# United States Patent

**Steiner et al.**

[15] **3,675,686**

[45] **July 11, 1972**


## [54] APPARATUS FOR MOUNTING A HARNESS IN A WEAVING MACHINE


[72] Inventors: **Josef Steiner**, Winterthur; **Adolf Widmer**, Rickenbach-Sulz, both of Switzerland

[73] Assignee: **Sulzer Brothers Ltd.**, Winterthur, Switzerland



[22] Filed: **May 20, 1970**

[21] Appl. No.: **39,125**

[30] **Foreign Application Priority Data**

May 22, 1969 Switzerland ..... 7796/69

[52] **U.S. Cl.** ..... **139/1**, 28/42

[51] **Int. Cl.** ..... **D03j 1/14**, D02h 13/38

[58] **Field of Search** ..... 139/1, 82, 188, 357, 369; 28/42



[56] **References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 2,994,939 | 8/1961 | Matthews | 28/42 |
| 1,150,595 | 8/1915 | Hathaway et al. | 28/42 |
| 2,533,128 | 12/1950 | Mallard et al. | 139/1 |
| 1,994,296 | 3/1935 | Williamson | 28/42 |
| 1,339,507 | 5/1920 | Hathaway et al. | 28/42 |

FOREIGN PATENTS OR APPLICATIONS

| | | | |
|---|---|---|---|
| 1,022,823 | 12/1952 | France | 28/42 |



*Primary Examiner*—James Kee Chi

*Attorney*—Kenyon & Kenyon Reilly Carr & Chapin



[57] **ABSTRACT**

The beams are pivotally mounted on the uprights which are secured to the weaving machine so as to lift and transport the harness containing the stop motion droppers, heald shafts and reed via the lifting gear means from the conveying device to a position within the weaving machine. The components of the harness are then put in place in the machine in the respective operative positions.


**6 Claims, 8 Drawing Figures**

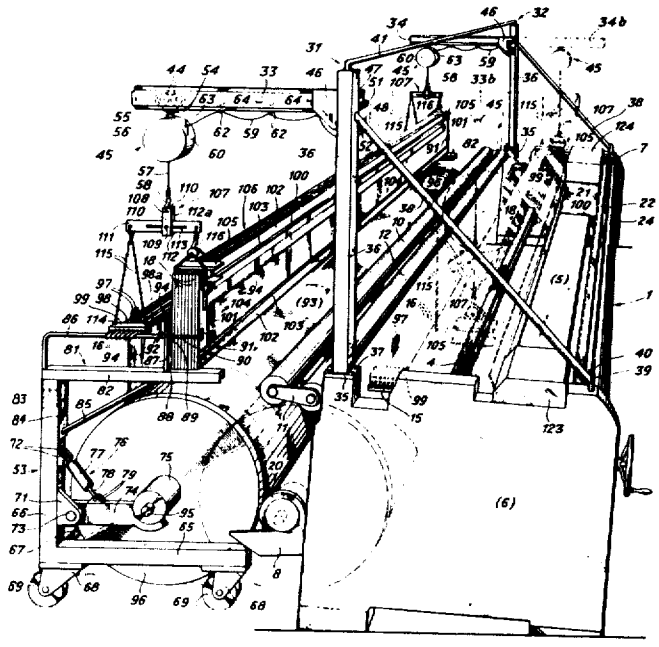
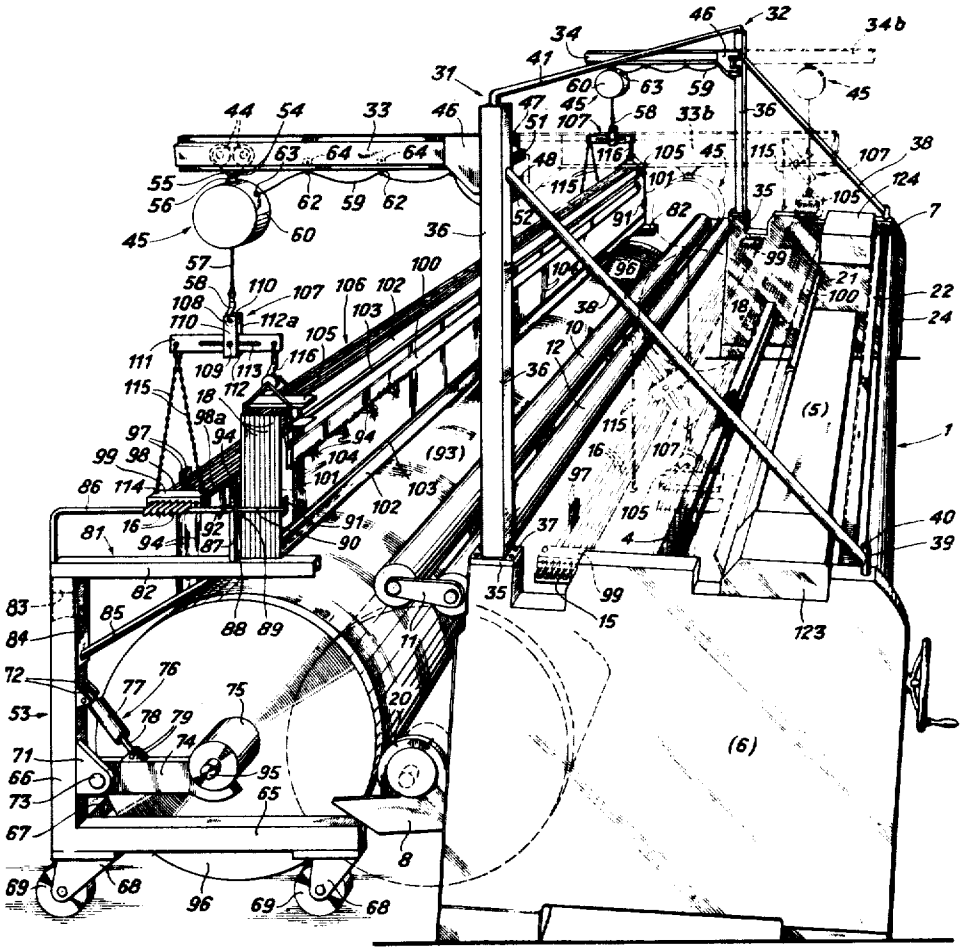


