Oct. 16, 1951 T. J. WILLIS ET AL 2,571,509

APPARATUS FOR CONTROLLING TENSION IN WARP YARNS

Filed Aug. 15, 1950 5 Sheets-Sheet 1

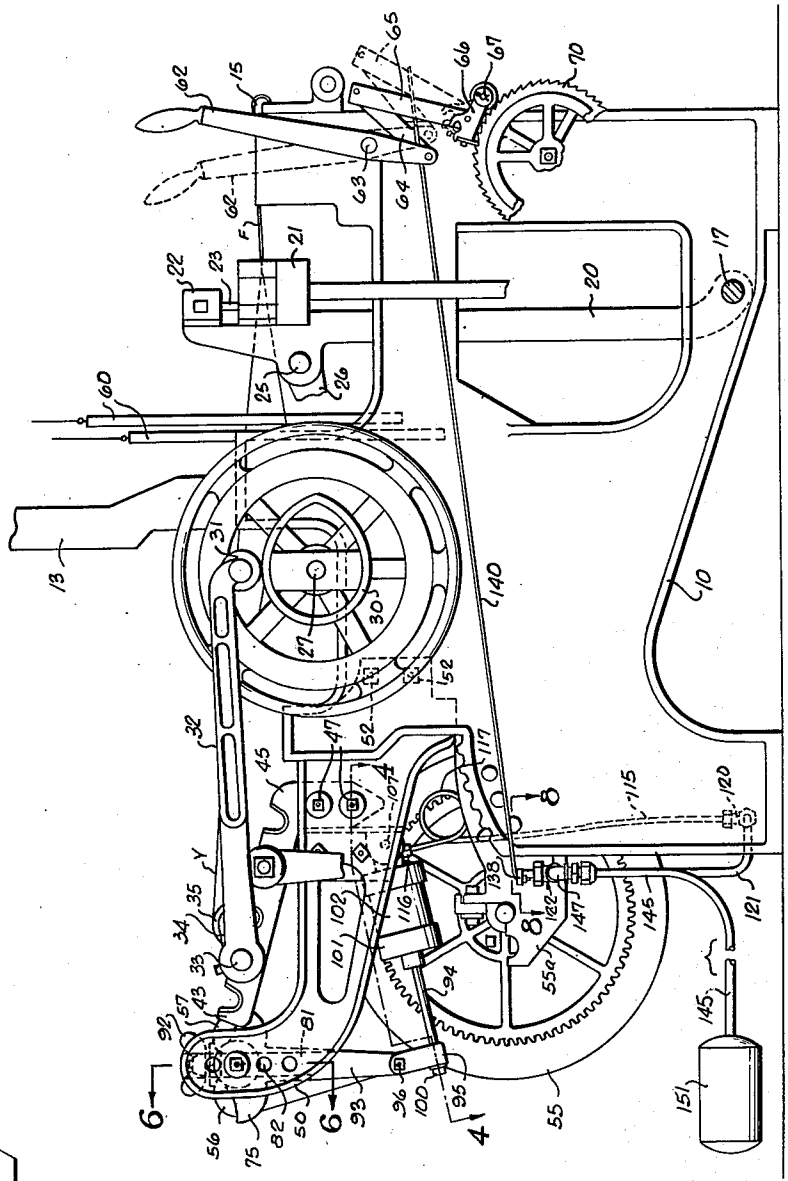

FIG. 1

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Filed Aug. 15, 1950 5 Sheets-Sheet 2

