

No. 615,635.

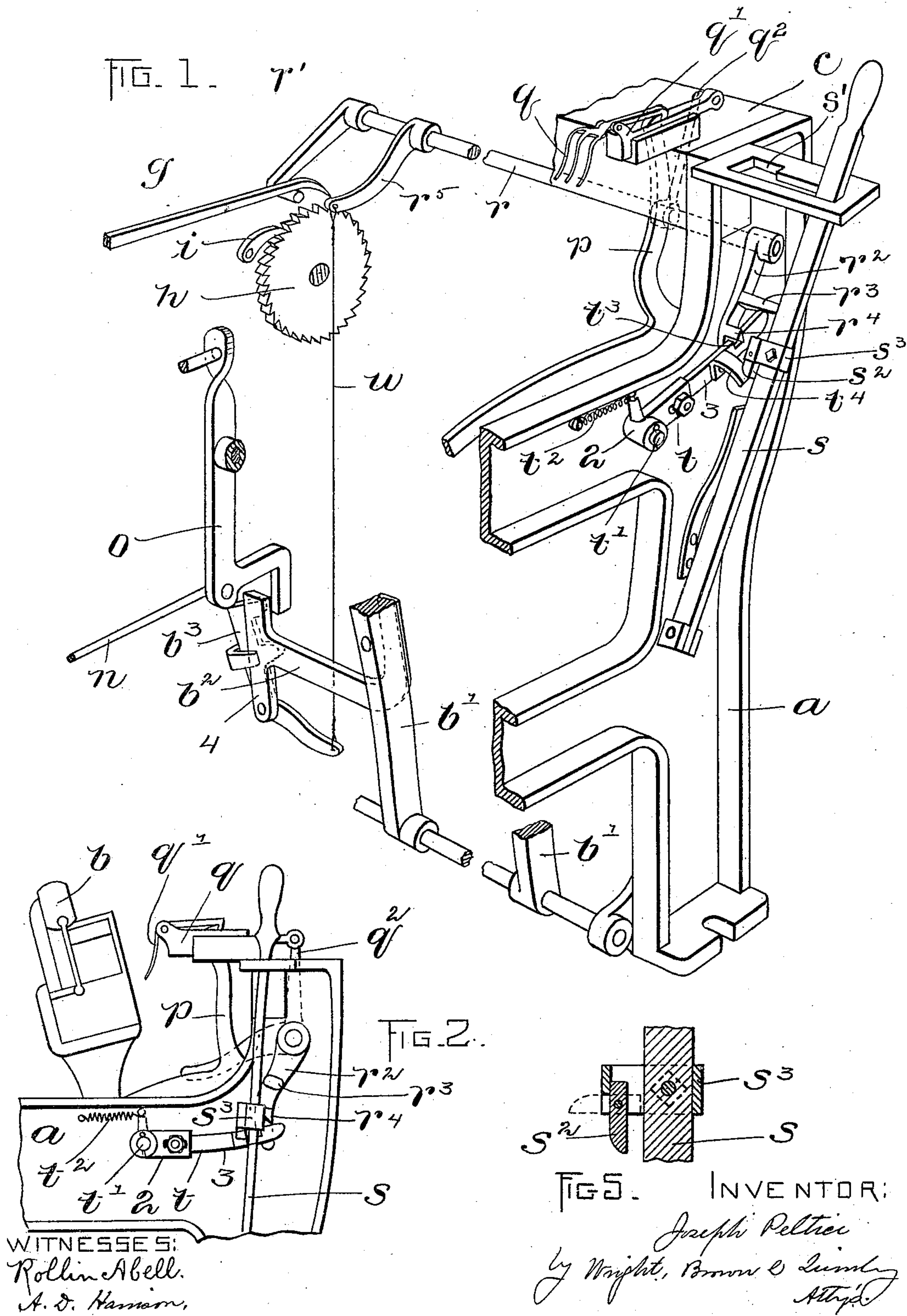
Patented Dec. 6, 1898.

J. PELTIER.
ATTACHMENT FOR LOOMS.

(Application filed Feb. 14, 1898.)

(No Model.)

