

Sheet 1-2 Sheets.

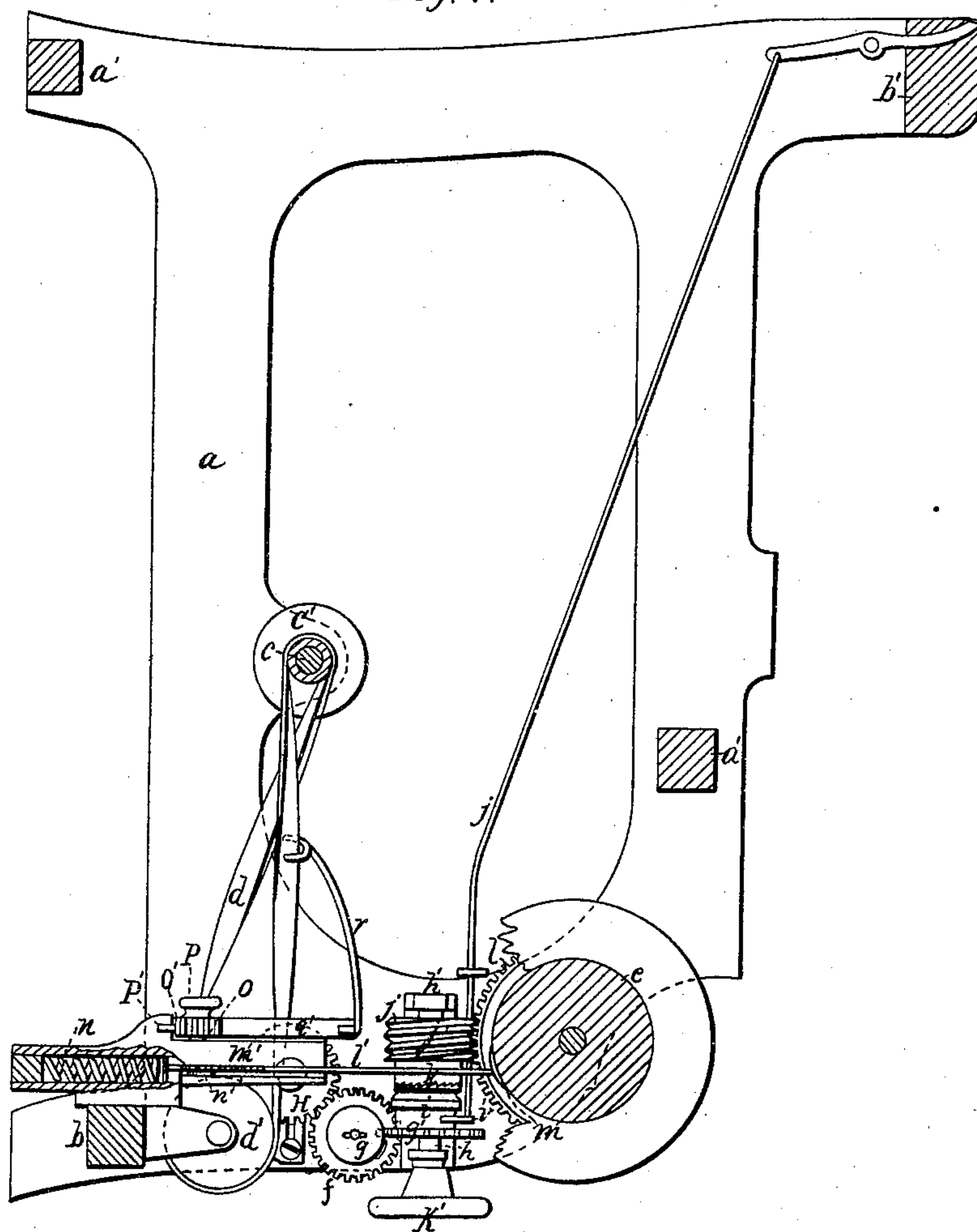
Potter & Labounty.

Let-Off Motion.

N^o 94,769.

Patented Sep. 14, 1869.

Fig. 1.



Witnesses.

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Inventor.

