

Oct. 27, 1942.

J. BARBOTTO

2,300,281

SELVAGE-FORMING DEVICE

Filed Nov. 22, 1941

2 Sheets-Sheet 1

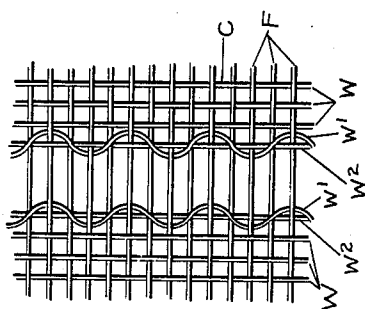


FIG. 5.

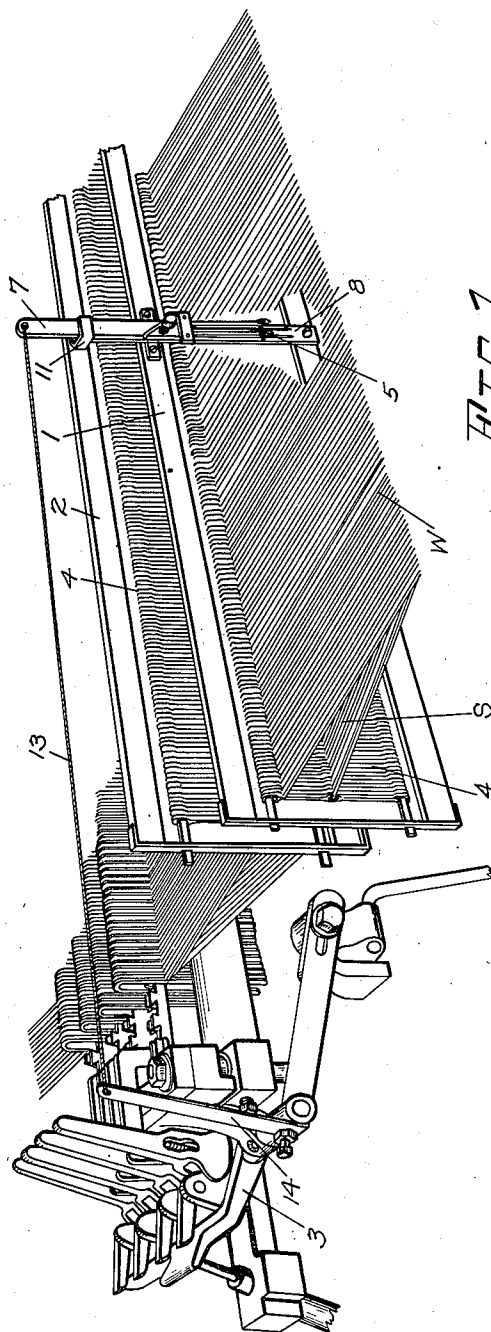


FIG. 1.

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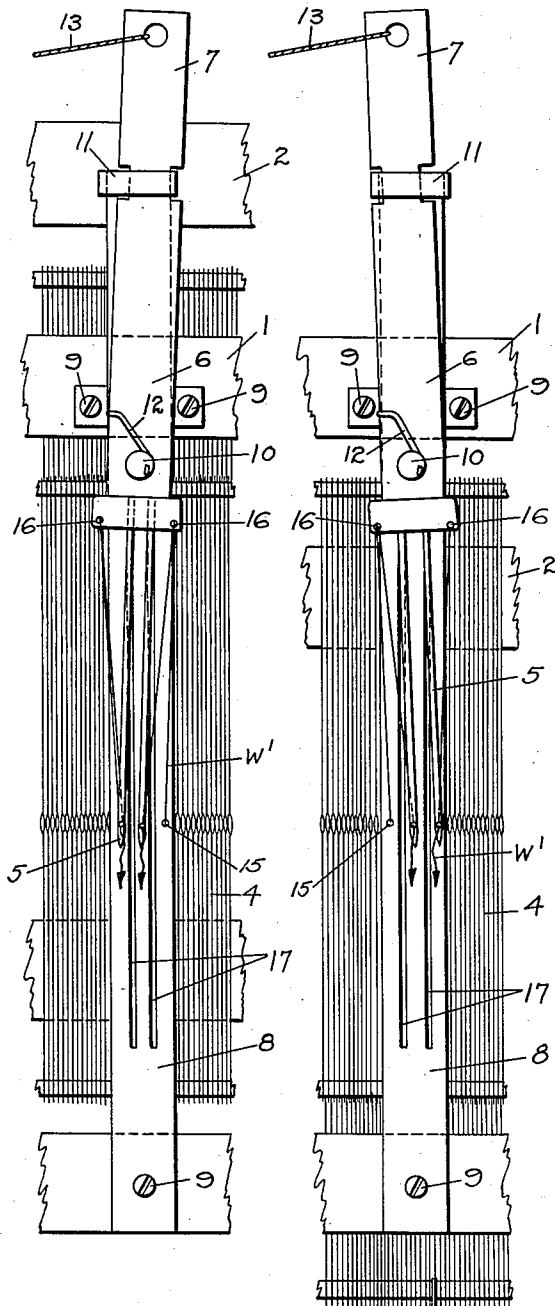


