(No Model.) 2 Sheets—Sheet 1.

F. K. WRIGHT.

TAKE-UP MECHANISM FOR LOOMS.

No. 406,327. Patented July 2, 1889.

Fig. 1.

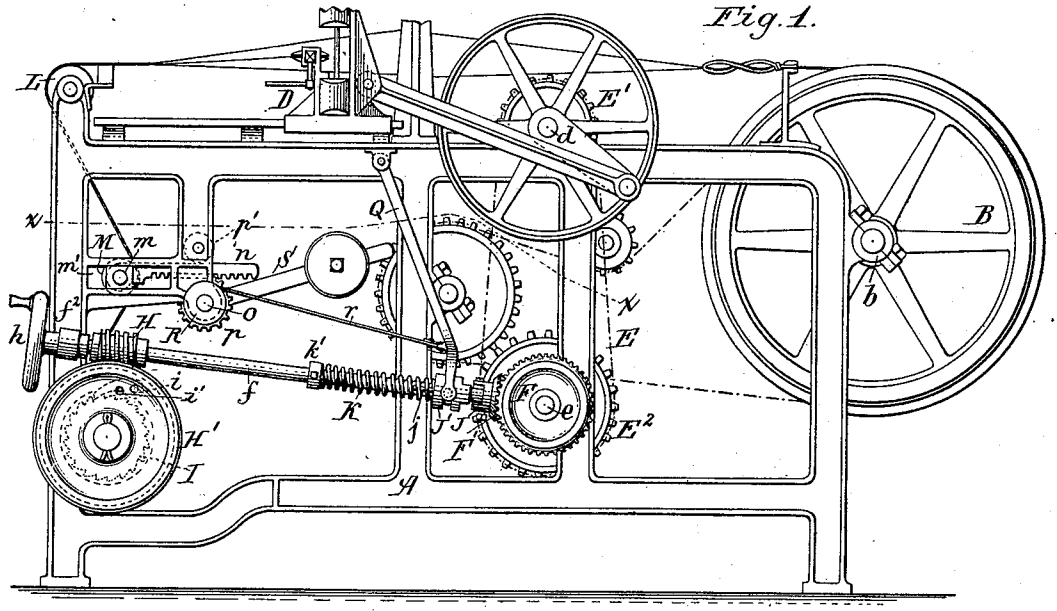


Fig. 2.

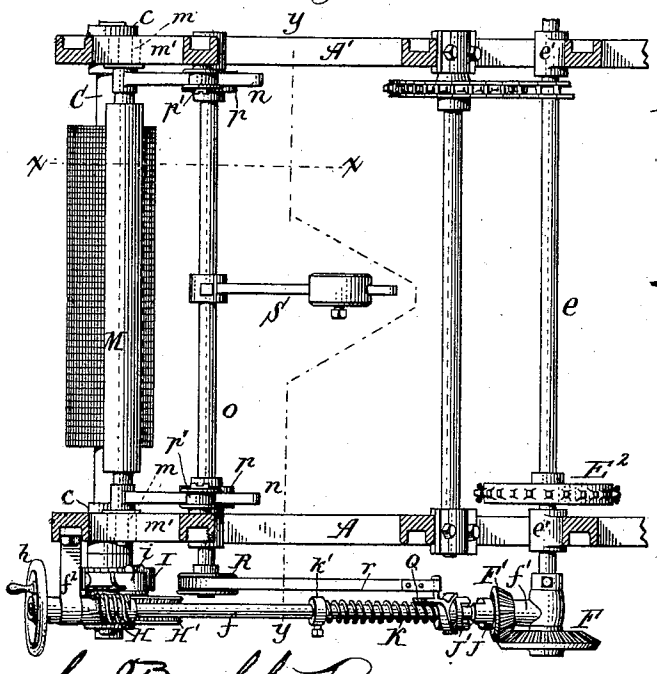
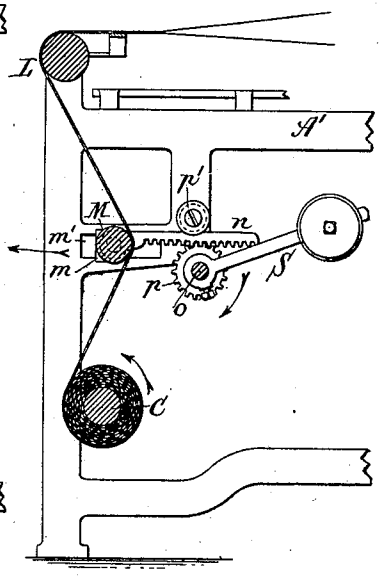


