

(No Model.)

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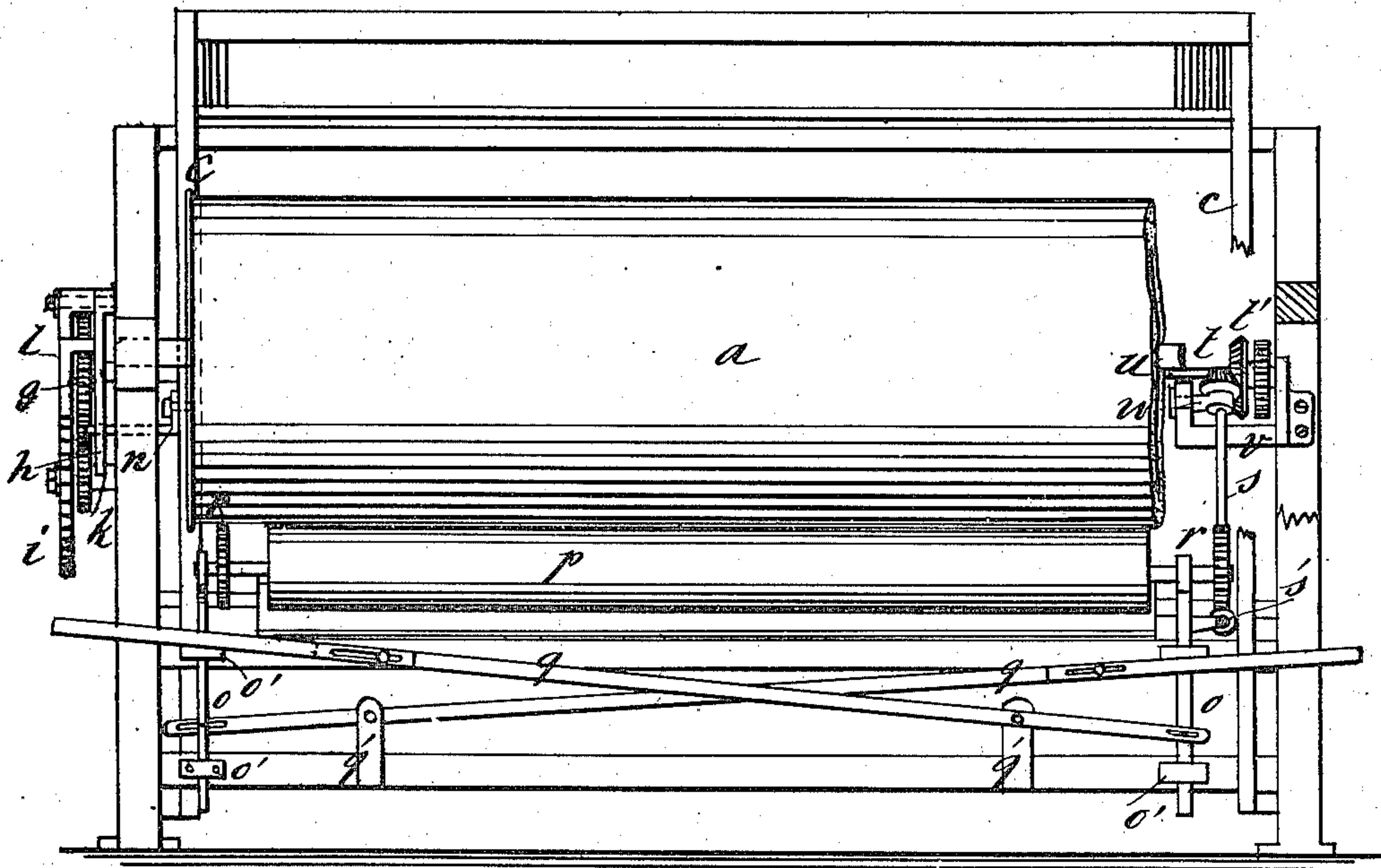
W. A. BRAMALL & C. R. INNES.

TAKE-UP AND LET-OFF MECHANISM FOR LOOMS.

No. 246,714.

Patented Sept. 6, 1881.

Fig. 1



WITNESSES:

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C. Sulgwick

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(No Model.)

2 Sheets—Sheet 2.

W. A. BRAMALL & C. R. INNES.

TAKE-UP AND LET-OFF MECHANISM FOR LOOMS.