FIG. 2

FIG. 3

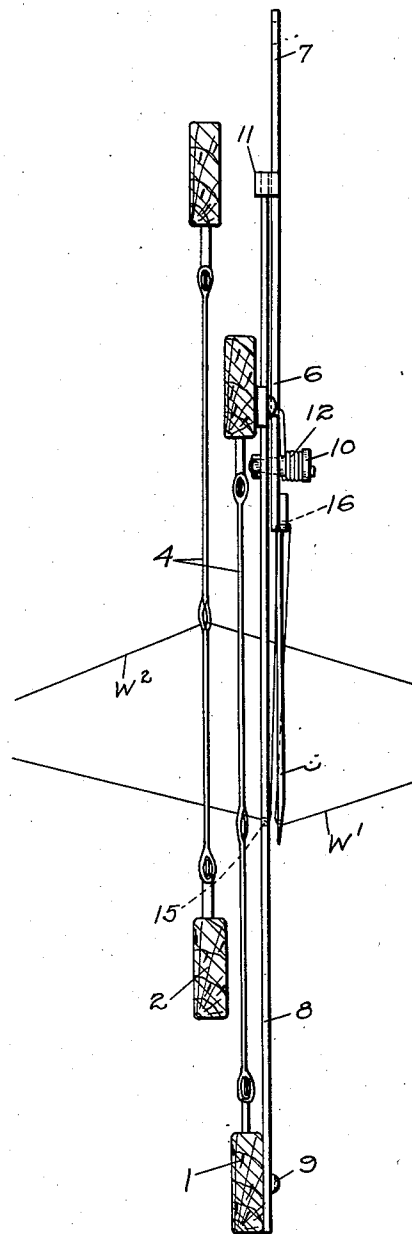


FIG. 4

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SELVAGE-FORMING DEVICE

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8 Claims. (Cl. 139—54)

The present invention pertains to selvage forming devices for looms and more particularly relates to the such devices of the cross-weaving type commonly used for forming center selvages.

Devices of the type to which my invention pertains are used on the usual looms having vertically reciprocating harness frames for forming shed openings in the warp sheet. Such devices carry additional or selvage-forming warp threads, and cross-lay such threads to form a selvage, which may be located in or near the center of the cloth being woven.

As heretofore constructed, such selvage-forming devices have commonly comprised selvage needles or the like mounted on a fixed bracket for vertical sliding movement to form a shed opening and a lateral movement to cross-lay the warp threads carried by the needles. Thus, such devices were supported and operated entirely independent of the harness frames of the loom. This mounting of the device for sliding as well as lateral movements on a fixed bracket results in the mechanism being unduly complicated and expensive and subject to excessive wear.

The principal object of the present invention is to provide, in a loom having harness frames as aforesaid, a selvage forming device mounted on one of such harness frames for vertical shed-forming movement therewith and lateral cross-laying movement relative thereto, thereby eliminating the aforesaid disadvantages of prior constructions.

The foregoing and other objects of the invention are attained in the construction illustrated on the accompanying drawings, of which:

Fig. 1 is a perspective view of part of a loom having the preferred embodiment of my invention applied thereto;

Fig. 2 is a front view of part of the said loom;

Fig. 3 is a view similar to Fig. 2 but showing the parts in different relative position;

Fig. 4 is a view of the same in section as viewed from the left of Fig. 2; and

Fig. 5 is a diagrammatic view of the selvage and part of the cloth woven on said loom.

The drawings show only part of the loom to which the preferred embodiment of the present invention has been applied, the parts and mechanisms not shown being of any suitable usual construction and forming no part of the present invention. The parts shown include the usual harness frames 1 and 2 and a well known form of warp stop motion indicated generally at 3.