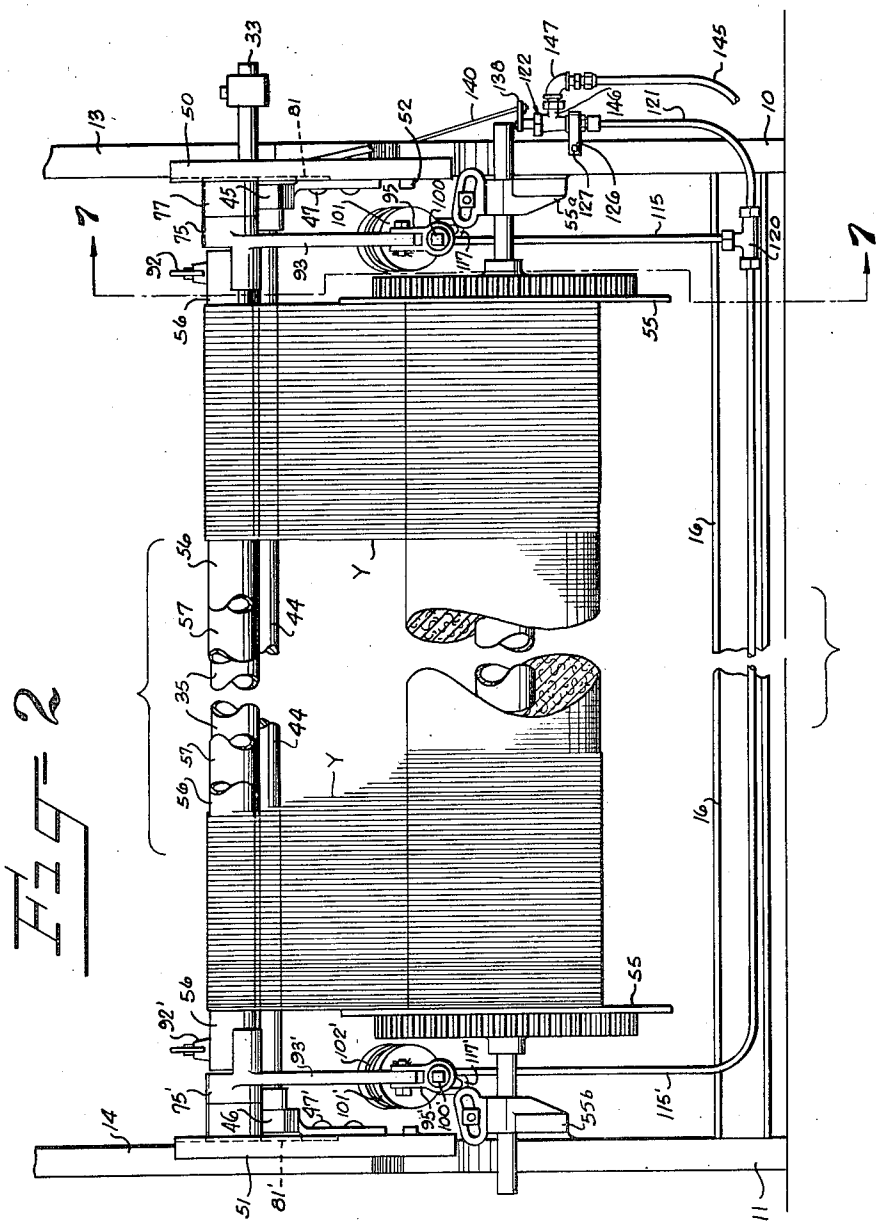

FIG. 2

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APPARATUS FOR CONTROLLING TENSION IN WARP YARNS

Filed Aug. 15, 1950 5 Sheets-Sheet 3

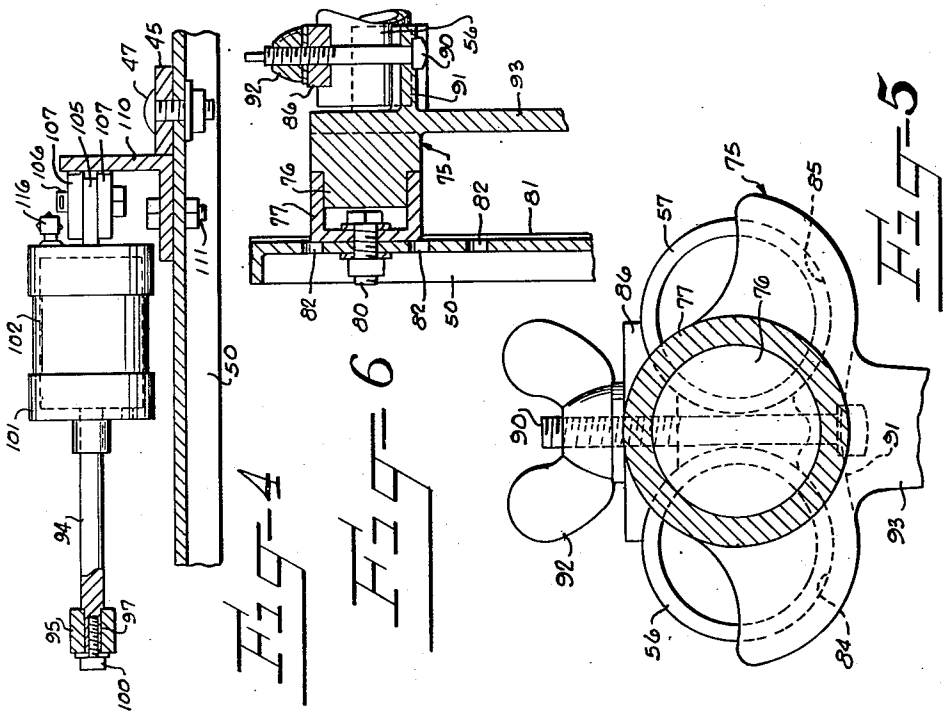

FIG. 4

FIG. 6

FIG. 5

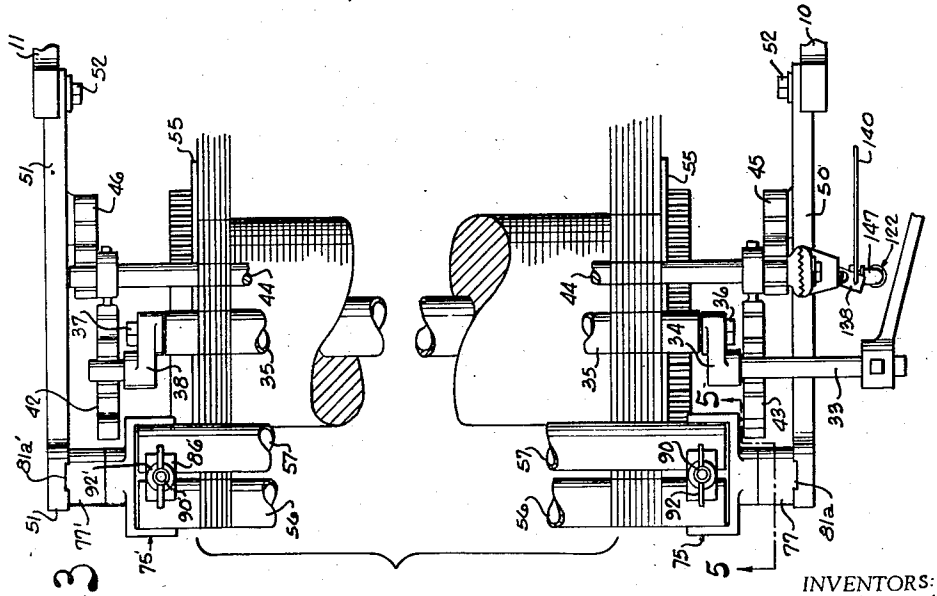

FIG. 3