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Fig. 2

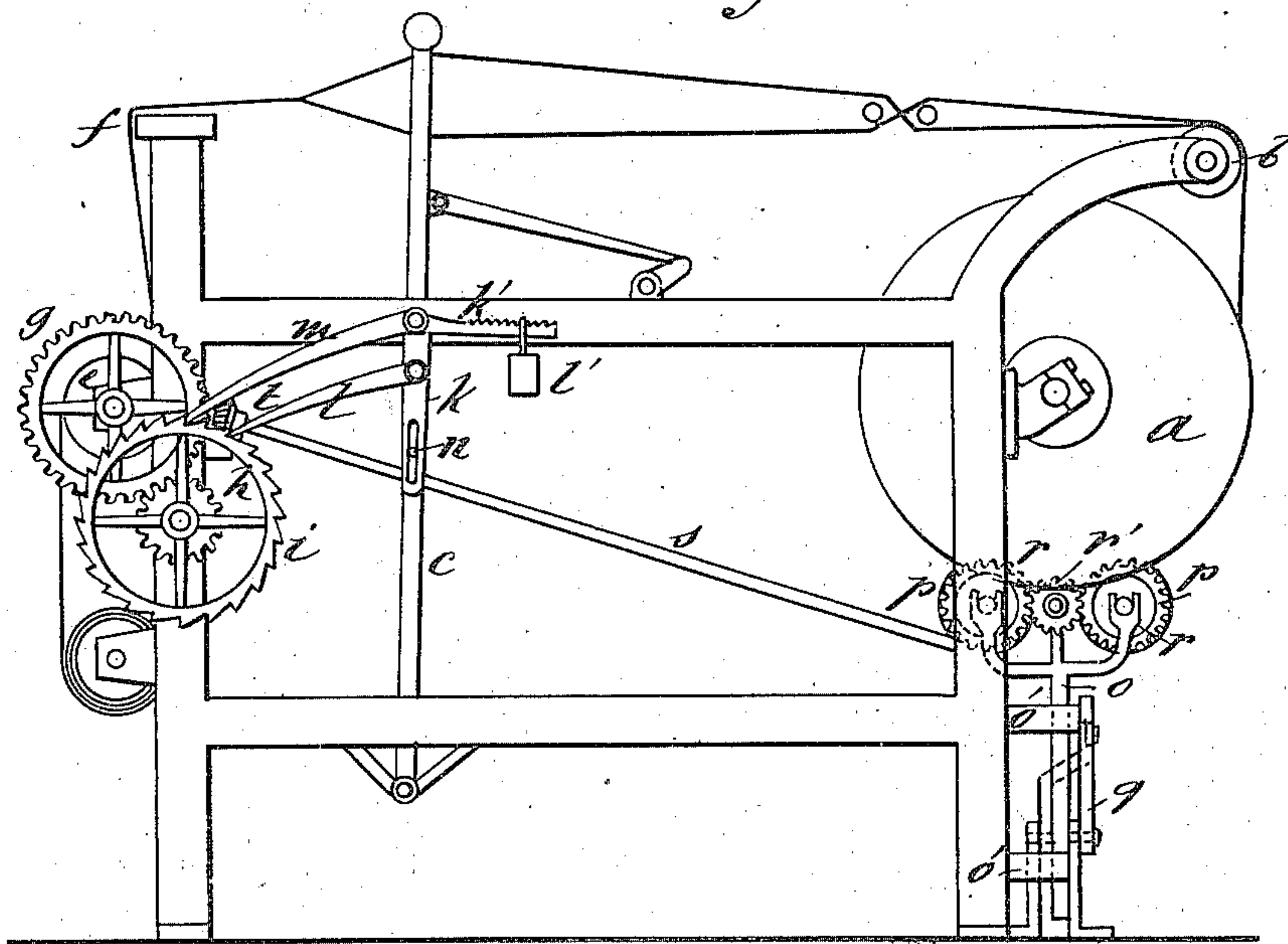
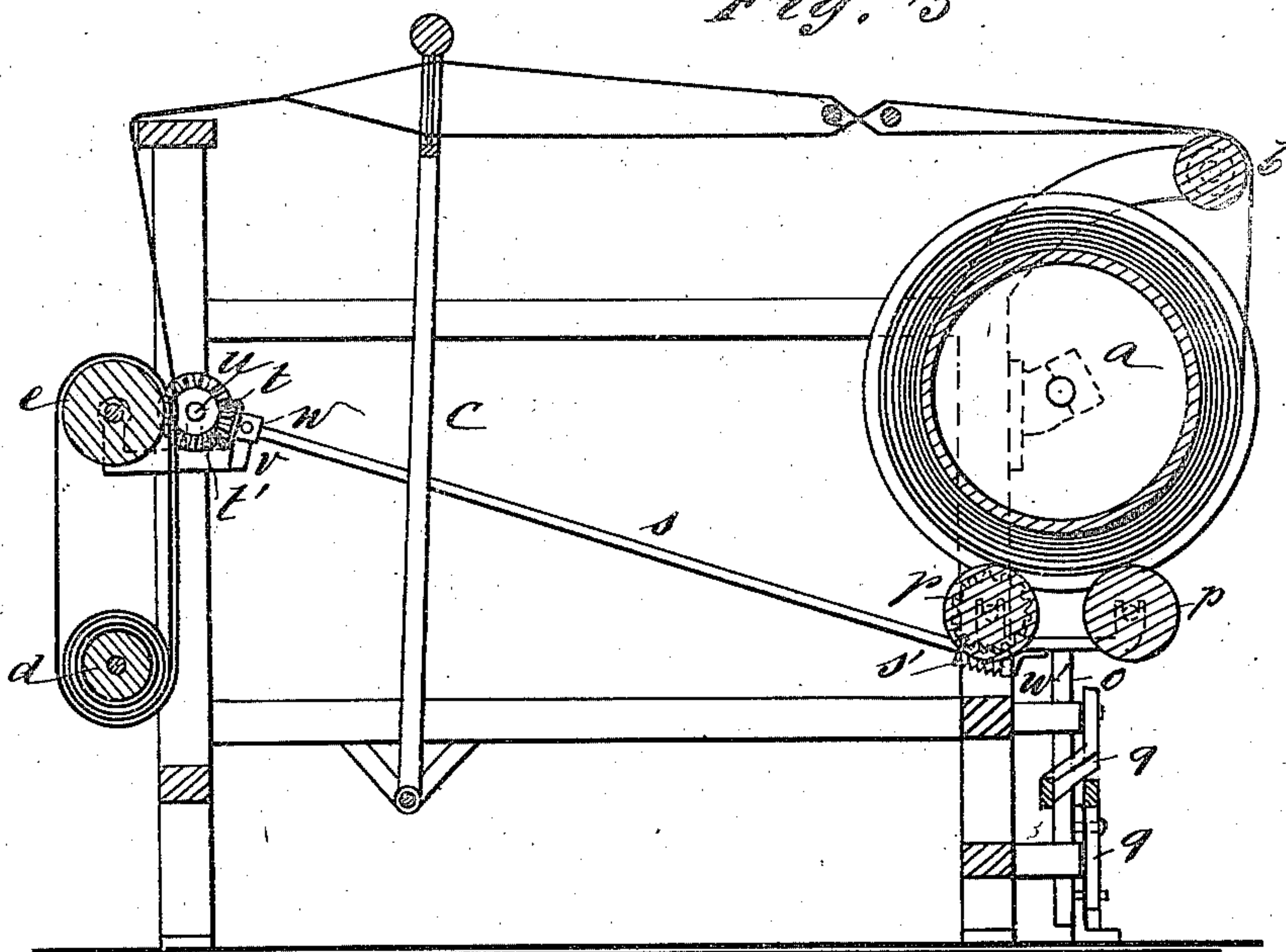