The harness frames 1 and 2 extend widthwise of the loom in parallel vertical planes and are

provided with heddles 4 for receiving the warp threads W which are to be woven into cloth C. These warp threads extend from the back of the loom toward the front thereof and are positioned in parallel relation in the form of a sheet. The harness frames 1 and 2 reciprocate vertically to form the shed openings S in the warp sheet. The particular harness frames shown move in opposite directions on alternate picks of the loom, to form a plain weave, all as is well known in the art.

It is commonly desired to provide the woven cloth with a selvage strip of cross-woven construction, which type of selvage is known in the art as a "center" selvage because it is frequently located between the longitudinal edges of the cloth to provide for subsequent slitting of the cloth into two or more separate strips. Such a selvage is illustrated diagrammatically on Fig. 5, wherein supplemental or selvage warp threads W¹ are cross-laid with respect to other selvage warp threads W².

The preferred embodiment of the present invention includes a pair of selvage needles 5 which carry the selvage threads W¹. The needles 5 are fixed in the lower end of a plate 6 which has an upwardly extending arm 7.

The needles 5 have vertical shed forming movements and lateral cross-laying movements, as in prior devices of this type. However, as distinguished from the prior art, the present selvage-forming device is mounted on one of the regular harness frames for vertical movement therewith, whereby the harness frame imparts such shed forming movements to the selvage needles. To this end, a bracket 8, shown as comprising an elongated metal plate, is fixed to the front of the front harness frame 1. The bracket 8 extends vertically from the bottom rail of the harness frame to a point above the top rail thereof and may be fixed to such rails by screws 9.

The arm 7 and needles 5 are positioned in a vertical plane and the needles are to oscillate laterally in this plane. To this end the needles are pivotally mounted on the bracket 8, as by means of a pivot bolt 10 fixed in the bracket and extending through the plate 6. A guide loop 11 is fixed to the upper end of the bracket 8 and extends around the arm 7 to limit lateral movement of the arm and needles. Suitable means for oscillating the needles 5 in proper timed relation may comprise a spring 12 and a cord 13 connected to an arm 14 on the warp stop motion 3.

The spring 12 has one end fixed to the pivot bolt 10 and its other end engaging the arm 7 to

yieldingly urge the arm and needles clockwise as viewed on Figs. 2 and 3. The arm 14 is fixed to a usual part of the warp stop motion which oscillates, moving quickly in one direction, then remaining stationary for two picks of the loom, then moving quickly in the opposite direction, and remaining stationary for the next two picks. Thus, the spring 12, and arm 14 acting through cord 13, move the needles 5 laterally in opposite directions on alternate complete reciprocations of the harness frame 1.

The selvage-forming device includes vertically spaced guide eyes 15 and 16 for the selvage warp threads W^1 . The lower eyes 15 are formed in the bracket 8 and the upper eyes are formed in the lower end of plate 6. Each thread W^1 passes first through a heddle eye in harness frame 1, then through a lower guide eye 15, then upwardly and through an upper guide eye 16, and then downwardly and through the eye of a needle 5, thereby forming a bight in the thread. Each selvage thread W^2 passes first through a heddle eye in the harness frame 2, then through a vertical guide slot 17 in the bracket 8. When the harness frame 1 and selvage needles 5 move down and the harness frame 2 simultaneously moves up, the slots 17 will guide one of the threads W^2 into the bight formed in the related thread W^1 .

Each selvage warp thread W^1 remains down and the cooperating thread W^2 up (Fig. 4) while a pick of filling thread F is laid in the open shed. Then the thread W^1 moves up and the thread W^2 moves down as the harness frames 1 and 2 move up and down respectively. Then a second pick of filling is inserted and the needles 5 move laterally to cross the threads W^1 to the other side of the threads W^2 . The needles remain in this lateral position while the harness frame 1 moves down, a third pick of filling is inserted, and the harness frame 1 moves up. Then the needles 5 move laterally to the first side of the threads W^2 , a fourth pick of filling is inserted, and the harness frame 1 and needles 5 move downwardly, thus completing the cycle of movements. It will be understood that whenever the harness frame 1 moves up or down the harness frame 2 simultaneously moves in the opposite direction.

The selvage warp threads W^1 and W^2 may be of any suitable size or construction, but in any event are to be distinguished from the threads of the main warp sheet which are carried by the usual wide harness frames 1 and 2 forming the shed for the main body of the cloth being woven.

It will be apparent that by mounting my improved selvage forming device on one of the regular harness frames I have materially simplified the device itself and the operating means for the selvage needles thereof. Furthermore, the device may be attached to existing looms without material alternation of such looms, except to provide a suitable operating part such as arm 14.

