310 Plural charges:

This subclass is indented under subclass 306. Subject matter having more than one shaped charge.

(1) Note. Here are well perforators having a support, with a plurality of shaped charges each aimed in different directions, adapted to be lowered into a well. The perforator is also called a gun.

SEE OR SEARCH THIS CLASS, SUBCLASS:

307, for a linear or curvilinear-shaped charge cavity which may have plural explosive charges.

308, for plural charges axially aligned, at least one charge being a shaped charge.

317, for similar contained charges joined end to end.

318, for a booster charge and a main charge.

320, for plural contained charges.

SEE OR SEARCH CLASS:

175, Boring or Penetrating the Earth, subclass 4.6 for a shaped charge in an inaccessible hole.

311 Pattern blasting:

This subclass is indented under subclass 301. Subject matter wherein there is a blasting charge at each of several locations.

(1) Note. The blasting charge includes (a) an explosive, or (b) a fluid under high pressure capable of escaping or being released rapidly for the purposes of breaking up material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

206+, for charge ignition or detonating circuits.

305+, for detonation wave modifying including subclass 310 for plural shaped charges.

313, for placing or inserting charges in a borehole.

317, for similar contained charges joined end to end in a borehole.

319, for a contained charge with well-anchoring means, wall-contacting guides, or buffers.

320, for plural charges at least one a contained charge.

332, for plural charges in a borehole.

312 Borehole arrangement:

This subclass is indented under subclass 311. Subject matter wherein a blasting charge is in each of several boreholes.

313 Borehole loading:

This subclass is indented under subclass 301. Subject matter including means for placing or inserting (a) an explosive, or (b) a fluid under high pressure capable of rapid expansion to break up material in a hollowed-out place.

(1) Note. The “hollowed out place” can be in or on the earth, under the water, or within some object.

SEE OR SEARCH THIS CLASS, SUBCLASS:

305+, for borehole loading involving the shaping or the directing of a detonation wave.

311+, for loading boreholes or patterned blasting arrangements.

321, for a contained blasting charge having a support means including bails.

SEE OR SEARCH CLASS:

86, Ammunition and Explosive-Charge Making, subclass 20 for loading an explosive charge into a blast hole when making the charge or when not detonated.

166, Wells, subclass 299 for a process involving an explosion; and subclass 63 for apparatus for causing an explosion in a well.

175, Boring or Penetrating the Earth, subclasses 2+ for boring a hole with an explosive in an inaccessible place.

181, Acoustics, subclass 101 for seismic exploration using an explosive compressional wave source placed in a hole.

212, Traversing Hoists, subclasses 312+ for traveling cranes, subclasses 223+ for rotary cranes, and subclasses 71+ for overhead hoists.

242, Winding, Tensioning, or Guiding, subclasses 370+ for a reeling device of general use.

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 2+ for hoisting trucks; and subclasses 264+ for cable-hauling apparatus.

294, Handling: Hand and Hoist-Line Implements, subclasses 19+ for poles; and subclass 78 for cable and hook tackle.

299, Mining or In Situ Disintegration of Hard Material, subclass 13 for processes using explosives.

414, Material or Article Handling, subclasses 680+ for vertically swinging load supports.

314 Contained blasting charge:

This subclass is indented under subclass 301. Subject matter which includes a container and an explosive within the container, the contained explosive being capable of being detonated for blasting purposes.

(1) Note. Included in this group are contained materials which are components which make up the blasting charge but lack some necessary ingredient which is added at a later time.

(2) Note. Commercial and military demolition blasting charges are in this section.

SEE OR SEARCH THIS CLASS, SUBCLASS:

283+, for explosive or deflagrating powder forms.

305+, for a contained charge and means to vary or alter the direction of the detonation waveform when the charge is detonated.

311+, for patterned blasting where plural charges are located at separate locations, including borehole arrangements.

313, for means to place or insert a contained explosive or a blasting fluid capable of rapid expansion in a hollowed-out place.

325+, for contained pressurized nondetonating blasting charges.

331, for blasting charge cases, per se.

332, for blasting charges having an overallshape.

530+, for a jacketed or cartridge gas generator power sources for blank cartridges and gas powered tools.

SEE OR SEARCH CLASS:

149, Explosive and Thermic Compositions or Charges, subclasses 2+ for structure or arrangement of component or product.

315 Having or receiving separated explosive constituents:

This subclass is indented under subclass 314. Subject matter wherein there are first and second containers each having a component necessary to form a blasting charge and means to allow the components to come together to form the blasting charge.

(1) Note. The first and second containers may be in a third container, the first or second container may enclose the other container, or the first and second container may be separate.

SEE OR SEARCH THIS CLASS, SUBCLASS:

313, for borehole loading of an explosive whose components are mixed in or out of the boreholes.

SEE OR SEARCH CLASS:

86, Ammunition and Explosive-Charge Making, subclass 20 for the loading of bursting charges where the charge is not detonated.

206, Special Receptacle or Package, subclasses 219+ for mixing of materials in a container.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 3+ for explosive or propellent article shaping or treating.

316 With flame or heat suppressant:

This subclass is indented under subclass 314. Subject matter which includes a substance which, upon the detonation of the explosive and the release of heat or flame as a result of the explosion, prevents or minimizes the chances of the surroundings from catching fire or causing an explosion by putting out the flame or absorbing some of the heat of the explosion.

(1) Note. The substance will (a) absorb some of the heat of the explosion, or (b) volatilizes, (c) liquifies, (d) releases water of crystallization and absorbs some of the heat resulting from the explosion, or (e) forms a gas which will not support combustion.

(2) Note. The substance may be in the form of a sheath about the container.

SEE OR SEARCH THIS CLASS, SUBCLASS:

301, for tamping materials in a blast hole which will cool the blast area or smother the flames of the blast.

313, for borehole loading of a blasting charge having means to cool the reacting blasting charge or the surrounding medium blasted or to quench the flames of the blast.

326, for contained pressurized blasting fluids which are generated by chemical reaction and may include a cooling medium or a flame quenching material for the generated blasting fluid.

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, subclasses 18.11+ for compositions having fire-proofing agents.

252, Compositions, subclasses 2+ for fire-extinguishing compositions and the processes for making the compositions including chemicals decomposed by heat to form a noncombustible gas; and subclass 67 for compositions involving vaporization, heat, or energy exchange.

317 Similar contained charges joined end to end:

This subclass is indented under subclass 314. Subject matter which includes a plurality of like type contained charges, each having ends and means at each end of every contained charge to hold one end of another contained charge in a series arrangement.

(1) Note. The individual contained charges themselves may (a) incorporate the means to hold the plurality of contained charges in series, or (b) the means may be entirely separate from the contained cartridges, or (c) structure on each of the contained charges may cooperate with additional structure separate from the contained charges to hold the charges end to end.

(2) Note. In name only, contained charges or the container, per se, claiming only the details to hold the contained charges end to end are in this subclass rather than subclass 331.

(3) Note. A claimed single blasting charge container designed to join end to end similar charged container is in this subclass.

(4) Note. A booster charge in one of the charged containers joined at its end to an end of a similar charged container having a main charge is in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

311, for pattern blasting at plural locations.

313, for borehole loading at one location of a string of explosives.

318, for a booster and a main charge, at least one being contained.

320, for plural charges, at least one being contained.

332, for charges not contained.

SEE OR SEARCH CLASS:

181, Acoustics, subclass 116 for explosive type seismic wave generation.

403, Joints and Connections, subclass 24 for coupling parts installed in an art device.

318 Booster or charge with booster detonator:
This subclass is indented under subclass 314. Subject matter wherein (a) the contained charge is one used to detonate another blasting explosive which is incapable of detonation by the usual means, or (b) a first explosive charge is combined with a second explosive charge used to detonate the first charge where the first or the second charge is within a container.

(1) Note. A fuse, detonator cap, or detonator cord is not considered a booster charge for this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
275.4, for fuse cords interconnected with a booster charge containing connector.
275.5, for a fuse cord and an explosive charge.
283, for powder forms having more than an in name structure.
317, for similar contained charges joined end to end where a booster may be one of the charges.
320, for plural explosives.
322, for a blasting charge with a primer or an igniter to set off the charge.
332, for booster or other charges which are not contained and have overall structural shape or form.

319 With well-anchoring means, wall-contacting guides, or buffers:
This subclass is indented under subclass 314. Subject matter which includes means to (a) support the explosive in a fixed location along the wall of a well, (b) to cushion the contact between the explosive and the wall in its movement, or (c) center the explosive in the borehole.

(1) Note. The anchor, buffer, or centering subcombination is placed here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
313, for placing or inserting an explosive in a borehole.

320 Having plural charges:
This subclass is indented under subclass 314. Subject matter wherein there are more than one contained blasting charge.

(1) Note. Here are plural explosive charges separately contained in a common unit and plural contained blasting charges joined together, but not similar contained charges joined end to end.

SEE OR SEARCH THIS CLASS, SUBCLASS:
310, for plural charges, at least one being a shaped charge.
311, for explosive means at plural locations including plural boreholes.
313, for the placing or inserting of explosives in a hollowed-out place.
317, for similar contained charges joined end to end.
318, for a booster and a main explosive charge.
332, for plural charges not contained.

321 With support means:
This subclass is indented under subclass 314. Subject matter which includes some structure to hold the blasting cartridge against the force of gravity.

SEE OR SEARCH THIS CLASS, SUBCLASS:
313, for means to place or insert a charge in a wellbore.
317, for supports to join similar contained charges end to end.
319, for charge-anchoring means in a wellbore.

SEE OR SEARCH CLASS:
220, Receptacles, subclasses 752+ for a container handle.
248, Supports, subclasses 683+ for article-carried supports.

321.1 Method of making:
This subclass is indented under subclass 321. Subject matter includes a step of fabricating the structure to hold the blasting cartridge against the force of gravity.

322 With primer or ignitor:
This subclass is indented under subclass 314. Subject matter wherein the contained blasting charge has means coupled to ignite or detonate the contained explosive.

(1) Note. A primer detonates to set off an explosive charge and in ignitor burns but does not detonate to set off a charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.1, for accidental fuse ignition prevention means.
202.5, for electric primers or ignitors to set off a blasting charge.
204, for percussion primers or ignitors.
275.1+, for fuse cords, per se, or with igniting means or with a primer.
275.9, for fuses.
305+, for detonation wave modifying for a contained charge and a primer or ignitor to set off the charge.
311+, for a blasting charge and a primer or ignitor at each of several locations.
313, for means to insert or place an explosive and a primer or ignitor for the charge in a hollowed-out place.
332, for a blasting charge and a primer or ignitor for the charge.

SEE OR SEARCH CLASS:
44, Fuel and Related Compositions, subclasses 507+ for matches.
86, Ammunition and Explosive-Charge Making, subclass 20 for placing, tamping, and priming charges into a blast hole.
361, Electricity: Electrical Systems and Devices, subclasses 248+ for electrical igniting systems for explosives.

