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WEFT REPLENISHING MECHANISM FOR LOOMS.

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Fig. 1.

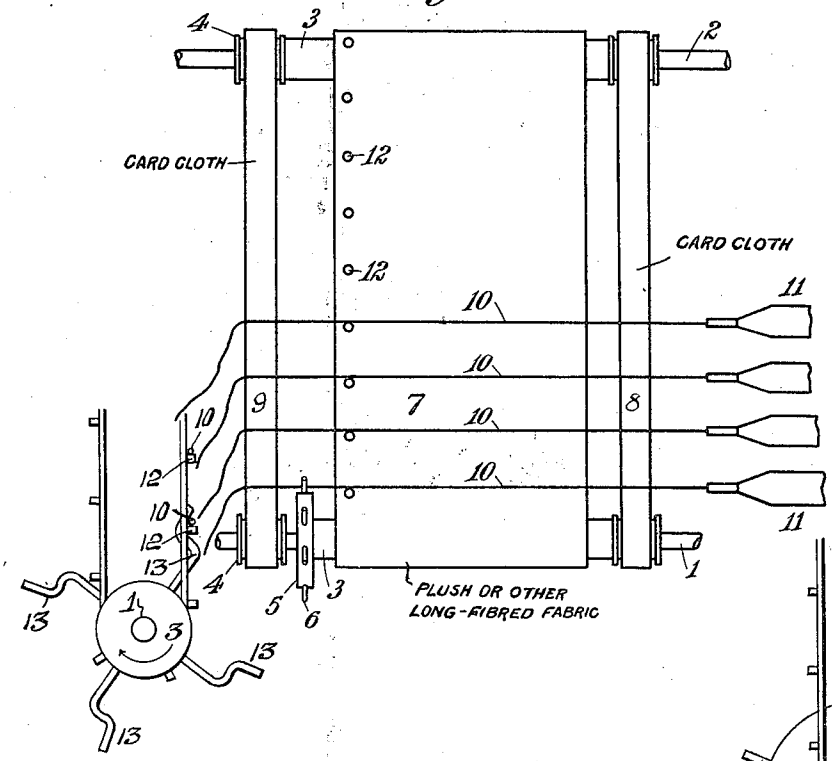


Fig. 3.

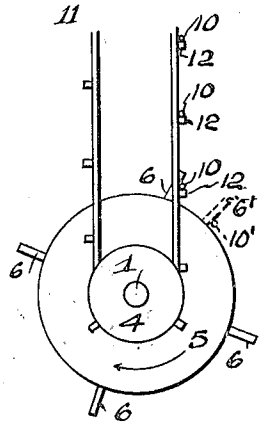


Fig. 2.

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WEFT-REPLENISHING MECHANISM FOR LOOMS.

Application filed June 17, 1920. Serial No. 389,746.

To all whom it may concern:

Be it known that we, JOHN WHITTAKER, a subject of the King of the United Kingdom of Great Britain and Ireland, and resident of "Brookside," Wilpshire, in the county of Lancaster, England, and RICHARD BRADSHAW and JOSEPH BRIGGS, subjects of the King of the United Kingdom of Great Britain and Ireland, and residents of Britannia Mill, Rishton, near Blackburn, in the county of Lancaster, England, have invented new and useful Improvements in Weft-Replenishing Mechanism for Looms, of which the following is a specification.

This invention relates to weft-replenishing mechanism for looms and has for its object an improved form of carrier for the magazine weft threads.

It has been found that the weft threads from the cops in the magazine are liable to become entangled through draughts of air, unless they are provided with some effective form of support intermediate between the ends of the cops and the supports commonly provided at the extreme right-hand end of the breast-beam. Such intermediate supports, however, present the difficulty that, when a cop is transferred, the support is liable to retain the thread and so prevent proper threading of the shuttle.

The present invention provides for effective support for the weft threads, which is sufficient to prevent their being displaced by draughts of air, and at the same time comprises means whereby the difficulty referred to is avoided, the weft thread being drawn away from its support at the moment of transfer.

