

(No Model.)

T. H. SPEAKMAN, O. W. GLEASON & H. PETERSON.
WHIP ROLL FOR LOOMS.

No. 550,201.

Patented Nov. 19, 1895.

Fig. 1.

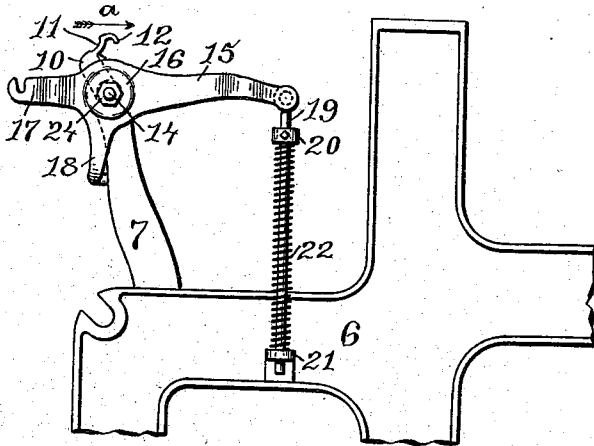


Fig. 2.

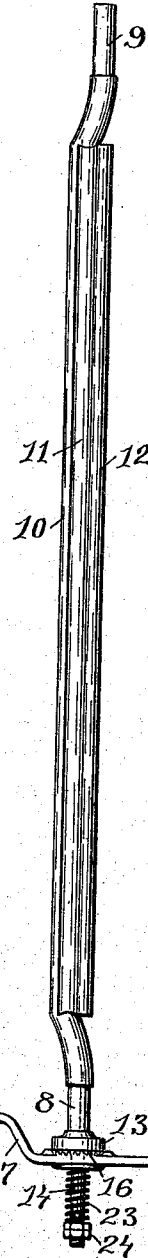


Fig. 3.

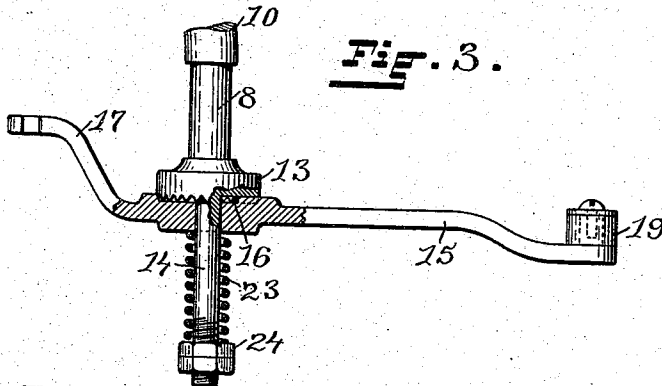


Fig. 4.

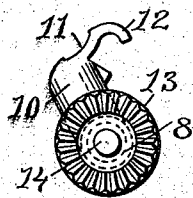
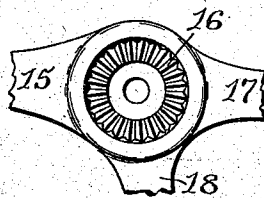


Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS HENRY SPEAKMAN, OSCAR WILLIAM GLEASON, AND HENRY PETERSON, OF BRISTOL, RHODE ISLAND, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE MASON MACHINE WORKS, OF TAUNTON, MASSACHUSETTS.

WHIP-ROLL FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 550,201, dated November 19, 1895.

Application filed February 21, 1895. Serial No. 539,171. (No model.)

To all whom it may concern:

Be it known that we, THOMAS HENRY SPEAKMAN, OSCAR WILLIAM GLEASON, and HENRY PETERSON, of Bristol, in the county of Bristol and State of Rhode Island, have invented certain new and useful Improvements in Whip-Rolls for Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in the whip-roll or whip-bar of looms used to support the warp as it passes from the warp-roll to the harnesses.

Whip rolls or bars are usually supported at the rear of the loom and are held in the normal position by a spring acting on a lever, which is secured to the shaft of the whip-roll.

The surface of the whip-roll or the bar on which the warp is supported is offset on one side of the axis of the shaft or the bearings of the whip-roll, so that the whip-roll forms a long crank. The whip-roll is held in the normal position by a lever the longer arm of which bears on a spring, which tends to raise the whip-roll and exerts a yielding tension strain on the warp and gives way to the strain when the warp is sprung to form a shed.