323 Having a rupturable or expandable casing:
This subclass is indented under subclass 314. Subject matter wherein (a) the container is designed to change its volume, or (b) the container is serrated to cause the container to rupture at the serrations when the container is tamped in a shot hole.

SEE OR SEARCH THIS CLASS, SUBCLASS:
324, for a flexible tube or bag container.
331, for a blasting charge cases.

SEE OR SEARCH CLASS:
383, Flexible Bags, appropriate subclasses for a flexible bag.
428, Stock Material or Miscellaneous Articles, subclasses 34.1+ for a hollow or container-type article.

324 Having a flexible tube or bag container:
This subclass is indented under subclass 314. Subject matter wherein the container comprises a pliable hollow cylinder-like body having one or more open ends and means to close the open one or both ends to hold the explosive within the container.

SEE OR SEARCH THIS CLASS, SUBCLASS:
282, for propellent powder containers.
323, for a contained charge having a flexible rupturable or expansible tube or bag-type casing.
331, for blasting charge cases.
530, for jacketed or cartridge gas generator power sources for blank cartridges, shells, and gas-powered tools or devices.

SEE OR SEARCH CLASS:
138, Pipes and Tubular Conduits, subclass 118 for flexible hollow cylinders.
383, Flexible Bags, appropriate subclasses for a flexible bag.
428, Stock Material or Miscellaneous Articles, subclasses 34.1+ for hollow or container-type articles.

325 Contained pressurized fluid blasting charge:
This subclass is indented under subclass 301. Subject matter which includes a high pressure resistant container and a contained high pressure nondetonatable fluid which when suddenly released from the container, acts as a physical force to break up material.

(1) Note. Subcombinations of a nondetonating fluid blast cartridges are placed with the combination.

(2) Note. An inlet to the chamber is necessary to charge the chamber in order to have the gas or liquid within the cham-

ber, but generally this inlet is not claimed.

(3) Note. Here are patents wherein a gas or liquid under pressure bursts the container to release the high pressure gas or liquid to a shot hole in which it is placed.

(4) Note. The term "fluid" includes gas and liquid.

SEE OR SEARCH THIS CLASS, SUBCLASS:
311+, for patterned blasting involving plural separate locations including plural borehole arrangements.
313, for placing or inserting a contained pressurized fluid blasting charge in a borehole.

SEE OR SEARCH CLASS:
220, Receptacles, subclasses 581+ for a high-pressure-gas tank.

326 Fluid generated within container:
This subclass is indented under subclass 325. Subject matter wherein the container has within it a reactable chemical or chemicals which form the blasting fluid as a result of a chemical reaction.

(1) Note. Means to cause heat necessary to start the chemical reaction to form the blasting medium may or may not be claimed.

(2) Note. The "reactable chemical" can be a heat decomposable substance.

(3) Note. See subclass 327 where heat is utilized to cause fluid to increase the pressure of the gas to allow the escape of the pressurized blasting medium suddenly from the container.

SEE OR SEARCH CLASS:
422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, subclass 166 for chemical reaction apparatus for solid reactants.

327 Fluid heated within container:
This subclass is indented under subclass 325. Subject matter wherein there is some means to cause the fluid within the chamber to raise the temperature of the contained blasting fluid.

(1) Note. Since the volume of the container is fixed, as the temperature of the blasting medium increases, the pressure of the blasting medium increases.

SEE OR SEARCH CLASS:
219, Electric Heating, subclasses 280+ for fluid heaters.

328 Contained fluid exit seal controlled by fluid pressure:
This subclass is indented under subclass 325. Subject matter wherein the container has an outlet for the fluid in the container and a closure to seal the outlet to keep the fluid in the container and to open the seal as a result of the fluid pressure itself reaching a predetermined pressure to allow the fluid to exit suddenly from the container through the outlet.

(1) Note. An inlet into the container to charge the container with fluid may or may not be claimed. Also the means to charge the container with high pressure fluid through the inlet may or may not be claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
326, for fluid generated chemically within the container and having an exit seal.
327, for fluid heated within the container and having an exit seal.

SEE OR SEARCH CLASS:
137, Fluid Handling, subclass 797 for frangible seals.

329 Valve-type seal:
This subclass is indented under subclass 328. Subject matter wherein the closure for the outlet of the container is a valve.

(1) Note. Here are outlet valves operated by a difference between the pressure of the blasting fluid within the container and atmospheric pressure when the container

is vented to the atmosphere by some type of manually operated value.

SEE OR SEARCH CLASS:
251, Valves and Valve Actuation, subclasses 12+ for fluid actuated valves.

330 Automatically operated:
This subclass is indented under subclass 329. Subject matter wherein the valve is operated without human intervention as a result of the pressure in the container reaching a preset valve.

SEE OR SEARCH CLASS:
251, Valves and Valve Actuation, subclasses 12+ for fluid actuated valves.

331 Blasting charge case:
This subclass is indented under subclass 301. Subject matter which includes a container or casing, per se, for an explosive chemical charge.

(1) Note. Casings for rifle, revolver, pistol, artillery field piece ammunition, or rocket missiles are not in this subclass.

(2) Note. Here are casings for explosive demolition work whether military or commercial.

SEE OR SEARCH THIS CLASS, SUBCLASS:
282, for containers to hold gun powder for firing shells.
325+, for cases with a pressurized nondetonatable blasting fluid.
431+, for combustible or destructible cartridge cases.
449+, for shot-type cartridge containers.
464+, for cartridge cases.
530+, for jacketed or cartridge-type gas generator sources, particularly subclass 530 for blank gun cartridges.

SEE OR SEARCH CLASS:
73, Measuring and Testing, subclass 35.17 for a safety feature or a containment structure detail for use while testing an explosive.
220, Receptacles, appropriate subclasses.
383, Flexible Bags, appropriate subclasses for a flexible bag.
428, Stock Material or Miscellaneous Articles, subclasses 542.8 and 577+ for an article of intermediate shape.

332 Blasting charge:
This subclass is indented under subclass 301. Subject matter which includes blasting chemical compounds or elements which have some unitary overall structural shape or form.

(1) Note. Here are chemicals forming explosives having a definite form and have a coating around them.

(2) Note. Booster or main charges are here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
317, for contained blasting charges joined end to end.
318, for a contained booster charge or a blasting charge with a booster charge detonator, one being contained.
320, for plural blasting explosives, one being contained.
322, for a contained blasting charge with an ignitor or primer to set off the charge.

SEE OR SEARCH CLASS:
149, Explosive and Thermic Compositions or Charges, subclasses 2+ for structure or arrangement of a component or product which is an explosive or thermic chemical. See the general notes and subclasses 2+ notes of Class 149.

333 Plug:
This subclass is indented under subclass 301. Subject matter which includes means to seal a blast hole opening to confine an explosion or the rapid escape of a fluid under high pressure in a blast hole.

SEE OR SEARCH THIS CLASS, SUBCLASS:
313, for inserting or placing an explosive in a hollowed-out place which includes plugs.
319, for well-anchoring means with or without an explosive.

SEE OR SEARCH CLASS:
166, Wells, subclasses 192+ for well plugs generally.

334 SMOKE GENERATING:
This subclass is indented under the class definition. Apparatus and corresponding methods for causing vapor, cloud, etc., to be formed by a burning.

(1) Note. The smoke is used for signaling, cover, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
335, for pyrotechnics means.
363, for fuel air explosive means.
364+, for incendiary means.
367+, for gas or mist dispersing means.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

335 PYROTECHNICS:
This subclass is indented under the class definition. Apparatus and corresponding methods having a mixture of oxidant and reluctant designed to produce light, heat and/or noise, e.g., fireworks display, amusement, flash photo, signal, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
334, for smoke generating means.
363, for fuel air explosive means.
364+, for incendiary means.
367+, for gas or mist dispersing means.

SEE OR SEARCH CLASS:
246, Railway Switches and Signals, subclass 487 for railway signaling torpedos.
431, Combustion, subclass 1 for combustion bursts or flare-ups on nonthermic fuel in pulses or serial pattern.

336 Flare:
This subclass is indented under subclass 335. Subject matter having means to burn for an appreciable time, e.g., for signaling or to illuminate an area.

(1) Note. Flares which also produce infrared rays or heat are included in this and indented subclasses.

(2) Note. Means which just make a flash of light for display or sound are not included, but a flash using powder for taking a picture is included.

SEE OR SEARCH THIS CLASS, SUBCLASS:
334, for a smoke generating means with a flare.
513, for target marking by tracing a light on a projectile.

SEE OR SEARCH CLASS:
431, Combustion, subclasses 357+ for a rechargable illuminating flash-type burner or a fuel-type photos:graphic flash bulb.

337 With parachute:
This subclass is indented under subclass 336. Subject matter including an umbrella of such area that its resistance to motion through the air will cause an object attached to it to be lowered slowly.

SEE OR SEARCH THIS CLASS, SUBCLASS:
354, for a pyrotechnic means with a parachute, and see the search notes.

338 Multiple flares:
This subclass is indented under subclass 337. Subject matter having more than one flare.

SEE OR SEARCH THIS CLASS, SUBCLASS:
345, for plural successively ignited flares, and see the search notes.

339 Plural or vane-type parachutes or means to restrain complete initial parachute opening:
This subclass is indented under subclass 337. Subject matter having more than one umbrella means and/or a vane-type umbrella means and/or means to prevent an umbrella means from forming its complete shape for a period of time.

340 With means to eject parachute or flare from casing:
This subclass is indented under subclass 337. Subject matter including means to drive out a parachute and/or flare from a container without destroying the container.

(1) Note. The parachute and flare may remain connected to the casing or be completely separated from it.

(2) Note. For means which burst the casing, release casing sections so that they separate to expose the parachute and/or flare, or which pull the parts from a casing, (as distinguished from ejecting same) see subclass 337 or other appropriate indented subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
357, for pyrotechnic means including means to eject an object from a casing, and see the search notes.

341 Marine type:
This subclass is indented under subclass 336. Subject matter wherein the flare is constructed so it will float on water or can be ignited under water.

SEE OR SEARCH THIS CLASS, SUBCLASS:
390, for a marine-type drop bomb, and see the search notes.

SEE OR SEARCH CLASS:
441, Buoys, Rafts, and Aquatic Devices, subclasses 13+ for illuminating means with a floating support.

342 With means to eject flare from casing:
This subclass is indented under subclass 336. Subject matter including means to drive out the flare from a container without destroying the container.

SEE OR SEARCH THIS CLASS, SUBCLASS:
357, for means to eject an object from a casing, and see the search notes.

343 With support means:
This subclass is indented under subclass 336. Subject matter including means to carry or bear the weight of, to keep from falling, to hold up, etc., a container for holding the flare.