In the accompanying drawings:—

Figure 1 is a back elevation of the weft-carrying device.

Figure 2 is an end view of the lower part thereof, from the right-hand end of the loom, on a larger scale.

Figure 3 is a view similar to Figure 2 showing an alternative construction of one part of the device.

In these drawings constructural details are omitted, since they are already known and therefore form no part of the present invention.

Referring to the drawings, 1 is the lower and 2 the upper shaft of the weft carrying device, one or both of these shafts being turned an appropriate amount (as hereinafter described) in a clockwise direction, regarding Figure 2, whenever a cop is transferred.

On the two shafts 1 and 2 are mounted a pair of wide rollers 3, 3, and a pair of narrow rollers 4, 4, and on the lower shaft 1 is mounted between the rollers 3 and 4 a wheel 5, with long teeth or pins 6. Over the rollers 3, 3, is stretched a wide band 7 of plush or other long-fibred fabric and a narrow band 8 of card cloth, and over the rollers 4, 4 is stretched a narrow band 9 of card cloth. The rollers 3, 4 on the lower shaft 1 and the wheel 6 are attached to the shaft 1, so as to turn with it whenever a cop is transferred.

Weft-threads 10, 10, coming from the cops 11, 11, held in the magazine, are drawn across the face of the bands 7, 8 and 9 so as to be lightly attached thereto.

The extent to which the shafts 1 and 2 are turned at each transfer of the cop is such that each of the weft threads 10, 10 is moved to occupy approximately the position previously occupied by the next lower weft thread.

The wheel 5 has a larger diameter than have the rollers 3, 3 and 4, 4, so that the extent of the motion on its periphery at each transfer of a cop is greater than that of the weft threads retained by the bands 7, 8 and 9.

The weft-thread of the cop next to be transferred is the lowest of the threads indicated in the drawings, and it will be seen from Figure 2 that, when the cop is being transferred, the weft thread, which is being carried downwards by the band 9, is caught by the particular pin 6 then nearest thereto, and drawn backwards and downwards by that pin past the intermediate position 10^1, 6^1 shown in dotted lines in Figure 2, into the position indicated by the next pin 6.

The backward motion given to the weft-thread by the pin 6, which is similar to the backward motion given to the cop itself during transfer, serves to draw the weft-thread away from the bands 7, 8 and 9 and at the same time bring it more nearly into correct position for threading the shuttle.

The device therefore retains the weft-threads in proper position during the down-

ward movement of the cops in the magazine, and, at the moment a cop is transferred, frees the thread of the cop being transferred, from the retaining means.

Pins 12, 12 are attached to the band 7 to serve both as indicators of the correct positions in which the weft-threads should be laid and also as positive retaining means to prevent sagging of the weft-threads. Where the band 7 is made of material which is capable of retaining the weft-threads in position, the pins 12, 12 may be replaced by marks serving only to indicate the correct positions of the threads.

The arrangement of the thread-retaining bands and the material of which they are composed may be varied from that shown and described, without departing from the essential features of the invention, provided that the materials employed in the central portion between the ends of the cops and the wheel 5 do not retain the threads too firmly to permit of their being drawn away by the backward motion of the cop and wheel 5 during transfer. Thus the central band 7 may be composed of a material with very little thread-retaining power, the band then acting mainly as a screen to protect the threads from draughts of air, and it may be provided with several rows of pins such as 12, 12.

In the alternative form of device shown in Figure 3, the wheel 5 with pins 6 of the before-described arrangement, is replaced by cranked wire arms 13 affixed to the roller 3.

Having described our invention, we declare that what we claim and desire to secure by Letters Patent is:—

1. In weft-carrying apparatus for weft-replenishing looms, the combination with thread-retaining bands, and superposed rollers over which the bands are stretched and which are turned on transfer of a cop, of a wheel co-axial and turning with the lower of said rollers, the diameter of the wheel being greater than the diameter of the said lower roller, and peripheral projections on the wheel, so placed as to draw the weft-thread of the cop being transferred, away from the thread-retaining bands, substantially as set forth.

