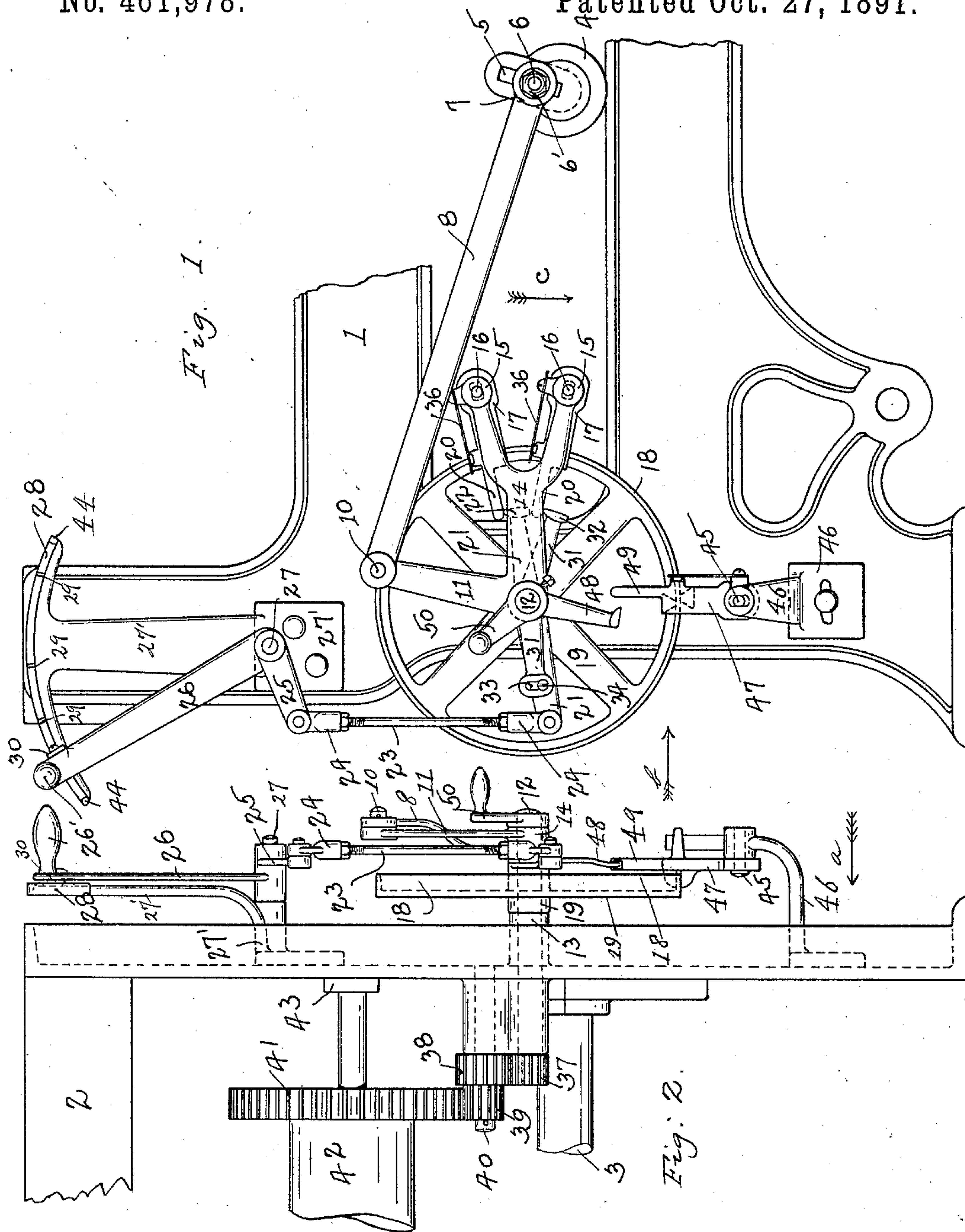


2 Sheets—Sheet 1.

No. 461,978.

Patented Oct. 27, 1891.



Witnesses

W^m L. Chase
Chas. T. Fletcher

Inventor

George F. Hutchinson

By *his* Attorney

John C. Dewey

(No Model.)

2 Sheets—Sheet 2.

G. F. HUTCHINS.
TAKE-UP MECHANISM FOR LOOMS.

No. 461,978.