SEE OR SEARCH THIS CLASS, SUBCLASS:
358, for a pyrotechnic support means.

344 Spike form:
This subclass is indented under subclass 343. Subject matter wherein the support is a long rodlike means with a pointed end for penetrating the ground, wood, etc.

345 With plural, successively ignited flares:
This subclass is indented under subclass 336. Subject matter having more than one flare and means for igniting them one after another.

SEE OR SEARCH THIS CLASS, SUBCLASS:
360, for other plural pyrotechnic means successively ignited charges, and see the search notes.

346 Gun-type cartridge:
This subclass is indented under subclass 335. Subject matter having means, e.g., case, container, etc., for containing pyrotechnic means and ignition means and adapted to be fired in a gun.

SEE OR SEARCH THIS CLASS, SUBCLASS:
430, for cartridges with a projectile.

347 Rocket:
This subclass is indented under subclass 335. Subject matter having a combustible propellent reaction motor and a payload or a combustible

propellent reaction motor including a supporting stick or launcher secured to a casing for initially positioning the rocket when it is fired.

(1) Note. The payload is limited to (a) a pyrotechnic means, (b) a toy novelty, e.g., toy figure and parachute, (c) a parachute to aid in the lowering of a skyrocket or payload to the earth, (d) a substantially cone-shaped surface for (1) providing the skyrocket with a forward streamlined aerodynamic surface, or (2) providing a container for the other payload set forth above, or (e) payload such as chaff.

(2) Note. The supporting stick or launcher must be launched and remain with the skyrocket for at least a substantial portion of the flight of the rocket.

SEE OR SEARCH THIS CLASS, SUBCLASS:

373, for a missile including an external propellent charge.

374, for a missile having a reaction motor and a payload.

504, for a projectile carrying a line or filamentary material, e.g., chaff.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 253+ for solid propellent reaction motors.

89, Ordnance, subclasses 1.8+ for the combination of a skyrocket and a launcher which remains at the launching area or is separated at substantially the same time the rocket is launched.

446, Amusement Devices: Toys, subclass 52 for a parachute release from a nonpyrotechnical rocket.

348 With vane, wings, parachute, or balloon:

This subclass is indented under subclass 347. Subject matter including means for sustaining flight of the rocket or means to lower the rocket slowly.

SEE OR SEARCH THIS CLASS, SUBCLASS:

354, for other pyrotechnic means with a parachute or a balloon.

SEE OR SEARCH CLASS:

244, Aeronautics and Astronautics, subclasses 3.23 and 3.24+ for a missile stabilized by rotation or an externally mounted stabilizing fin.

446, Amusement Devices: Toys, subclass 52 for a parachute released from a nonpyrotechnical rocket.

349 With support means:

This subclass is indented under subclass 347. Subject matter including means to carry or bear the weight of, to keep from falling, to hold up, etc., a container for holding the rocket before flight.

(1) Note. The support can be carried with the rocket in flight and is sometimes disclosed as stabilizing the flight thereof or effecting its trajectory.

SEE OR SEARCH THIS CLASS, SUBCLASS:

358, for other pyrotechnic support means.

SEE OR SEARCH CLASS:

89, Ordnance, subclasses 1.8+ for rocket launching support usable repeatedly for launching warfare or pyrotechnic rockets.

350 With means to rotate by gas discharge:

This subclass is indented under subclass 347. Subject matter including means which cause the rocket to turn about an axis during flight by the gas which comes from the interior of the rocket.

SEE OR SEARCH THIS CLASS, SUBCLASS:

348, for vanes which cause a rocket to rotate.

SEE OR SEARCH CLASS:

60, Power Plants, subclass 201 for a reaction motor arranged to turn continuously about an axis for stabilization in flight.

244, Aeronautics and Astronautics, subclass 3.23 for a missile stabilized by rotation.

351 With means to eject object from casing:
This subclass is indented under subclass 347. Subject matter including means to drive out an article, charge, etc., from a container without destroying the container.

SEE OR SEARCH THIS CLASS, SUBCLASS:
357, for other pyrotechnic means or object ejected from a casing, and see the search notes.

352 Including plural, successively ignited charges:
This subclass is indented under subclass 347. Subject matter having more than one charge and means for igniting them one after another.

(1) Note. The rocket fuel may be one of the charges.

SEE OR SEARCH THIS CLASS, SUBCLASS:
360, for other plural pyrotechnic means successively ignited, and see the search notes.

353 Toy torpedoe:
This subclass is indented under subclass 335. Subject matter having means adapted to be thrown by hand and explode upon impact or to explode when pressure is applied for noise-making.

SEE OR SEARCH THIS CLASS, SUBCLASS:
441, for a projectile and explosive cap.

SEE OR SEARCH CLASS:
246, Railway Switches and Signals, subclass 487 for signal torpedoes.

354 With parachute or balloon:
This subclass is indented under subclass 335. Subject matter having an umbrella or inflatable bag of such area that their resistance to motion through the air will cause an object attached to it to be lowered slowly.

SEE OR SEARCH THIS CLASS, SUBCLASS:
387, for a drop bomb with a parachute, and see notes for other areas of search.

355 Simulation:
This subclass is indented under subclass 335. Subject matter having a shape other than a firecracker.

(1) Note. For example, a device that simulates a pine cone, a house that is destroyed, tent, figure toy, etc.

SEE OR SEARCH CLASS:
446, Amusement Devices: Toys, appropriate subclasses for a toy made in simulation of another thing.

356 Combined:
This subclass is indented under subclass 335. Subject matter to which has been added other devices or structures having an added purpose or independent utility other than to perfect a pyrotechnic means.

357 With means to eject an object from a casing:
This subclass is indented under subclass 335. Subject matter including means to drive out an article, charge, etc., from a container without destroying the container.

SEE OR SEARCH THIS CLASS, SUBCLASS:
334, for smoke means ejected from a casing.
337+, for parachute ejected from a casing.
342, for flare means ejected from a casing.
351, for an object ejected from a casing including rocket means.
404, for a pop-up type mine.

358 With support means:
This subclass is indented under subclass 335. Subject matter including means to carry or bear the weight of, to keep from falling, to hold up, etc., a container for holding the pyrotechnic.

SEE OR SEARCH THIS CLASS, SUBCLASS:
343+, for a flare with support means.
486, for grenades with throwing handle, handgrip, or strand.

359 Wheel, rotor, or whirler:
This subclass is indented under subclass 358. Subject matter wherein the support has means to allow the pyrotechnic means to turn or spin.

SEE OR SEARCH CLASS:
446, Amusement Devices: Toys, subclasses 236+ for a nonpyrotechnical spinning or whirling toys.

360 With plural, successively ignited charges:
This subclass is indented under subclass 335. Subject matter having more than one charge which are ignited one after another.

SEE OR SEARCH THIS CLASS, SUBCLASS:
314+, for well torpedoes involving plural explosive charges.
338, for multiple parachute flares.
345, for flares with plural successively ignited charges.
352, for pyrotechnic rockets with plural successively ignited charges.
355, for successively ignited charges associated with simulations.
357, for plural successively ignited charges, one of which functions to eject an article or material from a casing, and see the notes thereto for other art of this type.
358+, for successively ignited charges associated with a holder or support.
393, for cluster-type drop bombs.
394, for rebounding or multiple bursting charges.
409+, for fields or groups of marine type mines.
431+, for combustible, destructible, or caseless cartridges.
443, for cartridges with divided propelling charge.
478, for shells with divided bursting charge.

361 Firecracker:
This subclass is indented under subclass 335. Subject matter having means for making a sharp noise and/or a flash of light, e.g., for signal purpose, amusement, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
530, for a blank cartridge.

362 HAVING GROUND PROPULSION MEANS:
This subclass is indented under the class definition. Apparatus and corresponding methods for moving an explosive along or under the surface of the soil of the earth.

SEE OR SEARCH CLASS:
114, Ships, subclass 20 for self-propelled explosive devices for traveling on or under the surface of water.
244, Aeronautics, subclasses 3.1+ for air-sustained, self-propelled aerial missiles; and subclass 14 for aerial torpedoes.

363 FUEL AIR EXPLOSIVE:
This subclass is indented under the class definition. Apparatus and corresponding methods to produce an explosive gas or vapor cloud that is subsequently ignited.

364 INCENDIARY:
This subclass is indented under the class definition. Apparatus and corresponding methods having material that will ignite to cause a fire.

SEE OR SEARCH THIS CLASS, SUBCLASS:
334, for smoke generating means.
335+, for pyrotechnics means.
363, for fuel air explosive means.
367, for antipersonnel gas means.

365 Liquid or jelly:
This subclass is indented under subclass 364. Subject matter wherein the incendiary means is a liquid or is in a semisolid state.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 98+ for colloid systems of continuous or semicontinuous solid phase with discontinuous liquid phase (gels, pastes, flocs, coagulates) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

366 OIL DISTRIBUTING:

This subclass is indented under the class definition. Apparatus and corresponding methods to contain oil and release it by an explosion on the surface of water or just below the water surface.

(1) Note. The purpose is usually for calming of waves.

SEE OR SEARCH THIS CLASS, SUBCLASS:

367, for means containing gas which may be in a liquid form to be distributed and see notes for other place of distributing liquids.

367 GAS OR MIST DISPERSING:

This subclass is indented under the class definition. Apparatus and corresponding methods wherein an explosion causes a liquid, solid, or gas to be scattered or spread about in the form of a vapor, particles, or gas.

(1) Note. The gas or mist can be dispersed in air or water.

(2) Note. Gas or mist dispersing by an explosion are antipersonnel, e.g., noxious or incapacitating, plant, insect, animal, foliage, BW/CW, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

334, for smoke generating and dispersing means.
363, for fuel air explosive means.
364+, for incendiary dispersing means.
366, for oil distributing means on water.
530+, for a cartridge gas generator means.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

368 Grenade:

This subclass is indented under subclass 367. Subject matter wherein the gas or mist is contained in a case or container which has an explosion means to cause the gas or mist to be dispersed from it and the case or container is to be thrown by hand or by a mechanical throwing means or projected from the end of a gun barrel.

SEE OR SEARCH THIS CLASS, SUBCLASS:

482, for grenades of the shell type.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

369 Drop bomb:

This subclass is indented under subclass 367. Subject matter wherein the gas or mist is contained in a case or container with an explosive means to cause the gas or mist to be dispersed from it and in use the case or container falls without the use of force.

SEE OR SEARCH THIS CLASS, SUBCLASS:

382+, for drop bombs of general use.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior pro-

vision in the USPC for the specifically claimed art.

370 Cartridge or projectile:
This subclass is indented under subclass 367. Subject matter wherein the gas or mist is contained in a case or container which has a charge and a primer for forcing the gas or mist out of the case or container or a missile which contains the gas or mist within it, e.g., shell, bullet, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
430+, for a cartridge of the ordnance type.
501+, for a projectile of the ordnance type.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

371 BOMB LANCE:
This subclass is indented under the class definition. Apparatus or corresponding methods wherein a missile, e.g., harpoon or spear, with a sharp spearhead carries an explosive propelling charge to be exploded upon contact with an object or carries an explosive charge to be exploded within an object.