Fig. 3



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UNITED STATES PATENT OFFICE.

WILLIAM A. BRAMALL AND CHARLES R. INNES, OF CHESTER, PA.

TAKE-UP AND LET-OFF MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 246,714, dated September 6, 1881.

Application filed March 8, 1881. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. BRAMALL and CHARLES R. INNES, of Chester, in the county of Delaware and State of Pennsylvania, have invented a new and Improved Take-Up and Let-Off Mechanism for Looms, of which the following is a full, clear, and exact description.

The object of our invention is to operate the yarn-beam in looms by connections from the take-up mechanism, in order to provide for letting off the yarn uniformly.

Our invention consists in a sliding stand fitted for movement to and from the yarn-beam and carrying friction-rollers that are geared to the take-up mechanism. The stand rises as the yarn-beam diminishes in size, so that the friction-rollers bear constantly on the yarn.

In the accompanying drawings, forming part of this specification, Figure 1 is a rear elevation, partially broken, of a loom containing my improved devices. Fig. 2 is a side elevation, and Fig. 3 is a vertical cross-section, of the same.

Similar letters of reference indicate corresponding parts.

The loom shown is of ordinary construction.

a is the yarn-beam; *b*, the whip-roll; *cc*, the swords of the vibrating lay or batten. *d* is the roller on which the cloth is wound, and *e* the take-up roller, all as usual.