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

F. K. WRIGHT.

TAKE-UP MECHANISM FOR LOOMS.

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Fig. 4.

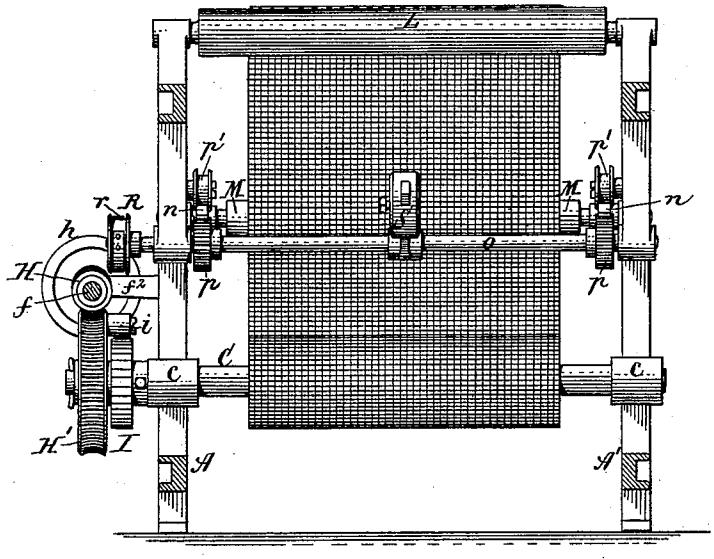


Fig. 5.

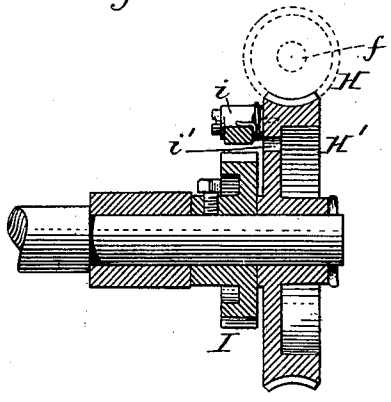


Fig. 6.

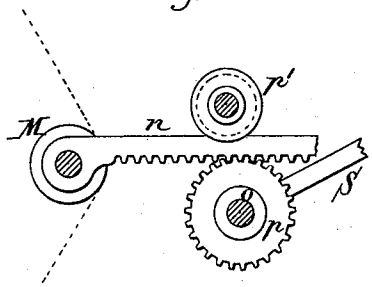
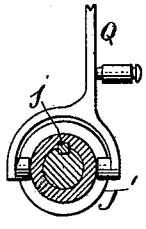


Fig. 7.



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UNITED STATES PATENT OFFICE.

FREDERICK K. WRIGHT, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE STEAM GAUGE AND LANTERN COMPANY, OF SAME PLACE.

TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 406,327, dated July 2, 1889.

Application filed July 25, 1887. Serial No. 245,182. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK K. WRIGHT, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in a Take-Up Mechanism for Looms, of which the following is a specification.