Patented Oct. 27, 1891.

Fig. 5.

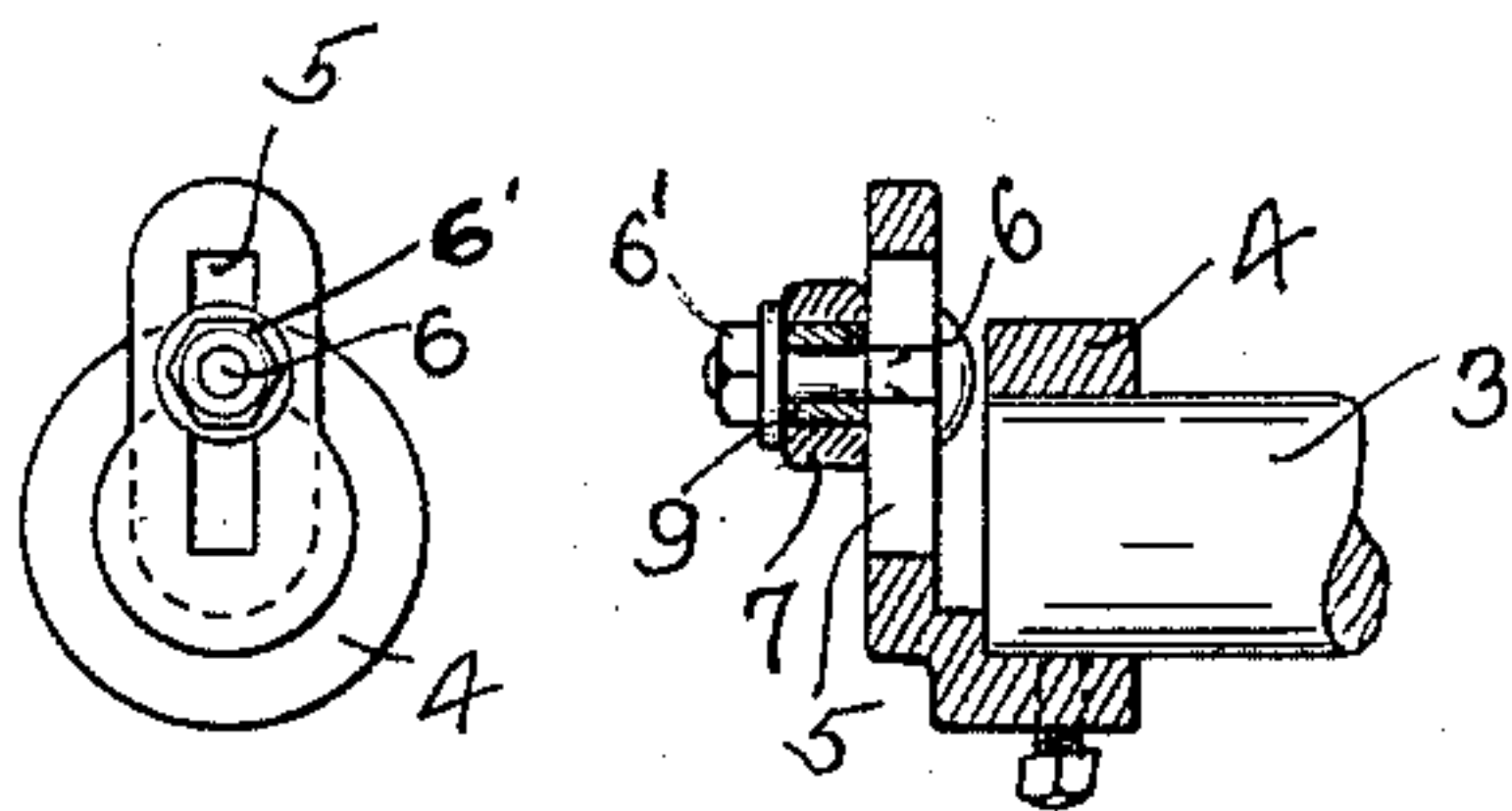
