CLASS 139, TEXTILES: WEAVING

SECTION I - CLASS DEFINITION

The manufacture of fabrics having one set of threads arranged transversely to another set and interlaced therewith, each thread of one set lying above some and below the remaining threads of the other set. Does not include the diagonal arrangement produced by braiding.

SUBCLASSES

1 Inventions falling within this class, but not more specifically provided for.

2 Means for knotting or intertwining an extra set of threads with either the warp or weft at the fell of the cloth.

SEE OR SEARCH THIS CLASS, SUBCLASS:
452, and 453, for analogous methods of color change.

SEE OR SEARCH CLASS:
112, Sewing, subclasses 80.01+ for an apparatus for inserting and locking pile tufting in a fabric by means of a stitching operation, and subclass 475.23 for a corresponding method.
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 72 and 147+ for pile tufting and weaving processes, respectively, when combined with a laminating step.

3 The tufts are intertwined with the warp.

4 The tuft passes around two threads, at least one end projecting up between them.

5 The warp threads are given a lateral movement during the operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
48, and indented subclasses, for other warp traversing.

6 The tuft-yarn packages are moved bodily to bring about tuft change.

SEE OR SEARCH THIS CLASS, SUBCLASS:
7,

7 The tuft-yarn packages are moved bodily to bring about tuft change.

SEE OR SEARCH THIS CLASS, SUBCLASS:
332, for analogous mechanisms that support long pattern chains.

8 Includes means for supplying the knotting or intertwining apparatus with yarn.

9 Limited to the means for supplying the knotting or intertwining apparatus with yarn.

10 Limited to a single unit for supplying the tuft yarn.

11 Looms which depart from what may be regarded as a standard type. A standard loom is one in which the warp passes horizontally through the same and in which the warp and weft manipulating mechanisms are not peculiarly adapted to cooperate with each other, but either one might be used with various types of the other. Hand looms are placed in this group.

14 The warp spools or warp ends are moved bodily to open the shed instead of moving a portion of the threads between the warp spool or warp ends and the fell of the cloth.

SEE OR SEARCH THIS CLASS, SUBCLASS:
17, for similar sheds that are noncircular.

15 The undulatory closing of the shed behind the shuttle propels the shuttle or else the forward movement of the pointed shuttle forces the shed to open.

16 The warp heddles move in a plane transverse to the tube being woven.

17 Looms having sheds formed by moving the warp spools or ends bodily instead of moving a portion of the threads between the warp spools or warp ends and the fell of the cloth.

SEE OR SEARCH THIS CLASS, SUBCLASS:
14, for similar sheds in a circular loom.

17.5 The shed is open at the back on certain picks, thereby permitting weft inserting means to project into the shed from the rear and travel across the same, in addition to regular closed-back shed weaving.

18 The harnesses are moved in horizontal planes.

19 Ears of corn constitute the weft.

20 The warp bank is split into three or more groups, so formed into two or more sheds, which may converge to a common fell to form a single fabric or to more than one fell to form a plurality of fabrics.

21 Used for weaving fabric having loops or ends standing out from the surface.

SEE OR SEARCH THIS CLASS, SUBCLASS:
37, and indented subclasses, for single-shed pile.

22 The shuttle is longer than the width of the warp and is always connected with an actuating means which does not enter the shed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
135, for single-shed looms of this type.

23 The shuttle is driven through pinions acting on a rack attached to the shuttle.

SEE OR SEARCH THIS CLASS, SUBCLASS:
136, and 137, for single-shed rack and pinion shuttle motions.

24 The warp is fed through the loom at a rate that varies with different picks to produce special effects in the fabric.

25 Two warp supplies are employed, a few picks of weft are deposited a short distance from the fell of the cloth, these picks are then forced up to the fell with the warp supplies under different tension, whereby the weft slides over one of the warps and the other warp is forced up in loops.

26 Limited to means for forcing the weft up to the fell of the cloth.

SEE OR SEARCH THIS CLASS, SUBCLASS:
188, and the subclasses indented thereunder, especially subclass 190.

27 The peculiar terry effect is produced by a special motion of the reed rather than the entire lay.

SEE OR SEARCH THIS CLASS, SUBCLASS:
189, and 191, for similar reeds not used in terry.

28 Heddle eyes are not employed, but members merely contact with the warp strands and push them out of line. Usually operates on stiff resilient material.

29 Looms that differ from the conventional power loom by being hand driven, usually without any hand crank.

(1) Note. Some are almost entirely automatic, and some are mere fragments of looms in which nearly all the operations are accomplished manually.

30 The harnesses are directly pushed by rigid members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
57, and 58.

31 A cam is used to actuate the push members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
32, and 58.

32 The harnesses are actuated by cams.

SEE OR SEARCH THIS CLASS, SUBCLASS:
31, and 79.

33 The shedding mechanism is propelled directly by hand or foot and is not driven by mechanical connection to some other part of the loom.

33.5 Peculiarly adapted for weaving over a hole in a fabric.

SEE OR SEARCH CLASS:
223, Apparel Apparatus, subclass 100 for related devices which do not have means for controlling interlacing of threads in definite order.

34 Frames, usually rectangular for holding warp strands and involving some means peculiar to weaving.

SEE OR SEARCH CLASS:
28, Textiles: Manufacturing, subclasses 151+ for thread frames that do no more than hold an array of threads.

35 Supplying tensioning, shedding, in some instances traversing, or otherwise handling the warp threads until they reach the fell of the cloth.

36 Means for applying a fluid to the warp threads while in the loom.

SEE OR SEARCH CLASS:
118, Coating Apparatus, appropriate subclasses for coating apparatus, per se, and see the Class 118 class definition, Lines With Other Classes, Coating Combined With Other Operations, for the line between Class 118 and Class 139.

37 Means for manipulating the warp threads so that they will stand out from the surface of the fabric in the form of loops or ends.

SEE OR SEARCH THIS CLASS, SUBCLASS:
2, and indented subclasses for pile that is not formed from warp or weft threads.
116.5, and 116.6, for pile produced from weft threads, and 21.

38 Hooks near the fell of the cloth by which part of the warp threads are caused to stand out until the beat-up occurs.

39 Wires for causing the warp threads to stand out are woven in as wefts, but only allowed to remain in the fabric temporarily.

40 Limited to means for moving and guiding the wires.

41 Mechanism which thrusts the wires end-wise into the shed and pulls the wires out of the woven fabric, with means for otherwise manipulating the wires.

42 Limited to the means for thrusting the wires into the shed and pulling them out.

SEE OR SEARCH THIS CLASS, SUBCLASS:
141, 431, 437, 440, and 443, for similar actuating mechanism that propels needles, tweezer sticks, and shuttle push rods.

43 Any cutting arrangement other than a knife on the end of the pile wire for cutting the loops.

44 Limited to the structure of the wires.

45 Means for placing oil on the wires.

46 The pile loops are formed by cross weaving or traversing the threads over wires which lie parallel to the warp threads, which wires do not participate in the take-up advancement and end a few picks beyond the fell of the cloth. The wires may or may not have a knife at the end to cut the loops.

47 That type of longitudinal wire in which the forward end of the wire is fast to the frame of the loom.

(1) Note. This type necessarily carries cutting knives, otherwise the loops could not pass the anchorage.

SEE OR SEARCH THIS CLASS, SUBCLASS:
116.6, for similar devices for weft pile.

48 Means for causing warp threads to be moved transversely.

SEE OR SEARCH THIS CLASS, SUBCLASS:
5,

49 Means for traversing warps comprising needle-eye heddles placed in front of the reed.

50 Special harness mechanism causes parts of the warp threads to cross others and hold them in that position until the pick has been laid.

51 Shedding mechanism having a loop running through a special heddle eye and around the thread to be crossed, said loop being so placed as to pull the thread sidewise past some other warp threads.

52 Limited to the loop and eye as an element.

53 The heddle eyes are placed in the ends of rigid rods, the same resembling sewing-machine needles. After these needles are withdrawn from the shed and before reinsertion they are shogged sidewise.