The object of this invention is to increase the capacity of the whip-roll to yield to the strain on the warp, so that when a shuttle from any cause stops in the shed the whip-roll will yield to the strain and thereby prevent the smashes which happen when the warp is sprung while the shuttle is between the warp.

The invention consists in the peculiar and novel connection of the whip-roll with the controlling-lever and the novel construction of the whip-roll, more fully set forth hereinafter.

Figure 1 represents a view of portions of a loom and the improved whip-roll in position, the direction of the movement of the warp being indicated by the arrow *a*. Fig. 2 represents a plan view of the improved whip-roll and its lever, showing one means of yieldingly connecting the same. Fig. 3 represents an enlarged view of parts of the whip-roll and its

lever, partly in section. Figs. 4 and 5 represent details of construction, showing the clutch-plates of the roll and the lever.

Similar numbers of reference designate corresponding parts throughout.

In the drawings, 6 indicates one of the side frames of a loom, and 7 is a bracket-arm, in which one end of the whip-roll is journaled, it being understood that the opposite end of the whip-roll or its shaft is similarly journaled. The whip-roll in the present instance consists of the shafts 8 and 9 in axial alignment and the main portion 10, bent out of said alignment and furnished intermediate the bent portions with the friction leverage-plate 11, having the rounded lip 12, over which the warp passes from the warp-beam to the harnesses.

On the shaft 8 of the whip-roll is a clutch-plate 13, extending from the center of which is a short shaft 14, having a screw-threaded end. On this shaft 14 is journaled the lever 15, having a clutch-plate 16, which engages with the clutch-plate 13 on the whip-roll. Extending from the lever 15 are the counterweight arm 17 and the stop-arm 18, which prevent the undue rearward rotation of the whip-roll when relieved from the drag of the warp. The free end of the lever 15 is pivoted to a rod 19, having a collar 20, and movable at its lower portion through the guide 21, secured to the loom-frame, the spring 22, mounted on this rod between the collar 20 and the guide 21, tending to exert an upward pressure on the rod and on the free end of the lever 15. The clutch-plate 16 is held in contact with the clutch-plate 13 by the yielding pressure of the spring 23, mounted on the shaft 14, and held against the back of the clutch-plate 16 by the nuts 24, adjustable on said shaft to increase or diminish the pressure exerted by the spring 23 to hold the clutch-plates together.

Under normal conditions the warp passes over the curved edge 12 of the whip-roll plate 11, which exerts a light tension on the warp nearly sufficient to overcome the counterbalancing effect of the offset portion 10 of the whip-roll. During the opening of the shed the frictional contact between the warp and

the curved edge 12 of the whip-roll is increased by the sudden taking up of the warp in spreading to form the shed, and the spring 22 allows the free end of the lever 15 to move downward as the edge 12 of the whip-roll is drawn forward, thus relieving the tension on the warp. The filling-thread is received by the open shed and in due process another shed is opened with similar action on the part of the whip-roll.

When in place of closing the shed on a fine filling-thread and opening another shed—which takes up the warp over the whip-roll to but a small extent—a shuttle becomes caught in the shed which closes thereon, it is obvious that many times the amount of warp must be taken up by the great diameter of the shuttle or a warp smash must occur. When this is the case, the relief afforded by the yielding of the spring 22 is not sufficient to so reduce the friction of the plate of the whip-roll on the warp that it (the warp) may readily pass. To provide for accidents of this nature is the province of the yielding connection furnished by the clutch-plates 13 and 16 with the tension-spring and adjustment therefor. It will be noticed that by the use of these and by the construction of the whip-roll this roll may be rotated in the direction of the moving warps until the threads are

supported below the axial center of the whip-roll, where they are relieved from the take-up caused by the offset of the shaft and its plate 11.

It is evident that the form of the clutch-plates may be varied to suit the uses to which the whip-roll is subjected.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination, in a loom, with a whip-roll journaled in bearings and having the clutch-plate 13 secured to one end thereof and the shaft 14 extending from the axis of the clutch-plate, of the lever 15 journaled on the shaft 14 and having the clutch-plate 16 in engagement with the clutch-plate 13, the spring 23 on the shaft 14, the nuts 24 for adjusting the tension of the spring on the clutch-plate 16, a rod pivoted to the free end of the lever 15, and a spring for yieldingly supporting the same.

In witness whereof we have hereunto set our hands.

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Witnesses:

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