(1) Note. The lances are usually employed in fishing operation.

SEE OR SEARCH CLASS:
43, Fishing, Trapping, and Vermin Destroying, subclass 6 for harpoons or spears without explosive features.

372 HAVING RADIALLY DIRECTED PROPELLING HOLES:
This subclass is indented under the class definition. Apparatus and corresponding methods wherein an aerial missile or payload carrying or containing a propelling charge which charge when ignited generates gases which are directed radially and axially or omni-directionally from the longitudinal axis of the missile.

(1) Note. The subject matter is peculiarly adapted for use with a relatively stationary launching structure, such as a gun barrel or cartridge case, to sufficiently enclose the propelling charge to provide an axial propulsion force between the missile and the relatively stationary launching structure.

373 Including external propellent charge:
This subclass is indented under subclass 372. Subject matter wherein at least a portion of the propelling charge is outside the missile or payload structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
431, for a projectile attached to or embedded within a solid propellent form or a projectile attached to a combustible cartridge.

374 HAVING REACTION MOTOR:
This subclass is indented under the class definition. Apparatus and corresponding methods having a missile and/or payload and an attached reaction motor for propelling the missile and/or payload through the atmosphere.

(1) Note. While the nominal recitation of the subject matter of this class does not ordinarily cause classification in this subclass, for example, a “missile” plus a reaction motor, the inclusion of any missile structure, such as a warhead, is considered basic subject matter of this class and classified in this subclass. (See (5) Note, Class 60, Power Plants, subclass 200.)

(2) Note. This subclass includes “missiles” under the subclass definition with a nominally recited stabilization means (i.e., fins). For subject matter under this definition claimed in combination with specific trajectory or stabilization means, see the reference to Class 244 in the search notes below.

(3) Note. This subclass includes an orbiting vehicle (called a satellite or space vehicle) when claimed in combination with a reaction motor for propelling the orbiting vehicle through the atmosphere on its initial launch from the earth into space, but excludes subject matter directed exclusively to the orbiting vehicle or an orbiting vehicle claimed in combination with a nominal reaction motor. For such orbiting or space vehicles, see the reference to Class 244 in the search notes below.

(4) Note. This subclass excludes all aircraft, which are sustained by the air. For such subject matter, see Class 244, Aeronautics and Astronautics, appropriate subclasses.

(5) Note. This subclass excludes a missile disclosed for ultimate operation in the water (i.e., a torpedo). For such subject matter, see Class 114, Ships, subclasses 20+. Conversely, where the missile is designed for aerial flight, but merely launched from the water, it is included in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

283+, for the particular shape or form of a solid propellent charge.

347+, for a pyrotechnic rocket.

SEE OR SEARCH CLASS:

60, Power Plants, subclasses 200.1+ and the subclasses there noted for a reaction motor. The distinction between Class 60 and this class, subclass 374 is set forth in (2) Note above.

244, Aeronautics and Astronautics, appropriate subclasses for subject matter under the definition of this class (102) in combination with specific trajectory or stabilization means for unmanned aircraft (subclass 3.1) or manned aircraft (subclasses 75.1-99.9). Search subclasses 158.1-173.3 for spacecraft that orbit the earth or other celestial body and see (3) Note above.

375 Pneumatically self-propelled type:

This subclass is indented under subclass 374. Subject matter having a chamber which releases a compressed gas or means to create a vapor under pressure and release it to propel a projectile.

SEE OR SEARCH CLASS:

124, Mechanical Guns and Projectors, subclass 57 for a combination of gun projector and a self-contained fluid pressure driven projectile.

273, Amusement Devices: Games, subclasses 317+ for a toy bullet-type projectile.

376 With cartridge means:

This subclass is indented under subclass 374. Subject matter including a case for containing a propellant or charge and a projectile containing the reaction motor.

377 Having separation means:

This subclass is indented under subclass 374. Subject matter including means in or on the missile or payload to cause a separation of one or more parts of the missile or payload after a launch.

(1) Note. This subclass includes the means for: (a) separating a booster motor from a sustainer motor; (b) separating or projecting a means enclosed within the missile from the missile; (c) severing the missile to lose aerodynamic stability for range safety considerations, and the like. Specially excluded as a separation means is the explosion of the warhead. Such subject matter is classified in this class, subclass 374.

(2) Note. This subclass includes a specific releasable joint or connecting means, used to temporarily secure two stages of a missile together, claimed in combination with structure of a missile which is unique to a missile. For example, a joint or connecting means joining two stages of a missile claimed as having a fin, rocket motor, propellent charge, aerodynamically shaped surface, etc., is classified in this subclass. However, a releasable joint or connecting means

claimed in combination with a nominal missile or a joint or connecting means claimed in combination with conventional elements of the missile nominally recited (i.e., launcher, booster, sustainer, nose cone, warhead, etc.) is excluded from this class and is classified in either Class 285, Pipe Joints or Couplings, or Class 403, Joints and Connections, appropriate subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:

340, for a parachute flare ejecting means.

351, for means to separate or eject a firework or toy from the combustible reaction motor casing.

357, for miscellaneous firework ejecting means.

489, for separation of nested shells.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclass 98 for means to sever a frangible missile casing.

60, Power Plants, subclass 225 for the separation of plural reaction motors.

244, Aeronautics, subclass 54 for the separation of a power plant from an aircraft; and subclasses 138+ for the separation of a safety lowering means from an aircraft.

285, Pipe Joints or Couplings, appropriate subclasses for releasable connections between tubular members, in general, which may be connections between stages of a missile.

403, Joints and Connections, appropriate subclasses for releasable connections between stages of a missile; particularly subclasses 11+ for means facilitating disconnection of the members.

378 Explosive:

This subclass is indented under subclass 377. Subject matter wherein the separation is caused by a separate explosive change.

(1) Note. This subclass includes an explosive charge for severing a unitary missile casing claimed in combination with unique missile structure. However, where no unique missile structure is claimed this subject matter is excluded from this subclass and classified in Class 52, Static Structures (e.g., Buildings), subclass 98.

(2) Note. If the separation is completely caused by the propelling charge of the missile or by such charge in combination with other nonexplosive release means, it is excluded from this subclass and classified in this class, subclass 377.

379 Having warhead fuse or arming means:

This subclass is indented under subclass 374. Subject matter including (a) a fuse to initiate the explosion or other actuation of the payload of the missile, or (b) arming means for the fuse of the missile which conditions the fuse for operation at a predetermined time, position, or condition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

200+, for igniting device or systems.

380 Having propellent charge ignitor means:

This subclass is indented under subclass 374. Subject matter including means for initiating the combustion or detonation of the propellent charge of the reaction motor.

(1) Note. A specific ignitor claimed in combination with a nominal missile, payload, or solid propellent form is provided for elsewhere, see the search notes below.

(2) Note. A specific ignitor claimed in combination with a specific propellent form and nominal missile structure is provided for elsewhere, see the search notes below.

(3) Note. A specific ignitor claimed in combination with a reaction motor having no significant missile or vehicle structure is provided for elsewhere, see the search notes below. (See (5) Note, Class 60, Power Plants, subclass 200 for examples of “significant” missile or vehicle structure.)

SEE OR SEARCH THIS CLASS, SUBCLASS:

200+, for igniting devices or systems.

SEE OR SEARCH CLASS:

60, Power Plants, for the combination of a reaction motor having ignition means or such combination with nominal missile or vehicle structure. See in particular subclasses 212 and 256 for a solid propellant having an ignitor means.

381 Having pressurization or variable control means for the propellant:

This subclass is indented under subclass 374. Subject matter including means for (a) the pressurization of a fluid propelling means of the reaction motor, or (b) the variable control or regulation of the propellent charge of the reaction motor during the flight of the missile so that the degree of combustion of the motor propellant or the time of combustion of such propellant may be regulated.

(1) Note. The phrase "means for the variable control or regulation of the propelling charge" in the definition includes controlling or regulating: (a) the flow of a fluent propelling charge to the combustion chamber of the reaction motor, or (b) the feeding of a solid propellent form to the combustion chamber of the reaction motor, or (c) the burning surface of a solid propellent charge.

(2) Note. See (2) Note of this class, subclass 374 for the statement of the line between this subclass and Class 60, Power Plants.

SEE OR SEARCH CLASS:

60, Power Plants, for motors for the production of power. See in particular subclasses 233+ for fuel flow control; subclass 254 for solid fuel regulation or termination; and subclass 259 for oxidizer pressurizing means.

382 DROP BOMBS:

This subclass is indented under the class definition. Apparatus and corresponding methods having an explosive means to cause damage or destroy an objective or payload and when in use falls without the use of force.

(1) Note. The bombs are usually hurled or dropped from an aircraft or watercraft and are detonated by a timing mechanism or impact.

SEE OR SEARCH THIS CLASS, SUBCLASS:

200+, for igniting devices or systems which may include only enough bomb structure for supporting them or necessary for their operation.

301+, for blasting means which may be dropped into a hole.

369, for drop bomb with a gas or mist.

SEE OR SEARCH CLASS:

33, Geometrical Instruments, subclasses 229+ for a sighting device used in aerial bomb dropping.

89, Ordnance, subclasses 1.51+ for bomb, flare, and signal dropping devices.

244, Aeronautics, subclasses 3.1+ for missile control or stabilizing means; and subclass 14 for air-sustained, self-propelled aerial torpedoes.

383 With laterally directed barrels:

This subclass is indented under subclass 382. Subject matter including tubes arranged generally transversely to the axis of the bomb and from which missiles are projected after a predetermined period or upon impact of the bomb with its objective.

SEE OR SEARCH THIS CLASS, SUBCLASS:

480, for a shell with laterally directed barrels.

384 With direction controlling means:

This subclass is indented under subclass 382. Subject matter including means to regulate the course of descent.

(1) Note. For means, in general, for controlling steering, see particularly Class 114, Ships, subclasses 21, 23, and 24; and Class 244, Aeronautics.

SEE OR SEARCH CLASS:

114, Ships, subclasses 21, 23, and 24 for means to control a steering in general.

244, Aeronautics and Astronautics, appropriate subclasses for control means for steering a bomb.

318, Electricity: Motive Power Systems, appropriate subclasses for electric motor systems which can be used to steer a drop bomb.

385 Fin stabilizer only:
This subclass is indented under subclass 382. Subject matter having structure of an airfoil whose primary function is to increase stability.

386 With drop-retarding means:
This subclass is indented under subclass 382. Subject matter having means to slow the rate of descent of the bomb.