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APPARATUS FOR CONTROLLING TENSION IN WARP YARNS

Filed Aug. 15, 1950 5 Sheets-Sheet 4

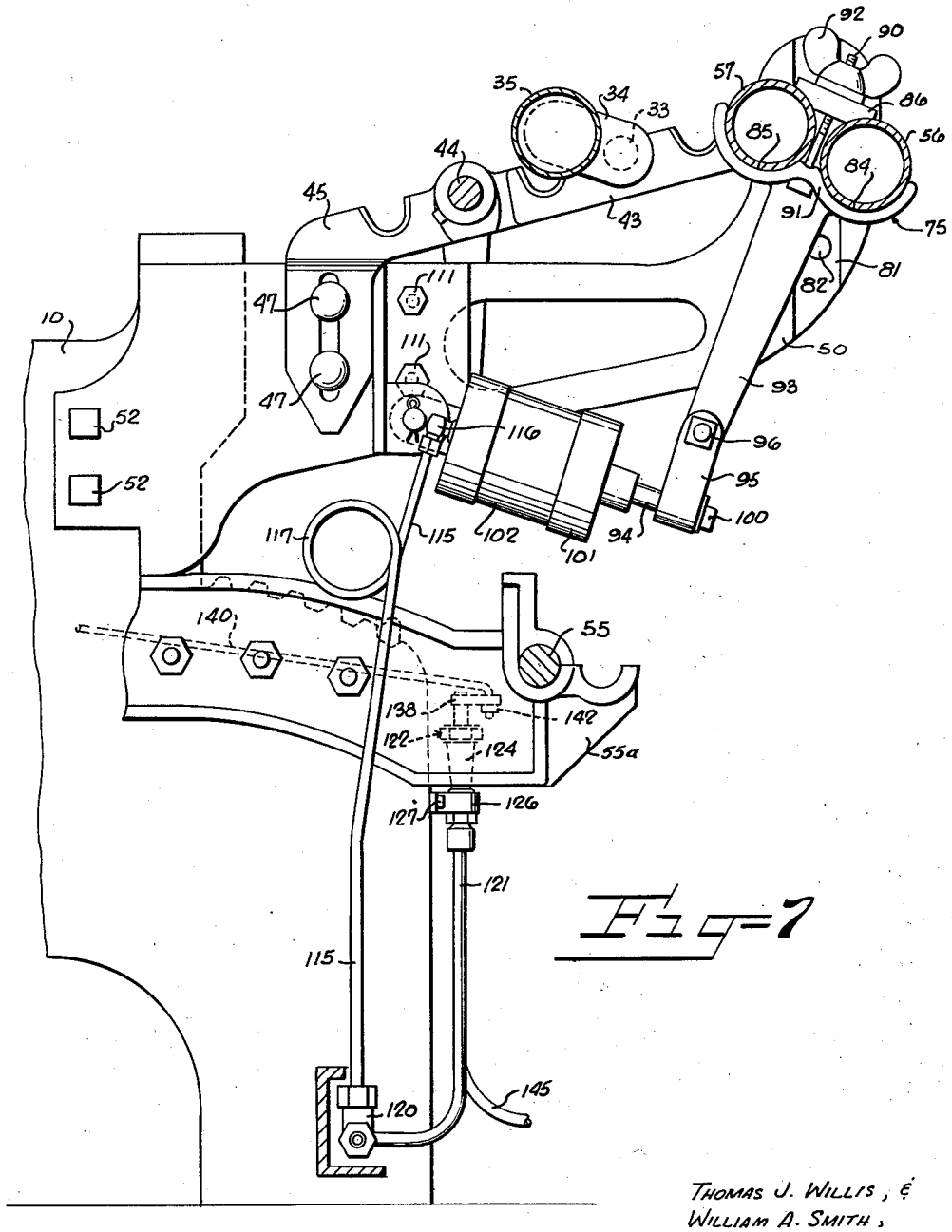

Fig-7

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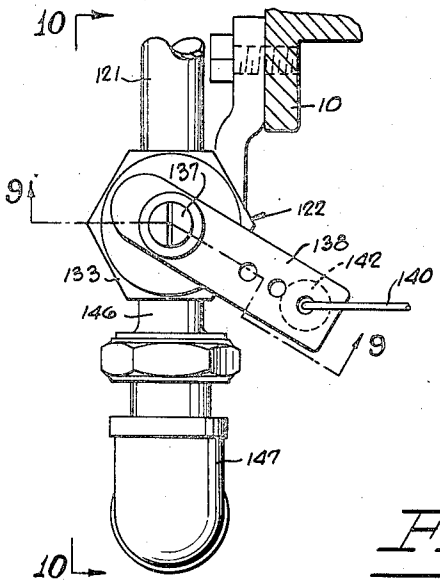
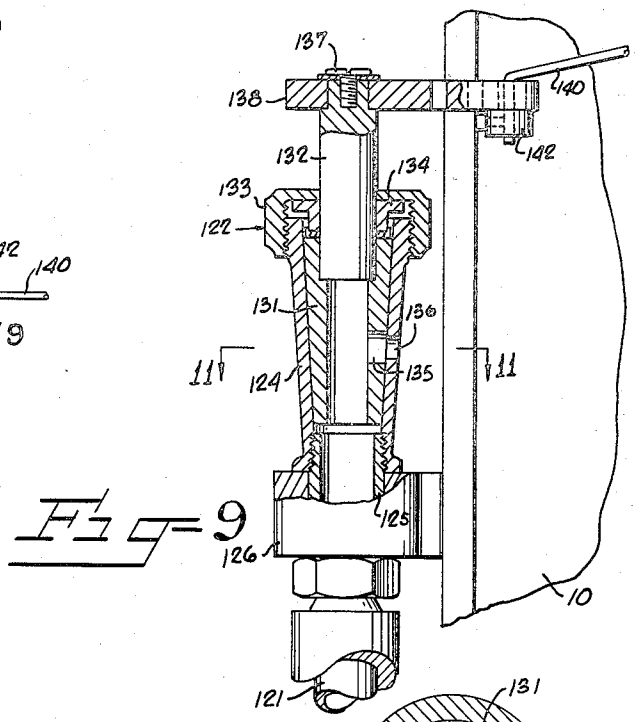
APPARATUS FOR CONTROLLING TENSION IN WARP YARNS