Having fully disclosed the preferred embodiment of my invention, I claim:

1. In a loom, the combination of the usual harness frames extending widthwise of the loom and moving vertically to form the usual shed opening in the main warp sheet, with a selvage-forming device comprising selvage needles mounted on one of said harness frames for vertical movement therewith and lateral movement relative thereto, said needles being adapted to carry selvage forming warp threads, and means movable independent of said harness frames for

moving said needles laterally in opposite directions to thereby cross-lay said selvage forming threads.

2. In a loom, the combination of the usual harness frames extending widthwise of the loom and moving vertically to form the usual shed opening in the main warp sheet, with a center selvage forming device comprising selvage needles adapted to carry selvage-forming warp threads, means supporting said needles on one of said harness frames intermediate the ends of the latter for vertical movement therewith, said means also providing for lateral movement of said needles relative to the last said harness frame, and means operating independently of said harness frames for moving said needles laterally in timed relation to the vertical movement of said harness frames to thereby cross-lay said selvage-forming threads.

3. In a loom, the combination of the usual harness frames extending widthwise of the loom and moving vertically to form the usual shed opening in the main warp sheet, with a selvage-forming device comprising selvage forming needles adapted to carry selvage-forming warp threads, means pivotally mounting said needles on one of said harness frames for vertical movement therewith and pivotal movement laterally thereof, and means for pivoting said needles laterally in opposite directions on alternate complete reciprocations of the last said harness frame, to thereby cross-lay said selvage-forming threads.

4. In a loom, the combination of a pair of the usual harness frames extending widthwise of the loom and moving vertically to form a plain weave, with a center selvage forming device comprising selvage needles pivotally mounted on one of said harness frames intermediate the ends of the latter, said needles being adapted to carry selvage-forming warp threads, and means for pivotally moving said needles laterally in opposite directions on alternate complete reciprocations of the last said harness frame, to thereby cross-lay said selvage-forming threads.

5. In a loom, the combination of the usual vertically moving harness frames extending widthwise of the loom and forming shed openings in the main warp sheet, with a bracket fixed to one of said harness frames, selvage needles pivotally mounted on said bracket for vertical movement therewith and pivotal movement laterally thereof, said needles being adapted to carry selvage-forming warp threads, said bracket having vertical guide slots for additional selvage-forming warp threads extending from another of said harness frames, and means for moving said needles laterally as aforesaid to cross-lay the first said selvage-forming threads relative to said additional warp threads.

6. In a loom, the combination of a pair of the usual harness frames extending widthwise of the loom and moving vertically to form a plain weave, with a center selvage forming device comprising a bracket fixed to one of said harness frames intermediate the ends thereof, selvage-forming needles adapted to carry selvage-forming warp threads, a pivotal connection supporting said needles on said bracket for vertical movement therewith and pivotal movement laterally thereof, said device having vertically spaced guide eyes forming a bight in each said selvage-forming thread, said bracket having vertical guide slots for guiding additional selvage-forming warp threads into said bights, and

means for moving said needles laterally about said pivot to cross-lay the first said selvage-forming threads relative to said additional threads.

7. In a loom, the combination of a pair of the usual harness frames extending widthwise of the loom and moving vertically to form a plain weave, with a center selvage-forming device comprising a bracket fixed to one of said harness frames intermediate the ends thereof, selvage-forming needles adapted to carry selvage-forming warp threads, means pivoting said needles on said bracket for vertical movement therewith and pivotal movement laterally thereof, said device having vertically spaced guide eyes forming a bight in each of said selvage-forming threads, said bracket having vertical guide slots for guiding warp threads from the other of said harness frames into said bights, spring means urging said needles laterally about said pivot means, and means for moving said needles laterally against the action of said spring means on alter-

nate complete reciprocations of said harness frames to thereby cross-lay said selvage-forming threads.

8. A center selvage forming attachment for looms having the usual vertically reciprocating harness frames, said attachment comprising a bracket adapted to be fixed to one of said harness frames for vertical movement therewith, selvage needles adapted to carry selvage-forming warp threads, means pivotally supporting said needles on said bracket for vertical movement therewith and lateral pivoting movement relative thereto, said attachment having vertically spaced guides adapted to form a bight in each of said selvage-forming threads, said bracket having vertical guide slots positioned to guide other warp threads into said bights, and an arm associated with said needles whereby the latter may be moved laterally to cross-lay said selvage-forming threads.

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