SEE OR SEARCH THIS CLASS, SUBCLASS:
348, for pyrotechnic rockets with retarding means.
354, for miscellaneous pyrotechnic means with retarding means.

SEE OR SEARCH CLASS:
244, Aeronautics and Astronautics, subclasses 138+ for safety lowering devices.

387 Parachute:
This subclass is indented under subclass 386. Subject matter having an umbrella-like canopy of such area that its resistance to motion through the air will cause an object attached to it to be lowered slowly.

SEE OR SEARCH THIS CLASS, SUBCLASS:
335, for pyrotechnics with a parachute.
337+, for parachute flares.
405, for mines with parachutes.

SEE OR SEARCH CLASS:
244, Aeronautics and Astronautics, subclasses 142+ for parachute generally.

388 Vane or rotor:
This subclass is indented under subclass 386. Subject matter having a fixed structure as a fin, blade, etc., or a movable surface which causes the bomb to slow down.

389 Fragmentation:
This subclass is indented under subclass 382. Subject matter wherein the bomb has a number of small missiles or fragments which are scattered by an explosion charge of the bomb or the bomb has scorings or other formations to render the bomb readily fragmentable by an explosive charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
482+, for grenades which are usually of shrapnel type.
491+, for shrapnel shells.

390 Marine type:
This subclass is indented under subclass 382. Subject matter wherein the bomb is constructed so it can be detonated underwater.

SEE OR SEARCH THIS CLASS, SUBCLASS:
336+, for flare lights which float on water.
384, for marine-type drop bomb with direction control.
386, for marine-type drop bomb with drop-retarding means.
398, for nonrecocheting type of projectile.
399, for marine-type projectile.
406+, for marine mines.

391 Depth regulation:
This subclass is indented under subclass 390. Subject matter having means to control the distance a bomb goes below the surface of the water before it explodes.

SEE OR SEARCH THIS CLASS, SUBCLASS:
396, for bomb firing means.
412+, for mine depth regulation means.

392 Hydrostatic:
This subclass is indented under subclass 391. Subject matter wherein the bomb is ignited by means responsive to the pressure of the water at a certain depth.

SEE OR SEARCH THIS CLASS, SUBCLASS:
414, for mine depth regulation by hydrostatic pressure.

393 Cluster type:
This subclass is indented under subclass 382. Subject matter wherein there are plural bombs contained within a container or supported by

structure and means to separate them while in the air so as to cover a large area.

SEE OR SEARCH THIS CLASS, SUBCLASS:
357, for pyrotechnic means with means to eject articles or charger.
394, for a bomb with plural bursting charges separately encased in different parts of the bomb.

394 Rebounding or multiple bursting charges:
This subclass is indented under subclass 382. Subject matter wherein a bomb has means, to cause at least a portion of it, when it comes into contact with an object to return to the air before exploding or more than one explosive charges.

SEE OR SEARCH THIS CLASS, SUBCLASS:
342, for a flare with means to eject flare from casing.
383, for bombs with laterally directed barrels.
404, for a pop-up mine.

395 Practice:
This subclass is indented under subclass 382. Subject matter wherein the bomb is constructed for use in practice, e.g., has no explosive charge, a very small explosive charge, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
334, for practice bombs with smoke signal means.
444, for a cartridge with a practice projectile, and see the search notes.

396 Igniting means:
This subclass is indented under subclass 382. Subject matter having means for initiating the combustion or detonation of explosive or thermic composition or change.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200+, for igniting devices or system for other types of explosive means.
416+, for marine-type igniting means.
424+, for mine igniting means.

SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, appropriate subclasses for electrical igniting means.

397 With target contact anticipator:
This subclass is indented under subclass 396. Subject matter including means which projects a distance for the bomb so that when it contacts a target the firing means will actuate before the bomb comes into contact with the target.

SEE OR SEARCH THIS CLASS, SUBCLASS:
383, for drop bombs having laterally directed barrels with target contact anticipator.
394, for bombs which on contact project a section upward so that it may explode above the target.

398 NONRICOCHETING PROJECTILE:
This subclass is indented under the class definition. Apparatus and corresponding methods wherein a missile hasstructure to prevent oblique rebound or skipping after striking a surface at an angle.

SEE OR SEARCH CLASS:
244, Aeronautics and Astronautics, subclasses 3.1+ for control or stabilizing means for propelled or thrown explosive weapons or missiles.

399 MARINE-TYPE PROJECTILE:
This subclass is indented under the class definition. Apparatus and corresponding methods wherein a missile is adapted to be projected upon or through bodies of water.

SEE OR SEARCH THIS CLASS, SUBCLASS:
390+, for marine-type drop bomb.
398, for missiles having means to prevent ricochet from the surface of water.

SEE OR SEARCH CLASS:
114, Ships, subclasses 20+ for self- propelled marine torpedoes.

400 WITH EXTENDABLE ARMS:
This subclass is indented under the class definition. Apparatus and corresponding methods having elements which move outward from a missile after it has left a gun barrel.

(1) Note. The arms are for tearing out barbed wire, detonator actuator, limit penetration, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
504, for line-carrying projectiles.

401 MINES:
This subclass is indented under the class definition. Apparatus and corresponding methods wherein the explosive means is positioned relative to the earth's surface to be actuated by contact or proximity of a person or object.

(1) Note. Contact actuated includes pressure, impact, remote control, etc.

(2) Note. Subcombinations specialized to mines, not provided for elsewhere, are in this or indented subclasses.

SEE OR SEARCH CLASS:
109, Safes, Bank Protection, or a Related Device, subclasses 36+ for a mine-like explosive in combination with a safe, bank protection means, or related means.
114, Ships, subclasses 20+ for marine torpedoes having self-propulsion means.
169, Fire Extinguishers, subclass 28 for an explosive-type fire extinguishing receptacle.
246, Railway Switches and Signals, subclass 487 for railway torpedoes.

402 Counter measure:
This subclass is indented under subclass 401. Subject matter having means to permit passage of an object without detonation of the mine or means to explode a mine before an object, e.g., ship, tank, etc., is damaged by the mine.

SEE OR SEARCH THIS CLASS, SUBCLASS:
293, for a mine arming means.

403 By explosion:
This subclass is indented under subclass 402. Subject matter wherein the means to explode the mine is chemical reaction producing a violent expansion of the substance involved which is exterior of the mine.

SEE OR SEARCH THIS CLASS, SUBCLASS:
301+, for blasting means.

404 Pop-up type:
This subclass is indented under subclass 401. Subject matter wherein the mine is below a surface and has means to cause it to raise above the surface when actuated by an object or person.

405 Aerial type:
This subclass is indented under subclass 401. Subject matter having means to sustain the mine in the air, e.g., balloon.

SEE OR SEARCH THIS CLASS, SUBCLASS:
354, for pyrotechnic with a parachute or balloon, and see the search notes.

SEE OR SEARCH CLASS:
89, Ordnance, subclass 36.16 for balloon barrages having no explosive means.
244, Aeronautics and Astronautics, subclass 14 for air-sustained, self-propelled aerial torpedoes.

406 Marine type:
This subclass is indented under subclass 401. Subject matter wherein the mine is constructed so it can be used in water.

SEE OR SEARCH THIS CLASS, SUBCLASS:
390+, for marine-type drop bomb, and see the search notes.

SEE OR SEARCH CLASS:
114, Ships, subclasses 20+ for marine torpedoes with self-propulsion means.

407 Practice (e.g., drill):
This subclass is indented under subclass 406. Subject matter wherein the mine is constructed for use in practice, e.g., has no explosive

charge, a very small explosive charge, reusable, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
444, for a cartridge with a practice projectile, and see the search notes.

408 Flooder means:
This subclass is indented under subclass 406. Subject matter which has means that will allow water to enter the mine to deactivate it.

(1) Note. A plug for allowing flooding is proper for this subclass.

409 Field or group:
This subclass is indented under subclass 406. Subject matter wherein mines are placed in a certain area either randomly or a set pattern and/or means for selectively firing them.

410 With manipulating means:
This subclass is indented under subclass 409. Subject matter including means to control the movement or orientation of the mines.

SEE OR SEARCH THIS CLASS, SUBCLASS:
411, for means to manipulate a single mine.

411 Laying, anchoring, or manipulating:
This subclass is indented under subclass 406. Subject matter having means for placing or putting the mine in a particular place and/or means for holding or keeping the mine in a particular place and/or means to control the movement or orientation of the mine.

SEE OR SEARCH THIS CLASS, SUBCLASS:
410, for means to manipulate a field or group of mines.

412 Depth regulation:
This subclass is indented under subclass 411. Subject matter having means to hold or keep the mine at a certain distance below the surface of the water or above the bottom surface of the water.

SEE OR SEARCH CLASS:
114, Ships, subclass 25 for marine torpedoes having depth regulating means.

413 Anchor cable length:
This subclass is indented under subclass 412. Subject matter wherein the depth of the mine is controlled by adjusting the length of a rope, chain, etc., between the mine and an anchoring means.

414 Hydrostatic pressure:
This subclass is indented under subclass 412. Subject matter wherein the depth of the mine is controlled by means responsive to the pressure of the water at a certain depth.

SEE OR SEARCH THIS CLASS, SUBCLASS:
392, for drop marine bomb with hydrostatic ignition means.

415 Antisweep anchorage:
This subclass is indented under subclass 411. Subject matter having means for resisting or preventing the mine from moving from a position where it is placed.

416 Igniting means:
This subclass is indented under subclass 406. Subject matter having means for initiating the combustion or detonation of explosive or thermic composition or charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200+, for igniting devices or systems for other types of explosive means.
396+, for drop bomb igniting means.
424+, for mine igniting means.

SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, appropriate subclasses for electrical igniting means.

417 Magnetic:
This subclass is indented under subclass 416. Subject matter wherein a firing means is actuated by varying a magnetic field or magnetic properties.

418 Wave responsive:
This subclass is indented under subclass 416. Subject matter wherein an ignition means is actuated by a vibrational disturbance propagated in a medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
211+, for ignition means actuated by wave for general use.

419 Electrical:
This subclass is indented under subclass 416. Subject matter comprising an electrical circuit or component(s) of an electrical circuit to supply electrical energy to the igniting means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
206+, for ignition for detonation circuit of general use.

420 Including arming means:
This subclass is indented under subclass 419. Subject matter having means selectively rendering the igniting means or system capable of igniting an explosive.

SEE OR SEARCH THIS CLASS, SUBCLASS:
221+, for arming devices of general use.

421 Contact type:
This subclass is indented under subclass 419. Subject matter wherein the igniting means is actuated by means touching or meeting a portion of a mine.

SEE OR SEARCH THIS CLASS, SUBCLASS:
422, for nonelectric contact type actuating means.

422 Contact type:
This subclass is indented under subclass 416. Subject matter wherein the igniting means is actuated by means touching or meeting a portion of a mine.