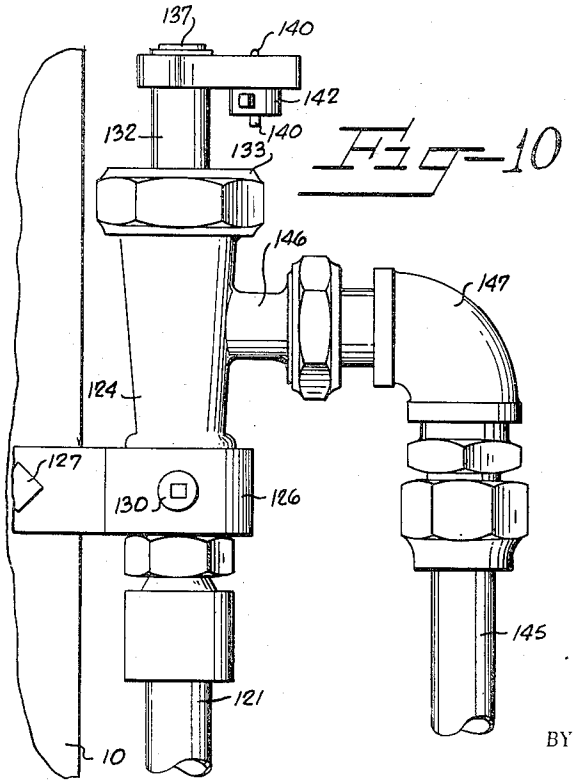
Filed Aug. 15, 1950 5 Sheets-Sheet 5



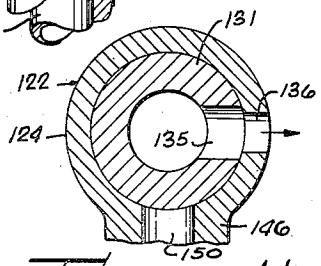
Fig—8



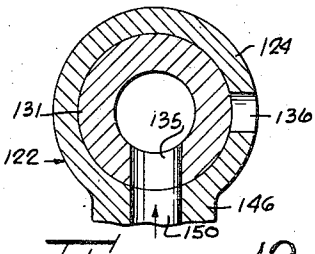
Fig—9



Fig—10



Fig—11



Fig—12

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Patented Oct. 16, 1951

2,571,509

UNITED STATES PATENT OFFICE

2,571,509

APPARATUS FOR CONTROLLING TENSION IN WARP YARNS

Thomas J. Willis and William A. Smith,
Greenwood, S. C.

Application August 15, 1950, Serial No. 179,544

6 Claims. (Cl. 139—115)

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This invention relates to textile machinery and more especially to an improved warp yarn tension apparatus controlled by the shipper handle upon movement thereof in starting and stopping the loom.

In weaving certain types of cloth where a plurality of harnesses are used and some of the harnesses are down and some are up when the loom stops, the harnesses in the up position are subject to considerably more tension than those harnesses in the down position because the harnesses in the up position are farther away from the center line of the warp line than those in the down position. The tension on the up harnesses tends to stretch the yarn on these harnesses to such an extent that when the loom is started this yarn which has been stretched weaves into the fabric loosely making what is commonly known as set-marks or ridges and a washboard effect is produced in the fabric upon starting the loom.

It is therefore, the primary object of this invention to provide an improved tension supplying means responsive to movement of the shipper handle of the loom for applying a normal tension to the warp yarns simultaneously with the loom being started and, simultaneously with the loom being stopped, means are provided for releasing said tension applying means so as to relax the warp yarns between their points of suspension during periods in which the loom is not operating.

It is another object of this invention to provide an improved means for releasing tension on warp yarns in a loom, upon stopping the loom, comprising a pair of closely spaced stationary shafts or bars disposed rearwardly of the usual whip roll of the loom, these shafts being mounted in common pivoted members or cradles which are pivotally supported on the loom, and to further provide means automatically operable upon movement of the shipper handle of the loom for imparting movement to the pivoted members and, thus, to the shafts carried thereby, the warp yarns being adapted to pass upwardly from the warp beam over the first of said shafts and beneath the second of said shafts and then over the whip roll whereby, upon movement of the pivoted members in one direction, the shafts will create tension on the warp yarns and, upon movement of the pivoted members in the opposite direction, the shafts will release the tension on the warp yarns.

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—

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Figure 1 is a side elevation of a loom with parts broken away and showing the invention applied thereto and showing some of the parts schematically and in operating position;

Figure 2 is a rear elevation looking at the left-hand side of Figure 1 with the central portion thereof broken away and many parts of the loom being omitted for purposes of clarity;

Figure 3 is a top plan view of the rear portion of the loom shown in Figure 1 with the central portion thereof broken away and with many other parts of the loom omitted for purposes of clarity;

Figure 4 is an enlarged sectional plan view showing the means for imparting movement to one of the pivoted members on which the closely spaced stationary shafts are mounted and is taken looking substantially along the line 4—4 in Figure 1;

Figure 5 is an enlarged vertical sectional view taken substantially along the line 5—5 in Figure 3;

Figure 6 is an enlarged vertical sectional view taken along the line 6—6 in Figure 1;

Figure 7 is an enlarged elevation, with parts in section, looking substantially along the line 7—7 in Figure 2;

Figure 8 is an enlarged top plan view of the control valve for controlling the flow of compressed air to the cylinders which control operation of the pivoted members and showing a portion of the loom side frame in cross-section and is taken looking substantially along the line 8—8 in Figure 1, but showing the valve in a different position;

Figure 9 is a vertical sectional view through the valve taken substantially along the line 9—9 in Figure 8;

Figure 10 is a rear elevation of the control valve, with respect to the loom, and is taken looking substantially along the line 10—10 in Figure 8;

Figures 11 and 12 are sectional plan views looking along the line 11—11 in Figure 9 and showing the valve core in different positions.