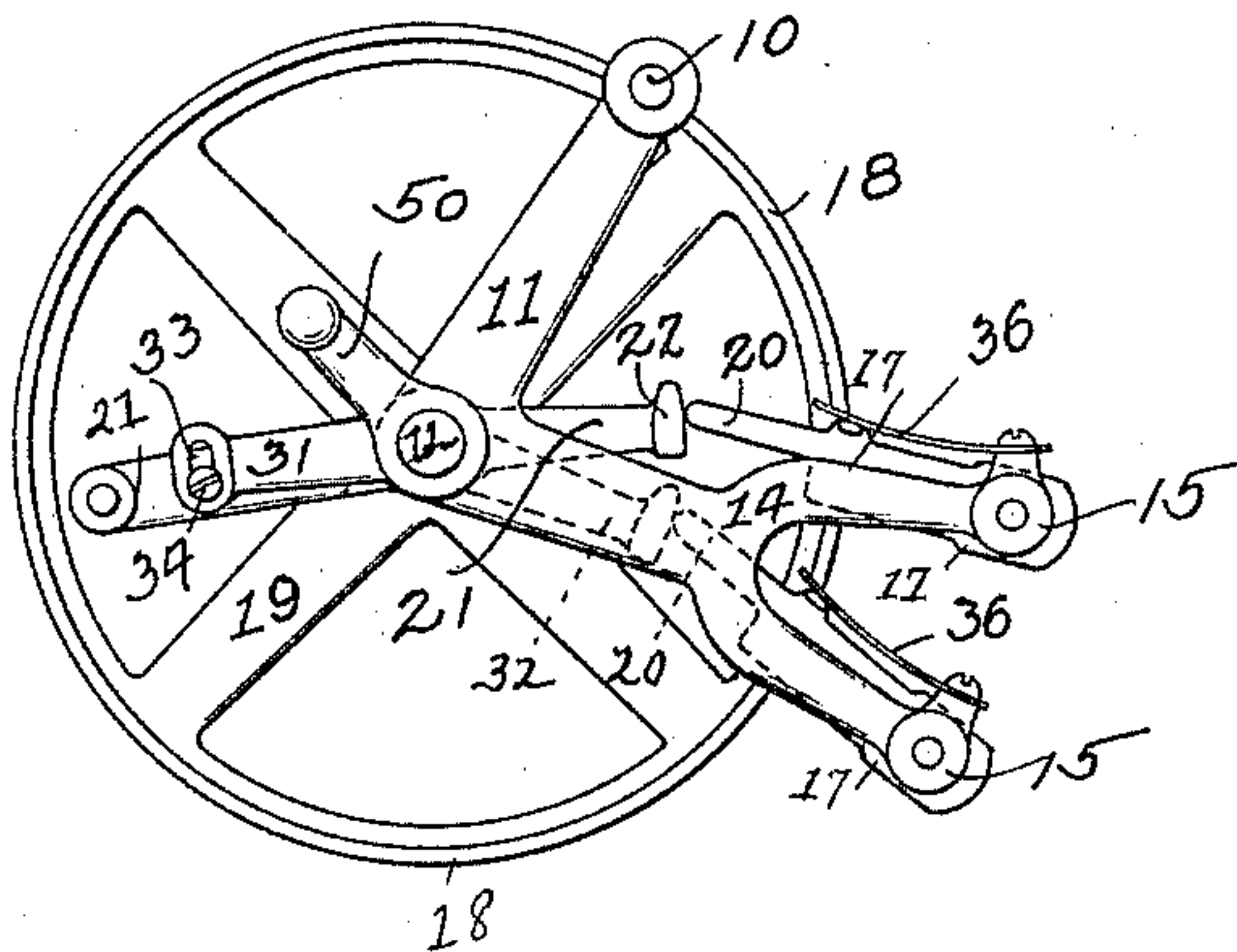