SEE OR SEARCH THIS CLASS, SUBCLASS:
421, for an electrical contact-type actuator.

423 Extending firing means:
This subclass is indented under subclass 422. Subject matter including means protruding from a mine surface which when contacted actuate the igniting means.

424 Igniting means:
This subclass is indented under subclass 401. Subject matter for initiating the combustion or detonation of explosive or thermic compositions or charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200+, for igniting devices or systems for other types of explosive means.
396+, for drop bomb igniting means.
416+, for marine-type igniting means.

SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, appropriate subclasses for electrical igniting means.

425 With position sensing means:
This subclass is indented under subclass 424. Subject matter including means which senses the position of the mine and arms the igniting means when the mine is placed in an area where it is to be exploded.

426 Automatic deactivation or self-destruction:
This subclass is indented under subclass 424. Subject matter wherein the mine igniting means is rendered inactive after a period of time or the mine is activated causing it to be demolished, breakup, etc.

427 Electrical, magnetic, wave, or radiant energy actuated:
This subclass is indented under subclass 424. Subject matter wherein an electrical circuit or current, a magnetic field, a wave force, or radiant energy will cause ignition.

SEE OR SEARCH THIS CLASS, SUBCLASS:
419+, for marine-type electric igniting means.

428 Pressure actuated:
This subclass is indented under subclass 424. Subject matter wherein a compression, squeezing, etc., force acting downward on the ignitor will cause ignitions.

429 Spring biased:
This subclass is indented under subclass 428. Subject matter wherein the pressure causes a spring which is held under compression to be released and actuate an ignitor.

430 CARTRIDGE:
This subclass is indented under the class definition. Apparatus and corresponding methods having means, e.g., case, for containing a propellant or charge, a primer and a projectile or payload.

(1) Note. This and indented subclasses includes subcombinations specialized to cartridges not provided for elsewhere.

SEE OR SEARCH THIS CLASS, SUBCLASS:
283+, for explosive or deflagrating chemically reactive powder forms.
314+, for contained blasting charges.
370, for noxious gas cartridges.
530+, for gas generator cartridges.

431 Combustible, destructible, or caseless:
This subclass is indented under subclass 430. Subject matter wherein the cartridge is formed by molding a propellant to a projectile in such a way that it has sufficient strength to be handled or a material used to hold a propellant is easily burned or destroyed.

432 Expendable cartridge:
This subclass is indented under subclass 431. Subject matter wherein the cartridge is so constructed that it can be propelled through a gun barrel.

SEE OR SEARCH THIS CLASS, SUBCLASS:
449, for a shot container which can be propelled through a gun barrel.

433 Telescoping powder charge:
This subclass is indented under subclass 431. Subject matter wherein the means to propel a projectile covers the side(s) of the projectile but the top is left open.

SEE OR SEARCH THIS CLASS, SUBCLASS:
434, for a telescoping power charge in a cartridge.

434 Telescoping powder charge:
This subclass is indented under subclass 430. Subject matter wherein the means to propel a projectile covers the sides(s) of the projectile but the top is left open.

SEE OR SEARCH THIS CLASS, SUBCLASS:
433, for a telescoping powder charge with a combustible, destructible, or caseless cartridge.

435 Wear reducing additive for barrel:
This subclass is indented under subclass 430. Subject matter wherein means are added to the explosive material to prevent a barrel from becoming oversized when a projectile passes through it, e.g., reduce erosion.

436 Noncircular projectile or cartridge:
This subclass is indented under subclass 430. Subject matter wherein the shape of a projectile is such that when an imaginary cut is taken through a plane perpendicular to the longitudinal axis of the projectile, the outer surface does not form a continuous curved path.

437 Recoilless:
This subclass is indented under subclass 430. Subject matter wherein the cartridge is constructed to be used in a recoilless gun.

438 Multiple projectiles:
This subclass is indented under subclass 430. Subject matter wherein the cartridge is constructed so it will fire a group of missiles.

(1) Note. The missiles are larger than pellets or shot for a shot-shell.

SEE OR SEARCH THIS CLASS, SUBCLASS:
448, for pellets shot from a shotgun cartridge.

439 Projectile structure:
This subclass is indented under subclass 430. Subject matter having details of a projectile.

SEE OR SEARCH THIS CLASS, SUBCLASS:
436, for projectile noncircular in shape.

440 Having liquid/gas propellent means:
This subclass is indented under subclass 430. Subject matter wherein the force that causes a projectile to move is a combination of a liquid and gas.

441 With projectile and explosive cap:
This subclass is indented under subclass 430. Subject matter including a missile to be propelled through the air and the missile has an explosive packet or container within it to produce a noise.

SEE OR SEARCH THIS CLASS, SUBCLASS:
281, for explosive caps for toy guns.
353, for a toy torpedo.

442 With bore cleaning means:
This subclass is indented under subclass 430. Subject matter including means to remove dirt, impurities, etc., from the bore of a gun.

SEE OR SEARCH THIS CLASS, SUBCLASS:
511, for a projectile with lubricating means for lubricating the bore of a gun.
529, for a projectile with cleaning means for cleaning the bore of a gun.

443 Having divided propelling charge:
This subclass is indented under subclass 430. Subject matter wherein the propelling charge is separated into compartments or portions so that the rate of propagation of the explosion is regulated.

(1) Note. The compartments or portions are usually for the purpose of controlling the rate of acceleration of the projectile.

SEE OR SEARCH THIS CLASS, SUBCLASS:
478, for shells having divided explosive charges.

444 Practice projectile type:
This subclass is indented under subclass 430. Subject matter wherein the projectile is constructed for use in practice, e.g., short range target work, etc.

(1) Note. Included here are means to allow a projectile to move but not to leave the cartridge or barrel of a gun.

SEE OR SEARCH THIS CLASS, SUBCLASS:
498, for a shell projectile used in practice.
502, for cartridges with practice projectile.
529, for a projectile used in practice.

445 Mortar:
This subclass is indented under subclass 444. Subject matter wherein the projectile has fin-stabilizing means on it and is for use in a smooth bore gun.

446 Cartridge adapter:
This subclass is indented under subclass 444. Subject matter having means to make a projectile fit a cartridge in which the opening is larger than the projectile.

447 Reduced charged:
This subclass is indented under subclass 444. Subject matter wherein a charge smaller than what would be use to propel a projectile in a normal cartridge is used, e.g., primer charge only, etc.

448 Shot:
This subclass is indented under subclass 430. Subject matter wherein the cartridge is constructed so it will fire a group of pellets, e.g., shotgun cartridges.

(1) Note. The indented subclasses include subcombination.

SEE OR SEARCH THIS CLASS, SUBCLASS:
432, for pellets in an expandable casing.

438, for multiple projectile other than pellet type.

449 Shot container:
This subclass is indented under subclass 448. Subject matter having means for holding a group of pellets within a shot cartridge.

(1) Note. The shot container leaves the shot cartridge where fired and allows the pellets to leave the shot container after it leaves the barrel of a gun.

(2) Note. This subclass and indents include a shot cartridge case plus additional protecting means for a shot cartridge case, per se, see subclasses 464+.

SEE OR SEARCH THIS CLASS, SUBCLASS:
432, for an expendable cartridge which may contain pellets.
464+, for shot cartridge case, per se.

450 Collapsible wad:
This subclass is indented under subclass 449. Subject matter wherein a plug, packing, etc., is used as a spacer, seal, cushion, etc., in a shot container and is so constructed that it will cave-in, breakdown, etc., when the cartridge is fired.

SEE OR SEARCH THIS CLASS, SUBCLASS:
461, for a collapsible wad used in a shot cartridge.
532, for wads not provided for here.

451 Integral wad:
This subclass is indented under subclass 450. Subject matter wherein the wad is formed as part of the shot container.

452 Having integral closure means:
This subclass is indented under subclass 449. Subject matter wherein the open end of the shot container is closed by deforming part of the shot container.

SEE OR SEARCH THIS CLASS, SUBCLASS:
463, for a shot cartridge with integral closure means.

453 Having integral wad:
This subclass is indented under subclass 449. Subject matter wherein a wad is formed as part of the shot container.

SEE OR SEARCH THIS CLASS, SUBCLASS:
451, for a shot container having an integral collapsible wad.

454 Including divided shot charge:
This subclass is indented under subclass 449. Subject matter having means to separate the pellets into individual groups.

455 Including filler means in the shot area:
This subclass is indented under subclass 449. Subject matter having means to occupy the space between the pellets.

456 With additional means to keep container closed:
This subclass is indented under subclass 449. Subject matter including means not integral with the container for holding the container from opening until it has left a gun barrel e.g., wire, cord, etc.

457 With control of shot spread:
This subclass is indented under subclass 448. Subject matter including means to cause the shot to spread as the shot leaves a gun barrel or to keep the shot together for a certain distance after leaving the gun barrel before allowing it to spread.

SEE OR SEARCH THIS CLASS, SUBCLASS:
449+, for a container that holds shot together as it leaves a gun barrel.

458 With tracer means:
This subclass is indented under subclass 448. Subject matter including means to indicate a flight path.

SEE OR SEARCH THIS CLASS, SUBCLASS:
334, for smoke generating means.
335+, for pyrotechnic or flare means used for general purposes, e.g., light, signal, etc.
364, for incendiary means.

513, for target or tracer means.

459 Including coated shot:
This subclass is indented under subclass 448. Subject matter wherein each shot pellet is covered with a material, e.g., plastic, oil, etc.

460 Having shot of different size or shape:
This subclass is indented under subclass 448. Subject matter wherein the shot pellets vary in dimension and/or the outline or external surface varies.

461 Collapsible wad:
This subclass is indented under subclass 448. Subject matter wherein a plug, packing, etc., is used as a spacer, seal, cushion, etc., in a shot cartridge and is so constructed that it will cave-in breakdown, etc., when the cartridge is fired.

SEE OR SEARCH THIS CLASS, SUBCLASS:
450+, for collapsible wad used in a shot container.
532, for wads not provided for here or the above search subclass.

462 Closure means:
This subclass is indented under subclass 448. Subject matter wherein a plug, packing, etc., is used to cover the end of the shot cartridge where the pellets leave when fired.

SEE OR SEARCH THIS CLASS, SUBCLASS:
532, for wads not provided for here.

463 Integral:
This subclass is indented under subclass 462. Subject matter wherein the end where the pellets leave is closed by deforming part of the shot cartridge.

464 Case:
This subclass is indented under subclass 430. Subject matter having structure relating to that part of a cartridge which is for holding a projectile, charge, and primer.

465 Nonmetallic:
This subclass is indented under subclass 464. Subject matter wherein the case is made of a material that lacks the characteristics or a metal.

466 Plastic cases:
This subclass is indented under subclass 465. Subject matter wherein the case is made of, at least in part, plastic material.

(1) Note. Paper is not a plastic material for this or indented subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:
464, for a paper case.

