July 8, 1952 P. W. MORRISON 2,602,471

SELVAGE MOTION

Filed Oct. 26, 1949 3 Sheets-Sheet 1

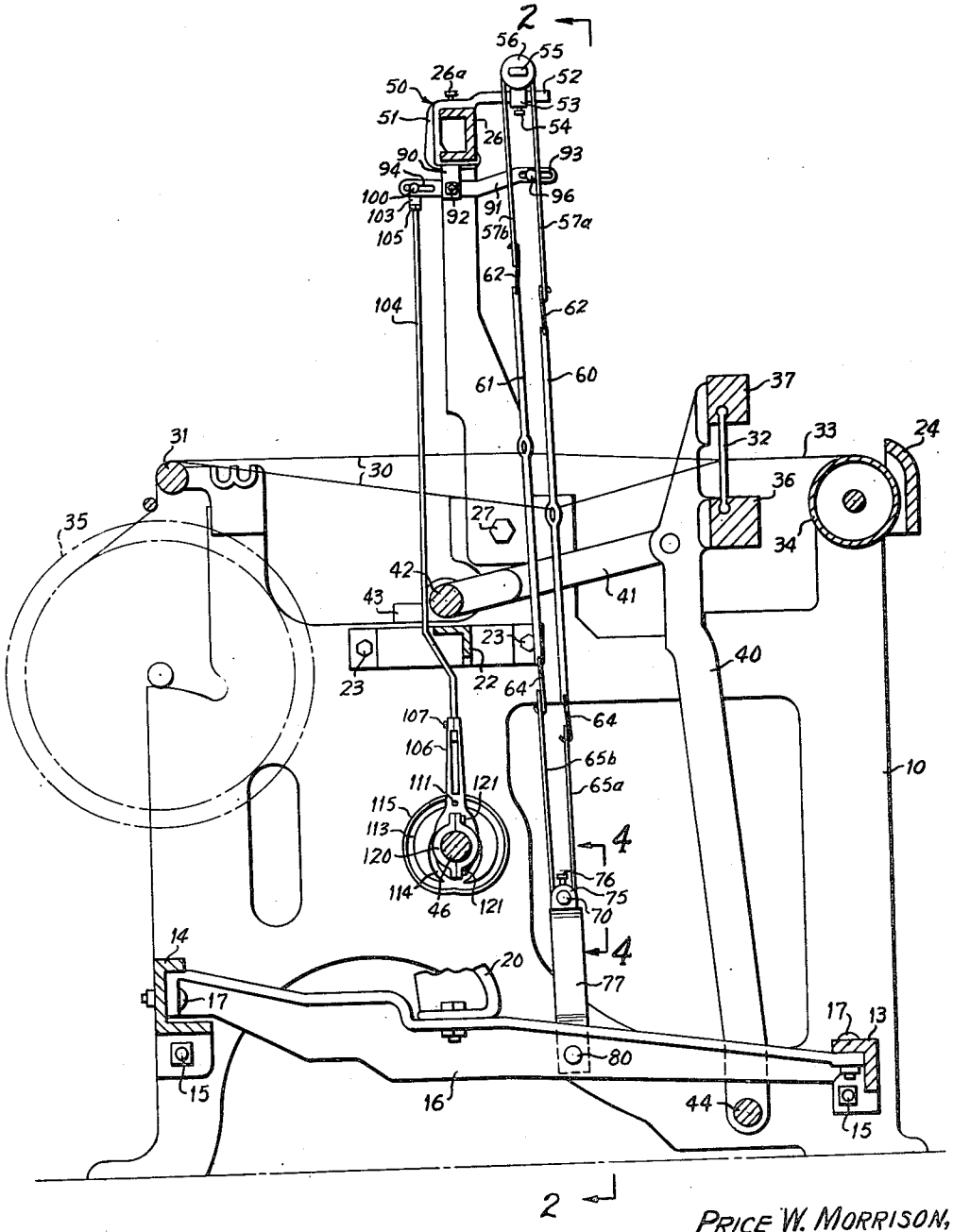


Fig-1