Fig. 1



Inventors:
JOSEF STEINER
ADOLF WIDMER

BY
Kenyon & Kenyon Reilly Carr & Chapin
ATTORNEYS

Fig. 4

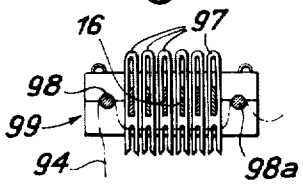



Fig. 5

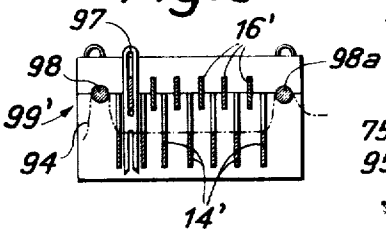



Fig. 3

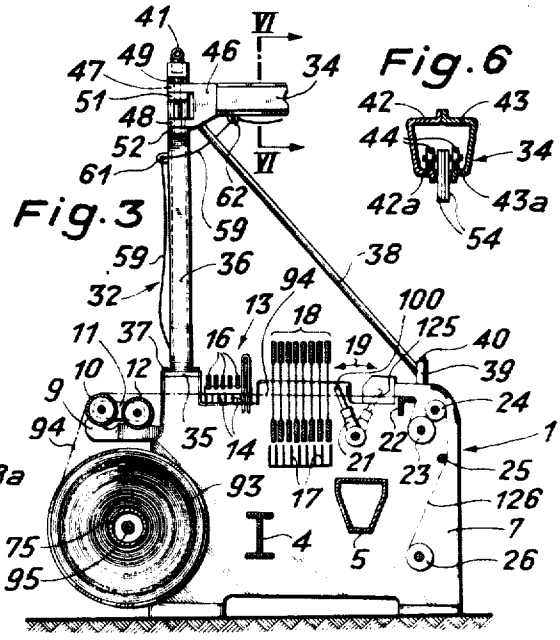
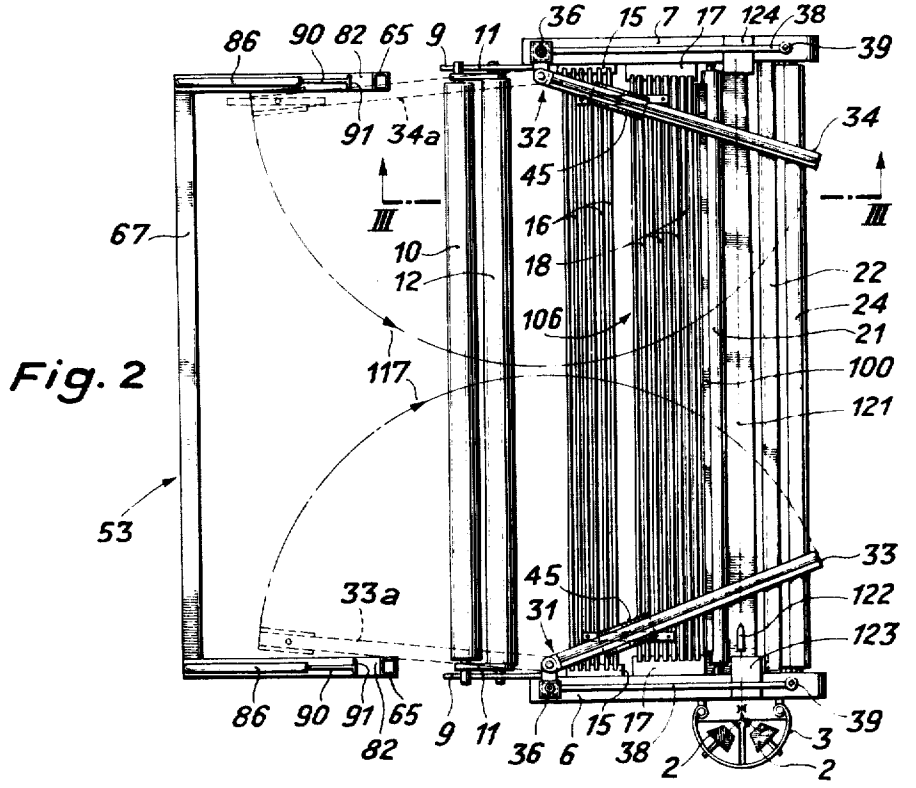