Referring more specifically to the drawings, the numerals 10 and 11 indicate the right-hand and left-hand side frame members, respectively, of a loom which rest on the floor. The side frame members 10 and 11 are connected at their upper ends by an arch, only the vertically disposed end portions 13 and 14 thereof being visible in Figures 1 and 2 and being suitably secured to the loom side frames 10 and 11 respectively. The upper ends of the loom side frame members 10 and 11

are connected near the front end of the loom by a conventional breast beam **15** suitably secured to the loom side frame members **10** and **11**. Near their lower ends, the loom side frame members **10** and **11** are connected by front and rear girts, only the rear girt being shown in the drawings and being indicated at **16**. This rear girt is also suitably secured to the loom side frame members **10** and **11**.

A conventional rocker shaft **17** is oscillatably mounted at its ends in the loom side frame members **10** and **11** and has the lower ends of a pair of horizontally spaced swords **20** fixedly mounted thereon, only one of which is shown in Figure 1. The upper ends of the swords **20** support a conventional horizontally disposed lay **21** and a reed cap **22** between which a conventional reed **23** is disposed. The lay **21** and the reed cap **22** are suitably secured, in a conventional manner, to the swords **20**. Each of the swords is pivotally connected, as at **25**, to the front end of a conventional pitman rod **26** which extends rearwardly and is connected in the usual manner, not shown, to a conventional crank shaft **27**, only one end of which is shown in Figure 1.

The crank shaft **27** is mounted for rotation on the loom frames **10** and **11** in a conventional manner, not shown, and is also driven in the usual manner. The crank shaft **27** has a conventional whip roll cam **30** fixedly mounted thereon (Figure 1), the upper surface of which is engaged by a whip roll cam follower **31** rotatably mounted in the front end of a conventional whip roll cam follower arm **32**. The arm **32** extends rearwardly and is fixedly mounted on one end of a shaft portion **33** of an eccentric pivot member **34** to which one end of a vibrating whip roll **35** is fixedly secured, as by a screw **36**.

It will be observed, in Figure 3, that the opposite end of the vibrating whip roll **35** is secured, as by a bolt **37**, to an eccentric pivot member **38**. The eccentric pivot members **34** and **38** are oscillatably mounted on one end in the notches of respective whip roll arms **42** and **43** which extend forwardly and are fixedly mounted on a conventional whip roll shaft **44**.

Opposed end portions of the whip roll shaft **44** are oscillatably mounted in conventional whip roll shaft bearings **45** and **46** which are usually secured to the proximate surfaces of loom side frame members **10** and **11** respectively. However, in the present instance, the whip roll shaft bearings **45** and **46** are suitably secured, as by bolts **47**, to the proximate surfaces of tension unit brackets or support members **50** and **51** respectively. These tension unit support members **50** and **51** extend forwardly and are suitably secured, as by bolts **52** (Figure 1), to the proximate surfaces of the loom side frame members **10** and **11**, respectively. The tension unit support members **50** and **51** are a part of the present invention and the related parts of the present invention will be later described in detail.

A conventional warp beam **55** is mounted for rotation in conventional warp beam bearing members **55***a* and **55***b* (Figure 2) which are suitably secured to the proximate surfaces of the respective side frame members **10** and **11**. Warp yarns in the form of a sheet of warp Y extend upwardly from the warp beam **55** and successively pass over and under a pair of tension or pressure shafts or bars **56** and **57** which also constitute parts of the present invention and the supporting means therefor will also be later described in detail.

The warp yarns Y then extend forwardly and pass above the vibrating whip roll **35** and in engagement therewith and also pass above the whip roll shaft **44**. The warp yarns Y extend forwardly from the vibrating whip roll **35** and pass through a plurality of conventional harnesses **60** which are mounted for up and down movement in a conventional manner, not shown. The warp yarns Y then pass through the reed **23** where they are beat up into fabric or cloth F, after which the fabric is pulled over the conventional breast beam **15** and is taken up through the medium of a take-up roll, not shown, controlled by a conventional take-up mechanism to be later described.

The particular type of loom shown in the drawings includes a shipper handle **62** which is adapted to be moved rearwardly to the dotted line position in Figure 1, for stopping the loom. This shipper handle is shown in operative position in Figure 1. The shipper handle **62** is provided for the well known purpose of starting and stopping operation of the loom and is oscillatably mounted, as at **63**, on the loom side frame member **10**. The shipper handle **62** extends downwardly and has a link **64** pivotally connected to the lower end thereof and extending upwardly and outwardly therefrom and being pivotally connected to the upper end of a second link **65**. This second link **65** is commonly referred to as a hold back pawl link and is a part of the usual type of cloth take-up control mechanism associated with looms of a type manufactured by Draper Corporation, Hopedale, Mass., and commonly known as their model XD loom, this type of take-up being generally known as a #75 or #76 silk type take-up.

