

T. W. HARRISON.
TAKE-UP MECHANISM FOR LOOMS.

No. 177,830.

Patented May 23, 1876.

Fig. 1.

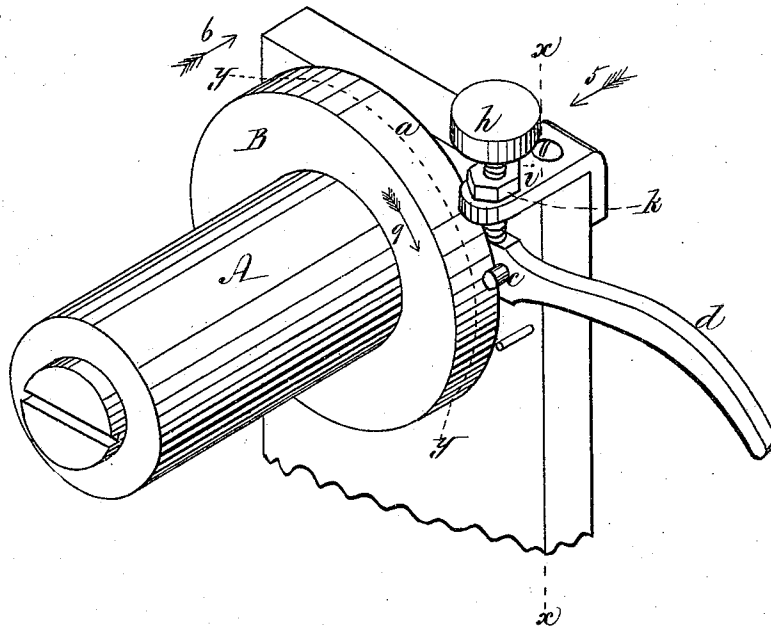
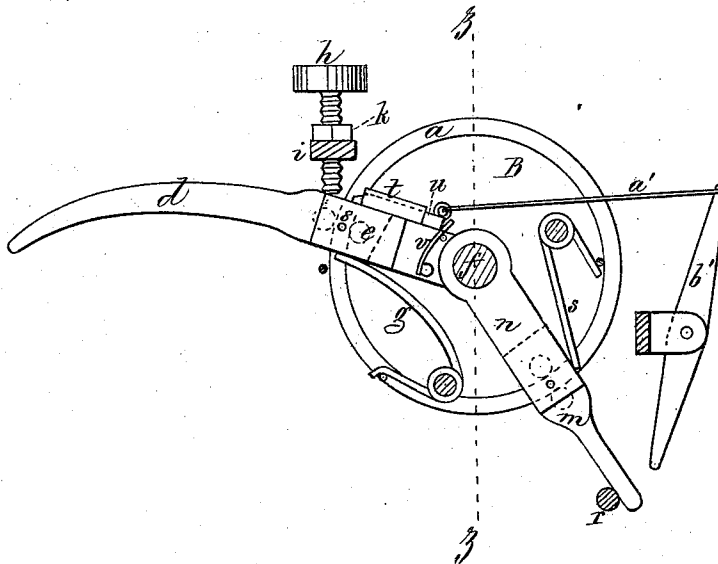


Fig. 2.



Witnesses,
W. J. Cambridge
J. C. Cambridge

Inventor,
Thomas W. Harrison
per Tuckermacher & Stearns
Attys.

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Fig. 3.