Fig. 6




Fig. 2




Inventors:
JOSEF STEINER
ADOLF WIDMER

BY
Kenyon & Kenyon Reilly Carr & Chapin
ATTORNEYS

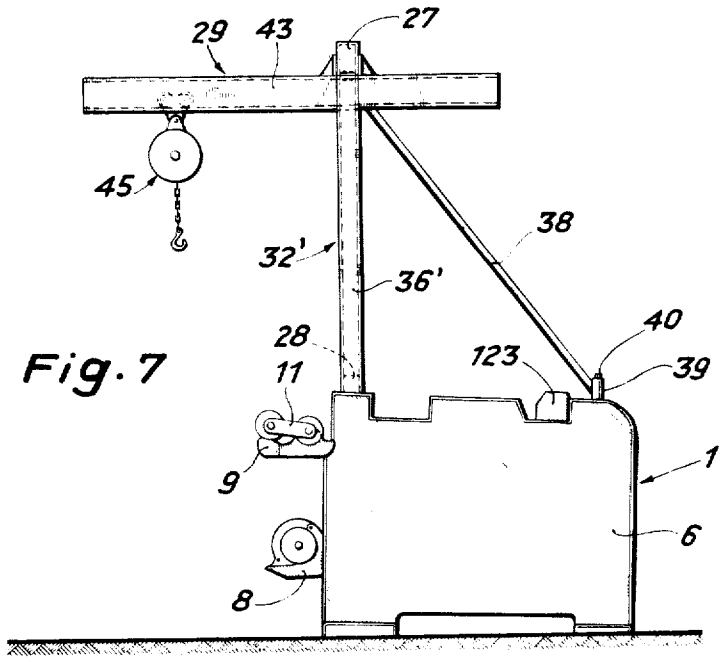



Fig. 7

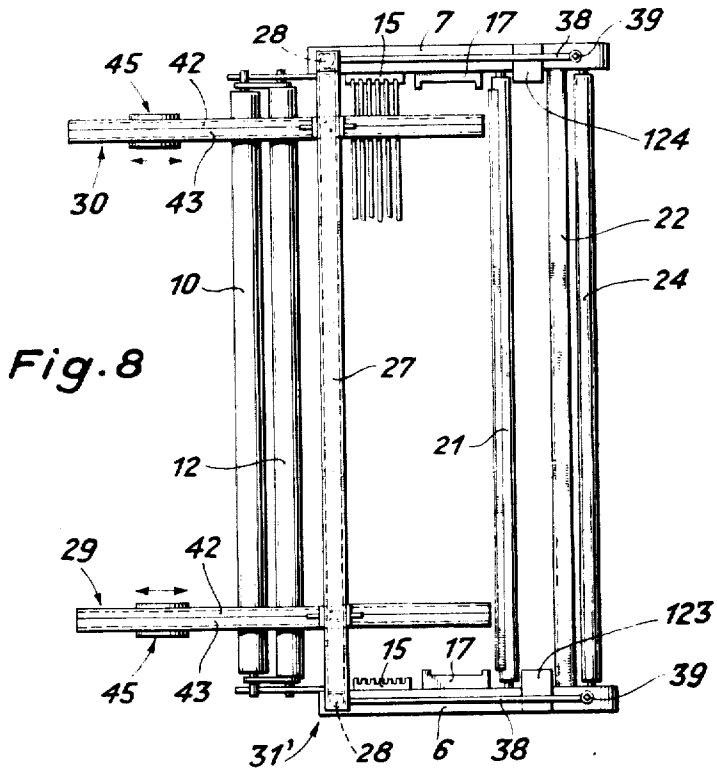



Fig. 8

Inventors:
JOSEF STEINER
ADOLF WIDMER

BY
Kenyon & Kenyon Kelly Carr & Chapin
ATTORNEYS

# APPARATUS FOR MOUNTING A HARNESS IN A WEAVING MACHINE

This invention relates to an apparatus for mounting a harness in a weaving machine. More particularly, this invention relates to an apparatus for mounting a harness containing a reed, heald shafts and contact and/or guide rails for stop motion droppers in a weaving machine.