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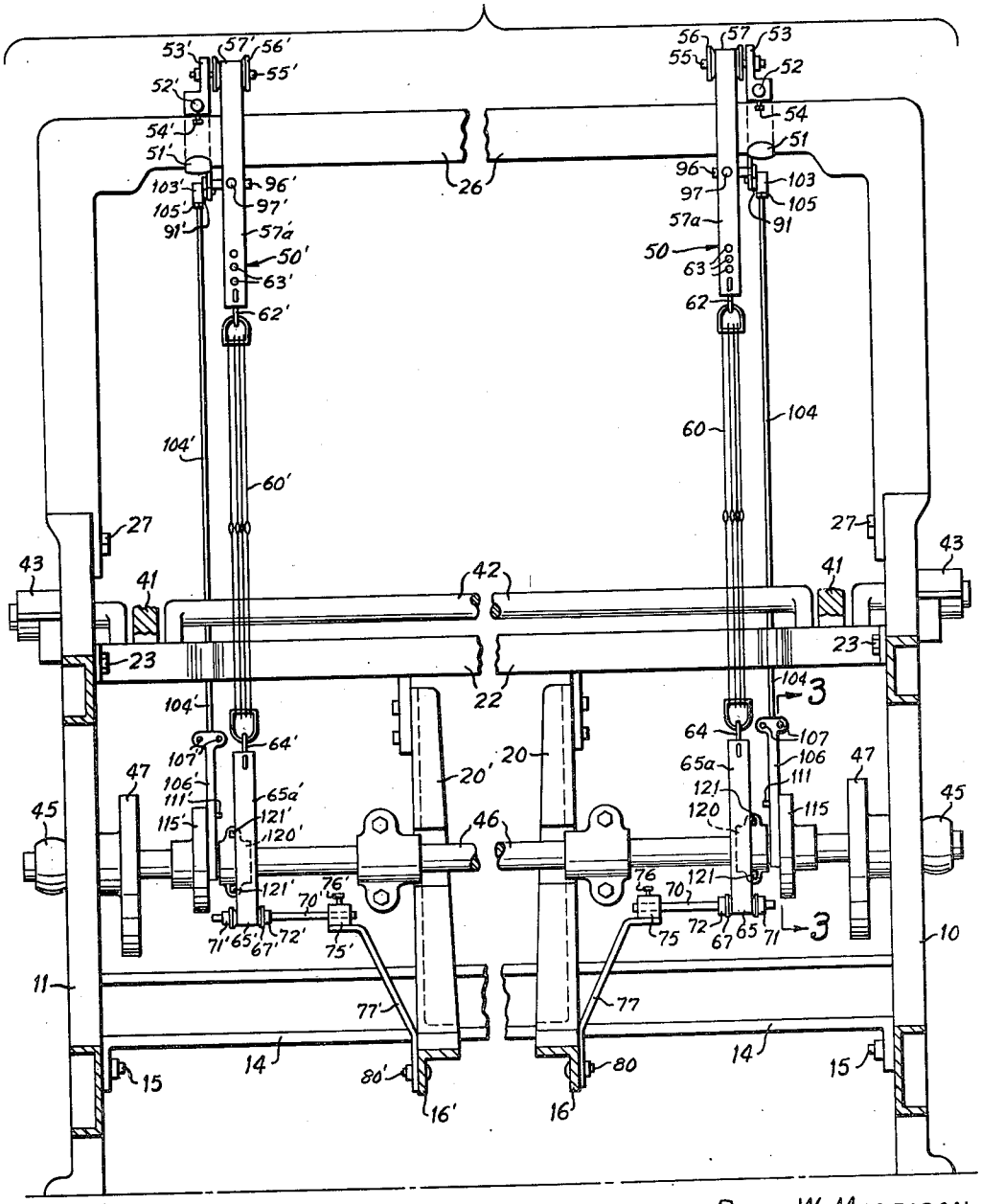
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Fig. 2