54 Cross weaving placed only at the edge of the fabric for selvage purposes or in the body of the fabric where it is intended to slit the same.

SEE OR SEARCH THIS CLASS, SUBCLASS:
55.1, 455 and 456, for independent harness actuating selvage warps.
117, for special treatment of weft selvages, and 430+.

55.1 This subclass is indented under subclass 35. Apparatus which separates the warp threads into two layers with a weft receiving space therebetween and which periodically moves warp threads from one layer to the other.

56 Means to interrupt the driving connection between the shedding mechanism and other moving loom parts.

SEE OR SEARCH THIS CLASS, SUBCLASS:
156, and 328, for clutches and disconnecting means.

57 The harnesses are directly pushed by rigid members.

SEE OR SEARCH THIS CLASS, SUBCLASS:
30,

58 Cams are employed for moving the rigid members in both directions.

SEE OR SEARCH THIS CLASS, SUBCLASS:
31, and 81.

59 Peculiarly adapted for independent control of individual threads. There are laterally-movable members harnessed to the threads adapted to engage a vibrating actuator and a bank of needles each connected to one of the laterally-movable members and with their ends in position to be engaged by a pattern which may be reciprocated to be pressed against them.

60 The actuator is a trap board having holes and slits therein, the laterally-movable members being knotted cords and the pattern exercising its control to cause the knots to catch in the slits.

61 Two or more pattern cylinders control a single set of hooks, as each hook has feelers which extend to the several cylinders.

SEE OR SEARCH THIS CLASS, SUBCLASS:
322, for details of the cylinders and feelers alone.

62 An auxiliary pattern controls entire groups or rows of hooks independent of or in opposition to the indications of the main pattern.

63 A jacquard so arranged that extra rests or knife-edges will keep any hooks from lowering between two successive picks.

SEE OR SEARCH THIS CLASS, SUBCLASS:
72,

64 The threads move in opposite directions from a central point when the shed is split open.

SEE OR SEARCH THIS CLASS, SUBCLASS:
69,

65 Each harness cord is attached to two hooks, the hooks of a given pair being actuated by oppositely-moving griff bars.

66 A pattern-controlled shedding motion for actuating heddle frames.

67 The power is supplied by a constantly- reciprocating knife bar, and the pattern determines which one of a number of hooks shall be caught on the bar.

68 Uses pattern cards that require to be brought up to the feelers with a right-line motion.

69 The threads move in opposite directions from a central point when the shed is split open.

SEE OR SEARCH THIS CLASS, SUBCLASS:
64,

70 The griff bars move in an arc of a circle.

71 Two griffs are constantly reciprocating in opposite directions.

72 Latches keep the heddles in open position when change is not desired.

SEE OR SEARCH THIS CLASS, SUBCLASS:
63,

73 Motion is readily transmitted from the griff bars to the heddle frames, but not in the opposite direction.

74 A two-arm lever is attached directly to two hooks and so arranged that when the hooks are reciprocated in opposite directions by the griff bars the harness attached to its middle point will remain stationary.

75 A means for bringing all the harness to the same level when the loom is stopped, so that repairs to the warp threads can be made.

76 The actuator to which the harness-moving members are connected at the call of the pattern rotates.

77 The actuators are toothed drums and the harnesses are moved by gears which are moved edgewise by the pattern for engagement with the toothed drums.

SEE OR SEARCH THIS CLASS, SUBCLASS:
180,

78 The pattern is strong enough to actuate the harness by means contacting directly with the pattern.

79 The harnesses are actuated by cams.

SEE OR SEARCH THIS CLASS, SUBCLASS:
32, for similar shedding in a hand loom.

80 There is means to control the arrangement of the cams either automatically or by hand.

SEE OR SEARCH THIS CLASS, SUBCLASS:
120, 156 and 320, for other axial-shift cams.

81 The harness is positively moved both ways.

SEE OR SEARCH THIS CLASS, SUBCLASS:
58,

82 Limited to connections between the shedding motions and the warp threads.

83 Two trains of transmission extend from the shedding motion to both the tops and bottoms of the harness frames.

84 A single train of transmission extends from the shedding motion to the top only of the harness frame.

85 The transmission from the jacquard motion to the heddle eyes.

86 The guides which position the harness cords over the proper warp threads.

87 Means for transmitting motion from one harness frame to another independent of the shedding motion.

88 Means for connecting the transmission straps to the harness frames.

89 Springs or their equivalent to pull heddles in the reverse direction to that imparted by the shedding motion.

90 Weights used to pull down individual heddle eyes.

91 Groups of heddles supported from bars in order to move in unison.

92 Main bars support smaller rods to which the heddles are attached.

93 The elements which directly engage with the warp threads and past which the threads move in shedding.

SEE OR SEARCH THIS CLASS, SUBCLASS:
368,

94 A member separate from the rest of the heddle is used in forming the thread-engaging eye.

95 Heddles constructed of twisted wires.

96 Heddles constructed of a strip which has been perforated to form the heddle eye.

97 Advancing the warp threads properly arranged and tensioned to the interweaving mechanism of the loom.

SEE OR SEARCH CLASS:
226, Advancing Material of Indeterminate Length, appropriate subclasses for methods of, and apparatus for, feeding material without utilizing the leading or trailing ends to effect movement of the material.

98 Means inserted in the plane of the warp threads for holding the juxtaposed threads apart to prevent entangling.

SEE OR SEARCH CLASS:
19, Textiles: Fiber Preparation, subclass .48 for apparatus and processes for separating or aligning substantially parallel continuous filaments before stabilizing such filaments.

99 Means for paying out the warp threads and means for taking up the fabric, having part of their mechanism in common.

SEE OR SEARCH THIS CLASS, SUBCLASS:
100, and indented subclasses, and 304, and the indented subclasses.

100 Means for paying out warp with sufficient retarded speed to keep the warp threads under tension while they are being woven.

SEE OR SEARCH THIS CLASS, SUBCLASS:
99,

101 There are a plurality of warp banks with a separate let-off for each.

102 The warp threads are used in a pile fabric.

103 The rate of let-off is determined by the strain on each of the warps.

SEE OR SEARCH THIS CLASS, SUBCLASS:
109, and 110.

104 The let-off is applied to the threads after they have left their carriers and not to the carriers themselves.

105 Means for varying the rate of feed.

106 The rate of turning of the warp beam is in increased as the amount of warp left thereon decreases.

107 Means contacting with the surface of the warp on the beam determines the rate at which the beam turns.

108 A positive actuator is controlled.

SEE OR SEARCH THIS CLASS, SUBCLASS:
310,

109 The rate is determined by the strain on the warp threads.

110 A positive actuator is controlled.

111 Means actuated by a loom part for preventing let-off usually when the stop motion detects a weft failure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
314,

112 Actuated at the time of beat-up.

113 Means to facilitate manual movement of the warp back and forth.

SEE OR SEARCH THIS CLASS, SUBCLASS:
316, and 328, for clutches and disconnective means.

114 Means, usually serving as a back rest, pressing against the warp threads and capable of movement to maintain desirable tension notwithstanding the fluctuations in warp tension produced by the shedding and beat-up.

115 There is a connection with a moving part of the loom to decrease the tension at the proper time.

116.1 WEFT MANIPULATION:
This subclass is indented under the class definition. Apparatus or method for laying threads known as the weft across a series of substantially parallel threads known as the warp, and wherein (a) the warp threads are successively divided between an upper plane and a lower plane, thereby forming sheds, and (b) a weft thread is passed through and laid into each shed.

116.2 Means for withdrawing defective weft:
This subclass is indented under subclass 116.1. Apparatus comprising a mechanism for withdrawing a weft, which has been detected as being faulty, from a shed.

116.5 Means for manipulating the weft threads so that they will stand out from the surface of the fabric in the form of loops or ends.

SEE OR SEARCH THIS CLASS, SUBCLASS:
21, for weft pile produced in multished looms.
37, and indented subclasses, for pile produced from warp threads.

116.6 The weft is laid over wires which are parallel with the warp, the front ends of the wires being fast to the frame of the loom.

(1) Note. This type usually carries cutting knives.