The object of this invention is to produce a simple and effective automatic take-up; and it consists in the improvements in the take-up mechanism, which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of my improved take-up mechanism. Fig. 2 is a partial horizontal section in line *x x*, Fig. 1. Fig. 3 is a partial vertical longitudinal section in line *x x*, Fig. 2. Fig. 4 is a vertical cross-section in line *y y*, Fig. 2, looking toward the cloth-beam. Fig. 5 is a sectional elevation of one end of the cloth-beam and connecting parts on an enlarged scale. Fig. 6 is a side elevation of the tension-roller and connecting parts on an enlarged scale. Fig. 7 is a cross-section of the sliding part of the clutch on an enlarged scale.

Like letters of reference refer to like parts in the several figures.

A A′ represent the side frames of a loom, B represents the yarn-drum journaled in bearings *b* at the ends of the side frames, and C the cloth-beam journaled in bearings *c* of the side frames.

d represents the horizontal driving-shaft journaled in bearings in the upper portion of the side frames in rear of the lathe D, and receiving motion in any suitable or well-known manner.

e represents a horizontal counter-shaft journaled in bearings *e′* and arranged below the driving-shaft *d*, from which it is driven by an endless chain E, running around a sprocket-wheel E′ on the driving-shaft *d*, and a similar wheel E^2 on the counter-shaft *e*.

The cloth-beam C is rotated intermittingly from the counter-shaft *e*, so as to take up the cloth by the following mechanism:

f represents a shaft arranged lengthwise on the outer side of the side frame, with its front end above the cloth-beam and with its rear end adjacent to the outer portion of the counter-shaft *e*, on which it is supported by a bearing *f′*, while the front portion of the shaft *f* is journaled in a bearing f^2, attached to the side frame A.

F represents a bevel-wheel secured to the end of the counter-shaft *e*, and F′ a bevel-pinion meshing with the wheel F and turning loosely on the shaft *f*.

H represents a worm secured to the front portion of the shaft *f*, and H′ is a worm-wheel mounted on the cloth-beam and meshing with the worm H, so that the cloth-beam is turned by turning the shaft *f*. The latter is provided at its front end with a hand-wheel *h*, by which the shaft *f* can be turned, as desired.

I represents a ratchet-wheel secured to the cloth-beam, and *i* is a pawl pivoted to the worm-wheel H, which latter turns loosely on the cloth-beam. The pawl *i* engages with the ratchet-wheel and turns the latter in the proper direction to wind the cloth upon the beam, but permits the worm-wheel to turn freely in an opposite direction.

The ratchet-wheel I is arranged on the inner side of the worm-wheel H′, and the latter is provided with an opening *i′*, through which a pin can be inserted under the pawl *i* and the latter be lifted out of engagement with the ratchet-wheel when it is desired to unwind the cloth from the cloth-beam.

J J′ represent the two parts of a clutch, the part J being formed on the pinion F′ and the part J′ being arranged to slide on the shaft *f*, which latter is provided with a feather *j*, on which the part J′ of the clutch slides, and which compels the shaft *f* to turn with the part J′ of the clutch, while the part J turns loosely on the shaft with the pinion F′.

K represents a spring which surrounds the shaft *f*, and which bears against the sliding part J′ of the clutch and against a collar K′, secured to the shaft, and which presses the sliding part J′ toward the part J of the clutch.

When the two parts J J′ of the clutch are in engagement, the shaft *f* is rotated from the counter-shaft *e* by the gear-wheels F F′ in the proper direction to take up the cloth, and when the two parts of the clutch are separated the cloth-beam does not revolve.

The two parts of the clutch are automati-

cally thrown into and out of gear by the following mechanism:

L represents a guide-roller journaled in the side frames A A′ above the cloth-beam, and M is a movable tension-roller bearing against the outer or rear side of the cloth between the guide-roller L and the cloth-beam.

m m represent the sliding bearings, in which the tension-roller M is journaled, and which move lengthwise of the loom-frame in horizontal ways *m′ m′*, formed in the side frames A A′.

n n represent horizontal rack-bars secured to the sliding bearings *m m* and extending rearwardly therefrom.

o represents a horizontal shaft journaled in the side frames A A′ below the rack-bars *n n*, and *p p* represent gear-wheels secured to said shaft and meshing with said rack-bars, the latter being held in engagement therewith by guide-rollers *p′*.