This particular type of take-up mechanism also includes a hold back pawl **66** which is pivotally mounted, as at **67**, on the loom side frame member **10** and intermediate the ends of which the lower end of the link **65** is connected. This hold back pawl is adapted to, at times, engage a conventional pick wheel **70** to which intermittent step-by-step rotation is imparted in a conventional manner for taking up the fabric F. The present invention may be controlled through the medium of any type of linkage which may be associated with the shipper handle of the loom, the particular linkage shown in Figure 1 being shown by way of illustration only.

The parts heretofore described, except as otherwise stated, are the usual parts of a loom and it is with these parts that the present invention is adapted to be associated. A detailed description of the improved apparatus for controlling tension in the warp yarns Y will now be given.

The tension unit support members **50** and **51** and associated parts are identical except many of those parts at the right-hand side of the loom in Figure 2 are opposite hand from those parts associated with the left-hand side of the loom and, therefore, only the parts at the right-hand side of the loom, in Figure 2, or at the lower portion of Figure 3 will be described and the parts at the opposite side of the loom will bear the same reference characters with the prime notation added.

The warp tension unit support member **50** extends rearwardly and is then turned upwardly so that it is substantially L-shaped and the rear portion thereof terminates in a higher plane than the whip roll **35** as is clearly shown in Figures 1 and 7. A pivoted tension shaft support, in the form of a cradle broadly designated

at 75, is mounted for oscillation, in a manner to be presently described, on the inner face of the bracket 50. Referring to Figures 6 and 7, it will be observed that the cradle 75 has a substantially circular bearing portion 76 integral therewith which is oscillatably mounted in a mating bearing block 77 suitably secured, as by a bolt 80, to the inner face of the bracket 50, the bracket 50 being provided with a suitable groove 81 and the bearing block 77 having a mating projection 81a which fits in the groove 81 on the bracket 50 so as to lend rigidity to the bearing block 77 and to prevent relative movement between the bearing block 77 and the bracket 50.

It will also be observed, in Figures 6 and 7, that the bracket 50 is provided with a plurality of bores 82 which are adapted to be slidably penetrated by the bolt 80 for securing the bearing block 77 to the bracket 50 at the desired elevation. The cradle 75 is provided with a pair of spaced substantially semi-circular cavities 84 and 85 which are adapted to receive the corresponding ends of the tension shafts or bars 56 and 57 respectively. It is preferable that the inner and upper portions of the cradle 75 be opened so the corresponding ends of the tension or pressure bars 56 and 57 may be placed in the respective cavities 84 and 85 provided therefor and so the pressure bars 56 and 57 may rest upon the bottoms of said cavities.

In order to prevent relative movement between the pressure bars 56 and 57 and the corresponding cradle 75, the shafts or bars 56 and 57 are clampingly secured in the respective cavities 84 and 85 by means of a clamping block 86 disposed between and engaging the proximate portions of the shafts 56 and 57, the lower surface of the clamping block 86 being adapted to conform to the configuration of the pressure bars 56 and 57. This clamping block 86 is slidably penetrated by a screw 90 which extends between the proximate surfaces of the bars 56 and 57, and in spaced relation thereto, and slidably penetrates a flanged portion 91 of the cradle 75, this flanged portion 91 also defining the bottoms of the cavities 84 and 85. The clamping block 86 is clampingly secured against the upper surfaces of the shafts or bars 56 and 57 by a suitable wing nut 92 threadably mounted on the upper end of the screw 90.

The cradle 75 has a downwardly extending arm 93 integral therewith which extends downwardly and is fixedly connected to the outer or rear end of a piston rod 94, by means of a cuff member 95, this cuff member 95 being secured to the lower end of the arm 93 by a bolt 96. The cuff member 95 is slidably penetrated by a reduced portion 97 of the piston rod 94 (Figure 4) and the cuff member 95 is secured on the reduced portion 97 by a screw 100. The piston rod 94 extends forwardly and slidably penetrates the head 101 of a pneumatic cylinder 102. The piston rod 94 has a piston 103 fixed on the inner end thereof which is mounted for longitudinally sliding movement in the cylinder 102.

The base of the cylinder 102 has a lug portion 105 extending therefrom which is pivotally connected, as at 106, between a pair of closely spaced ears 107 projecting from and being suitably secured, as by welding, to an angle bracket 110. The piston rod 94, piston 103 and cylinder 102 comprise a preferred form of ram for actuating the tension apparatus. The angle bracket 110 is suitably secured to the inner face of the warp tension unit support 50 as by bolts 111. A pipe 115 is connected to the end of the cylinder 102 remote from the piston rod 94 by means of a pipe elbow 116. It is preferable that the pipe 115 is coiled, as at 117 or that this 115 is flexible so as to permit movement of the cylinder 102 about its pivot 106.

Referring to Figures 2 and 7, it will be observed that the pipes 115 and 115' extend downwardly and are connected to the branches of a pipe T 120. The pipe 115' extends downwardly and is then bent horizontally to extend adjacent the rear girt 16 and is connected to the pipe T 120. The pipe T 120 serves as a means of communication between a pipe 121 and the pipes 115 and 115'.

The pipe 121 is connected, at its end remote from the end which is connected to the pipe T 120, to one end of a suitable control valve broadly designated at 122. A suitable means, to be presently described, is provided for operating the valve 122 upon movement of the shipper lever or handle 62 and, referring to Figures 8 to 12, inclusive, there will be observed details of the valve 122. However, it is to be understood that many other types of control valves may be provided in lieu of the valve 122, the valve 122 being provided by way of illustration only.

The control valve 122 comprises an outer casing or housing 124, the lower end of which is threadably penetrated by a tubular pipe fitting 125 which slidably penetrates a valve support bracket 126 suitably secured to the rear edge of the loom side frame member 10 by any suitable means such as a screw 127. The tubular pipe fitting 125 is secured in the bracket 126 by any suitable means such as a set screw 130. The pipe 121 is threadably connected to the pipe fitting 125.