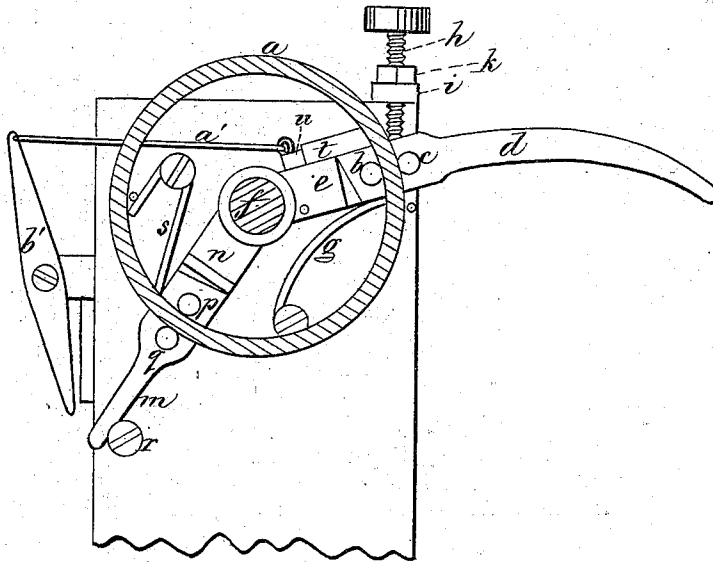
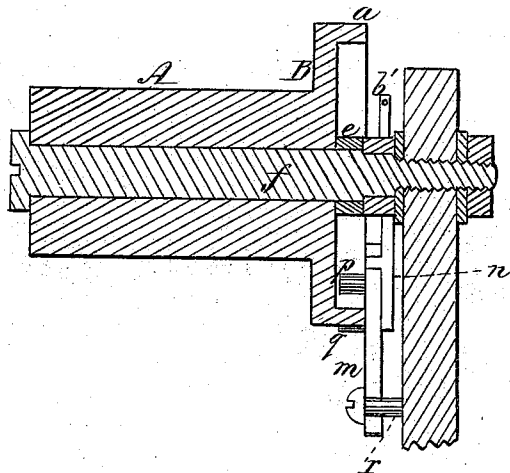


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS W. HARRISON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN TAKE-UP MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **177,830**, dated May 23, 1876; application filed December 22, 1874.

To all whom it may concern :

Be it known that I, THOMAS W. HARRISON, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Take-Up Mechanism for Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved take-up mechanism. Fig. 2 is a vertical section through the same, on the line *x x* of Fig. 1, looking in the direction of the arrow 5. Fig. 3 is a vertical section through the same, on the line *y y* of Fig. 1, looking in the direction of the arrow 6. Fig. 4 is a vertical section through the same, on the line *z z* of Fig. 2.

The ordinary method of operating the take-up roll of a loom at present in use is by means of a ratchet-wheel and pawl, the ratchet-wheel being connected with a train of gearing, by which motion is communicated to the take up roll. This device is, however, objectionable, for the reason that when it becomes necessary to vary the amount of the take-up of the fabric the ratchet-wheel has to be removed and replaced by another having coarser or finer teeth; or the variation is effected by changing the train of gearing connected with the ratchet-wheel, causing in either case much inconvenience and loss of time.

My invention has for its purpose to overcome these objections; and consists in operating the take-up roll by a clutch-lever, the movement of which can be easily regulated, so as to vary the amount of the take-up with the greatest degree of nicety, thus avoiding the necessity of removing any portion of the mechanism, as heretofore; and my invention also consists in a device to be used in connection with my take-up mechanism for the purpose of stopping it in the event of the breakage of a shuttle-thread.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the take-up roll or cloth-beam of a loom. To one end of this roll is secured a disk or wheel, B, pro-