SEE OR SEARCH THIS CLASS, SUBCLASS:
47, for similar devices for warp pile.

117 The length of the weft in any one shed being appreciably greater or less than the width of the completed fabric.

SEE OR SEARCH THIS CLASS, SUBCLASS:
54, for cross-woven selvage.

118 The weft extends appreciably farther than the width of the warp, thereby projecting beyond the edge of the fabric when completed.

119 There is means for inserting shuttles into and withdrawing them from a shed at points intermediate the edges of the shed for the purpose of depositing weft between said points.

SEE OR SEARCH THIS CLASS, SUBCLASS:
135, for analogous ways of propelling small shuttles.

120 Includes the mechanism for alternating the main-shuttle flight with the action of the swivel shuttles.

SEE OR SEARCH THIS CLASS, SUBCLASS:
80, 156 and 320, for axial-shift cams.
137, for ways of raising and lowering small shuttles.

121 Swivel shuttles in which the positive motion drive consists of racks attached to the shuttles and pinions to drive the same.

SEE OR SEARCH THIS CLASS, SUBCLASS:
136, and indented subclasses.

133 Means for propelling the weft-thread-carrying members through the shed so constructed that the thread-carrying member may remain at either side of the shed while the shed changes.

134 Means employing a magnet for propelling a shuttle.

135 The shuttle is longer than the width of the warp and is always connected with an actuating means which does not enter the shed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
22, and 119, for analogous motions.
143, for fly-shuttle arrangements for weaving fabrics edge to edge.

136 The drive is through pinions acting on a rack attached to the shuttle.

SEE OR SEARCH THIS CLASS, SUBCLASS:
23, and 121.

137 Employing a plurality of shuttles for use with the same set of warp threads for the purpose of changing the weft.

SEE OR SEARCH THIS CLASS, SUBCLASS:
23, and 120, for ways of raising and lowering small shuttles.
171, and indented subclasses, for weft-change means for the ordinary fly-shuttle loom.

138 Limited to the means for driving the pinions.

SEE OR SEARCH THIS CLASS, SUBCLASS:
121,

139 The shuttle is at one or the other of its ends connected with an actuating means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
141,

140 There is a single fabric, and therefore a single shuttle.

141 The shuttle is always connected at one or the other of its ends with an actuating means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
41, 42, 139, 440+ and 445, for mechanisms that include actuating means that could be used for actuating a shuttle push rod.

142 Means for imparting to a shuttle sufficient momentum to carry it through the shed.

143 Means to enable fly shuttles to be projected through two or more sheds placed in alignment (edge to edge).

SEE OR SEARCH THIS CLASS, SUBCLASS:
135, and indented subclasses, for positive shuttle motions where fabrics are woven edge to edge.

144 The impulse is caused by air pressure.

145 The impulse is caused by releasing a spring that has been placed under tension.

146 A shuttle-propelling stick is mounted on the beat-up framework instead of a stationary part of the loom.

147 A bell crank rocks about a horizontal pivot, one end being connected to the picker stick and the other being actuated by the picker cam.

148 The power is transmitted to the stick through a means which is part of or forms a socket for the lower part of the stick.

149 The construction of the pivot of or support for the stick. Often includes means to give the top of the stick a straight-line motion.

150 The bottom of the foot comprises a curved rolling surface.

151 A straight pull member for connecting the picker stick with the rest of the motion.

152 The member being supported from the stick foot rather than from the stick directly.

153 A substantially U-shaped loop of flat material adapted to pass around the picker stick and be connected to the lug stick. They are designed to be used on standard looms interchangeably.

154 Means for keeping the strap from sliding down the stick.

155 Means to place the shuttle away from the picker, so that the point will not catch in the picker when the shuttle is shifted for purposes of weft change or the like.

(1) Note. Compare with this class, subclass 252.

156 Means to disengage some part of the picker-actuating mechanism, so that the shuttle motion on that side of the loom will not act.

SEE OR SEARCH THIS CLASS, SUBCLASS:

80, 119, 120, and 320, for axial shift cams, and 225.

182, for supporting instrumentalities for mechanisms requiring disconnecting to prevent box-change smash.

157 The construction of the bar for actuating the picker, the picker being mounted on or connected to the same.

158 A rod on which the picker slides. Not used in all looms.

159 The members which contact directly with the ends of the shuttle to propel it.

160 Those pickers which are adapted to slide on spindles.

161 Means adapted to contact with the picker or picker stick and retard the same.

162 The checks are so arranged as to be engaged at a point remote from the shuttle boxes or are connected to some part of the loom in such a way as to have their action modified.

163 The resistance of one surface on another is employed as a checking action.

164 One of the rubbing surfaces is the picker or picker stick or a part bodily carried thereby.

165 The movement of one of the surfaces in checking in one direction leaves that surface in position for checking in the opposite direction.

166 Checking by impact against material other than metal springs.

167 Checking by impact against the resilience of springs.

168 The blow is received by a strap stretched at right angles to the path of the blow.

169 The check having a pivoted impact member extending into the path of the stick or picker.

170 There is an impact member with straight-line motion extending into the path of the stick or picker.

170.3 This subclass is indented under subclass 116. Means for preventing inactive weft threads from being drawn into the shed simultaneously with the active weft during the operation of multiple-shuttle looms.

(1) Note. Such devices, sometimes called filling locks or sideline eliminators, commonly function to maintain the length of inactive weft extending from its shuttle in a position in which it cannot be contacted by the active weft or shuttle.

(2) Note. While devices which are mounted near the fell (as on the breast beam or temple support) may exert little more restraint on the inactive weft than that imposed by such weft's attachment to the fabric, they are included in this and indented subclasses since they are most frequently found in conjunction with inactive weft cutters (in which case they supply the support and restraint which can no longer be provided by the fabric itself) and since the additional function performed by those such devices not

associated with cutters is the further removal of the inactive weft from the path of the active shuttle. (See patent 2,219,794 to Turner in subclass 170.6 indented hereunder).

SEE OR SEARCH THIS CLASS, SUBCLASS:
184, for multiple shuttle boxes, per se.

170.4 This subclass is indented under subclass 170.3. Apparatus provided with additional means for severing the inactive weft between its shuttle and the selvage of the fabric being woven.

(1) Note. Cutters associated with inactive-filling restrainers often are mounted jointly with the loom temples.

SEE OR SEARCH THIS CLASS, SUBCLASS:
263+, for weft end cutters associated with filling replenishing mechanism.
302+, for loom-mounted selvage trimmers, per se.

SEE OR SEARCH CLASS:
26, Textiles: Cloth Finishing, subclass 10.4 for cutters not mounted on a loom and adapted to sever weft loops floating along the selvage of fabric woven on multiple-shuttle looms.

170.6 This subclass is indented under subclass 170.3. Apparatus in which the functioning of the restrainer or restrainers with respect to any particular weft is related to the position, relative to the shuttle race, of the shuttle box holding the package of such weft.

SEE OR SEARCH THIS CLASS, SUBCLASS:
171+, for box change motions for multiple-shuttle looms.

170.7 This subclass is indented under subclass 170.6. Apparatus comprising flexible strand or strand-like members disposed substantially parallel to the warps of the fabric being woven but outside the selvage thereof, and provided with means for raising and lowering such members for the purpose of disposing the inactive wefts above or below the path of travel of the active shuttle.

(1) Note. When the strand member employed is taken from the loom warp supply (later to be returned thereto for weaving into the fabric) it is referred to as a displaced warp. Strand or strandlike restraining members which are extraneous to the fabric being woven are known as dummy warps.

171 Means for moving a set of multiple shuttle boxes to bring the desired one into picking position.

SEE OR SEARCH THIS CLASS, SUBCLASS:
2, 126, 127 and 137, for color change and weft change other than for fly-shuttle mechanism.
184, for the structure of the boxes.

172 The boxes being arranged to move in a circular path.

173 The power means moves to and fro and transmits motion to a wheel by engaging the wheel at various points along its periphery.