The valve housing 124 is tubular and its interior is tapered for slidable reception of a tapered tubular valve core 131 having a valve control stem 132 integral therewith or suitably secured in the upper end thereof, as by a pressed fit, and extending upwardly therefrom. This control stem 132 slidably penetrates a gland nut 133 threadably mounted on the upper end of the housing 124 and which secures a gland seal member 134 on the upper end of the housing 124. The tubular valve core 131 is provided with an opening 135 in its wall which is adapted, at times, to register with a port 136 in the wall of the housing 124.

Suitably secured to the upper end of the valve stem 132, as by a screw 137, is a control arm 138. One end of a connecting rod 140 is pivotally connected to the free end of the control arm 138, as at 142, and extends forwardly therefrom, as is clearly shown in Figure 1, and is pivotally connected intermediate the ends of the link 65. The valve 122 is shown in an operative position in Figures 1 and 12 and it is shown in an inoperative position in Figures 8 to 11 inclusive. It is thus seen that, upon moving the shipper handle 62 rearwardly to the dotted line position shown in Figure 1, the link 65 will move in a clockwise direction, thus causing the valve control arm 138 to assume substantially the position shown in Figures 8, 9 and 10, at which time the passageway 135 will assume a position in alinement with the port 136 in the valve housing 124 (Figure 11). However, upon moving the shipper handle 62 to the solid line position shown in Figure 1, the valve core 131 will be moved in a clockwise direction from the position shown in Figure 11 to the posi-

tion shown in Figure 12 to thus admit compressed air to the pipe 121.

Now, referring to Figure 1, there will be observed a pipe 145 which is connected to an outwardly projecting portion 146 of the valve housing 124 by means of a pipe elbow 147. This projection 146 has a passageway 150 therein to establish communication between the pipe 145 and the interior of the valve 122. The pipe 145 extends downwardly from the control valve 122 and is connected to a suitable source of compressed air in the form of a compressed air tank 151, this tank being shown schematically in Figure 1.

It is well known to those familiar with the art that during normal operation of a loom, the warp yarns Y are held under a predetermined tension by means of a conventional tension means, not shown, usually associated with the warp beam 55 of the loom. However, in order to avoid the occurrence of set marks at the beat-up point of the lay following periods of either short or long duration in which the loom has not been in operation, it has been found that this will be overcome by relaxing the normal tension on the warp yarns when the loom is stopped, thus permitting the warp yarns to sag intermediate their points of support, which are in this instance, the whip roll 35 and the lay 21, and then placing them under normal tension upon starting the loom. Therefore, upon moving the shipper handle 62 to inoperative position or to the dotted line position shown in Figure 1, the valve 122 is closed in the manner heretofore described, that is, the passageway 135 in the valve core 131 registers with the port 136 in the valve housing 124, as shown in Figures 9 and 11, and this prevents the compressed air from the pipe 145 from entering the valve 122.

It is evident that the warp yarns Y may then move the warp tension shafts or bars 56 and 57 in a counterclockwise direction in Figure 1 or to substantially the position shown in Figure 7, since the compressed air in the cylinders 102, 102' may be exhausted through the respective pipes 115, 115' and thus to the valve housing 124 to be exhausted through the passageway 135 in the valve core 131 and the port 136.

On the other hand, upon moving the shipper handle 62 to the solid line or operative position, in Figure 1, the valve 122 will assume an opened position and this will permit compressed air to flow from the source 151 through the pipe 145 to the valve housing 124, which it will enter through the passageway 150. In this instance, the passageway 135 in the valve core 131 will be disposed in alinement with the passageway 150 in the valve housing 124, as shown in Figure 12, and compressed air will thus flow through the tubular valve core 131 and the pipe 121, through the pipe T 120 and the pipes 115 and 115' to enter the bottoms of the respective cylinders 102 and 102'. This will cause the respective pistons 103 along with their piston rods 94 to move outwardly or from right to left, in Figure 4, to impart movement to the cradle 75 in a clockwise direction in Figure 1 or in counter-clockwise direction in Figure 7.

It is evident that, with movement of the cradles 75 and 75' in a clockwise direction in Figure 1, the tension shafts or bars will also move in the same direction and will create additional tension on the warp yarns Y.

It is thus seen that we have provided an improved means for creating a normal amount of tension in the warp yarns during periods in which the loom is in operation and said means being automatically operable to simultaneously relax the tension in the warp yarns upon moving the shipper handle to inoperative position for stopping the loom.

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 generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims.

We claim:

1. In a loom having an oscillatable lay and also having a cloth take-up mechanism and also having a warp beam and also having a whip roll and warp yarns extending from the warp beam to the whip roll and progressively to the lay, said loom also having a shipper handle for stopping and starting the loom, means automatically operable upon moving the shipper handle to inoperative position for relaxing the normal tension in the warp yarns and said means also being automatically operable for creating normal tension on the warp yarns upon moving the shipper handle to operative position for starting the loom, said automatically operable means comprising a pair of relatively closely spaced bars disposed in advance of the whip roll and over and under which the warp yarns are adapted to pass in their course from the warp beam to the whip roll, means supporting said bars in fixed relation to each other, said means supporting said bars being pivotally supported on said loom and means automatically operable upon movement of the shipper handle to operative position to move the pivoted means supporting said bars about its axis to, in turn, move said bars about the said axis for creating a normal tension upon said warp yarns and means automatically operable upon moving the shipper handle to inoperative position for releasing the means moving said pivoted means for supporting the bars to thus relax the tension in the warp yarns between the warp beam and the lay to thereby prevent the occurrence of set marks in the fabric woven thereby.