When a weaving operation is instituted or when a warp beam has run out and is to be replaced, a harness containing various components, such as a reed, heald shafts, and the like, has generally been brought to the weaving machine on a conveying device together with a freshly wound warp beam. The harness which is held in a common mounting and contains the draw-in ends of the warps wound on the new warp beam has then been lifted manually from the conveying device, which remains outside the machine, and placed in the corresponding guides and retaining means in the weaving machine.

Since the various components and assemblies of the harness are put in the machine one after the other, it has been necessary, for example during insertion of the contact rails, to keep the heald shafts and reed in a position outside, that is, above, their associated guiding elements. However, as weaving-machine widths and the number of heald shafts used increase, the components which must be moved and accurately inserted become so large and unwieldy that insertion of the harness involves a relatively large amount of work.

Accordingly, it is an object of the invention to insert a harness of any size in a weaving machine.

It is another object of the invention to provide an apparatus which can be produced with little structural outlay and even used in installations with existing weaving machines for mounting a harness therein.

Briefly, the invention provides an apparatus which is mounted on a weaving machine to move a harness from a position adjacent the machine to a position within the machine so that the machine components mounted in the harness can be mounted in position in the machine. The apparatus includes an upwardly projecting supporting structure which is mounted on the upright supports of the weaving machine, a pair of beams, each of which is mounted on the supporting structure above the weaving frame to project over either the part of the machine to receive a harness or a station provided for the harness outside the ground plan of the machine, and lifting means on each beam which are guided along the beams to lift and lower the harness.

The apparatus functions so that a harness can be lifted from a conveying device to a desired height above the conveying device, pushed horizontally across the weaving machine by an operator, and lowered to position the various assemblies into the respective guides on the machine for operation.

In one embodiment of the invention with a particularly simple construction, the two beams are in the form of booms which can be pivoted at one end and are so attached to the associated supporting structures as to be horizontally pivotable. Each of these beams also has its own lifting means. The beams forming the booms can be relatively short, and can be swivelled into a first position above the station for the harness outside the machine and into a second position above the appropriate portion of the machine. The two beams are situated at approximately the same height and the length of each is less than half the width of the weaving machine.

In another particularly stable embodiment of the invention, the two beams are mounted approximately parallel to one another on a crossbeam connecting the free ends of the supporting structures while the lifting means are guided in planes parallel to the beams.

A relatively compact and highly stable apparatus can be obtained, according to a further feature of the invention, if the two supporting structures are fixed to the uprights of the weaving machine. Further, since the apparatus is to be connected to a relatively heavy and necessarily stable base of a weaving machine, the apparatus can be particularly light in construction, so that the operators can easily place the apparatus on one weaving machine and, if necessary, remove it after insertion of the harness for use on another machine.



These and other objects and advantages of the invention will become more apparent from the following detailed description and appended claims taken in conjunction with the accompanying drawings in which:

FIG. 1 illustrates a perspective view of a weaving machine with apparatus embodying the invention;

FIG. 2 illustrates a plan view of the apparatus of FIG. 1;

FIG. 3 illustrates a view taken on line III—III of FIG. 2;

FIG. 4 illustrates a detail from FIG. 1 on a larger scale;

FIG. 5 illustrates a modified construction of a corresponding detail of a warp stop motion carried by the harness;

FIG. 6 illustrates a view taken on line VI—VI of FIG. 3;

FIG. 7 illustrates the weaving machine of FIG. 1 with a modified apparatus embodying the invention; and

FIG. 8 illustrates a plan view of the apparatus of FIG. 7.

Referring to FIGS. 1 and 2, the weaving machine 1 is a gripper shuttle weaving machine in which weft bobbins (cross-wound bobbins) remain outside the shed during weaving and are mounted on a bobbin carrier 3 (FIG. 2) attached to the weaving-machine base. The drawings show only those components which are most important in a description of the operation of the machine 1.

The machine base has two upright (lateral supports) 6, 7, which are connected by crossbeams 4, 5 and each of which carries, at the warp end of the machine, a warp beam bearing 8 and a mounting 9 for a tension beam 10. A hinged retaining strap 20 is pivoted on the warp beam bearing 8 in order to retain a warp beam shaft therein. Each of the two ends of the tension beam 10 is rotatably mounted on a swing lever 11 which is fixed to a supporting beam 12 secured in the mounting 9.