Fig. 3.

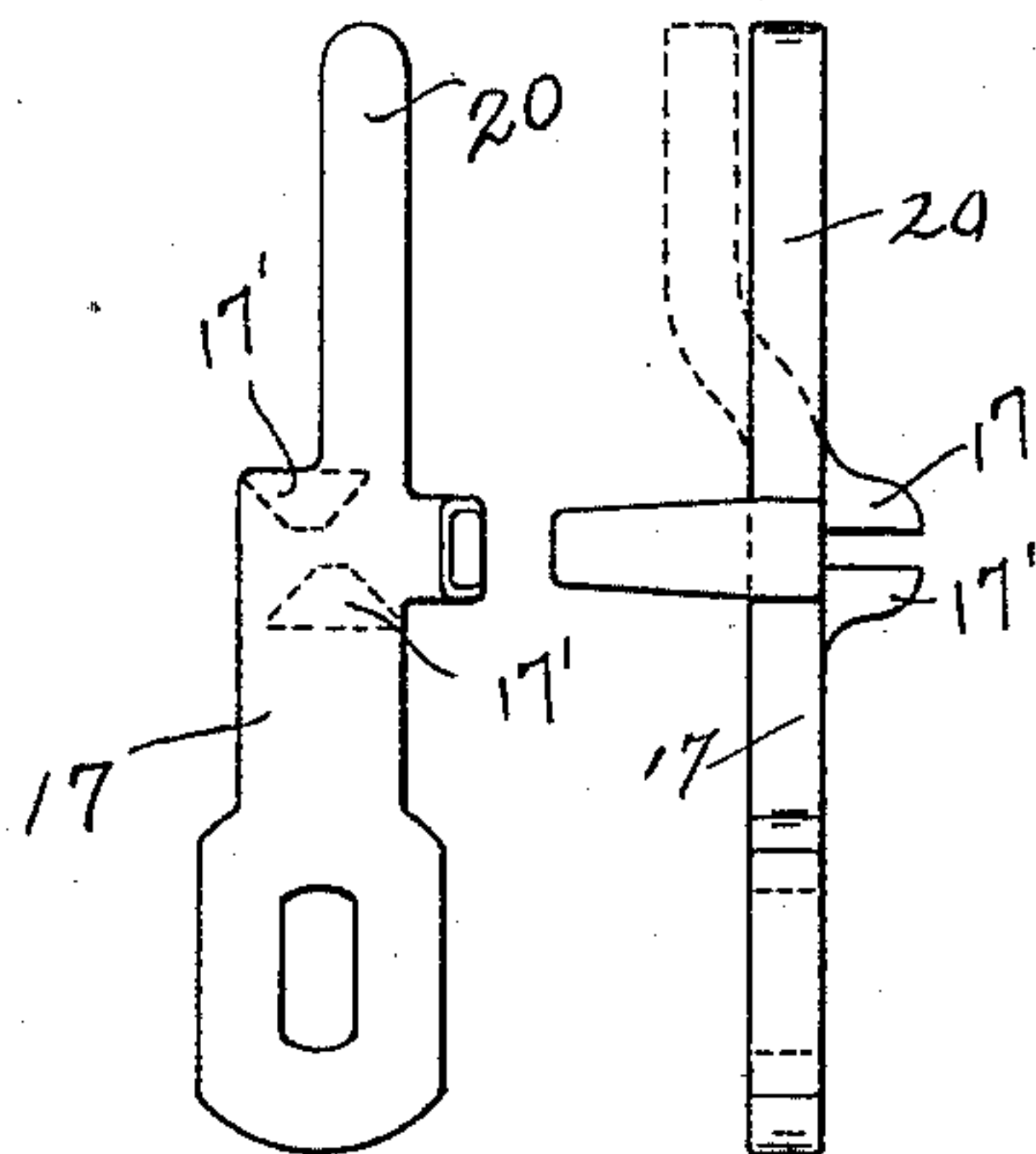


Fig. 4.

Witnesses

Wm L. Chase

Chas. T. Fletcher

Inventor

George F. Hutchins

By his Attorney

John E. Dewey

UNITED STATES PATENT OFFICE.

GEORGE F. HUTCHINS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE
KNOWLES LOOM WORKS, OF SAME PLACE.

TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 461,978, dated October 27, 1891.

Application filed April 17, 1891. Serial No. 389,334. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Take-Up Mechanism for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to take-up mechanism for looms; and the object of my invention is to provide a simple and convenient mechanism by means of which the speed of the take-up roll can be varied at will by the operator to suit different sizes of the filling-threads and the consequent different number of picks in the fabric in the same piece of goods.

My invention consists in certain novel features of construction and operation of the take-up mechanism, as will be hereinafter described, and the nature thereof indicated by the claims.