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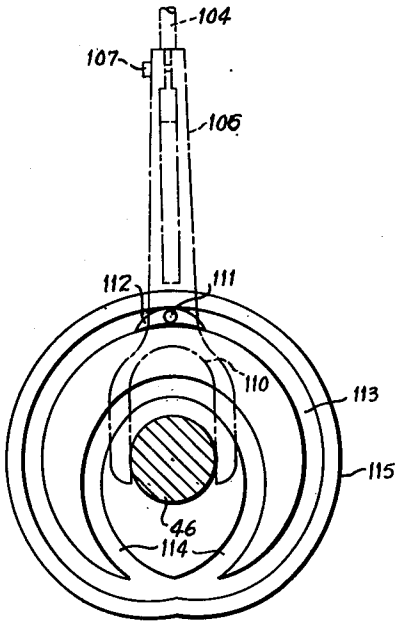


Fig-3

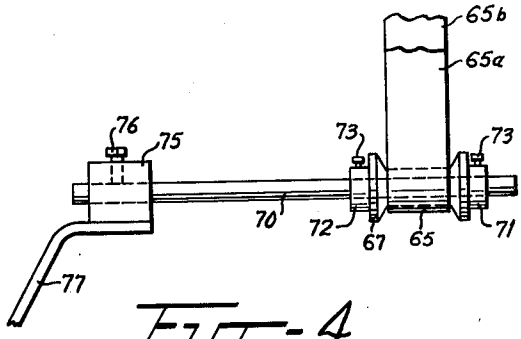


Fig-4

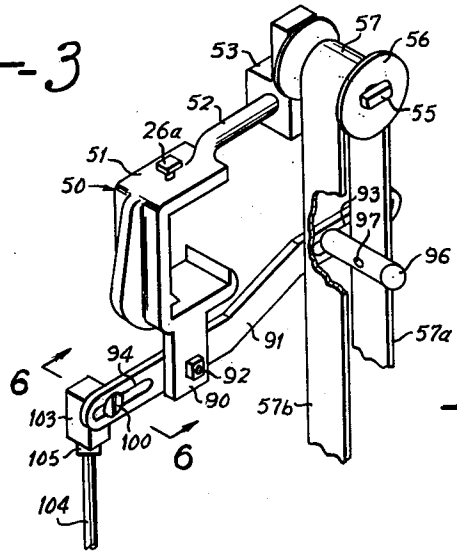


Fig-5

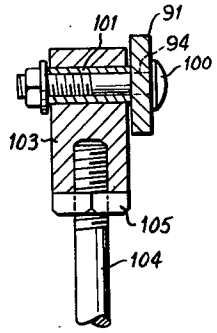


Fig-6

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Patented July 8, 1952 2,602,471

UNITED STATES PATENT OFFICE

2,602,471

SELVAGE MOTION

Price W. Morrison, Chester, S. C.

Application October 26, 1949, Serial No. 123,740

1 Claim. (Cl. 139—55)

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This invention relates to an improvement in a selvage motion for looms and the primary object of this invention is to reduce the number of parts normally employed in selvage motions which have heretofore been in use so as to considerably reduce the cost of manufacture and, in view of the lesser number of parts employed in the present invention, the improved selvage motion may be more rapidly assembled and adjusted than has heretofore been possible thus decreasing the cost of set-up time considerably.

Heretofore, selvage motions, such as the #10 selvage motion manufactured by Draper Corporation of Hopedale, Massachusetts, and of the type shown in U. S. Patent No. 913,095 of February 23, 1909, have had a driving means for the selvage harnesses, which are disposed adjacent opposed sides of the loom separate from the main shed-forming means associated with conventional looms, comprising a selvage cam mounted on the conventional cam shaft of the loom having a selvage cam follower guide extending downwardly therefrom, the lower end of which has been pivotally connected intermediate the ends of an oscillatable treadle bar, one end of which was oscillatably connected to the loom and the other end of which had a selvage treadle stud collar thereon to which the lower ends of the selvage harness straps extending from the lower ends of adjacent selvage harnesses have been connected.

One of the harness straps extended beneath an idler pulley disposed in a lower horizontal plane than the selvage treadle stud collar and then extended upwardly and connected to one side of the stud collar while the other of the harness straps extended downwardly and was connected to another side of the selvage treadle stud collar and, upon oscillation being transmitted to the selvage treadle bar heretofore described, the selvage harnesses were caused to move in opposite directions relative to each other in a shed-forming operation.

