

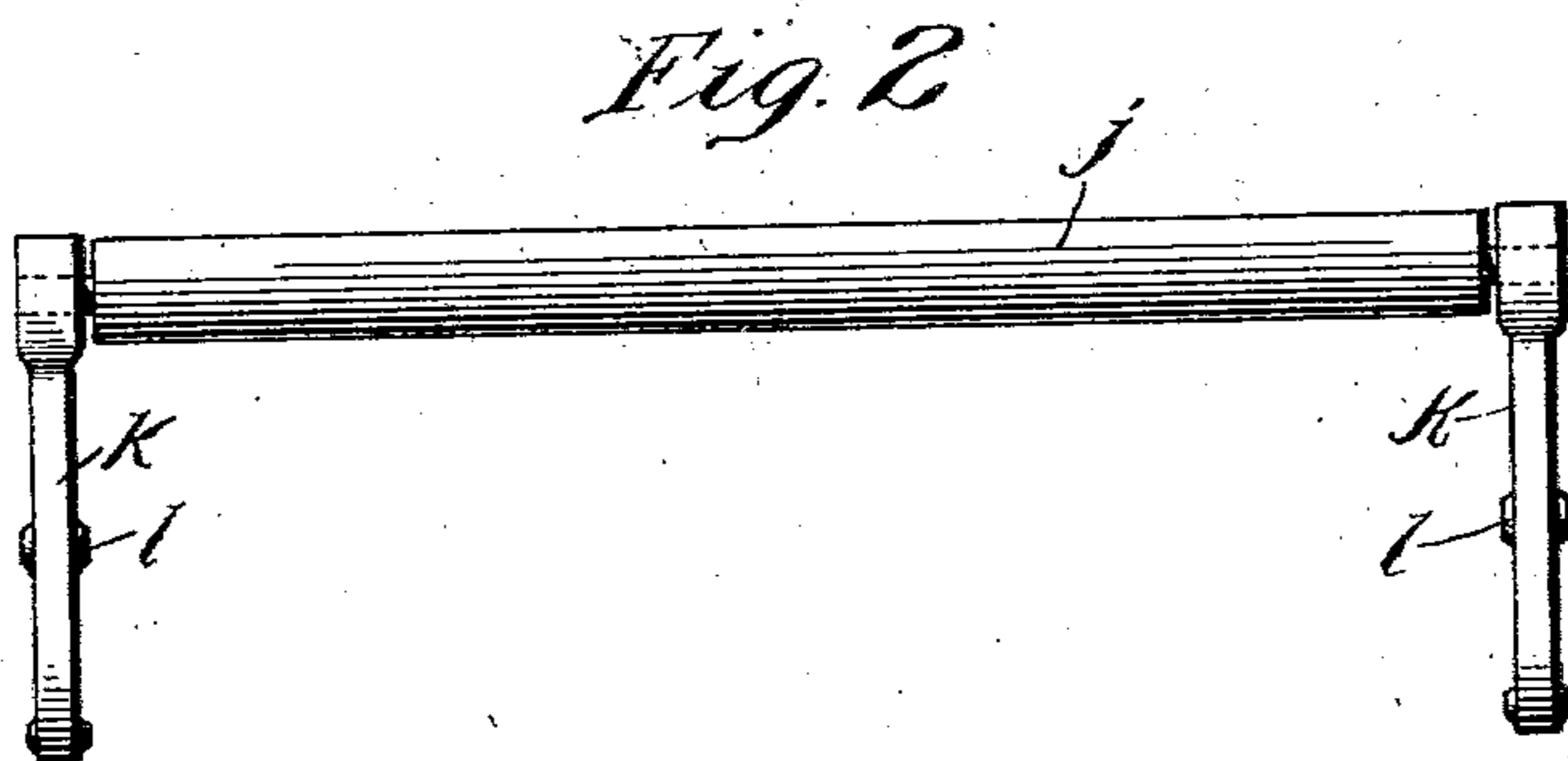
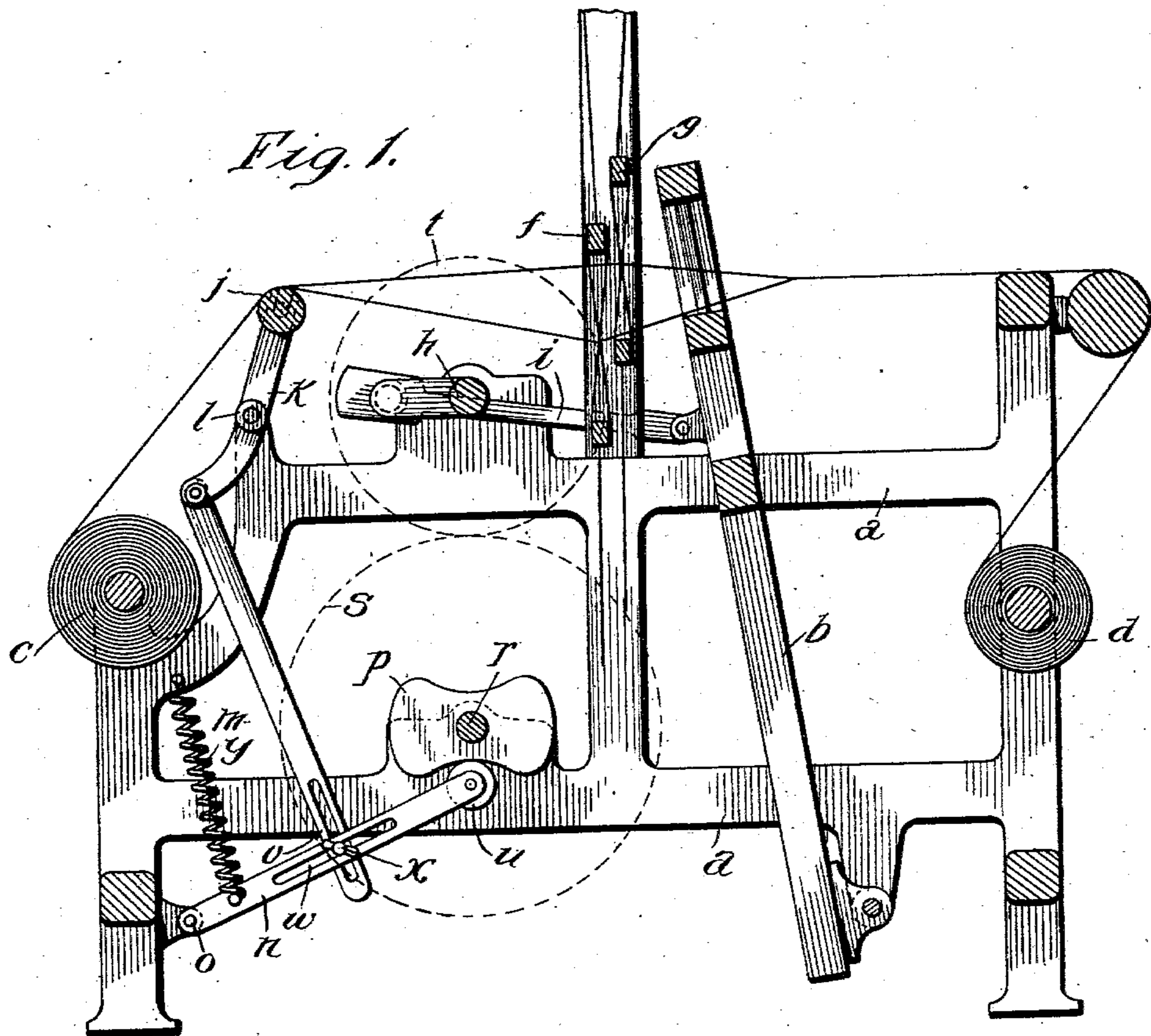
No. 743,722.