Referring to the drawings, Figure 1 is a side elevation looking in the direction of arrow *a*, Fig. 2, showing a portion of a loom with my improved take-up mechanism applied thereto. Fig. 2 is a front elevation of the parts shown in Fig. 1, looking in the direction of arrow *b*, same figure. Some of the parts shown in Fig. 1 are left off in Fig. 2 for sake of clearness in illustration. Fig. 3 is a detail of the bottom-shaft crank-sleeve. Fig. 4 is a detail of the gripping-pawls on an enlarged scale, and Fig. 5 is a detail showing another position of the gripping-pawls and cam-levers from what is shown in Fig. 1.

In the accompanying drawings, 1 is the loom side; 2, the breast-beam; 3, the bottom shaft, all as ordinarily constructed.

On the end of the bottom shaft 3 is fast a crank-hub 4, provided with a slot 5, cut under (see Fig. 3) to receive the head of bolt 6, which serves as the crank-pin and which can be moved toward or from the center of the crank-hub to vary the throw of the crank and the consequent movement of the loom take-up.

The hub 7 of the connector 8 is bored out to receive loosely the sleeve 9, the barrel of which is a trifle longer than the thickness of the hub 7, allowing the nut 6' of bolt 6 to be screwed down tight on the end of the sleeve, while allowing freedom of movement to the connector 8. The opposite end of the connector 8 is pivotally attached at 10 to one arm of the gripping-lever 11, pivoted loosely on a shaft 12, fitted to turn freely in a bearing 13 on the loom side. (See Fig. 2.) The other arm 14 of the gripping-lever 11 is made forked, having the hubs 15 on the ends thereof drilled to receive studs 16, on which are pivoted gripping-pawls 17. The gripping-pawls 17, provided with gripping-surfaces 17', act on the rim 18 of the gripping-wheel 19, fast on the shaft 12, in the same manner as is fully set forth in Letters Patent of the United States granted to me, No. 438,269. In this instance the gripping-pawls 17 are provided with arms 20, extending toward the center of the gripping-wheel 19, and are offset so as to clear each other in a vertical direction, as shown in Fig. 4.

Pivoted loosely on shaft 12, between the hub of the gripping-wheel 19 and the gripping-lever 11 14, is a lever 21, which terminates in a cam-point 22, adapted to engage the arm 20 of the upper gripping-pawl 17, pivoted to the upper fork-arm of lever 11 14. The lever 21 at the opposite end is jointed to the connector 23 and made adjustable in length by the screw ends 24. The upper end of the connector 23 is jointed to the lower arm 25 of the angle-lever 25 26, provided with a handle 26' and pivoted at 27 on a stand 27', bolted to the loom side. (See Figs. 1 and 2.) The top of the stand 27' is provided with a rim 28, made in the arc of a circle whose center is at the pivot-point 27 of the angle-lever 25 26. In the edges of the rim 28 are cut a series of notches 29, into which the plate 30, fast on the lever-arm 26, is held by the spring of lever-arm 26 in whatever position it may be left.

Pivoted loosely on shaft 12, alongside of lever 21, is a second lever 31, terminating in a cam-point 32, similar to cam-point 22 on lever 21 and adapted to engage the arm 20 of

the lower gripping-pawl 17, pivoted on the lower fork-arm of lever 11 14. The lever 31 at its opposite end is provided with a slot 33, through which passes a screw 34, binding lever 31 to lever 21. The slot 33 allows the cam-point 32 to be nicely adjusted to the arm 20 of the pawl 17 relatively to the position of the cam-point 22 to its arm 20 of its gripping-pawl 17.