It is seen that many parts were employed heretofore in a selvage motion of the type described and it is therefore another object of this invention to provide an improved driving means for the selvage motion of a loom comprising a bracket adapted to be secured to the adjacent conventional intermediate forwardly and rearwardly extending girt of the loom and having an idler pulley mounted thereon beneath which an intermediate portion of the lower harness strap passes. The opposed ends of the lower harness strap extend upwardly and each of these

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opposed ends is connected to a separate harness. A similar single strap has opposed ends thereof connected to each of the upper ends of the corresponding harnesses and the last-named strap extends upwardly and passes over a similar idler pulley connected to the arch of the loom. An arm is oscillatably mounted at the arch of the loom intermediate its ends and has one end thereof connected to one of the reaches of the upper harness strap and its end remote from the end connected to the upper harness strap has a connecting rod connected thereto which extends downwarly, and the lower end being connected to the conventional type of selvage cam follower guide which, in this instance, is moved 180 degrees from the position in which it is normally disposed on the loom. Upon vertical movement of the connecting rod the other reach of the upper harness strap is caused to move in the opposite direction as oscillatory motion is transmitted to the arm adjacent the arch of the loom to thereby transmit vertical movement in opposite directions to the selvage harnesses.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings in which—

Figure 1 is a longitudinal vertical sectional view through a loom showing the improved harness selvage motion applied thereto and with many of the parts of the loom being shown schematically;

Figure 2 is an elevation with parts in section looking at the front of the selvage motion and also taken substantially along the line 2—2 in Figure 1;

Figure 3 is an enlarged vertical sectional view taken substantially along the line 3—3 in Figure 2 and showing the conventional selvage cam in solid lines and showing the conventional selvage cam follower guide in dot-dash lines;

Figure 4 is an enlarged fragmentary elevation taken substantially along the line 4—4 in Figure 1 and showing the manner in which the idler pulley, around which the lower harness strap passes, is mounted;

Figure 5 is an enlarged isometric view showing the manner in which the upper end of the selvage motion is mounted but omitting the conventional arch of the loom for purposes of clarity;

Figure 6 is an enlarged vertical sectional view taken substantially along the line 6—6 in Figure 5 and showing the manner in which the upper end of the connecting rod is connected to the

operating lever of the improved selvage motion.

Referring more specifically to the drawings, the numerals 10 and 11 indicate the right-hand and left-hand side frame members, respectively, of the loom and which are spanned at their lower portions by transverse front and back girts 13 and 14, respectively, secured to the loom side frame members 10 and 11 as by bolts 15. Conventional forwardly and rearwardly extending right-hand and left-hand middle girts 16 and 16', respectively, are secured at their front and rear ends, as by bolts 17, to the front and back girts 13 and 14, respectively.

These intermediate girts 16 and 16' support the lower ends of conventional vertically disposed intermediate girts 20 and 20', respectively, the upper ends of which are connected in a conventional manner to a transverse upper girt member 22 the ends of which are secured, as by screws 23, to the proximate surfaces of the vertically disposed side frame members 10 and 11. The side frame members 10 and 11 are connected at their upper front ends by a conventional breast beam 24. A conventional arch 26 is supported on and secured to the proximate surfaces of the loom side frame members 10 and 11, as by screws 27, and this arch may support, in the usual manner, the main harness frames, not shown, but through which warp yarns 30 pass as they extend from a conventional whip roll 31 through a conventional reed 32 where they are woven into cloth 33 which passes over a conventional sand roll 34, after which the cloth is wound up in a conventional manner, not shown. The warp yarns 30 extend over the whip roll 31 from a warp beam 35 supported by the loom side frame members 10 and 11.

A conventional reed 32 is mounted in a conventional manner between a lay 36 and a reed cap 37 which are supported on the upper ends of conventional swords 40, only one of which is shown. The swords 40 are connected to the front ends of pitman rods 41, the rear ends of which are connected, in a conventional manner, to a conventional crank shaft 42 rotatably mounted in bearing blocks 43 supported on the loom side frame members 10 and 11. The lower ends of the swords 40 are fixedly mounted on a conventional oscillatable rocker shaft 44.