174 The actuator and wheel are connected by gear teeth.

175 A member constantly moving to and fro is adapted to selectively engage members to be moved thereby.

176 When the amount of movement given the engaged member is not always the same.

177 The engageable member has a series of notches or steps any one of which may be caused to be caught and carried along with the actuator.

178 The pattern causes selective engagement between a gear and a rotating actuator by shifting a part of or the entire gear or a jaw clutch forming part of the gear.

179 The part moved to cause engagement is shifted axially.

180 The actuator and actuated members are gears so arranged that pattern-selective engagement can take place by the displacement of the

selected gear bodily in a radial or a radial or edgewise direction.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
77,

181 Means for modifying and transmitting the motion produced by some of the above pattern-controlled mechanism and capable of being interchangeably used with different types.

182 Devices upon which the boxes rest which are connected to and adapted to be raised or lowered by the various motions classified above.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
156, for means to protect the box-change mechanism against smash.

183 Receptacles at the ends of the lay to receive and hold the shuttle while not in flight.

184 A shuttle box containing a plurality of shuttle compartments, so that by moving a different compartment into the picking position different shuttles can be employed.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
156, for means to prevent smashes in changing these boxes.
171, and the subclasses indented thereunder, for means to move the boxes.

185 Means carried by the shuttle box for engaging directly with the shuttle and adapted to retard the shuttle on its entry.

186 Means actuated by the entrance of the shuttle into the box for throwing a checking means into operation.

187 Action of the check against the shuttle is relieved at the time the shuttle is picked from the box.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
347,

188 Means which forces the weft thread into place against the fell of the cloth; usually consists of a comb or reed properly held and actuated and often includes a shelf on which a fly shuttle can slide.

189 Reeds which will become detached or unlocked from the shuttle raceway in case the shuttle is trapped between the reed and fell of the cloth.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
27, for similar structure used in terry looms.

190 The mechanism for imparting the to-and-fro motion to the lay or beat-up.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
20, for special motions used in terry weaving.

191 Reeds that have a beat-up motion independent of or in addition to that of the shuttle raceway.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
27, for similar structure used in terry looms.

192 A comb located between the shedding mechanism and the fell of the cloth, the teeth of which extend or may be inserted through the warp threads in the shed area for the purpose of moving the weft thread against the fell of the cloth.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
5, for very unusual traversing reeds.
48, for converging reeds.

193 Means placed adjacent the path of the shuttle to prevent hitting the operator if the shuttle flies out.

194 Means for applying tension to the weft and not carried by the shuttle.

195 Means other than selvage warp thread for holding the loop of weft by the shuttle until the beat-up occurs.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
430+,

196.1 This subclass is indented under subclass 116. Device comprising means which carries a weft thread through an open shed which means is not attached to its propelling apparatus.

196.2 This subclass is indented under subclass 196.1. Device wherein the shuttle is provided with a clamping or guide means which engages a weft thread and draws it through an open shed from a stationary supply located adjacent the shed.

196.3 This subclass is indented under subclass 196.1. Device wherein the shuttle is adapted to carry a length of weft thread sufficient for only one pass through the shed, which weft may or may not be spool carried.

196.4 This subclass is indented under subclass 196.1. Device limited to the structure of the tip portion of shuttles.

197 It is found that many of the patents in the group of "Shuttles" cover merely elements found in the interior of what may be considered the standard type of "fly" shuttle, in which a bobbin or skewer holds a package of thread supported near one end of the shuttle cavity, the thread to be pulled off endwise toward the other end and out through an eye in the side of the shuttle near the delivery end, the outside of the shuttle being smooth and tapered at both ends. Inventions which are not details of this so-called standard type are placed in this group of shuttle types.

198 Wherein the supply is engaged on the exterior instead of carried by a spindle.

199 Shuttles in which an arch containing the thread outlet eye extends from the side of the shuttle next the fell of the cloth, so as to lay the weft near the fell; usually used on narrow-ware shuttles.

200 The thread is fed out from a rotating bobbin, and the tension is created by a friction brake applied to any part of the bobbin, which part may be the wound-thread surface.

SEE OR SEARCH CLASS:
242, Winding, Tensioning, or Guiding, subclasses 421+, 422+, and 156+ for tensioning a running material.

201 Tension is created by leading the thread over a zigzag path with several sharp bends, these bends being in addition to those that are needed to carry the thread from the cop or bobbin to the outlet eye.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
214, and indented subclass.

SEE OR SEARCH CLASS:
242, Winding, Tensioning, or Guiding, subclasses 541+ and 153 for a tensioning a running material.

202 Shuttles the weight of which is supported on rolls as they make their flight across the lay.

203 Means carried by the shuttle adapted to be affected by a change of warp thread or weft thread conditions for actuating a signal or a train of mechanism for stopping or controlling the loom action.

204 Means affected by presence of warp threads in the shed.

205 Means affected by the substantial exhaustion of the weft-thread package carried by the shuttle.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
275, and 371, for the combination with stopping means and replenishing means, respectively.

206 Means for holding the thread supply while it is being delivered in the usual type of shuttle in which the weft is drawn from a nonrotating thread package by unwinding from the exterior of the same.

207 Shuttles and cop carriers so constructed that the cop with its carrier can be changed by mechanical means while the shuttle remains in the loom.

208 The support is pivotally attached, so that the end may be swung out of the shuttle cavity to permit change of bobbins.

209 Spindles having the pivoted end so constructed that it is unlocked and can be detached when the other end is swung out of the shuttle cavity.

210 Spindles that actuate means to increase the hold or grip of the spindle on the cop as the free end of the spindle is swung into the shuttle.

211 Spindle-actuated means to take hold of the exterior of the bobbin as the free end of the spindle is swung into the shuttle.

212 Means for controlling the thread from the time it leaves the thread package until it leaves the shuttle.

213 The means contacts with the thread as it leaves the bobbin or package.

214 Guides in which tension is created by leading the thread over a zigzag path with several sharp bends, these bends being in addition to those that are needed to carry the thread from the cop or bobbin to the outlet eye.

SEE OR SEARCH THIS CLASS, SUBCLASS:
201,

SEE OR SEARCH CLASS:
72, Metal Deforming, subclasses 160+ and 205 for a metal working machine which provides an undulating path for successively presented portions of running length work.
242, Winding, Tensioning, or Guiding, subclasses 541+ and 153 for a tensioning a running material.

215 Guides that include tortuous-course tensions and have a slot through the shuttle wall extending from the eye to the thread cavity.

SEE OR SEARCH THIS CLASS, SUBCLASS:
201, and 222.

216 A spring pressed toward an opposing surface and contacting directly with the thread held there between.

SEE OR SEARCH CLASS:
242, Winding, Tensioning, or Guiding, subclasses 419.4+ and 149+ for a clamp-type tension for running material.

217 Spring clamps included in guides and tensions having a slot through the shuttle wall extending from the eye to the thread cavity.

SEE OR SEARCH THIS CLASS, SUBCLASS:
222,

218 The thread is drawn over rough or clinging material such as felt, to create resistance.

SEE OR SEARCH CLASS:
242, Winding, Tensioning, or Guiding, subclasses 522+ and 147+ for a clamp-type tension for running material.

219 Friction-material tensions that occur in guides having a slot through the shuttle wall extending from the eye to the thread cavity.

SEE OR SEARCH THIS CLASS, SUBCLASS:
222,

220 Friction-material tensions that occur in guides in which the slot will thread from the to-and-fro motion of the shuttle across the loom.

SEE OR SEARCH THIS CLASS, SUBCLASS:
223,

221 Means carried by the shuttle to facilitate starting the thread through the thread outlet.

222 The thread undergoes a side displacement through a slot into the thread outlet of the shuttle.

SEE OR SEARCH THIS CLASS, SUBCLASS:
215, 217, and 219.

223 Threading slots so arranged that the thread will be drawn into its regular channel by the to-and-fro motion of the shuttle across the loom.

SEE OR SEARCH THIS CLASS, SUBCLASS:
220,

224 Means for supplying new weft by either refilling or replacing the running shuttle.

(1) Note. Includes means wherein there is a special cooperation between the replenishing mechanism and other parts of the loom.