Referring to FIG. 3, guide rails 14 for a warp stop motion 13 are fixedly mounted on comb-like brackets 15 on the uprights 6, 7 to lie across the uprights 6, 7. The brackets 15 are also provided with guides for contact rails 16 for the warp stop motion 13, these contact rails being inserted in the brackets and displaceable horizontally along them. The contact rails 16 and guide rails 14 are also supported on brackets (not shown) placed at intervals across the width of the machine.

The uprights 6, 7 also contain vertical guides 17 for heald shafts 18, which can be displaced up and down therein, and bearings for a sley 21 (pivotable as indicated by arrows 19), a rotatable rough-surfaced cloth draw-off roller (sand beam) 23 and a cloth beam 26. A breast beam 22 also connects the uprights 6, 7, while a reversing roller 24 which bears on the cloth draw-off roller 23, and a cloth guide bar 25 are also disposed across the uprights 6, 7.

The weaving machine is set aslant, with the machine base raised at the warp end, so that large-diameter warp beams can be used.

Referring to FIG. 1, an apparatus for mounting a harness in the machine 1 includes a pair of supporting structures 31, 32 mounted on the machine base and a horizontally pivotable boom 33, 34 pivoted on each of the mutually facing sides of the supporting structures, at the same level above the machine 1. Each supporting structure 31, 32 has a column 36 in the form of a box girder, standing on a baseplate 35 and releasably fixed to the associated uprights 6, 7 by means of screws or bolts 37 at the warp end of the machine.

Since the machine base slopes, the columns 36 are set at a corresponding angle, other than 90°, on the baseplate 35 which is to be connected to the loom base in order to be vertical. Each of the two columns 36 is connected to a sloping tubular stay 38, the free end of which carries a guide sleeve 39 for a screw or bolt 40, by means of which the stay 38 is releasably fixed to the cloth end of the associated upright 6, 7.

The two supporting structures 31, 32 are interconnected by a tubular crossbeam 41, whose ends are bent at right-angles and inserted in the free ends of the columns 36, whose hollow sections form guides.

Each boom 33, 34 has a downwardly open box-like cross section formed of two approximately channel-like sections 42, 43 (FIG. 6). The two sections 42, 43 are arranged with outstanding flanges facing one another, with the flanges at the top

being welded together. The two lower flanges 42*a*, 43*a* are narrower than the upper flanges and are spaced from one another, so as to define an open slot extending along the boom 33, 34. These lower flanges 42*a*, 43*a* form a track for two pairs of wheels 44, which are connected to a lifting means such as a lifting gear 45.

Each of the booms 33, 34 also has a fork-like pivot element 46 with two connecting lugs 47, 40 placed one above the other which are joined by a continuous vertical pivot 49 to two corresponding lugs 51, 52 fixed to the column 36. The length of each boom 33, 34 is somewhat less than half the distance between the two uprights 6, 7, so as to be swivelled horizontally without touching one another, over part of the weaving machine 1 and over a station provided for a conveying device 53 outside the ground plan of the machine at the warp end of the machine.

The two pairs of wheels 44 are mounted on two lugs 54 which project from the slot between the lower flanges 42*a*, 43*a* and are connected by a pin 55 beneath the boom 33, 34 to a lug 56 fixed to the lifting gear 45. This lifting gear 45 is a commercial electric hoist for moving loads vertically and includes a hoist casing 60 (FIG. 1) which contains, in conventional fashion, an electric-motor-operated cable drum to which a wire lifting cable 57 is fixed. A load hook 58 is attached to the end of the cable 57 in order to secure a load to the cable 57.

Cables 59 connect the driving motor of the lifting gear 45 to a current source by way of a common switch (not shown). These cables 59 are suspended in eyes 61 (FIG. 3) fixed to the columns 36 and in eyes 62 slidably mounted in the boom 33, 34, and run through respective connection fittings 63 into the casing 60. The eyes 62 are on rollers 64, which are displaceable along the flanges 42*a*, 43*a* of the two beams 33, 34.

The conveying device 53 contains two mutually parallel half-frames (of which only one is visible in FIG. 1), each composed of a horizontal beam 65 and a vertical beam 66. The two half-frames are connected by a crossbeam 67 to an undercarriage whose external dimensions parallel to the beam 67 are smaller than the distance between the uprights 6, 7 of the machine 1. Each of the beams 65 carries two runner holders 68 which are rotatable about vertical axes and which rotatably support runners 69 therein. Each of the beams 65, 66, 67 has a rectangular hollow section.

Each of the vertical beams 66 has a single lug 71 which serves to pivotably mount a lever 74 on a pivot 73 therein. The free end of the lever 74 has a recess to take one end of a warp beam tube 75. In addition, a pair of lugs 72 is mounted above the single lug 71 and serves to pivotably mount one end of a cylinder 77 of a hydraulic jack 76 while a piston 78 of the jack 76 which is movable in the cylinder 77 is pivoted at two lugs 79 on the lever 74. The jack 76 serves to move the lever 74.