Referring to Figure 2 it will be observed that the loom side frame members 10 and 11 have conventional bearing blocks 45 thereon which support opposed ends of a conventional pick cam shaft 46 having the usual pick cams 47 thereon. The cam shaft 46 and the crank shaft 42 are driven in a manner well known to those familiar with the art. The parts heretofore described are conventional parts of the loom and it is with these parts that the present invention is associated.

In Figure 2 there is shown a right-hand selvage motion broadly designated at 50 and a left-hand selvage motion broadly designated at 50', and since both the right-hand and left-hand selvage motions 50 and 50' are identical, except being opposite hand, the selvage motion 50 will be described and the same reference characters will apply to like parts associated with both of the selvage motions 50 and 50' with the reference characters associated with the left-hand selvage motion 50' bearing the prime notation.

Now, referring to Figures 1, 2, 5 and 6, there is shown a substantially C-shaped upper selvage roll bearing bracket 51 which is very similar to the conventional type of selvage roll bearing bracket and has a forwardly projecting portion 52 integral therewith on which a selvage roll bearing block 53 is adjustably secured as by set screw 54. This selvage roll bearing block 53 has a stub shaft 55 projecting laterally therefrom on which an upper selvage roll 56 is rotatably mounted. An upper selvage harness strap 57 passes over the upper salvage roll 56 and has front and rear reaches 57*a* and 57*b*, respectively, depending therefrom and to which the upper ends of a conventional type of selvage harnesses 60 and 61 are connected, as by hook members 62, the reaches 57*a* and 57*b* of the upper harness strap 57 being provided with suitable holes 63 for reception of the hooks 62.

In operation, the shed formed by the outermost few of the warp yarns 30, at the selvage of the cloth to be woven, pass through and are controlled by the selvage harnesses 60 and 61 and 60' and 61'. The lower ends of the selvage harnesses 60 and 61 (Figure 1) are connected, as by hook members 64, to the upper ends of front and rear reaches 65*a* and 65*b* of a bottom selvage harness strap 65 (Figures 1, 2 and 4).

The bottom selvage harness strap 65 passes beneath a lower selvage roll 67 rotatably mounted on a stub shaft 70 and prevented from having endwise movement thereon by suitable collars 71 and 72 adjustably secured on the stub shaft 70 as by set screws 73. The stub shaft 70 is adjustably mounted in a block 75 as by a set screw 76. This block 75 may be an integral part of a lower selvage roll bracket 77 which extends downwardly and inwardly, at an angle, and is secured, by any suitable means such as a bolt 80, to the vertical wall of the forwardly and rearwardly extending intermediate girt 16 (Figures 1 and 2).

It will be observed in Figure 1 that the substantially C-shaped upper selvage roll bearing bracket 51 is secured to the arch 26 of the loom by any suitable means such as a set screw 26*a*.

Driving means for improved selvage motion

The upper selvage roll bearing bracket 51 (Figures 1 and 5) has a downwardly projecting ear 90 integral therewith on which a forwardly and rearwardly extending control lever 91 is oscillatably mounted as at 92. The control lever 91 has longitudinally extending adjustment slots 93 and 94 at opposed ends thereof and a harness actuating stud 96 is adjustably mounted in the front adjustment slot 93 of the control lever 91. This harness actuating stud 96 extends laterally between the front and rear reaches 57*a* and 57*b*, respectively, of the upper harness strap 57 and the front reach 57*a* is secured as by a screw 97 to the harness actuating stud 96.

The rear adjustment slot 94 in the control arm 91 is slidably penetrated by a bolt 100 (Figure 6) having a sleeve 101 mounted thereon and on which a cuff member 103 is oscillatably mounted. This cuff member 103 has the threaded upper end of a connecting rod 104 adjustably imbedded therein and being secured in adjusted position by a suitable lock nut 105.