225 Wherein there is special cooperation between the replenishing mechanism and other parts of the loom.

226 The other parts of the loom being rendered inoperative.

227 Including stopping of the main shaft.

228 The action of the stopping means is nullified or delayed.

229 In which the weft carrier passes through the replenishing position one or more times after detection of depletion and before replenishment takes place.

230 Means for preventing premature actuation.

231 In which the operation has already been initiated.

232 Means in looms using more than one character of weft for renewing at least one of the wefts.

233 Means for ascertaining the condition of the shuttle contents in the shifting shuttle boxes which cooperate therewith.

234 Wherein exhausted shuttles are replaced.

235 The operation being initiated by the operative.

236 The full shuttle being inserted at one end of the lay and the exhausted shuttle being discharged at the other end of the lay.

237 The exhausted shuttle being deflected while in flight off the raceway of the lay.

238 The exhausted shuttle being pushed out by the pressure of the incoming full shuttle.

239 The shuttle box being temporarily displaced.

240 A series of shuttle boxes being moved in the same direction.

241 Wherein the exhausted shuttles are refilled.

242 A moving element projecting a full bobbin into the shuttle.

243 The moving transferer is set in operation by the lay.

244 Limited to bobbin-engaging features of the transferer.

245 Means for holding and presenting the full bobbins to transfer position.

246 Wherein there is means for taking care of the yarn ends previous to the transferring operation.

(1) Note. Devices which control the yarn ends collectively and are features of the bobbin supply are classified here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
256, 257, 258, and 259.

247 The bobbins being fed to transfer position by gravity.

248 The bobbins being carried by a magazine which rotates to feed them.

SEE OR SEARCH THIS CLASS, SUBCLASS:
249, for other rotary batteries

249 The bobbins being carried by a magazine which rotates to feed them.

SEE OR SEARCH THIS CLASS, SUBCLASS:
248, for other rotary batteries. See this class, subclass 248.

250 Means for rotating the battery.

251 Means for holding the bobbin in transfer position or guiding it during transfer.

252 Means for placing an improperly-positioned shuttle in position in the shuttle box.

SEE OR SEARCH THIS CLASS, SUBCLASS:
155,

253 Positioning means which act on the shuttle tip adjacent the fabric.

254 Means for engaging a bobbin imperfectly positioned in the shuttle to prevent the entrance of the shuttle into the shed or to press the bobbin into its proper place.

255 Means for disposing of the bobbin after its discharge from the shuttle.

256 Means for manipulating an individual thread after the transferring operation has been initiated.

(1) Note. Devices for controlling a yarn end individually even though the bobbin from which it extends be in the bobbin supply are classified here.

SEE OR SEARCH THIS CLASS, SUBCLASS:
246, and indented subclasses.

257 Wherein the thread extends from the new bobbin.

258 The end being attached to the magazine.

259 Means for guiding the incoming thread into the shuttle.

260 Means for placing the thread extending from the substantially exhausted bobbin in position to be cut by the cutting mechanism.

261 Means for withdrawing the thread extending from the discharged bobbin out of the shuttle eye.

262 Wherein the bobbin is given a definite movement, is stripped, or otherwise manipulated.

SEE OR SEARCH CLASS:
28, Textiles: Manufacturing, subclasses 292+, for bobbin stripping apparatus.

263 Means set in operation by the replenishing action for cutting the thread. Frequently a clamp is provided for carrying the cut end forward.

SEE OR SEARCH THIS CLASS, SUBCLASS:
170.4, for inactive-weft cutters associated with means for preventing the extending end of such weft in a multiple-shuttle loom from becoming fouled with the active weft supply or otherwise drawn into the shed.
302+, for loom-mounted selvage trimmers not associated with filling replenishing mechanism.

SEE OR SEARCH CLASS:
26, Textiles: Cloth Finishing, subclass 10.4 for weft end cutters which are not loom mounted.

264 The cutter being located on the shuttle feeler.

265 The cutter being located on the lay.

266 The cutter being located on the temple.

267 Wherein actual transfer of a bobbin is required to effect the cutting.

268 Means for preventing premature actuation.

269 Means for ascertaining the condition of the working-shuttle contents and when a predetermined exhaustion thereof is reached for initiating a change.

(1) Note. Feeler mechanisms, per se, are classified here whether intended to replenish or to stop the loom.

270 The complete functioning being suspended temporarily during the further depletion of the shuttle contents.

271 Means for positively withdrawing the feeler from the shuttle box.

(1) Note. The withdrawal is usually to permit the picking of the shuttle, the transfer of the bobbin, or the shifting of the shuttle boxes.

272 The feeler being located on the lay.

273 An electric circuit being utilized.

274 Wherein a magnetic body within and a magnetized body without the shuttle, or vice versa, are attracted to each other.

275 The initiating element is carried in the shuttle.

SEE OR SEARCH THIS CLASS, SUBCLASS:
205, and 371, for detecting devices where not combined with replenishing.

276 The yarn contact member being vibrated at each detecting beat of the lay, failure to vibrate effecting the change.

277 Wherein there is also a bobbin or shuttle contact member contacting at each detecting beat.

278 Wherein there is a member which contacts with the yarn surface and another member normally inactive which is engaged by the shuttle or other part of the lay for effecting the change.

279 Wherein there is a member which contacts with the yarn surface and another member which penetrates through the yarn to feel for the bobbin surface.

280 A member is held from rotation on a detecting beat by the yarn on the bobbin, but upon substantial exhaustion of the yarn is permitted to rotate.

281 A toothed element is held from movement longitudinally of the bobbin on a detecting beat by the yarn on the bobbin, but upon substantial exhaustion of the yarn slips.

282 A resilient means causes the slipping action.

283 A toothed element is supported on a pivoted carrier.

SEE OR SEARCH THIS CLASS, SUBCLASS:
285,

284 The toothed element is supported on a rectilinearly-movable member.

SEE OR SEARCH THIS CLASS, SUBCLASS:
286,

285 The toothed element is supported on a pivoted carrier.

SEE OR SEARCH THIS CLASS, SUBCLASS:
283,

286 The toothed element is supported on a rectilinearly-movable member.

SEE OR SEARCH THIS CLASS, SUBCLASS:
284,

287 Limited to the yarn engaging features of the feelers.

288 Means for placing the feeler mechanism in proper position with relation to the shuttle.

289 Bobbins provided with features or elements for cooperating with the feeler.

291 Means carried by the loom for removing the cloth as it is woven or otherwise operating upon the cloth.

SEE OR SEARCH CLASS:
26, Textiles: Cloth Finishing, subclasses 13+ for cutters adapted to sever the connecting strands of two-ply fabric; and subclasses 87+ for spreader structure which maintains lateral tension on a running web of cloth.

292 Means to engage the cloth near the fell to maintain a lateral tension on the same.

293 A pincerlike means is provided, and in most instances it reciprocates with each beat up of the lay.

294 The means rotates.

SEE OR SEARCH CLASS:
492, Roll or Roller, for a roll, per se, not elsewhere provided for, and see the notes thereunder.

295 The cloth is brought into engagement with a roller, the axis of which is substantially parallel with the weft, by means of a nonrotating shield or guide which partially embraces the roller.

296 Limited to the cloth-engaging portion of the roller.

297 Limited to that portion of the roller mounting which facilitates rotation of the roller.

298 Limited to the means for connecting the cloth-engaging portion of the temple with the loom; usually a bracket fastened to the breast beam.

299 Yielding to the beat-up movement is permitted by a sideway part of the support.

300 Means to facilitate moving the temple away from the cloth-engaging position.

301 Means to facilitate accurate locating of the temple with relation to the cloth.

302 Means to sever weft threads that may project from the edge of the cloth.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
170.4, for inactive-weft cutters associated with means for preventing the extending end of such weft from becoming fouled with the active weft supply or otherwise drawn into the shed of a multiple-shuttle loom.
263+, for weft end cutters associated with filling replenishing mechanism.

SEE OR SEARCH CLASS:
26, Textiles: Cloth Finishing, subclass 10.4 for apparatus and processes for the same purpose as those of this subclass, the severing means of which is not loom-mounted.