467 With metal base or reinforcement:
This subclass is indented under subclass 466. Subject matter wherein the end of the cartridge that holds a primer is made of metal and/or the tubular part of the cartridge is laminated, strengthened by ribs, added material, etc.

468 Iron case:
This subclass is indented under subclass 464. Subject matter wherein the tubular portion of a cartridge is made of iron or alloys of iron.

SEE OR SEARCH THIS CLASS, SUBCLASS:
465, for nonmetallic case with metal base or reinforcement.

469 Breech end structure:
This subclass is indented under subclass 464. Subject matter relating to the bottom part of a case which holds the primer.

470 With primer means:
This subclass is indented under subclass 469. Subject matter including means to ignite a charge in the cartridge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
204, for procession primers or ignitors, per se.

471 Rim fired:
This subclass is indented under subclass 470. Subject matter wherein the igniting means is in the breech end edge of the cartridge case or a lever extends from the breech end edge for the purpose of igniting the primer.

472 Electric:
This subclass is indented under subclass 470. Subject matter wherein the charge is ignited by electrical means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
202.5, for electric fuses, per se.

473 SHELLS:
This subclass is indented under the class definition. Apparatus and corresponding methods having a missile containing a high explosive.

(1) Note. The projectile can be of the type to be projected from a gun or otherwise projected.

(2) Note. Search the appropriate subclasses above for combination with a shell.

(3) Note. Subcombination specialized to shells not provided for elsewhere are in this or indented subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200+, for ignition devices or systems, per se.
370, for gas or mist dispensing shells.

474 Continuous rod warhead:
This subclass is indented under subclass 473. Subject matter wherein the shell is made of shafts, bars, etc., connected together to form a continuous, usually annular, structure upon detonation.

475 Focused or directed detonation:
This subclass is indented under subclass 473. Subject matter wherein a wave generated by the explosive force is controlled so that the wave is concentrated at a common place for directing the shell or wave.

SEE OR SEARCH THIS CLASS, SUBCLASS:
305, for detonation wave modifying means for blasting devices.
480, for laterally directed barrels for guiding projectiles.

476 Shaped charge:
This subclass is indented under subclass 475. Subject matter wherein the explosive force is focused into a very sharp beam of high gain.

(1) Note. The explosive charge usually has a cavity to direct or shape the force of the explosive.

SEE OR SEARCH THIS CLASS, SUBCLASS:
306+, for a shape charge for blasting devices.

477 With means to form bursting charge after projection:
This subclass is indented under subclass 473. Subject matter having normally inactive or isolated components which are admixed or otherwise rendered active during flight of the shell to produce an explosive bursting charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
478, for divided bursting charges to reduce compression as a shell leaves a gun.

SEE OR SEARCH CLASS:
206, Special Receptacle or Package, subclasses 524.1+ for a receptacle with specified material for the container or content.

478 Having divided bursting charge:
This subclass is indented under subclass 473. Subject matter wherein the bursting charge is separated into portions by separators or baffles.

(1) Note. The separation is usually to reduce the compression of the charge produced by acceleration of the shell when leaving a gun barrel.

SEE OR SEARCH THIS CLASS, SUBCLASS:
443, for a cartridge having divided propelling charges.
477, for a shell wherein the active ingredients for producing a bursting charge are divided prior to firing of the shell.
490, for a shell having plural propelling charges.

479 With bursting charge cushioning means:
This subclass is indented under subclass 473. Subject matter including means to absorb shock of the explosive bursting charge during handling or the acceleration produced when the shell leaves a gun barrel.

SEE OR SEARCH THIS CLASS, SUBCLASS:
478, for a shell wherein the explosive charge is divided by separators or baffles to reduce the compression caused by acceleration.
481, for a shell with other type safety means.

480 With laterally directed barrels:
This subclass is indented under subclass 473. Subject matter including tubed, cylinders, etc., for guiding missiles which extend generally laterally from the flight axis and from which missiles are projected.

SEE OR SEARCH THIS CLASS, SUBCLASS:
383, for drop bombs with laterally directed barrels.
475, for wave focus or direction.
491+, for shells which indiscriminately disperse missiles or particles.

481 With safety means:
This subclass is indented under subclass 473. Subject matter including means for preventing an accident.

482 Grenade:
This subclass is indented under subclass 473. Subject matter wherein the explosive device is adapted to be thrown by hand, by a mechanical throwing means or projected from the end of a gun barrel.

(1) Note. The grenade does not pass bodily through a gun barrel in the manner of a bullet.

SEE OR SEARCH THIS CLASS, SUBCLASS:
353, for toy torpedoes.
368, for a gas or mist dispersing grenade.

SEE OR SEARCH CLASS:
169, Fire Extinguishers, subclass 36 for fire extinguishing grenades.

483 With gun or other projector engaging or cooperating means:
This subclass is indented under subclass 482. Subject matter including means for mounting or attaching the grenade to a gun barrel or other projector.

(1) Note. Subcombination of means to actuate the grenade in cooperation with the projection means are included here, e.g., shafts or rods to enter a gun barrel.

SEE OR SEARCH CLASS:
42, Firearms, subclass 1 for firearm with a grenade launcher.
124, Mechanical Guns and Projectors, subclass 5 for hand-operated centrifugal throwing devices.

484 With bullet passage through grenade:
This subclass is indented under subclass 483. Subject matter wherein the grenade has a hole extending axially so that a bullet can pass through it.

485 With bullet stopping means:
This subclass is indented under subclass 483. Subject matter including means to prevent a bullet from passing through the grenade.

486 With throwing handle, handgrip, or strand:
This subclass is indented under subclass 482. Subject matter including means so that the grenade can be held to assist in throwing it.

SEE OR SEARCH THIS CLASS, SUBCLASS:
358, for pyrotechnic devices having handle, handgrip, or other forms of support, and see the search notes.

487 With igniting means:
This subclass is indented under subclass 482. Subject matter including means for initiating the combustion or detonation of explosive or thermic compositions or charges.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200+, for ignition devices and systems.
260+, for manually released latch.

488 Impact-operated:
This subclass is indented under subclass 487. Subject matter wherein the initiating is caused by imparting an impulse or mechanical force to a percussion sensitive explosive.

SEE OR SEARCH THIS CLASS, SUBCLASS:
272, for impacting igniting devices.

489 With secondary shells:
This subclass is indented under subclass 473. Subject matter wherein a main shell has plural shells held within it and these shells are projected from the main shell.

(1) Note. The secondary shells have explosive means in them so that they will explode.

490 With range increasing means.
This subclass is indented under subclass 473. Subject matter having means successively fired while a shell is in flight to impart thrust to the shell for adding distance.

SEE OR SEARCH THIS CLASS, SUBCLASS:
377+, for a reaction motor for propelling a missile.

491 Shrapnel:
This subclass is indented under subclass 473. Subject matter wherein the shell has a number of small missiles or fragments which are scattered by the explosive charge of the shell or the shell has scorings or other formations to render the shell readily fragmentable by the explosive charge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
389, for fragmentation drop bombs.
482+, for grenades which are usually of shrapnel type.

492 Focused fragmentation:
This subclass is indented under subclass 491. Subject matter having means to direct fragments in a particular direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
480, for a shell with laterally directed barrels.

493 Structurally weakened casing:
This subclass is indented under subclass 491. Subject matter wherein the shell casing has scores, grooves, etc., to enhance fragmentation.

494 Multiple fragments:
This subclass is indented under subclass 491. Subject matter wherein the shell contains or is composed of plural separate elements.

(1) Note. The multiple elements are not formed by fragmentation upon detonation of the shell.

SEE OR SEARCH THIS CLASS, SUBCLASS:
493, for fragmenting of a shell.

495 Casing:
This subclass is indented under subclass 494. Subject matter wherein a shell outer surface is made up of a plurality of elements.

496 Embedded:
This subclass is indented under subclass 494. Subject matter wherein the fragments are set or fixed in the shells surface and/or inside of the shell.

497 With explosive:
This subclass is indented under subclass 496. Subject matter wherein the embedded fragments are placed in the explosive of the shell.

498 Practice:
This subclass is indented under subclass 473. Subject matter wherein the shell is constructed for use in practice.

SEE OR SEARCH THIS CLASS, SUBCLASS:
444, for a cartridge with a practice projectile, and see the search notes.

499 With igniting means:
This subclass is indented under subclass 473. Subject matter including means for initiating the detonation of the explosive.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200+, for igniting devices or systems.

500 Axially movable impacting means:
This subclass is indented under subclass 499. Subject matter including means movable along an axis to impart an impulse of mechanical force to a percussion sensitive explosive.

SEE OR SEARCH THIS CLASS, SUBCLASS:
272+, for impacting igniting devices.

501 PROJECTILES:
This subclass is indented under the class definition. Apparatus and corresponding methods having a projectile or payload which is to be propelled through air or water.

(1) Note. Subcombination specialized to projectiles not provided for elsewhere are in this or indented subclasses.

(2) Note. Where the disclosure is silent to the type of propelling means for the projectile and the projectile structure is not unique to explosive propulsion, the device is classified with the nonexplosively propelled aerial devices in Class 273, Amusement Devices: Games.

(3) Note. Where the projectile is claimed with no significant projectile structure but merely in terms of the composition or material of which it is composed, it will be classified in the appropriate composition or material class.

(4) Note. A projectile is a missile or payload for these subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:
430+, for a missile in combination with a cartridge case.
473+, for a missile enclosing an explosive charge.

SEE OR SEARCH CLASS:
106, Compositions: Coating or Plastic, note particularly the class definition for the type of composition within the scope of Class 106.
148, Metal Treatment, particularly subclasses 400+ for materials which are products of processes of treating metals classifiable in Class 148, or for products distinguished only by the internal structure or characteristics of the metals, metallic compositions, or alloys comprising such structures.
260, Chemistry of Carbon Compounds, subclasses 2.01+ for compositions containing a synthetic resin; and subclasses 709+ for compositions containing a natural rubber.
273, Amusement Devices: Games, subclasses 317+ for aerial devices nonexplosively propelled.
420, Alloys or Metallic Compositions, for articles defined solely by their metal or alloy composition.
428, Stock Material or Miscellaneous Articles, subclasses 542.8 and 577+ for an article of intermediate shape.

502 Nonlethal or deterrent:
This subclass is indented under subclass 501. Subject matter wherein the projectile is designed so that it will only stun, mark, shock, etc., a person or animal.

SEE OR SEARCH THIS CLASS, SUBCLASS:
512, for narcotizing projectiles.

503 Tubular:
This subclass is indented under subclass 501. Subject matter wherein the projectile has a hole passing through it in the direction of travel.

504 Line carrying or filamentary material distributing:
This subclass is indented under subclass 501. Subject matter including strands, filamentary, or solid material carried by or in the projectile.

(1) Note. The projectile may have an explosive charge within it to force a line, chaff, etc., out that is carried within the projectile.