2. In weft-carrying apparatus for weft-replenishing looms, the combination with thread-retaining bands, and superposed rollers over which the bands are stretched and which are turned on transfer of a cop, of devices operatively fast to the lower of the said rollers and shaped so as to draw the weft-thread of the cop being transferred, away from the retaining-band and simultaneously to move it downwards and rearwards into position for threading the shuttle, substantially as set forth.

3. In weft-carrying apparatus for weft-replenishing looms, the combination with two superposed rollers which are turned on transfer of a cop, and a wheel co-axial and turning with the lower of the said rollers, and whose diameter is greater than that of the said lower roller, of a thread-retaining band between the cops and the wheel, a second band on the other side of the wheel, and peripheral projections on the wheel, adapted to draw the weft-thread of the cop being transferred, away from the thread-retaining bands, substantially as set forth.

4. In weft-carrying apparatus for weft-replenishing looms, the combination with two superposed rollers which are turned on transfer of a cop, and a wheel co-axial and turning with the lower of the said rollers, and whose diameter is greater than that of the said lower roller, of a plurality of bands between the cops and the wheel, a thread-retaining band on the other side of the wheel, and peripheral projections on the wheel, adapted to draw the weft-thread of the cop being transferred, away from the bands, substantially as set forth.

5. In weft-carrying apparatus for weft-replenishing looms, the combination with two superposed rollers which are turned on transfer of a cop, and a series of wire arms rotating co-axially with the lower of the said rollers, of a thread-retaining band between the cops and the wire arms, and a second thread-retaining band on the other side of the wire arms, substantially as set forth.

6. In weft-carrying apparatus for weft-replenishing looms, the combination with two superposed rollers which are turned on transfer of a cop, and a series of wire arms rotating co-axially with the lower of the said rollers, of a plurality of bands one at least a thread-retaining band between the cops and the wire arms, and a further band on the other side of the wire arms, substantially as set forth.

7. In weft-carrying apparatus for weft-replenishing looms, the combination with two superposed rollers which are turned on transfer of a cop, of three thread-retaining bands stretched over and turned by the rollers, two of narrow width of firmly retaining material and situated one near and the other remote from the ends of the cops, and the third band of lightly retaining material located between the other two, a wheel turning co-axially with the lower of the two rollers, adapted to draw the weft-thread of the cop being transferred, away from the thread-retaining bands, and whose diameter is greater than that of the said lower roller, and peripheral projections on the wheel, adapted to effect such drawing away of the weft-thread, substantially as set forth.

8. In weft-carrying apparatus for weft-replenishing looms, the combination with two superposed rollers which are turned on

transfer of a cop, of three thread-retaining bands stretched over and turned by the rollers, two of narrow width of firmly retaining material and situated one near and the other remote from the ends of the cops, and the third band of lightly retaining material located between the other two, and a series of cranked wire arms rotating co-axially with the lower of the two rollers, and adapted to draw the weft-thread of the cop being transferred, away from the thread-retaining bands, the cranked portions of the arms being at greater radial distance from their common axis than is the periphery of the last-named roller, substantially as set forth.

9. In weft-carrying apparatus for weft-replenishing looms, the combination with two superposed rollers which are turned on transfer of a cop, a wheel co-axial and turning with the lower of the said rollers, and whose diameter is greater than that of the said lower roller, and a band stretched over and turned by the rollers, of pins attached to, and projecting from, the band and so placed as both to indicate the correct positions for the weft-threads and to retain them in the said positions, and peripheral projections on the wheel, adapted to draw the weft-thread of the cop being transferred, away from the pins, substantially as set forth.

In witness whereof, we have hereunto subscribed our names.

JOHN WHITTAKER.
RICHARD BRADSHAW.
JOSEPH BRIGGS.