Detachable brackets 81 are attached to each of the beams 66 to extend over the beams 65. Each bracket 81 has a channel-section beam 82 which is placed on the free end of the beam 66 and has a pin 83, which can be inserted in the hollow section of the beam 66, and a downwardly extending plates 84 which comes to bear on the outside of the beam 66 when the beam 82 is mounted thereon. In addition, a tubular stay 85 is connected to the section beam 82 and fixed to the plates 84. In addition, a right-angled tube 86 is fixed by one arm to the end of the section beam 82 fixed to the beam 66. The free end of the other arm of the tube 86 is supported on a tubular element 87 which is fixed to the beam 82 and has two lateral stops 88, 89 one above the other. The tube 86 and tubular element 87 form an erect yoke extending over approximately two-thirds the length of the section beam 82. The end portions of the tube 86 guides a tube 90, which is displaceable longitudinally relative to the tube 86 and which projects towards the free end of the section beam 82 and carries a lateral stop 91 at the end. A fixing screw 92 is provided on the tube 86 in order to fix the tube 90 therein.

On a site away from the machine 1 a warp beam 92 is wound with warp yarns 94 and inserted in the conveying device 53. The warp beam 93 consists substantially of the warp beam tube 75, resting on an axle 95, and two warp beam flanges 96 which are displaceably fixed to the tube 76 to define the roll of yarn. The full beam 93 is laid in the recesses in the levers 74 by means of the ends of the warp beam tube 75. By operating the hydraulic jack 76, the levers 74 are brought into a position corresponding to that shown in FIG. 1, in which the warp beam 93 is at a predetermined height above the floor.

In addition, a harness 106 is mounted on the conveying device 53. The harness serves to position, e.g. six contact rails 16 with warp stop motion droppers 97 on the tubular yokes 86. The ends of these rails 16 are inserted in two comb-like, two-part conveying brackets 99, which also carry the ends of two parallel guide rods 98, 98*a* between which the rails 16 are mounted. The stop motion droppers 97 are flat, elongated strips of sheet metal, with an eye-like opening to go on the contact rails 16 and with a forked end to go on one of the warp yarns 94. One dropper 97 is provided for each warp yarn 94. For purposes of clarity, FIG. 1 shows only a few of the droppers 97 resting on one of the contact rails 16.

A group of e.g. eight adjacent heald shafts 18 are also positioned to stand on the two beams 82. When the tubes 90 are suitably set, the stops 91 hold these shafts against the stops 88, 89. Each heald shaft 18 has two longitudinal bars 102, connected by end stays 101, and shaft staves 103 bearing a row of healds 104 for the warps. The heald shafts 18 also have two conveying brackets 105 which are releasably attached to the upper longitudinal bars 102 and which hold the bars 102 together. The contact rails 16 (with the stop motion droppers 97) the heald shafts 18 and a reed 100 temporarily attached to the front heald shaft 18 form the harness 106 which is to be inserted in the weaving machine 1 as a single unit. Depending on the material and pattern of the cloth produced, the harness may contain some other number of contact rails or heald shafts.

The warp yarns 94 are passed from the warp beam 93 over the guide rod 98 and each is drawn through one of the stop motion droppers 97 beneath the contact rails 16 (FIG. 4) and passed over the guide rod 98*a* to the heald shafts 18, and each is drawn through an eye on one of the warp healds 104 and then through the reed 100. The ends of the warps 94 projecting from the reed 100 are knotted together in groups.

When weaving begins, or in order to replace an empty warp beam, the conveying device 53, loaded with the full warp beam 93 and harness 106, is brought to a station behind the machine, that is, at the warp end. The booms 33, 34 are swivelled over the station, into the positions which are shown by solid lines in FIG. 1 and which correspond to the positions 33*a*, 34*a* shown by broken lines in FIG. 2. The sets of lifting gears 45 are then pushed by hand until they are above the conveying brackets 99, 105.

In order to lift the harness 106, a T-shaped holding device 107 is suspended from the hook 58 of each lifting gear 45. Each holding device 107 has two side bars 110 connected by a suspension pin 108 and a screw 109, as well as a yoke 111 which is displaceable between the side bars 110. The yoke 111 is guided between two stops 112, 112*a* connected to the side bars 110 and contains a slot 113, which extends along the yoke and contains closely spaced recesses for receiving the screw 109 (FIG. 1). In addition, two chains 115 with hooks 114 are fixed to one end of the yoke 111 while a single hook 116 is attached to the opposite end. The hooks 114, 116 are joined to corresponding elements attached to the conveying brackets 99 or 105 respectively. In order to keep the contact rails 16 and heald shafts 18 balanced, the yoke 111 (with the screw 109 removed) is shifted inside the side bars 110 according to the weight difference between the two assemblies, the screw 109 being replaced to hold the yoke 111 in the appropriate position.