303 The means is actuated by contacts from the lay.

304 Means for pulling the cloth away as it is woven; usually includes means for winding it up.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
99,

305 The rate of take-up is not uniform from edge to edge of the cloth.

306 A lateral to-and-fro motion is given either to the receiver or to the cloth.

307 The cloth is pulled along by contact with advancing friction or clamping surfaces, the packaging, if any, being a separate operation.

308 The material is wound on a beam which is pressed against the sand roll and is driven thereby.

309 Means is provided to determine the rate at which the cloth-advancing mechanism moves.

310 The cloth roll is slowed down as the mass of cloth thereon accumulates.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
108,

311 The rate of movement is determined by the tautness of the cloth.

312 The rate is determined by an adjustment made by the operator.

313 Means to permit the take-up to move a certain distance in the reverse direction, usually when the stop motion detects a weft failure.

314 Means that stops the take-up when the stop motion detects a weft failure without awaiting the coming to rest of the heavy parts of the loom.

SEE OR SEARCH THIS CLASS, SUBCLASS:
111,

315 Means to prevent manual interference with some mechanical actuator for the take-up while the loom is in motion.

316 Means to facilitate the movement of the cloth back and forth by the operator.

SEE OR SEARCH THIS CLASS, SUBCLASS:
113, and 328, for clutches and disconnective means.

317 Means of the type peculiarly adapted for controlling the order in which selective power-transmitting mechanisms are thrown into and out of action: comprises patterns having indicators and feelers affected by the indicators, but does not include the power-transmission devices which are connected or disconnected by the feelers. They are employed in producing complicated designs having a great variety of changes and are to be distinguished from cams, cranks, and the like, which are intended to transmit power directly and are practical only when few changes are required.

SEE OR SEARCH CLASS:
66, Textiles: Knitting, subclasses 231+ for pattern control systems and storage devices for use with knitting machines.
200, Electricity: Circuit Makers and Breakers, subclass 46 for systems of electric circuit makers and breakers in which individual circuits are made and broken in a pattern-transmitted predetermined order.

318 A pattern which has not been broken up into definite portions to correspond to each feeler.

319 Patterns in which the indicators and feelers are operative electrically.

SEE OR SEARCH THIS CLASS, SUBCLASS:
455, for devices that use electricity to lift the heddles.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 46 for systems of electric circuit makers and breakers in which individual circuits are made and broken in a pattern-transmitted predetermined order.

320 A plurality of patterns are arranged in parallel rows lengthwise of the chain, so that a change from one to the other can be effected by shifting the cylinder axially relative to the feelers.

SEE OR SEARCH THIS CLASS, SUBCLASS:
80, 120 and 156, for lateral-shifting cams.

321 Portions of the pattern chain are passed without being utilized.

322 Two or more pattern cylinders act on the same set of hooks or other power connective devices.

SEE OR SEARCH THIS CLASS, SUBCLASS:
61, for the complete shedding mechanism that employs multiple cylinders.

323 There is an extra pattern for selecting the main pattern that is to be used.

324 Means for causing the pattern to travel in the opposite direction.

325 An extra pattern is used to determine the time or point of reverse.

326 Extra patterns which move while the main patterns are stationary to count the number of picks before the main patterns are to be started again.

327 Means driven by the take-up roll or some loom part to determine the length of dwell or repetition of the pattern at any given point.

328 Means to enable the pattern to be moved to the correct position for starting.

SEE OR SEARCH THIS CLASS, SUBCLASS:
113, and 316, for clutches and disconnecting means.

329 Mechanisms for turning the cylinder and also in the jacquard type the means for pressing the cylinder against the feelers.

330 A prism or barrel on which the chain is mounted to advance it step-by-step and also to hold the card or link that is being pressed against the ends of the feelers.

331 The fingers or detectors which are controlled by the perforations, risers, or other indicators on the pattern chain or its equivalent for connecting or disconnecting the power-transmission devices under their control.

332 Devices to support the length of cards or chain that is not on the cylinder.

SEE OR SEARCH THIS CLASS, SUBCLASS:
7, for analogous mechanism that supports, long chains of tube frames.

333 Limited to the surfaces or chains having indicators which affect the feelers.

SEE OR SEARCH CLASS:
66, Textiles: Knitting, subclasses 231+ for patterns for knitting machines.

334 Patterns in which the indicators are pins that can be placed in inoperative position either with or without entire removal from the pattern chain.

335 Patterns of the paper card type; usually perforated.

336 Mechanism adapted to throw the loom out of operation.

336.4 This subclass is indented under subclass 336. Stopping which is effected by improper functioning of means for replenishing the active filling supply or of an instrumentality associated with such replenishment, or by the absence of an adequate supply of reserve filling carriers.

(1) Note. An instrumentality associated with replenishment of the active filling supply may be, for instance, a filling thread cutter and clamp.

336.6 This subclass is indented under subclass 336.4. Stopping , which is effected by means detecting the presence of a shuttle improperly positioned (or the absence of a shuttle in proper position) for replenishment by a fresh bobbin or for ejection of the shuttle coincident to the supply of a fresh shuttle.

SEE OR SEARCH THIS CLASS, SUBCLASS:
341+, for shuttle position detectors not related to weft replenishment.

337 Abnormal condition of the harness mechanism causes stopping.

338 Improper action of the pattern mechanism causes stopping.

339 Improper action of the take-up mechanism causes stopping.

340 A fixed extent of operation causes stopping.

341 An improperly-positioned shuttle causes stopping.

342 The shuttle not having been picked out of the shuttle box.

343 Shuttles are in both running shuttle boxes.

344 The shuttle being positively driven.

345 A rocking rod extending longitudinally of the lay carries fingers which contact with the shuttle checks and also carries means adapted to engage and actuate the stop mechanism when the rod is not rocked by the pressure of a shuttle check on one of the fingers.

346 A slidable member transmits movement from the protector rod to the stopping means.

347 The pressure of the protector mechanism against the shuttle is suspended, but allowed to function at the appropriate instant.

SEE OR SEARCH THIS CLASS, SUBCLASS:
167,

348 A thin place in the fabric causes stopping.

349 The occurrence of a fault in the warp, usually the breakage of a thread, causes stopping.

350 In combination with means for holding juxtaposed warp threads apart to prevent entangling.

351 The locality of the fault being indicated.

352 The fault being detected by mechanism other than elements arranged to contact one with each thread.

353 The fault being detected by an individual thread detector which affects an electric circuit on being displaced.

SEE OR SEARCH CLASS:

66, Textiles: Knitting, subclass 161 and the classes referred to in the notes thereto.

200, Electricity: Circuit Makers and Breakers, subclasses 61.13+ for electrical switches which are controlled by threads or strands; see subclass 61.14 where the switch is controlled by a knot or change in diameter of the thread or strand, and subclass 61.18 where the switch is controlled by the slack, breakage, run out or failure to travel along its intended path.

354 The detectors do not move bodily, but angularly.

355 The detectors either form the shed or the principle of operation depends on their being raised in the formation thereof.

356 The lay being utilized to actuate the stopping mechanism.

357 The lay being utilized to actuate the stopping mechanism.

358 Limited to means for supporting the thread-feeling elements of an electrical warp stop motion.

359 Individual thread detectors are displaced into the path of a to-and-fro moving member and are carried along therewith.

360 Individual thread detectors are displaced into the path of a to-and-fro moving member, which is stopped thereby.

361 The detectors do not move bodily, but angularly.

362 The lay being utilized to actuate the stopping mechanism.

363 Wherein the detectors either form the shed or the principle of operation depends upon their being raised in the formation thereof.

364 The lay being utilized to actuate the stopping mechanism.

365 The vibrator moves transversely of the lay.

366 The lay being utilized to actuate the stopping mechanism.

367 The lay being utilized to actuate the stopping mechanism.

368 Limited to the structure of the detector, per se.

369 Means for supporting the thread-feeling elements and closely associated parts of the warp stop motion.

370.1 This subclass is indented under subclass 336. Stopping wherein the absence of, substantial exhausting of or a fault in the weft thread causes the loom to be thrown out of operation.