The connecting rod 104 extends downwardly, in Figures 1 and 2, from the cuff member 103 and its lower end slidably penetrates the split upper end of a conventional type of selvage cam follower guide 106 and in which the lower end of the connecting rod 104 is clampingly secured as by set screws 107 (Figures 1, 2 and 3). The lower end of the selvage cam follower guide 106 is forked as at 110 and straddles the pick cam

shaft 46. The outer vertical surface of the selvage cam follower guide 106 has rotatably mounted thereon, as at 111, a cam follower 112 which, due to its peculiar shape, is caused to alternately traverse grooves 113 and 114 in a selvage face cam 115 (Figure 3). The selvage face cam 115 is fixedly mounted on the cam shaft 46 and is thereby caused to rotate with the same. In order to hold the selvage cam follower guide 106 in sliding engagement with the inner vertical face of the selvage face cam 115, a suitable split collar 120 is clampingly secured on the shaft 46, as by screws 121 (Figure 2) and also slidably engages the inner surface of the selvage cam follower guide 106.

The purpose of the two grooves 113 and 114 (Figure 3) in the face cam 115 is to provide means whereby the selvage harnesses 60 and 61 are caused to reverse their positions for changing the shed of the selvage warp yarns 30, upon alternate revolutions of the pick cam shaft 40, causing two picks to pass between the warp yarns 30 at the selvage of the cloth upon each change in the shed of the warp yarns caused by the movement of the selvage harnesses 60 and 61. In other words, while the cam follower 112 is traversing the outer cam groove 113, the front harness 60 will be lowered and the rear harness 61 will be raised by virtue of the connecting rod 104 at the upper end of the selvage cam follower guide 106 and the oscillatable control lever 91. Now, upon completion of a revolution, the cam follower 112 is then led into the smaller of the cam grooves 114 to thus raise the front selvage harness 60 while lowering the rear selvage harness 61 (Figure 1) and in which position the harnesses 60 and 61 will remain until the completion of another revolution after which the cam follower 112 then leads into cam groove 113 to repeat the operation as heretofore stated. It is thus seen that the selvage harnesses 60 and 61 will move in opposite directions far enough to change the shed of the warp yarns 30 carried thereby only upon alternate strokes of the selvage cam follower guide 106 and, incidentally, upon alternate beat-up strokes of the lay 36.

It is thus seen that I have provided an improved selvage motion for looms and have also provided an improved driving means therefor which is simple and economical in its construction and may be easily assembled and applied to the loom with a minimum of set-up time.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a descriptive and generic sense only and not for purposes of limitation, the scope of the invention being defined in the claim.

I claim:

An improvement in a selvage attachment for a loom having a cam shaft, side frame members and front and rear girts spanning the side frame members and also having intermediate girts extending forwardly and rearwardly between the front and rear girts and having a lay and also having means for directing warp yarns to the lay and said loom also having an arch thereon, said loom also having an improved selvage attachment for forming a variable shed at each selvage comprising at least one first selvage harness and at least one second selvage harness, said loom also having an upper selvage roll bracket carried by the arch of the loom and a lower selvage roll bracket supported by the intermediate girts of the loom, and having upper and lower selvage rolls carried by the upper and lower selvage roll brackets, respectively, said attachment also having an upper and a lower harness strap adapted to pass above and beneath the upper and lower selvage rolls, respectively, so that opposed ends of said upper and lower harness straps extend toward one another and means connecting the upper and lower ends of the first harness to the proximate ends of the upper and the lower harness straps extending from one side of the upper and lower selvage rolls, respectively, said attachment also having means connecting the second selvage harness with the proximate ends of the upper and lower harness straps extending from the other side of the selvage rolls, said attachment also having a forwardly and rearwardly extending control lever oscillatably mounted on said upper selvage roll bracket and having one of its ends extending adjacent the downwardly extending portions of the upper harness strap, said attachment also having means connecting one of the downwardly extending portions of the upper harness strap to said control lever, said improvement comprising a connecting rod connected to the other end of the control lever, a forked follower guide connected to the lower end of the connecting rod and having its lower end fitting on opposed sides of the cam shaft, a selvage face cam fixed on the cam shaft and having inner and outer grooves in one side thereof and merging with each other at one point, a crescent-shaped member pivoted on the follower guide and having movement alternately in said grooves to move the selvage harnesses a greater amount upon alternate revolutions of the cam shaft than on the other revolutions.

PRICE W. MORRISON.

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