(2) Note. The line may be (a) for lifesaving (b) for destructive purposes such as to entangle troops, aircraft, etc., or (c) for distributing material such as barbed wire, rope, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
371, for line-carrying bomb lances.

505 Chaff dispensing:
This subclass is indented under subclass 504. Subject matter wherein the material released from the projectile are strips, blanks, short pieces, etc., which are comparatively light so as to float in air.

SEE OR SEARCH THIS CLASS, SUBCLASS:
400, for line-carrying projectile with anchor means.

SEE OR SEARCH CLASS:
342, Communications: Directive Radio Wave Systems and Devices (e.g., Radar, Radio Navigation), subclass 12 for chaff radar reflectors, per se.

506 Fragmenting:
This subclass is indented under subclass 501. Subject matter wherein the projectile is formed of disconnectable or severable parts which separate and scatter during flight.

SEE OR SEARCH THIS CLASS, SUBCLASS:
473, for shells with a bursting charge to cause fragmentation.

507 Dumdum or mushrooming:
This subclass is indented under subclass 501. Subject matter wherein the projectile nose is made of a soft material or specially constructed for lateral expansion upon impact.

508 With cavity:
This subclass is indented under subclass 507. Subject matter including a hole in the projectile to facilitate lateral expansion upon impact.

509 Hollow:
This subclass is indented under subclass 508. Subject matter wherein the cavity has a bottom.

510 With expanding member:
This subclass is indented under subclass 509. Subject matter including means to partially fill the cavity to cause expansion upon impact.

511 Lubricating:
This subclass is indented under subclass 501. Subject matter wherein the projectile has means to lubricate the bore of a gun.

(1) Note. The lubricating is for minimizing the effect of drag.

SEE OR SEARCH THIS CLASS, SUBCLASS:
366, for means to distribute oil for quieting waves.

SEE OR SEARCH CLASS:
508, Solid Anti-friction Devices, Materials Therefor, Lubricant or Separant Compositions for Moving Solid Surfaces, and Miscellaneous Mineral Oil Compositions, for lubricant compositions or for projectiles claimed by name only but which are recited solely in terms of the lubricating composition of which it is composed even if there is no claim to the composition, per se.

512 Narcotizing:
This subclass is indented under subclass 501. Subject matter wherein the projectile includes means to lull or dull the senses of a human or animal.

SEE OR SEARCH THIS CLASS, SUBCLASS:
502, for nonlethal missile.

SEE OR SEARCH CLASS:
604, Surgery, subclass 130 for projectile hypodermic dosing devices not of the bullet type.

513 Target marking:
This subclass is indented under subclass 501. Subject matter including means to indicate a flight path or an impact with an objective.

(1) Note. Projectiles containing radioactive material are included here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

334, for smoke generating used for general purpose.

335+, for pyrotechnic or flare means use for general purposes, e.g., light, signal, etc.

364+, for incendiary means.

458, for tracer means within a short cartridge.

514 Having jacket:
This subclass is indented under subclass 501. Subject matter including a layer or coating of material enclosing the projectile.

(1) Note. The jacket may not completely enclose the projectile.

515 Nonmetallic:
This subclass is indented under subclass 514. Subject matter wherein the jacket is composed of elements other than metal.

516 Composite:
This subclass is indented under subclass 514. Subject matter wherein the means within the jacket is made of a plurality of individual elements.

517 Composite:
This subclass is indented under subclass 501. Subject matter wherein the projectile is made of a plurality of individual elements connected together to form a unitary body.

(1) Note. The indented subclasses have subcombination of the projectile, e.g., rifling or driving means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

430, for a composite projectile in combination with a cartridge case.

473, for a composite projectile having an enclosed explosive charge.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 1.23 for means to make a composite projectiles.

518 Hardened core within a chamber:
This subclass is indented under subclass 517. Subject matter wherein the projectile has an element made of firm, unyielding, etc., material enclosed within it.

SEE OR SEARCH THIS CLASS, SUBCLASS:

519, for a separate hardened nose of a projectile.

519 With separate hardened nose:
This subclass is indented under subclass 517. Subject matter including an element made of firm, unyielding, etc., material which is secured to the front of the projectile.

520 Sabot or carrier:
This subclass is indented under subclass 517. Subject matter wherein the projectile has means which enclose or cover a substantial portion of it or supports it when engaged with a bore or rifling means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

524, for rifling or driving means, e.g., band.

521 Subcaliber:
This subclass is indented under subclass 520. Subject matter having means to enlarge a portion of the projectile so that it will fit a bore of a larger size.

522 Base enclosed:
This subclass is indented under subclass 521. Subject matter wherein the bottom or lowest part of the projectile is surrounded or enclosed by the sabot or carrier.

523 With projectile exposed to propellent gas:
This subclass is indented under subclass 522. Subject matter wherein the base enclosed means has an aperture to allow gases to contact the projectile.

524 Rifling or driving means (e.g., band):
This subclass is indented under subclass 517. Subject matter wherein the projectile includes rings, disks, flanges, grooves, etc., which form part of it or are attached to it.

(1) Note. The rifling or driving means of a projectile engage the bore or rifling of a gun to prevent windage.

525 Wedge expanded:
This subclass is indented under subclass 524. Subject matter wherein a tapering element is movable to cause the sabot or rifling band to be expanded or the sabot or rifling band are adapted to slide upon a tapering or conical shaped part.

526 Including annular member:
This subclass is indented under subclass 524. Subject matter wherein the band is a separate element and forms a ring around the projectile.

527 Nonmetallic:
This subclass is indented under subclass 526. Subject matter wherein the member is composed of elements other than metal.

528 Band protector:
This subclass is indented under subclass 524. Subject matter having means to shield from damage the rifling or driving band, e.g., during storage.

529 Practice or cleaning:
This subclass is indented under subclass 501. Subject matter wherein the projectile is constructed for use in practice, e.g., short range target work or to remove dirt, impurities, etc., from the bore of a gun.

SEE OR SEARCH THIS CLASS, SUBCLASS:
442, for cartridges with bore cleaning means.
444, for cartridges with practice projectiles.
498, for a shell projectile used in practice.
502, for nonlethal or deterrent projectile.

530 JACKETED OR CARTRIDGE GAS GENERATOR:
This subclass is indented under the class definition. Subject matter which includes method and apparatus having a casing or covering and a combustible charge within the casing or covering, such charge when ignited produces a gas under pressure to perform some task or to simulate the noise of genuine ammunition.

(1) Note. Here are blank cartridges and shells.

(2) Note. The primer to ignite the charge may or may not be claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
314, for blasting cartridges.
370, for noxious gas container.
374, for a reaction motor and a payload.
430, for cartridges including a projectile.
498, for practice shells.

SEE OR SEARCH CLASS:
273, Amusement Devices: Games, subclasses 317+ for a toy bullet or bomb.

531 For gas-powered tools or means:
This subclass is indented under subclass 530. Subject matter wherein the charge and the casing or covering is used as a motive source for instruments designed to perform some task.

SEE OR SEARCH CLASS:
43, Fishing, Trapping, and Vermin Destroying, subclass 84 for explosively actuated traps.
55, Gas Separation, subclasses 432+ for two or more filters; and subclasses 460+ for means securing or retaining separating media.
60, Power Plants, subclasses 39.01 through 39.83 where combustion products are used as a motive fluid, especially subclass 39.47 using a solid fuel containing oxidizer, subclasses 39.821-39.828 including a combustion products generator having an ignitor device or subclasses 772-783 for processes; subclasses 200.1-271 for a reaction motor; or subclasses 632-638 for a one shot explosion actuated expansible chamber motors.
72, Metal Deforming, subclasses 5+ for metal deforming by application of fluid medium or energy field; and subclass 362 for processes of metal deforming.
89, Ordnance, subclasses 1.14 and 1.16 for explosively operated apparatus and engine starters using explosively generated gas under pressure.

169, Fire Extinguishers, subclass 84 for portable extinguishers operated by gas produced by combustion.

227, Elongated-Member-Driving Apparatus, subclasses 9+ for explosively operated driving means.

244, Aeronautics and Astronautics, subclass 146 for parachutes having inflated bracing.

280, Land Vehicles, subclasses 728.1+ for inflatable passengers restraints or confinements and attachments thereto.

411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener, subclasses 440+ for fasteners having means to facilitate the explosive driving of the fastener.

422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, subclass 164 for solid reactant-type gas generators with or without ignition and cooling means.

441, Buoys, Rafts, and Aquatic Devices, subclasses 40+ for inflatable life rafts; and subclasses 98+ with expanding means by chemical operation for a personal flotation device.

532 WADS:

This subclass is indented under the class definition. Subject matter wherein a plug, packing, stuffing, etc., is used as a spacer, seal, cushion, etc., for a gun or cartridge.

(1) Note. Where the wad is claimed with no significant wad structure but merely in terms of the composition or material of which it is composed, it will be classified in the appropriate composition or material class, even though there is no claim to the composition, per se.

SEE OR SEARCH THIS CLASS, SUBCLASS:

333, for plugs for blasting means.

448+, for a wad provided for with or without a shot cartridge.

SEE OR SEARCH CLASS:

28, Textiles: Manufacturing, and 57, Textiles: Spinning, Twisting, and Twining, for products which are mere admixtures of textile fibers of which have textile structure within the scope of these classes.

106, Compositions: Coating or Plastic, note particularly the class definition for the type of composition within the scope of Class 106, and for compositions elsewhere classified.

162, Paper Making and Fiber Liberation, for paper stock.

260, Chemistry of Carbon Compounds, subclasses 2.01+ for compositions containing a synthetic resin; and subclasses 709+ for compositions containing a natural rubber.

277, Seal for a Joint or Juncture, for a generic sealing means or process.

428, Stock Material or Miscellaneous Articles, appropriate subclasses for a stock material product in the form of a single or plural layer web or sheet; and particularly subclasses 292.1+ for such product when including a component containing structurally defined fibers.

CROSS-REFERENCE ART COLLECTIONS

700 COMBUSTIBLE CARTRIDGE:

A cartridge is formed by molding a propellant to a projectile in such a way that it has sufficient strength to be handled.

701 CHARGE WAVE FORMING:

A charge is shaped and/or has material added so that upon detonation the resulting wave will be formed according to the shape or its direction of travel will be changed because of the addition of material.

702 COMPRESSION IGNITION:

The ignition is a high pressured air or gas, heat generating material, spring, etc., for propelling a projectile.

703 FLECHETTE:

A rodlike dart with vanes or fluted shaft, small lightweight elongated projectile, etc.

704 COOLANTS:

Material or a fluid is added to an explosive or projectile to lower the temperature of combustion or of the projectile.

705 SEPARATED EXPLOSIVE CONSTITUENTS:
The materials which form an explosive are not in contact with each other until an explosion is desired.

END