The motors for the two sets of lifting gears 45 are switched on simultaneously by means of a control signal, and the harness 106 is lifted high enough from the conveying device 53 for the undersides of the heald shafts 18 to be higher than the

tension beam 10 or other corresponding components of the machine in this area. The harness 106 suspended from the two sets of lifting ear 45 is then pushed manually between the columns 36 and over the machine 1. The sets of lifting gears 45 move accordingly along the booms 33, 34 on their wheels 44.

The distance between the two sets of lifting gears 45 is determined by the position of the holding devices 107 connected to the harness 106. It is therefore the same in every position of the harness 106. The booms 33, 34 position themselves accordingly, each swivelling as indicated by arrows 117 (FIG. 2) until they take up the positions shown by solid lines in FIG. 2, which correspond to the positions 33*b*, 34*b* shown by broken lines in FIG. 1. The sets of lifting gears 45 therefore perform mutually parallel movements, each formed of two components: the swivelling of the boom 33, 34 and the movement of the lifting gear 45 along the boom. When the harness 106 is swung in across the machine, a corresponding length of warp is let off the warp beam 93 rotatably mounted in the levers 74, and the warps 94 pass over the tension beam 10.

The harness 106 suspended over the weaving machine 1 is now lowered, the contact rails 16 being first inserted in the brackets 15 and so brought into their operative position (broken lines in FIG. 1) so that the lower ends of the stop motion droppers 97 come between the guide rails 14. The chains 115 are then removed from the conveying brackets 99 (so that the devices 107, being loaded only at one end by the shafts 18, move askew), and the shafts 18 are brought into their guides 17 and so into their operative position (broken lines in FIG. 1) and connected to a driving device (not shown).

The reed 100 is then taken off the front shaft 18 and fixed to the sley 21. The guide rods 98, 98*a* and conveying brackets 99, 105 are then removed from the contact rails 16 and shafts 18, and the booms 33, 34 with the now unloaded lifting gear 45 and holding devices 107, are swivelled away from the machine.

When the harness 106 is to be removed from the weaving machine 1, components 13, 18 and 100 are fixed to the brackets 99, 105 on the lifting gears 45 and are swivelled in corresponding fashion away from the machine 1 and over the station outside the machine and removed therefrom.

In order to insert the warp beam 93 in the warp beam bearings 8, the retaining straps 20 on the bearings are opened, and the brackets 81 are taken off the beams 66. The conveying device 53 is then moved between the uprights 6, 7 of the weaving machine 1, and, by operating the hydraulic jack 76, the warp beam 93 is placed in the open bearing 8 by means of the ends of the tube 75, and is connected to a driving or warp let-off device (not shown). The straps 20 are swung back over the warp beam tube 75 into the position shown in FIG. 1, and are fixed to the warp beam bearings 8. The conveying device 53 is then moved away from the machine 1.

In order to commence weaving, the warp yarns 94 are gripped at the ends projecting from the reed 100, drawn over the breast beam 22 (FIG. 2), wrapped partly round the cloth draw-off roller 23 and reversing roller 24, passed over the guide bar 23 to the cloth beam 26, and fixed to the cloth beam 26. Alternatively, the projecting ends of the warps may be tied to corresponding warps in a cloth already wound on to the cloth beam 26. This may be either a length of cloth put on especially for this purpose or the end of a cloth web produced from a warp beam already emptied and removed from the machine 1. The correct warp tension is produced by suitably adjusting the warp beam 93 and tension beam 10, and weaving can then begin or resume.

Near the warp stop motion 13 the tensioned warps 94 bear on the guide rails 14. These also serve as lateral guides for the forked ends of the stop motion droppers 97, which are threaded loosely on the contact rails 16 and sit on the warps 94. Each contact rail 16 contains two mechanically connected and electrically insulated, bare rail portions connected to a switching device (not shown).

During weaving, a weft 121 is drawn off one of the supply bobbins 2 and picked by a gripper shuttle 122 into a shed formed by the heald shafts 18. The gripper shuttle 122 is shot from a picking motion 123 on the upright 6 to a catcher 124 on the upright 7, whereupon the weft 121 is severed at the picking end and the reed 100, pivotable as indicated by arrow 19, beats the weft up into the apex 125 of the shed, where the cloth 126 begins.