2 Sheets—Sheet I.



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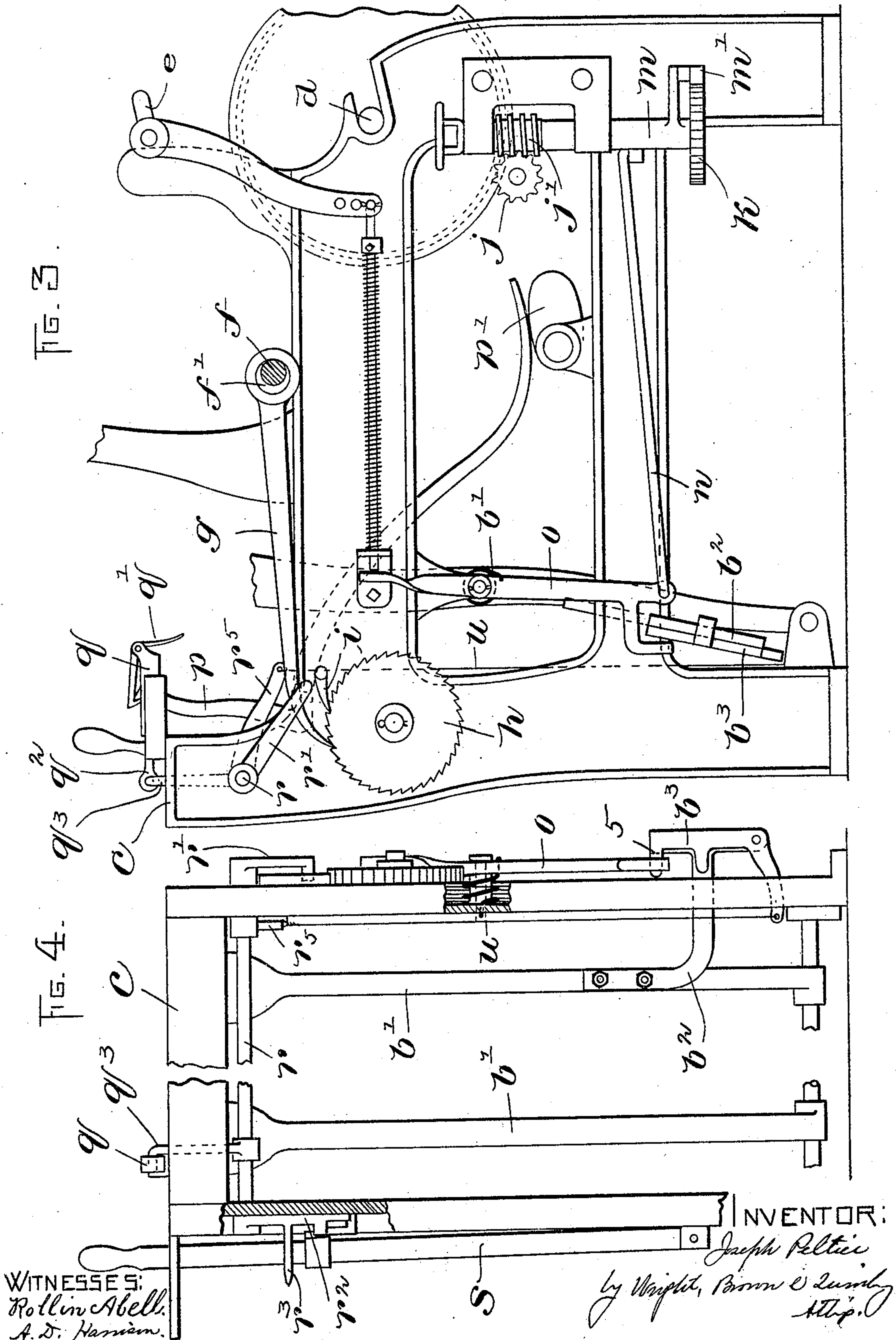
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2. Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

JOSEPH PELTIER, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO FRANCIS X. GRAVEL, OF SAME PLACE.

ATTACHMENT FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 615,635, dated December 6, 1898.

Application filed February 14, 1898. Serial No. 670,176. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH PELTIER, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Attachments for Looms, of which the following is a specification.

This invention relates to an improved attachment for looms; and it consists in the novel features of construction and arrangement which I shall now proceed to describe and claim.

Of the accompanying drawings, forming a part of this application, Figure 1 represents a perspective view showing sufficient of a loom to illustrate the construction and application of my invention. Fig. 2 represents a partial end view with the parts in another position. Fig. 3 represents a view of the other end of the loom. Fig. 4 represents a partial front elevation and section. Fig. 5 represents a detail vertical section taken through a portion of the shipper-lever.

The same reference characters indicate the same parts in all the figures.

In the embodiment of my invention hereinafter described I employ in connection with the usual stop-motion knock-off a series of devices whereby the take-up and let-off mechanisms are automatically stopped when the shipper-lever is knocked off and are held from action until said shipper-lever is again placed in the keeper-notch. When the shipper is knocked off by reason of the filling running out or breaking, the loom usually runs for a short time before coming to a full stop because of the momentum acquired by its parts. The take-up and let-off mechanisms if allowed to operate until the lay comes to rest will therefore advance the warps a short distance without any filling, and it becomes difficult on starting the loom again to lay the next weft-thread close up to the one which was last beat in. It is therefore desirable to stop both the take-up and let-off mechanisms the instant the shipper is knocked off in order to prevent the advance of the warps and also to maintain them at their proper tension. The object of my invention is to furnish an improved mechanism for accomplishing this result.