Q represents a clutch-lever, pivoted at its upper end to the top portion of the side frame A, and extending downwardly on the outer side thereof to the sliding part J′ of the clutch, which part is provided with an annular groove in which the lower bifurcated end of the lever engages, so that the part J′ of the coupling is moved on the shaft *f* toward and from the part J by swinging the lever Q.

R represents a pulley secured to the shaft *o* on the outer side of the side frame A, and *r* is a strap or band, which is attached to the lever Q and wound upon the pulley R in such manner that an outward movement of the bearings *m* will cause the band *r* to be wound upon the pulley R, while an inward movement will cause the band to be unwound.

S represents a weighted arm secured to the shaft *o* and projecting rearwardly therefrom, so as to tend to turn the shaft *o* rearwardly in the direction of the arrow in Fig. 3.

When the two parts J J′ of the clutch are in engagement, the longitudinal shaft *f* is rotated from the counter-shaft *e* by the gear-wheels F F′, and the cloth-beam C is rotated from the longitudinal shaft *f* by the worm H and wheel H′ in the proper direction to take up the cloth, as indicated by the arrow in Fig. 3. This rotary movement of the cloth-beam tightens the bight of the cloth between the guide-roller L and the cloth-beam, whereby the tension-roller M is moved outwardly, the bearings *m* thereof sliding in the ways *m′* in the direction of the arrow in Fig. 3. This movement of the tension-roller causes the shaft *o* to be turned in the direction opposite to that which is indicated by the arrow in Fig. 3, whereby the weighted arm S is raised and the band *r* wound upon the pulley R. When the slack of this band has been taken up, the further rotation of the pulley in winding up the band causes the latter to swing the clutch-lever Q, so as to disengage the part J′ of the clutch from the part J. This stops the rotary movement of the shaft *f*, and consequently that of the cloth-beam, which latter remains at rest in this position of the parts. As the bight of the cloth increases between the guide-roller L and the cloth-beam by the continuing supply of freshly-woven cloth, the tension-roller M is moved inwardly by the descent of the weighted arm S, thereby maintaining the proper tension on the cloth. The weighted arm now turns the shaft *o* in the proper direction to unwind the band *r* from the pulley R, thereby permitting the lever Q and part J′ of the clutch to move toward the part J of the clutch under the pressure of the spring K until the part J′ engages with the part J, when the cloth-beam is again rotated, as described. In this manner the cloth-beam is intermittingly rotated, and the cloth is wound upon the same from time to time, while the proper tension is maintained on the cloth at all times.

My improved take-up mechanism is especially desirable for looms which are used in the manufacture of wire-cloth, but is also applicable to other kinds of looms.

I claim as my invention—

1. The combination, with the cloth-beam, of a shaft *e*, from which the cloth-beam is rotated, a connecting-shaft *f*, geared with the cloth-beam, a clutch J J′, applied to the shaft *f* and geared with the shaft *e*, a tension-roller M, movable bearings *m*, in which the tension-roller is journaled, means for moving the movable bearings, and a shaft *o*, geared with the bearings and connected with the clutch, substantially as set forth.

2. The combination, with the cloth-beam, of a shaft *e*, provided with gear-wheel F, a connecting-shaft *f*, geared with the cloth-beam, and provided with a gear-wheel F′ and clutch J J′, a tension-roller M, provided with movable bearings *m*, having rack-bars *n*, a shaft *o*, provided with gear-wheels *p*, weighted arm S, and pulley R, a clutch-lever Q, and a band *r*, connecting said lever with the pulley R, substantially as set forth.

Witness my hand this 19th day of July, 1887.

FREDERICK K. WRIGHT.

Witnesses:
P. L. SALMON,
W. P. MCKILLIP.