PATENTED NOV. 10, 1903.

W. HOLCROFT.  
WHIP ROLL MOTION FOR LOOMS.

APPLICATION FILED JAN. 9, 1903.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM HOLCROFT, OF CHESTER, PENNSYLVANIA.

## WHIP-ROLL MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 743,722, dated November 10, 1903.

Application filed January 9, 1903. Serial No. 138,360. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HOLCROFT, a citizen of the United States, and a resident of Chester, Delaware county, Pennsylvania, have invented certain new and useful Improvements in Whip-Roll Motions for Looms, of which the following is a specification.

My invention relates to improvements in looms; and the object of my invention is to furnish a device for equalizing the tension of the warp-threads during the movements incident to the opening and closing of the sheds.

In carrying out my invention I mount the whip-roller, over which the threads pass on their way from the warp-beam to the heddles and thence to the cloth-beam, upon arms which are pivotally secured to the frame of the loom, and I furnish means, driven, preferably, from the main shaft of the loom, which rock said arms and whip-roller inward or toward the heddles during the opening of the shed and outward or away from the heddles during the closing of the shed in order to relieve or increase the strain upon the warp-threads, as may be required, to maintain them constantly under the same tension. At the end of each reciprocation of the whip-roller the actuating mechanism is arranged to bring the roller to a stop during the time that the heddles are at rest and the shed fully opened for the passage of the shuttle or fully closed and the lay operating to beat up the fell.