Referring to the drawings, *a* is the frame of the loom, *b* the lay, *b'* *b'* the lay-swords, *c* the breast-beam, *d* the warp-beam, *e* the whip-roll, *f* the crank-shaft, carrying the eccentric *f'*, which operates the take-up pawl *g*, *h* the take-up ratchet, and *i* the slack-pawl, all of which parts are of familiar construction and need no extended description. Parts of the usual let-off mechanism are also here shown, including the pinion *j*, worm *j'*, ratchet *k* on the worm-shaft, rocker-arm *m*, carrying pawl *m'*, and rod *n*, connected to rocker-arm and operated by the beat-lever *o*. I also show parts of the usual weft stop-motion, including the feeler or hammer *p*, operated by cam *p'*, slide *q*, carrying weft or filling fork *q'*, stop-motion rod or rock-shaft *r*, connected with slide by means of lever *q²* and carrying at its end an arm *r'*, which engages the take-up pawl *g*, and shipper-lever *s*.

r² is a knock-off lever carried at the end of the rod *r* and formed with a lug *r³*, which engages the shipper-lever *s*. When the filling breaks and the hook on the filling-fork *q'* is engaged by the feeler *p*, so as to move the slide *q'* and rock the rod *r*, the knock-off lever *r²* engages the shipper-lever and dislodges it from its keeper-notch *s'*, thus causing the belt to be shifted and the loom stopped in the well-known manner.

t is a catch-lever consisting of a hub portion 2 and an end portion 3, adjustably secured together, the said lever being pivoted to a stud *t'* on the frame of the loom and connected with a spring *t²*, which tends to elevate its forward end. The knock-off lever *r²* is formed with a lug *r⁴*, which normally rests on the upper edge of the catch-lever, but which enters a notch *t³* in said lever when the shipper-lever is knocked off, as shown in Fig. 1.

The positions occupied by the parts before the shipper is knocked off are shown in Fig. 2. If the lay on its forward stroke fails to lift the heel or hook of the filling-fork, the shipper will be knocked off on the next forward stroke of the feeler *p*, and the notch *t³* in the catch-lever will engage the lug *r⁴* on the knock-off lever and will hold the latter in its abnormal position, as shown in Fig. 1. The take-up pawl *g* is at the same time lifted by

the arm r^4 out of engagement with the ratchet h and is held in this position so long as the lug r^4 is engaged by the notch t^3 .

b^2 is a sword-hook secured to the right-hand lay-sword b' . This sword-hook does not itself engage the beat-lever o , as is usually the case, but carries a detent b^3 , which is arranged to be thrown into and out of position to engage said lever. The detent b^3 is formed as a bell-crank lever and is pivoted to a downward extension 4 of the sword-hook b^3 . Its lower inwardly-extending arm is preferably weighted and is connected by a wire u with the end of an arm r^5 , attached to the stop-motion rod r . Normally the detent b^3 lies up against the sword-hook b^2 , as shown in Fig. 4, so that a tongue 5, formed on its upper end, stands in a position to engage the lower end of the beat-lever o . Then when the lay is rocked the beat-lever is engaged in each stroke and the let-off mechanism actuated in the usual manner. When the shipper is knocked off, however, the arm r^5 is raised and the detent b^3 moved outwardly out of position to engage the beat-lever. The let-off mechanism is thereby rendered inoperative, and is so maintained as long as the catch-lever t holds the knock-off lever in its abnormal position. (Shown in Fig. 1.)

In addition to the foregoing I provide means for returning the parts automatically to their normal operative positions when the shipper-lever is placed in its keeper-notch to start the loom. Said means may comprise the following constructions: s^2 is a pivoted cam member or detent mounted in a bracket or collar s^3 , secured to the shipper-lever s and arranged to bear against a complementary cam member or lug t^4 , attached to the catch-lever t . The detent s^2 is arranged to engage a portion of the bracket s^3 and to be rigidly held in a vertical position, as shown in Fig. 5, when pressure is applied to its lower end in the direction of the shipper-lever. When pressure is applied in the opposite direction, the detent turns on its pivot and tends to assume the horizontal position shown in dotted lines. Assuming the parts to be in the position shown in Fig. 1, it will readily be seen that when the shipper-lever is moved to place it in the keeper-notch s' the detent s^2 moves against the cam-lug t^4 and depresses the catch-lever to which said lug is attached, thereby disengaging the notch t^3 from the lug r^4 and allowing the knock-off lever and the parts connected with and under the control of the stop-motion rod r to assume their normal positions. When the shipper-lever reaches the keeper-notch, the detent s^2 passes over the inner edge of the catch-lever t and locates between said lever and the frame-casting of the loom, thus giving the lever room for free upward movement. When the shipper-lever is knocked off, the detent s^2 yields in passing over the edge of the catch-lever.