vided with a flange, *a*, which is embraced by two pins, *b c*, projecting from a lever, *d*, which is pivoted, at a point, *s*, midway between the two pins *b c*, to the outer end of a bent arm, *e*, pivoted upon the stud or shaft *f*, which supports the take-up roll A. The arm *e* and lever *d* are held up in the position seen in Figs. 1, 2, and 3 by a spring, *g*, and when the lever is depressed its inner end is moved slightly on the arm *e*, which causes the pins *b c* to firmly clutch the flange *a*, which is thus moved with the lever, partially rotating the take-up roll, as desired. On the release of the lever *d* the friction of the clutch-pins on the flange *a* is relieved, and the lever is returned to its original position by the spring *g* without moving the take-up roll. The clutch-lever *d* is curved or inclined at its outer end, and is depressed at the required times by the forward movement of a pin on the lay, or in any other suitable manner. *h* is a regulating-screw, which passes through a plate, *i*, and serves as a stop, to limit the amount of upward motion of the clutch-lever *d* as it is raised by its spring, and by simply turning this screw the movement of the lever and take-up roll may be adjusted with the utmost nicety, in order to vary the amount of the take-up of the fabric, and thus increase or diminish the number of threads to the inch, as desired; and I am thus enabled to avoid the delay and inconvenience heretofore occasioned by removing a ratchet-wheel or gear and substituting another therefor, besides saving the cost of these extra wheels. The screw *h* is provided with a check-nut, *k*, by which it is firmly held when properly adjusted.

In order to prevent the take-up roll from being rotated in a direction contrary to that of the arrow 9 by the tension of the cloth, I employ a retaining or holding device, consisting of a lever, *m*, pivoted to an arm, *n*, and provided with clutch-pins *p q*, which embrace the flange *a* of the wheel B in a manner similar to the pins *b c*. The outer end of the lever *m* is kept in contact with a stationary stop, *r*, by a spring, *s*, and the arrangement of parts is such that the tension of the cloth upon the roll will cause the pins *p q* to firmly clutch the flange *a*, and thus press the lever *m* against the stop *r*, which effectually prevents any

backward rotation of the roll. When, however, the take-up roll is moved forward by the lever *d*, as above described, the friction of the pins *p q* on the flange *a* is relieved, so as to allow of its free movement, as desired.

The above-described take-up mechanism is simpler, cheaper, and more easily adjusted than any other device heretofore used for this purpose.

Instead of the flange *a* being directly connected with the take-up roll, as shown, it may be connected with one of a train of gears, by which motion is communicated to the take-up roll.

I will now describe the device by which the movement of the clutch-lever *d* is instantly stopped on the breakage of a shuttle-thread.

To the upper side of the arm *e* is secured a box or bearing, *t*, in which slides a bolt, *u*, against the rear end of which rests a flat spring, *v*, the front end of the bolt being tapering or wedge-shaped. The rear end of the bolt *u* is provided with an eye, to which is secured one end of a wire, *a'*, the opposite end being attached to the upper end of a lever, *b'*, which, when the take-up mechanism is in operation, is held back by mechanism, (not shown,) so as to retain the bolt in the position seen in Figs. 2 and 3 against the resistance of its spring *v*. On the breakage of a shuttle or filling thread, the lever *b'* is released, and as soon as the clutch-lever *d* is depressed, the bolt *u* is shot

forward by its spring *v*, so that its tapering or wedge-shaped end will be interposed between the lever *d* and the regulating-screw *h*, and the lever is thus prevented from being raised by its spring *g*, to enable its pins to take a new hold on the flange *a*, and, consequently, the movement of the take-up roll and the take-up of the fabric is stopped, as desired.

I do not claim, broadly, the clutch-lever *d*, with its pins *b c*, as I am aware that this is a well-known mechanical device; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the take-up roll *A*, the wheel *B*, with flange *a*, the lever *d*, pivoted to the bent arm *e*, and provided with the pins *b c*, the shaft *f*, spring *g*, regulating-screw *h*, and the lever *m*, pivoted to the arm *n*, and provided with clutch-pins *p q*, the spring *s*, and stop *r*, all substantially as and for the purposes herein set forth.

2. In combination with the take-up mechanism, substantially as described, the stop-bolt *u*, operating in the manner and for the purpose set forth.

Witness my hand this 15th day of December, A. D. 1874.

THOMAS W. HARRISON.

In presence of—

P. E. TESCHEMACHER,
W. J. CAMBRIDGE.