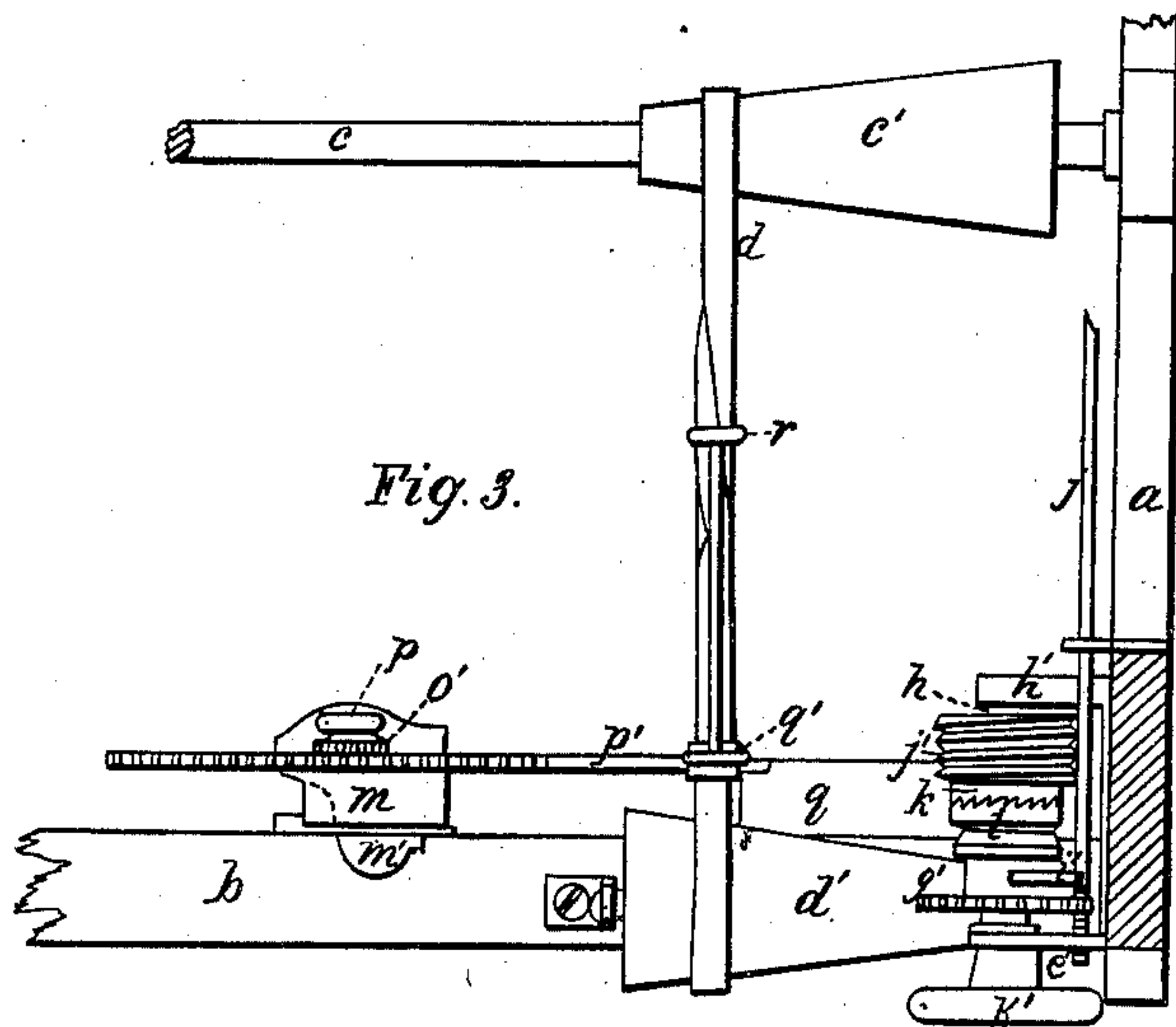
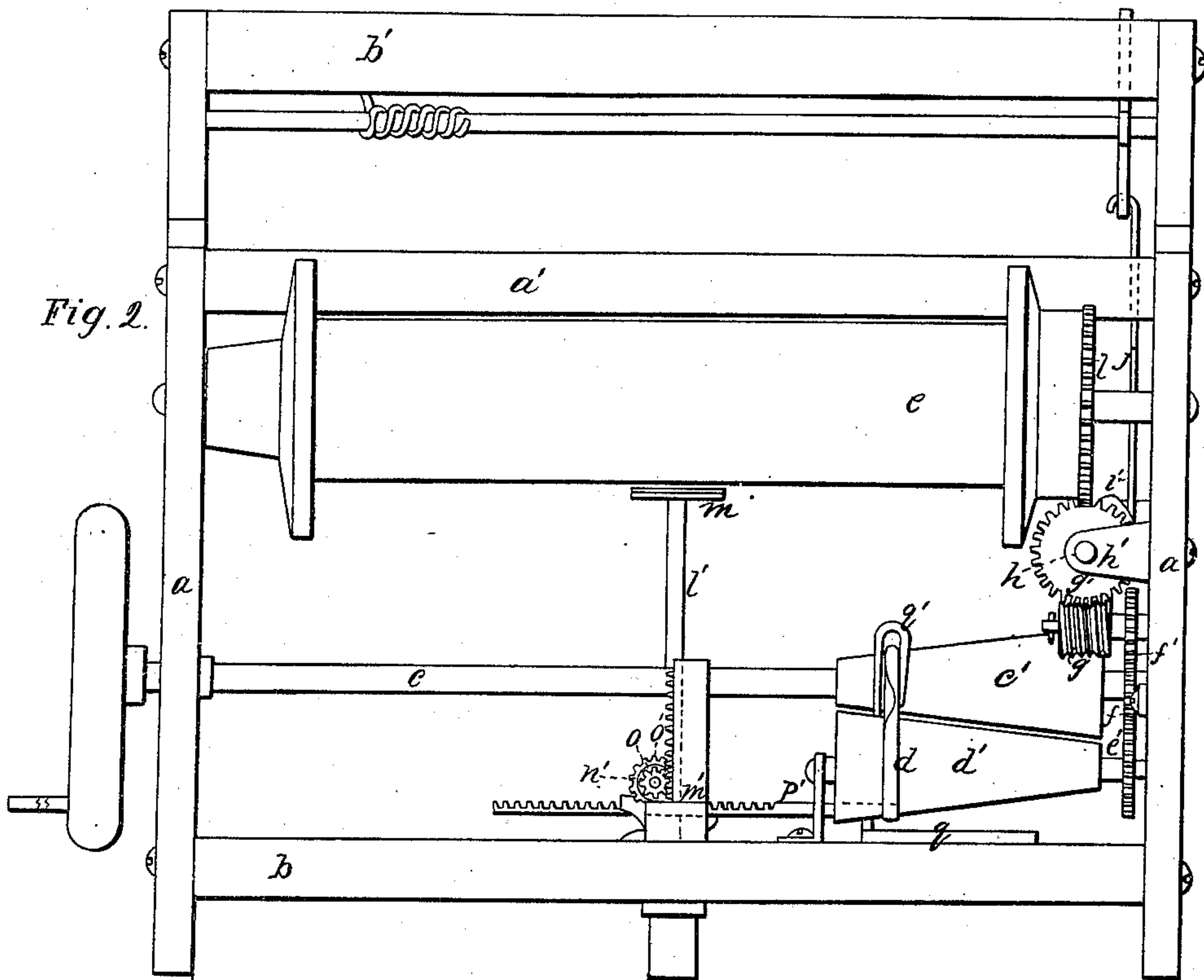
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Let-Off Motion.