In the accompanying drawings, forming part of this specification, and in which similar letters of reference indicate similar parts throughout both views, Figure 1 is a diagrammatic sectional side elevation of a loom embodying my improvements; Fig. 2, a front elevation of the whip-roller.

*a* is the frame of the loom; *b*, the lay; *c*, the yarn-beam; *d*, the cloth-beam; *f g*, the heddles; *h*, the main shaft, which drives connecting-rod *i*, which operates the lay. All of these parts are of the usual construction.

*j* is the whip-roller, which is carried in suitable bearings in the upper ends of arms *k*, which are pivoted at *l* to the front of the frame *a* and the lower ends of which are connected to the upper end of a rod or rods *m*, the lower end or ends of which are connected to an arm or arms *n*, one end of which is pivotally connected to a stationary point *o* and

the other end of which is adapted to be operated by a cam *p*, which is carried by shaft *r*. The shaft *r* carries a gear-wheel *s*, the pitch-circle of which is indicated by a dotted line, which is driven by a gear-wheel *t*, also indicated by a dotted pitch-circle, which is carried by the main shaft *h*. The gears *s* and *t* are so proportioned that the former makes one complete revolution to every two complete revolutions of the latter. The cam *p* is so constructed that it depresses the free end of arm *n* as the shed is closing, causing during this closing the arm *m* to move down the lower ends of arms *k*, which moves out the upper ends of these arms and the whip-roller *j*, which latter thus increases the tension upon the warp-threads. During the time that the shed is closed the lay *b* is operated to beat up the fell, and during this movement the cam *p* does not move the whip-roller. As soon as the fell is beaten up the shed commences to open, and at this instant the cam *p* permits the end of arm *n* to move upward through arms *m* and *n* to cause the whip-roller to move inward to decrease the tension of the warp-threads to the same degree that it is increased by the stretching due to the opening of the shed. The cam *p* is so shaped that when the roller *j* is all the way in and the shed fully opened for the passage of the shuttle, during which time the heddles are at rest, the arm *n* and connected parts are at rest until the heddles commence to move to close the shed, at which instant the cam *p* commences to move the arm *n* to cause the roller *j* to move outward.

The free end of arm *n* preferably carries a friction-roller *u*, which engages cam *p*, and the arms *m n* are adjustably secured together so that the throw of the roller *j* may be adjusted. For this purpose the arm *m* is furnished with a slot *v* and the arm *n* with a slot *w*, a thumb-nut and bolt *x* passing through the slots serving to secure the two arms together. If necessary, a spring *y* may be employed to hold the arm *n* in contact with cam *p*.

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

1. The combination in a loom, of a whip-roller extending across said loom over which the warp-threads pass, arms pivoted to the

frame of the loom in the upper ends of which said roller is journaled, an arm connected to the lower ends of said arms, an arm pivotally secured at one end to which said arm is secured, a cam driven from the main shaft of the loom engaging the free end of said arm, and adapted to intermittently raise and lower the free end of said arm to impart an intermittent reciprocating movement to said whip-roller and said main shaft.

2. The combination in a loom, of a whip-roller extending across said loom, over which the warp-threads pass, arms pivoted to the frame of the loom in the upper ends of which said roller is journaled, an arm connected to the lower ends of said arms, an arm pivotally secured at one end to which said arm is adjustably secured, a cam driven from the main shaft of the loom adapted to intermittently raise and lower the free end of said arm to impart an intermittent reciprocating movement to said whip-roller and said main shaft.

3. The combination in a loom, of a whip-roller extending across said loom over which

the warp-threads pass, arms pivoted to the frame of said loom in which said whip-roller is journaled, a cam driven from the main shaft of the loom, and a connection between said cam and said whip-roller-carrying arms, said cam being adapted to intermittently reciprocate said arms and roller.

4. The combination in a loom of a whip-roller extending across said loom, over which the warp-threads pass, arms pivoted to the frame of said loom in which said whip-roller is journaled, a cam driven from the main shaft of the loom, and adapted to make one revolution to each two revolutions of said main shaft, and means for connecting said cam and roller-carrying arms, said cam being adapted, through said connecting means, to cause said arms and whip-roller to reciprocate intermittently.

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