370.2 This subclass is indented under subclass 370.1. Stopping wherein the weft thread is drawn from a thread package which is fixed relative to the frame of the loom.

371 The detection being made by means within the shuttle.

372 A member having tines is given relative movement across the weft path.

373 Provided with means for bringing the fork to rest after striking the weft.

374 The fork is carried by the lay.

375 The fork is moved by gravity on its detecting stroke.

376 Means is provided to assist the action of gravity.

377 The fork is tiltable on a member which slides when the fork fails to be tilted.

378 Limited to the structure of the fork.

379 Limited to the features of the element which cooperates with the prongs of the fork or the devices for cleaning the same.

380 Accessories only of use in aiding an attendant to operate the loom.

381 Devices entirely detached from the shuttle to aid the attendant in threading the shuttle.

382 Suction or compressed air is used.

383 Product of a method or apparatus provided for in this class and having at least one set of constituent strands arranged transversely to at least one other set and interlaced therewith, each strand of one set lying above some and below the remaining strands of the other set.

(1) Note. A patent directed to a woven product possessing coated or impregnated constituents will be placed in this subclass, or the appropriate indented subclass, where the sole disclosure is to coating or impregnation of the constituents prior to assembly thereof to form the product.

(2) Note. A patent directed to a woven product by name only consisting of twisted or twined constituents (e.g., yarn), in the absence of the particular interengagement (assembly relationship) of said constituents, will be placed elsewhere. See the Search Notes below.

SEE OR SEARCH CLASS:

57, Textiles: Spinning, Twisting, and Twining, for a patent directed to a woven product by name only consisting of twisted or twined constituents, in the absence of the particular interengagement (assembly relationship) of said constituents.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for methods and apparatus for weaving in combination with laminating. See also subclasses 166+ and 433+ for methods and apparatus for forming weftless fabrics by adhesively uniting filaments.

428, Stock Material or Miscellaneous Articles, appropriate subclasses for a stock material product in the form of a single or plural layer web embodying a woven component and not provided for in this class (139) or any other class. See Class 428, References to Other Classes, reference to Class 139.

492, Roll or Roller, subclass 48 for a roll cover, per se, not elsewhere provided for.

384 Wherein the outline of the texture is other than flat straight webs or stock peculiarly adapted for producing structures of this nature.

SEE OR SEARCH CLASS:

428, Stock Material or Miscellaneous Articles, subclasses 98+ for a structurally defined web or sheet which may include a woven component, and subclasses 221+ for a web or sheet which includes a structurally defined component which may be woven, and especially subclasses 175+, 190, 193, and 196+ for a product embodying a component of mechanically interengaged strands or strand-portions (e.g., woven).

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 181+ for a woven fabric and subclasses 304+ for a knit fabric.

385 Parts of the elements extending from the texture and being loose and unwoven.

SEE OR SEARCH CLASS:

428, Stock Material or Miscellaneous Articles, subclass 115 for a stock material product in the form of a single or plural layer web or sheet and having a fringe, where the manufacture thereof goes beyond the limits of the methods

of manufacture provided for in this class (139).

385.5 Which are designed for use as collars for human apparel.

386 The texture being uniformly bent either in or out of its plane, but not forming complete tubes.

SEE OR SEARCH CLASS:
428, Stock Material or Miscellaneous Articles, subclasses 174+ for a stock material product in the form of a single or plural layer web or sheet, and embodying a nonplanar woven layer but where the manufacture thereof goes beyond the limit of any process provided for in this class (139).

387 The texture forming a hollow tube or tubes with either closed or unclosed ends. Either the sides or the ends of the tubes may be connected together.

(1) Note. For woven tubular fabrics having something additional such as a rubber lining which makes them into a hose, see Class 138, Pipes and Tubular Conduits, subclasses 123+ for woven tubular fabric having something additional, such as an impregnation or a lining which makes it into a hose.

388 Wherein a single tube is formed of regular shape and texture.

389 Wherein the tube is peculiarly adapted to serve as a receptacle.

390 The bag or pocket being integral with its supporting texture.

391 Wherein the foundation texture has threads projecting therefrom after the manner of hair or loops to form the surface.

SEE OR SEARCH CLASS:
66, Textiles: Knitting, subclass 191 and 194 for a knitted fabric including a fleece or pile type surface.
112, Sewing, subclasses 410+ for a pile fabric formed by securing the pile elements to a base by a stitching operation.
428, Stock Material or Miscellaneous Articles, subclasses 85+ for a stock material product in the form of a single or plural layer web or sheet having a pile or nap type surface and not provided for in this class (139) or any other class.

392 The projecting threads being weft.

393 Wherein the projecting threads extend from the surface of the weft.

394 The structure comprising more than a single weft plane.

395 Weft texture for a chenille fabric formed by cutting between separated warp threads of a woven fabric, wherein the warp threads form the core thereof and the cut weft ends extend therefrom.

SEE OR SEARCH CLASS:
57, Textiles: Spinning, Twisting, and Twining, subclass 24, 203 and 362 for chenille strand structures and machines and processes for making the same.

396 These are the products of the terry operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
25,

397 The projecting threads being formed by severing the warps running between the layers of a fabric woven parallel to each other and as a unit.

SEE OR SEARCH CLASS:
26, Textiles: Cloth Finishing, subclasses 13+ for cutters adapted to sever the connecting strands of two-ply fabrics.

398 Wherein the structure of each layer comprises more than a single weft plane.

399 The projecting threads being neither warp nor weft, but extra threads incorporated into the foundation texture during the weaving.

400 Wherein the projecting threads are secured by completely encircling the retaining thread or threads.

401 Wherein the structure comprises more than a single weft plane.

402 The projecting threads being formed by raising the pile warps uniformly over the pile wires.

403 Wherein the structure comprises more than a single weft plane.

404 The projecting threads being formed by raising up from the foundation texture warp ends selected from a series.

405 Wherein the structure comprises more than a single weft plane.

406 The weft planes being separated by a plane of buried warp threads.

407 Wherein the texture is peculiarly adapted to be severed into sections.

408 Wherein the structure comprises more than a single weft plane.

409 The weft planes being separate and distinct cloths united by binder threads.

410 Wherein the number of plies is two.

411 The number of weft planes being three.

412 Wherein each weft is in a separate and distinct shed.

413 The number of weft planes being two.

414 Wherein each weft is in a separate and distinct shed.

415 The weft planes being separated by a plane of buried warp threads.

416 Wherein the invention relates to the production of a design and employs only a single weft plane.

417 The ornamentation being in the form of stripes.

418 The ornamentation being on both faces.

419 Wherein warp threads are deflected laterally.

420 This subclass is indented under subclass 383. Product wherein one or more of the constituent strands (1) is of a particular composition (natural or otherwise) (2) possesses structure (e.g., particular linear or cross-sectional configuration) or (3) have a particular relationship relative to other strands of the product.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclasses 137+ for fabrics comprising an element which is woven into the texture for the purpose of imparting electrical insulating qualities to the fabric.

421 Wherein the texture contains elements such as rubber or springs for returning it to its original form after stretching.

422 The elastic elements being omitted in certain areas.

423 The structure comprising more than a single weft plane.

424 Straw or vegetable stalks being used in the texture.

425 Metal being used in the texture.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclasses 68.1+, for electrical conductors which may include a metallic fabric. The mere recitation of a woven fabric as being of or including conducting material is not sufficient for classification in Class 174. For classification there significant conductor details must be claimed.

219, Electric Heating, subclass 545, for electric heaters which may include a woven fabric as a heating element.

338, Electrical Resistors, subclass 208, for resistors having a mesh, woven, or braided resistance element. The mere recitation of a woven fabric as being

of or including resistive material is not sufficient for classification in Class 338. For classification there significant resistor details must be claimed.

343, Communications: Radio Wave Antennas, subclass 897 for mesh, woven, braided or multiple strip type antennas.

428, Stock Material or Miscellaneous Articles, subclasses 544+ for stock materials, e.g., of indefinite length, which are all metal or have adjacent metal components.