2. In a loom having a lay and also having a cloth take-up means and also having a whip roll and also having a warp beam and warp yarns extending from the warp beam over the whip roll and being suspended between the whip roll and the lay, said loom also having a shipper handle for starting and stopping the loom, warp tension applying means responsive to movement of the shipper handle to operative position for creating a normal amount of tension in the warp yarns comprising a first tension bar and a second tension bar extending transversely of the loom, pivoted means supporting the first and the second tension bars in closely spaced relation to each other, a ram connected to at least one of the pivoted means, said warp yarns being adapted to pass from the warp beam above the first of said tension bars and beneath the second of said tension bars and then over the whip roll in its course to the lay, a source of fluid under pressure, a pipe connection between the source of fluid under pressure and the ram, valve means interposed in said pipe connection and means responsive to movement of the shipper handle from inoperative to operative position for opening said valve to permit the fluid under pressure to flow from its source to the ram to, in turn, impart movement to the pivoted means supporting said bars and causing said bars to impart a normal

tension to said warp yarns and means automatically operable upon movement of the shipper handle to inoperative position for closing said valve and to thus prevent the flow of fluid to the ram thereby relaxing the pressure on said bars and relaxing the tension in the warp yarns during periods in which the loom is not operating.

3. In a loom having an oscillatable lay and having cloth take-up means thereon and also having a whip roll and also having means for delivering warp yarns to the whip roll and said warp yarns extending from said delivering means over the whip roll and to said lay, a pair of closely spaced tension shafts extending transversely of said warp yarns and over and beneath which the warp yarns are adapted to pass from said delivering means to the whip roll, a cradle pivotally supported on each side of said loom and supporting each end of said tension shafts, an extension arm on at least one of said cradles, a source of compressed air, at least one ram, a connection between the ram and the free end of said arm, a pipe connection between the source of compressed air and the ram and valve means interposed in said pipe connection, means automatically operable upon starting the loom for opening said valve means to permit compressed air to flow to said ram from the source to cause said ram to impart movement to the cradles and to the shafts for creating tension on the warp yarns and means automatically operable upon stopping the loom for closing the valve means to prevent the flow of compressed air to the ram to permit the warp yarns to move the tension shafts in their cradles thus relaxing the tension in the warp yarns.

4. In a loom having an oscillatable lay and also having a cloth take-up mechanism and also having a whip roll and also having a warp beam and warp yarns extending from the warp beam to the whip roll and progressively to the lay, an improved tension control means for the warp yarns comprising a pair of transverse tension bars disposed in advance of the whip roll and over and under which the warp yarns are adapted to pass successively from the warp beam to the whip roll, means supporting said tension bars for movement about a common axis in off-set relation to the axis of the tension bars comprising a tension unit support bracket secured to each side of the loom and extending rearwardly therefrom, a cradle pivotally mounted on each of the tension unit supports, each of said cradles being provided with a pair of spaced open topped cavities therein for reception of the corresponding ends of the tension bars, means for clampingly securing said tension bars in the cavities in said cradle and means automatically operable upon starting the loom for imparting movement to said cradles about their axis to, in turn, cause the tension roll to move about the axis of said cradles for creating a normal tension in the warp yarns, and means automatically operable upon stopping the loom for relaxing the means which impart movement to the cradles to thereby permit the cradles to return to a normal position for relaxing the tension in the warp yarns.

5. In a loom having an oscillatable lay and also having a cloth take-up mechanism and also having a whip roll and also having a warp beam and warp yarns extending from the warp beam to the whip roll and progressively to the lay, an improved tension control means for the warp yarns comprising a pair of transverse tension bars disposed in advance of the whip roll and over and under which the warp yarns are adapted to pass successively from the warp beam for movement about a common axis in off-set relation to the axis of the tension bars comprising a tension unit support bracket secured to each side of the loom and extending rearwardly therefrom, a cradle pivotally mounted on each of the tension unit supports, each of said cradles being provided with a pair of spaced open topped cavities therein for reception of the corresponding ends of the tension bars, means for clampingly securing said tension bars in the cavities in said cradle and means automatically operable upon starting the loom for imparting movement to said cradles about their axis to, in turn, cause the tension roll to move about the axis of said cradles for creating a normal tension in the warp yarns, and means automatically operable upon stopping the loom for relaxing the means which impart movement to the cradles to thereby permit the cradles to return to a normal position for relaxing the tension in the warp yarns, at least one of said cradles having an arm extending therefrom, a ram carried by the loom and being connected at one end thereof to the free end of said arm, means responsive to starting the loom for actuating said ram to move the cradles about their axis for creating tension in the warp yarns through the medium of the tension bars, and means responsive to stopping the loom for releasing the ram to permit the warp yarns to move the tension bars in the opposite direction for relaxing the tension in the warp yarns.

6. In a loom having an oscillatable lay and also having a cloth take-up mechanism and also having a whip roll and also having a warp beam and warp yarns extending from the warp beam to the whip roll and progressively to the lay, an improved tension control means for the warp yarns comprising a pair of transverse tension bars disposed in advance of the whip roll and over and under which the warp yarns are adapted to pass successively from the warp beam to the whip roll, means supporting said tension bars for movement about a common axis in off-set relation to the axis of the tension bars comprising a tension unit support bracket secured to each side of the loom and extending rearwardly therefrom, a cradle pivotally mounted on each of the tension unit supports, each of said cradles being provided with a pair of spaced open-topped cavities therein for reception of the corresponding ends of the tension bars and means automatically operable upon starting the loom for imparting movement to said cradles about their axis to, in turn, cause the tension roll to move about the axis of said cradles for creating a normal tension in the warp yarns, and means automatically operable upon stopping the loom for relaxing the means which impart movement to the cradles to thereby permit the cradles to return to a normal position for relaxing the tension in the warp yarns.

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