The cloth passes from breast-beam *f* to the cloth-roller *d* beneath the same, then up over roller *e*, and down again to the cloth-roller. The roller *e* is sanded, so that by its revolution it draws the cloth and at the same time turns the cloth-roller and winds the cloth thereon. On the end of take-up roller *e* is a gear-wheel, *g*, meshing with a pinion, *h*, that is carried by a stud fixed on the loom-frame. On the same stud and attached to pinion *h* is a ratchet-wheel, *i*, which is given a step-by-step motion by the devices next described and the take-up roller *e* thereby moved.

k is a lever, hung on a stud fixed on a side rail of the loom. *l* is a pawl, hung on lever *k* and resting on ratchet-wheel *i*. *m* is a pawl, hung on the fulcrum of lever *k* and engaging with wheel *i* to prevent back movement of the same. *n* is an arm or tail-piece, fixed on the side of the lay and extending through a slot

in lever *k*. With this construction lever *k* is vibrated by the lay so as to turn ratchet-wheel *i*.

At the back of the loom, and beneath yarn-beam *a*, is a stand consisting of forked rods or bars *o o*, that are fitted to slide in guides *o'*, fixed on the loom-frame, and rollers *p p*, that have their spindles journaled in the forked ends of rods *o*. The rollers *p* are thus sustained across the loom and between the flanges of the yarn-beam.

Beneath the rollers *p* two levers, *q q*, are hung on standards *q'*, and have their shorter arms connected by a pin and slot with the slide rods *o* to raise the rods *o* and sustain rollers *p* in contact with the yarn on beam *a*. The free ends of levers *q* act by their weight to raise the stand and retain the rollers *p* in contact with the yarn on beam *a*. The free ends of the levers are made in two pieces connected by a set-screw passing through a slot in one piece, so that the levers can be adjusted in length to vary the weight and leverage.

The spindles of rollers *p* carry gear-wheels *r*, that connect with an intermediate pinion, *r'*, that is hung on a stud between the forks of rod *o*, so that the rollers shall revolve together. *s* is the operating-shaft of the let-off mechanism, fitted with a worm, *s'*, that engages with one wheel, *r*, and carrying at its other end a bevel-pinion, *t*, that engages with a bevel-gear wheel *t'*. This bevel-gear *t'* is on a shaft, *u*, driven by straight gearing from the spindle of take-up roller *e*. The shaft *u* is sustained by a bracket, *v*, fixed on the loom-frame, on which bracket is hung a swing stud or box, *w*, that sustains this end of shaft *s*. The end of shaft *s* beneath beam *a* is stepped in a bracket, *w'*, fixed on one fork of rod *o*.

The operation is as follows: At each forward movement of the lay pawl *e* moves ratchet-wheel *i* the distance of one tooth or more, and the roller *e* being thereby turned, the cloth is taken up and wound on roller *d*. At the same time the gearing from roller *e* rotates the shaft *s* intermittently, and the worm *s'*, acting through gears *r r'*, turns the rollers *p*. These rollers in turn rotate the beam *a* by contact with the yarn, so that the yarn is given off intermittently at the time the cloth is taken up, and to the proper extent. As the diameter of the yarn wound on beam *a* diminishes, rollers

p rise with the stand, thereby maintaining contact, and the yarn is consequently unwound at a uniform speed and to the same extent at each movement.

5 It will be seen that the connections from the take-up to the rollers p are positive, so that, being once adjusted, the motions are unvarying.

The mechanism can be applied to any loom for weaving any kind of goods. To regulate
10 the movement to the grade of filling, either coarse or fine, lever k is provided with a side arm, k' , on which is hung a movable weight, l' . This weight is used for moving the lever k forward when fine goods are being made, in
15 place of the positive connection by the tail-piece or arm n . In that case the piece n will be out of the slot and the lever k behind it, so that as the lay moves forward the weight will force the lever forward and move the ratchet-
20 wheel the distance of one or more teeth, according to the adjustment of the weight and the tension of the cloth.

A chain may be used to connect the wheels r r in place of the intermediate r' .

Having thus described our invention, what 25 we claim as new, and desire to secure by Letters Patent, is—

1. In a loom, the combination, with the yarn-beam, of a sliding table provided with means for supporting and making it movable to and 30 from said beam, the friction-rollers, the take-up mechanism; and the gearing connecting the said take-up mechanism and friction-rollers, whereby the table or stand rises as the yarn-beam diminishes in size and the rollers 35 continue to press the yarn, as described.

2. The combination, in a loom, of bevel-gearing t t' , the take-up roller, shaft s , worm s' , gearing r r' , friction-rollers p , slides o , balancing-levers q , and yarn-beam a , substantially as 40 and for the purposes set forth.

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CHARLES R. INNES.

Witnesses:

JOHN ROBERTS,
FRANK INNIS.