426 The fabric is composed entirely of threads formed by spinning or twisting.

427 Wherein animal fibers which do not have felting properties are used in the texture.

428 Silk being used in the texture.

429 This subclass is indented under subclass 116. Device in which the weft is drawn from a bulk supply means which means does not pass through the shed.

430 This subclass is indented under subclass 429. Device wherein means control the weft thread end or the weft thread and a part of the warp to form a binding zone in the formed fabric, usually along the fabric edge.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54, for cross weaving selvage forming.

431 This subclass is indented under subclass 430. Device wherein the zone is formed by engaging the weft with a knitting needle.

432 This subclass is indented under subclass 431. Device wherein means are provided to incorporate an additional thread into the knitting zone.

433 This subclass is indented under subclass 430. Device wherein a selvage shuttle or similar device passes a thread through a looped end portion of a double weft.

434 This subclass is indented under subclass 430. Device wherein means are provided to bend a cut weft end back into a subsequent shed.

435.1 Weft inserted by fluid jet from nozzle:

This subclass is indented under subclass 429. Device wherein a weft thread is projected into and through the shed by a pressurized stream of a gas or a liquid, which stream is formed by a nozzle.

(1) Note. A main nozzle is a nozzle which is located outside the shed and operates both outside of and within the shed, whereas an auxiliary nozzle is located, and operates, within the shed.

SEE OR SEARCH CLASS:

226, Advancing Material of Indeterminate Length, may include a nominal recitation of a supply or take-up coil (e.g., less than a support for such a coil or a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclass 97.4 for a vacuum jet to advance the strand.

435.2 With means for controlling flow from nozzle:

This subclass is indented under subclass 435.1. Device provided with means for controlling (a) the sequence of activation of the pressurized streams from a plurality of auxiliary nozzles, (b) the duration of operation of a pressurized stream, or (c) the velocity of a pressurized stream.

(1) Note. “Auxiliary nozzle” is discussed in (1) Note. of subclass 435.1, above.

SEE OR SEARCH THIS CLASS, SUBCLASS:

435.6, for a guide for a fluid jet which guide functions to confine a weft-carrying pressurized stream.

435.3 Including plural main nozzles and positioning means therefor:

This subclass is indented under subclass 435.1. Device which includes two main nozzles, each developing a pressurized stream, a weft thread for each stream, and means for locating, or for redirecting the flow from, one of the main nozzles.

(1) Note. "Main nozzle" is discussed in (1) Note. of subclass 435.1, above.

435.4 Main nozzle:
This subclass is indented under subclass 435.1. Device comprising the structure of a nozzle of the kind which is located outside of the shed.

435.5 Auxiliary nozzle:
This subclass is indented under subclass 435.1. Device comprising the structure of a nozzle of the kind which is located within the shed.

435.6 Fluid jet guide:
This subclass is indented under subclass 435.1. Device comprising structure which extends across at least a portion of a shed and which functions to confine a weft-carrying pressurized stream during the projection of a weft thread into the shed.

(1) Note. The confining of the stream is for the purpose of conserving as much as possible of the stream's velocity.

(2) Note. The claims of the art of this subclass occasionally are limited to the guide, per se.

SEE OR SEARCH THIS CLASS, SUBCLASS:
435.2, for flow control means which includes means for controlling the velocity of a pressurized stream.

436 This subclass is indented under subclass 429. Device wherein the weft is inserted through a warp shed which is of substantially the length of the inserting member and which moves across the warp with the inserting member.

SEE OR SEARCH THIS CLASS, SUBCLASS:
196.1, for inserting member, per se.

437 This subclass is indented under subclass 429. Device wherein the weft is drawn through the shed by a shuttle which is projected or carried.

SEE OR SEARCH THIS CLASS, SUBCLASS:
196.1, for shuttle structure, per se.

438 This subclass is indented under subclass 437. Device wherein the shuttle grasps an end of weft to draw it through the sheds.

439 This subclass is indented under subclass 438. Device wherein the shuttle enters the shed from only one side of the loom.

440 This subclass is indented under subclass 429. Device wherein the weft is a continuous strand which is inserted across the length of the shed and is doubled back on itself.

441 This subclass is indented under subclass 440. Device wherein the inserter comprises a needle having an eye, which is continuously supplied with thread, which needle moves back and forth along a rectilinear path.

442 This subclass is indented under subclass 440. Device wherein the inserter comprises a needle having an eye, which is continuously supplied with thread, which needle swings about an axis.

443 This subclass is indented under subclass 429. Device wherein the weft is inserted as a single strand.

444 This subclass is indented under subclass 443. Device wherein the insertion means comprises a needle having a portion which grasps the weft end and carries it through the shed from the side which the needle enters the shed.

445 This subclass is indented under subclass 443. Device wherein the insertion means comprises a needle which enters the shed empty, grasps a weft thread and inserts it into the shed as the needle exists therefrom.

446 This subclass is indented under subclass 443. Device wherein the insertion means comprises a pair of needles which operate simultaneously to meet at the center of the shed, the weft being brought to the shed center by one needle, transferred to the other needle to be drawn the remainder of the distance through the shed.

447 This subclass is indented under subclass 443. Device limited to the constructional features of the thread engaging portion of weft inserting needle.

448 This subclass is indented under subclass 447. Device wherein the thread engaging portion grasps the weft end.

449 This subclass is indented under subclass 429. Device to impart motion to a weft inserting needle or to control the direction of movement of said needle.

(1) Note. Needle guides, mounts, etc., not specifically provided for may be considered as part of the drive mechanism and be placed in this subclass.

(2) Note. The term "Needle", as employed herein, is intended to include both flexible tapes and rigid rod-like inserting members.

450 This subclass is indented under subclass 429. Device including means which control the movement of weft between its storage and the weft inserting member.

(1) Note. Included herein is means to mount a weft supply package.

451 This subclass is indented under subclass 450. Device having means specialized to store or handle weft of hair, cane, straw or slats.

452 This subclass is indented under subclass 450. Device including means for drawing off a measured length of weft to be inserted into a warp shed.

(1) Note. The drawing means may be in combination with storage means and a cutting means. Storage means independent of drawing means are also proper for this subclass.

SEE OR SEARCH CLASS:

226, Advancing Material of Indeterminate Length, may include a nominal recitation of a supply or take-up coil (e.g., less than a support for such a coil or a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclass 117 plural material mover including an intermittent and continuous material-mover, or subclasses 118.1+ for intermediate storage means between plural material moving means.

453 This subclass is indented under subclass 450. Devices wherein means operate to choose between a plurality of weft threads to present a desired one to the weft inserting member.

454 This subclass is indented under subclass 429. Device wherein at least certain weft are inserted to lie at an oblique angle to the warp threads.

455 This subclass is indented under subclass 55.1. Apparatus wherein the shedding mechanism operates in response to (1) variations in electrical impulses, or (2) variations in magnetic lines of flux.

456 This subclass is indented under subclass 55.1. Apparatus wherein the shedding mechanism operates in response to hydraulic or pneumatic pressure.

457 **Circular, progressive shedding:**
This subclass is indented under subclass 11. Subject matter wherein the special-type loom is one in which the warp is arranged in a circular manner and a section of the warp threads, of substantially the length of the shuttle, is moved to the open-shed condition and this open shed, in which the shuttle travels, is caused to move transversely of the warp, wherein the weft is laid in a circular course.

(1) Note. A loom of this subclass performs an operation which may be described as circular weaving with progressive shedding.

458 **Longitudinal shedding:**
This subclass is indented under subclass 457. Subject matter wherein the shed forming means, i.e., the heddles, of the loom move in a plane parallel to the plane of the fabric being woven.

459 **Shuttle:**
This subclass is indented under subclass 457. Subject matter limited to the structure of a shuttle which is peculiar to a loom of that subclass.

460 Longitudinal moving shed:

This subclass is indented under subclass 11. Subject matter wherein the special-type-loom includes a plurality of sheds which are simultaneously maintained in an open condition and caused to move in the warp direction.

END