The stop motion droppers 97 sitting on the tensioned warp yarns 94 are lifted off the associated contact rail 16 by means of the cross-pieces which close their eyes at the top. The lateral arm of the eyes touch the lateral surfaces of the contact rail 16 barely or not at all. If one of the warps 94 breaks, the dropper 97 resting on it falls on to the contact rail 16, closing a circuit and so producing a signal to stop the weaving machine.

Alternatively, the guide rails 14' for the warp stop motion which can, instead of being fixed to the machine, be detachable like the contact rails 16.

Referring to FIG. 5, in order to insert and remove the warp stop motion in or from the machine as a single unit, conveying brackets 99' are provided in which both contact rails 16' and the guide rails 14' can be inserted. The conveying brackets 99' are suspended from the holding devices 107 as above and swivelled with the complete warp stop motion over the loom as already described, whereupon the guide rails 14' and contact rails 16' are placed in the appropriate holding device and the conveying brackets 99' are removed from the machine.

The supporting structures 31, 32 are easily attached to or removed from the machine. The columns 36 with the stays 38 are fixed to the machine base in a readily releasable fashion by means of the screws 37, 40. Similarly, the booms 33, 34 and crossbeam 41 can be fixed to the columns 36 or detached from them with a few manipulations.

Referring to FIGS. 7 and 8, wherein like references indicate like components as above, supporting structures 31', 32' are mounted on the uprights 6, 7, and each of these structures contains a column 36' and a stay 38. The columns 36' are connected at the ends by a crossbeam 27. Each column 36' is set, without any further connecting means, on a centering pin 28 fixed to the associated upright. In addition, two mutually parallel, horizontal beams 29, 30 are rigidly attached to the crossbeam 27. One end of each beam 29, 30 projects over the station adjacent the warp end of the machine 1 while the opposite end projects over that portion of the machine containing the guides 15, 17 for the harness.

The beams 29, 30 and booms 33, 34 are made from approximately channel-shaped sections 42, 43 and each has a lifting gear 45. As shown in FIG. 7, the beams 29, 30 are screwed onto the crossbeam 27. Alternatively, however, the beams may be attached to the crossbeam in such a way as to be displaceable, both parallel to each other and parallel to the crossbeam 27.

In order to insert a harness 106 as described above, the sets of lifting gear 45 are moved along the beams 29, 30 to a position above the station outside the loom, whereupon the harness 106 is suspended from the lifting gear 45 as already described, is raised by the lifting gears and, while the sets of lifting gears are shifted along the beams 20, 30, is pushed over the machine 1 and deposited in the guides 15, 17 on the machine 1.

Obviously, the apparatus embodying the invention can be used with any type of weaving machine. The apparatus may be such that the supporting structures are fixed to the sides of the machine uprights. Similarly, the apparatus may be an independent assembly not connected to the machine base. In another possible construction, the beams with tracks for the lifting gears may be formed from the horizontal beams of two frame constructions. One possible arrangement may use, for example, only one lifting gear, this gear being supported on a beam which in turn is displaceably mounted on two beams fixed to the supporting structures.

It is noted that if the two supporting structures are of sufficiently stable construction, there is no need to connect the

two columns with a crossbeam. Also, the booms may be set at different heights and, for example, each may project over the center line of the machine as seen from above so that their fields of traverse above the machine partly overlap, and the area which they cover outside the ground plan of the machine may be larger.

What is claimed is:

1. An apparatus for mounting a harness containing a reed, a plurality of heald shafts and guide rails for stop motion droppers in a weaving frame comprising

an upwardly projecting supporting structure for mounting on the weaving machine;

a pair of beams mounted in horizontal disposition on said supporting structure; and

lifting gear means movably mounted on each beam for lifting the harness from a station adjacent the weaving machine and lowering the harness into a position in the weaving machine.

2. An apparatus as set forth in claim 1 wherein each beam is in the form of a boom horizontally pivotally mounted at one end on said supporting structure.

3. An apparatus as set forth in claim 2 wherein said beams are disposed in the same horizontal plane and each is of a length less than half the width of the weaving machine.

4. An apparatus as set forth in claim 1 wherein said supporting structure includes a crossbeam for disposition across the weaving machine and said beams are mounted on said crossbeam in parallel to each other.

5. In combination with a weaving machine having a pair of uprights and a position therein for a reed, a plurality of heald shafts, and guide rails for stop motion droppers; a harness disposed adjacent said weaving machine containing a reed, a plurality of heald shafts and guide rails for stop motion droppers; and an apparatus for mounting said harness in said position in said weaving machine, said apparatus including an upwardly projecting supporting structure mounted on said weaving frame, a pair of beams mounted in horizontal disposition on said supporting structure, and lifting gear means movably mounted on each beam for lifting said harness from adjacent said weaving machine and moving said harness to said position in said weaving machine.

6. The combination as set forth in claim 5 wherein each beam includes a guide means for guiding one of said lifting gear means longitudinally thereof.

* * * * *