N^o 94,769.

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Witnesses.

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United States Patent Office.

WILLIAM POTTER AND LEONARD J. LABOUNTY, OF LOWELL,
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Letters Patent No. 94,769, dated September 14, 1869.

IMPROVEMENT IN LET-OFF MECHANISM FOR LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, WILLIAM POTTER and LEONARD J. LABOUNTY, both of Lowell, in the county of Middlesex, and State of Massachusetts, have invented new and useful Improvements in a Positive Let-Off Motion for Looms; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of our invention consists in providing for looms a positive let-off, whereby the motion of the yarn-beam is increased during the process of weaving, by aid of a pad or suitable device, controlled by the decrease of yarn on the beam, and operating through racks and pinions, in combination with a cone or cones, transmitting this increased motion to the beam, through the requisite reducing gears and worms, thereby constantly giving out, through the entire process of weaving, the warp for the thickness of cloth required.

It also relates to the arrangement of the device, controlled by the stop-motion, in combination with the let-off, whereby the same may be engaged with or disengaged from the beam, for the purpose of stopping the motion of the same, in absence of the filling, or starting the same, when supplied with filling.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

Figure 1 represents a vertical section of a loom, with our improvements attached.

Figure 2 represents an end elevation of the same.

Figure 3 represents a plan view.

Similar letters in the different figures indicate corresponding parts.

a a represent the loom sides, which form the framework of the loom, united by the girts *a' a'* and *b*, and breast-beam *b'*.

c is the main shaft, to which power is applied, which is provided with suitable bearings, formed in the loom-sides *a a*, near one end of which is the driving-cone, *c'*, which imparts motion, by aid of the belt *d*, to the driven cone *d'*, which is provided with suitable bearings, they being located on the girt *b*, its axis being parallel with the main shaft *c*, and its surface reverse from the driving-cone *c'*. One cone alone may be used.

The surfaces of these cones are formed either straight, concave, or convex, to accomplish the required increase of motion to the beam *e*.

When two cones, *c'* and *d'*, are used, as represented in the drawings, the outside surface of the driving-cone *c'* is formed concave, and the outside surface of the driven cone *d'* is formed convex.

When one cone is used, its outside surface is formed straight.

On one end of the shaft of this driven cone *d'* is the gear *e'*, which may be changed for one having a more or less number of teeth, as the number of picks to the inch of cloth may require.

f is an intermediate gear, which communicates motion from the gear *e'* to the gear *f'*, secured on the inside of the loom-frame.

Attached to this gear *f'* is the worm *g*, which connects into the worm-gear *g'*, mounted in bearings formed in the stands *h*, secured to the loom-frame.

On the hub of this worm-gear *g'* is secured the clutch *i*, which is provided with a groove, in which works the clutch-lever, connected with the stop-motion rod *j*.

Secured near the end of this shaft *h* is the worm *j'*, with clutch *k*, which is so arranged as to engage the clutch *i*.

k is a balance-wheel, its object being to aid the operator in operating the beam *e* either backward or forward, as required.

l is a worm-gear, secured to the yarn-beam *e*, which gears into and connects with the worm *j*.

l' is a vertical rack, its top being provided with a pad or bearing, *m*, which is constantly kept in contact with the yarn on the beam *e*.

This rack slides in the stand *m'*, which is secured to the girt *b*, directly under the beam *e*.

This stand *m'* is also furnished with a chamber, for the reception of the spring *n*, upon which rests the bottom of the rack *l'*, thus keeping the pad *m* constantly pressed against the outer surface of the yarn on the beam *e*.

Gearing into this vertical rack *l'* is the pinion *n'*, secured to the shaft *o*, which is provided with bearings formed in the stand *m'*.

On the other end of this shaft *o* is the pinion *o'*, which is adjustable, by means of the thumb-screw *p*, the object of which is to determine and fix the number of picks to the inch, at the commencement of weaving.

This pinion *o'* gears into and operates the horizontal rack *p'*, which slides in suitable bearings, formed in the stand *m'*, and an additional guide and stand, *q*, which is secured to the girt *b*, and operates the belt *d*, by aid of the belt-guides *q'* and *r*, which are attached to the end of the rack.

The number of picks being established approximately, by means of the gear *e'*, or other gears *f'* and *g'*, and accurately fixed, by means of the adjustable gear *o'*, operating on the horizontal rack *p'*, changing the position of the belt *d*, on the cone or cones *c'* and *d'*, starts and furnishes the number of picks or threads to the inch, through the entire web.

The pad *m* is kept against the yarn by means of the spring *n* pressing up the vertical rack *l'*, which

operates the horizontal rack p' , by aid of the vertical rack l' , and pinions n' and o' , thus operating the belt d by means of the belt-guides q' and r , changing the position of the same on the cones c' and d' , corresponding with the decrease of yarn on the beam e , and thus increasing the motion of the same as the filling demands.

In the absence of the filling, from any cause whatever, as by breakage, or otherwise, the clutches i and k , which connect with the stop-motion rod j , by means of the forks i' i'' , will disconnect the worm-gear g' from the worm g , and stop the beam e , until this defect is remedied by a fresh supply of filling.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the racks l' and p' , pinions n' and o' , and cones c' and d' , when arranged substantially as herein described, and for the purpose set forth.

2. The combination of the clutches i and k , and gears g and g' , with the stop-motion rod j , when used in connection with the cones c' and d' , for the purposes herein described and specified.

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Witnesses:

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