To those familiar with the art the advan-

tages of my improvement will be apparent. Since the let-off and take-up mechanisms are positively held out of action, the lay may be moved back and forth by hand as many times as desired without moving the warp or the cloth. In the particular construction which I have shown as illustrating my invention the parts may be so related that the shipper-lever can be moved a considerable distance inward toward the keeper-notch from the position shown in Fig. 1 without releasing the knock-off lever r^2 from its engagement by the catch-lever t , thus enabling the operator to shift the belt onto the driving-pulley (or to actuate a clutch mechanism) to an extent sufficient to drive the lay without moving the take-up or let-off mechanisms. This will be appreciated as a time and labor saving improvement. The belt-shifting or clutch-operating mechanism connected with the shipper-lever s may be of any approved construction, and being well known in its operation is not illustrated in the drawings and needs no description.

I claim—

1. In a loom, a shipper-lever, a let-off mechanism, a beat-lever connected with and arranged to operate said let-off mechanism, a detent carried by the lay-sword and arranged to be moved into and out of position to engage said beat-lever, a knock-off device connected with said detent, means for actuating said knock-off device to knock off the shipper-lever and move the detent out of engaging position, and automatic means connected with the knock-off device for maintaining said detent out of its engaging position.

2. In a loom, a let-off mechanism, a beat-lever connected with and arranged to operate said let-off mechanism, a detent carried by the lay-sword and arranged to be moved in and out of position to engage said beat-lever, a knock-off device including a rock-shaft r and an arm r^5 carried thereby, a connection between said arm and said detent, means for actuating the knock-off device to rock the shaft r and move the detent out of engaging position, and automatic means connected with the knock-off device for maintaining said detent out of its engaging position.

3. In a loom, a shipper-lever, a member formed with a keeper-notch, a knock-off lever normally occupying an inoperative position, means for moving said knock-off lever to an abnormal position to release the shipper-lever from the keeper-notch, a catch-lever yieldingly actuated in a direction to engage the knock-off lever and hold the same in its abnormal position, and a cam member carried by the shipper-lever and adapted to move said catch-lever to disengage it from the knock-off lever when the shipper-lever is re-inserted in the keeper-notch.

4. In a loom, a shipper-lever, a part formed with a keeper-notch, a knock-off lever nor-

mally occupying an inoperative position,
 means for moving said knock-off lever to an
 abnormal position to release the shipper-lever
 from the keeper-notch, a catch-lever yieldingly
 5 actuated in a direction to engage the knock-
 off lever and hold the same in an abnormal
 position, the said catch-lever being formed
 with a cam-lug, and a pivoted cam-detent
 carried by the shipper-lever and adapted to
 10 act rigidly against the said cam-lug so as to
 disengage the catch-lever from the knock-off
 lever when the shipper-lever is reinserted in
 the keeper-notch, and to yield when said ship-
 per-lever moves in the opposite direction.
 15 5. In a loom, a shipper-lever, a rock-shaft *r*
 carrying at its opposite ends a pawl-retract-
 ing lever controlling the take-up and a knock-
 off lever adapted to engage and knock off the
 shipper-lever, a retaining-catch mounted on
 20 the side frame of the loom and yieldingly ac-
 tuated in a direction to engage the knock-off
 lever, said catch being normally restrained
 by said knock-off lever from such engagement,
 means for moving the weft-fork slide to knock
 25 off the shipper-lever and cause said engage-
 ment of the knock-off lever, and means on the
 shipper-lever for operating on said catch to
 disengage it from the knock-off lever when

the shipper-lever is moved in a loom-starting direction.

6. In a loom, a shipper-lever, a let-off mech- 30
 anism, a beat-lever connected with and ar-
 ranged to operate said let-off mechanism, a
 detent carried by the lay-sword and ar-
 ranged to be moved into and out of position 35
 to engage said beat-lever, a knock-off device
 including a rock-shaft *r*, an arm carried there-
 by, and a knock-off lever carried thereby and
 adapted to engage and knock off the shipper-
 lever, a connection between said arm and the 40
 detent, means for actuating the knock-off de-
 vice to rock the shaft *r* and move the detent
 out of engaging position, a catch normally
 actuated in the direction of the knock-off le-
 ver and adapted to engage the same so as to 45
 hold the detent out of its engaging position
 and means on the shipper-lever for operating
 on said catch to disengage it from the knock-
 off lever when the shipper-lever is moved in
 a loom-starting direction. 50

In testimony whereof I have affixed my sig-
 nature in presence of two witnesses.

JOSEPH PELTIER.

Witnesses:

EDWARD HICKORY,
 ULRIC TURGEON.