The operation of the parts above described is as follows: Motion being given to the crank 6 by the revolution of the crank shaft 3, the gripping-lever 11 14, through connector 8, is made to rock through an angle determined by the position of the crank-bolt 6 in the slot 5. As stated in the patent above referred to, the gripping-pawls 17 slip on the rim 18 of the gripping-wheel 19 when the gripping-lever 11 14 is moved in the direction of arrow c, Fig. 1; but on the reverse motion of the gripping-lever the gripping-pawls 17 grip the rim 18, turning the wheel 19 in a direction opposite to that indicated by arrow c. If, however, the levers 21 and 31 are set, by throwing over hand-lever 26, so that for the last part of the movement of the gripping-pawls 17 in the direction of arrow c the cam-points 22 and 32 engage the arms 20 of the gripping-pawls 17, said pawls 17 will be thrown back against the pressure of flat springs 36, fast to the hubs 15, into the position shown in Fig. 5, and on the reverse movement of the lever 11 14, carrying the gripping-pawls 17, the wheel 19 will remain at rest up to the point at which the arms 20 become disengaged from their respective cam-points, allowing the springs 36 to throw the gripping-pawls 17 into contact with the rim 18 and move the wheel 19 for the balance of the movement in the opposite direction to arrow c. The revolution of shaft 12 is transmitted through pinion 37, fast on the inner end of said shaft, to pinion 38, compound with pinion 39 and running loose on a stud 40, fast on the loom side. The pinion 39 meshes with a gear 41, fast on the end of the take-up roll 42, which turns in bearings 43 on the loom side. For convenience in turning the take-up roll 42 back when it is desired to slack the cloth, I arrange the rim 28 and the adjustment of connector 23 and cam-points 22 and 32 in such a manner that when the hand-lever 26 is thrown forward against the stop 44 on the rim 28 the gripping lugs or projections 17' on the pawls 17 are held out of gripping engagement with the rim 18 of the gripping-wheel 19 at all points in the travel of the gripping-lever 11 14. Pivoted on a stud 45 in a stand 46, bolted to the loom side, is a holdfast gripping-pawl 47, provided with lugs or gripping projections 47', similar to pawls 17, above described, which grip the rim 18 of the gripping-wheel 19 and prevent the take-up from running back by the strain of the cloth. When the hand-lever 26 is thrown forward against stop 44 to free the gripping-wheel 19 from the action of the gripping-pawls

17, the arm 48, integral with the lever 31, is made, by adjusting the position of stand 46 on the loom-frame, to strike the projecting arm 49 of holdfast-pawl 47, freeing said pawl from the gripping-wheel and allowing the take-up roll to be turned backward by means of the handle 50, fast on the outer end of shaft 12.

The advantages of my improvements in take-up mechanism herein described will be appreciated by those skilled in the art.

It will be seen that, though the movement of the gripping-lever 11, carrying the gripping-pawls 17 and operated through the connector 8, is always the same, the action of the gripping-pawls 17 on the gripping-wheel 19 is variable, for by means of the levers 21 and 31 the gripping-pawls are prevented from acting on the gripping-wheel to turn the same, notwithstanding the regular movement of the gripping-lever 11, until such a time as is required to give the proper amount of movement to the take-up roll. When the levers 21 and 31 are once adjusted by means of the mechanism connected therewith, the gripping-wheel 19 will revolve only so much each movement of the gripping-lever. By changing the position of the levers 21 and 31 the action of the gripping-pawls 17 on the gripping-wheel can be varied so as to regulate the revolution of said gripping-wheel, and, through the intervening mechanism, the take-up roll.

In the mechanism described in the patent above referred to the gripping-pawls will grip and turn the gripping-wheel during the whole movement of the gripping-lever, and there is nothing in said mechanism to regulate the action of the gripping-pawls relatively to the gripping-lever carrying said pawls, which is an important feature in my present invention.

I have shown in the drawings and described herein the take-up mechanism driven from a crank on the bottom shaft; but it will be understood by those skilled in the art that the take-up mechanism could be driven equally well by attaching the connector 8 to the lay-sword or in any other common way. I have also shown in the drawings and described herein the gearing-train of the take-up roll 42 compounded with intermediate gears on a stud. This construction would not be necessary in all cases, as the gear on the take-up roll could sometimes be run directly by the pinion on the shaft 12.

It will be understood that the details of construction of the several parts of my take-up mechanism may be varied some from what is shown and described, if desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In take-up mechanism for looms, the combination, with a take-up roll, connections to a gripping-wheel, and said gripping-wheel, of a gripping-lever carrying pawls for oper-

ating the gripping-wheel, and mechanism adapted to act on said gripping-pawls to vary the action thereof on the gripping-wheel relatively to the movement of the gripping-lever, 5 for the purpose stated, substantially as set forth.

2. In take-up mechanism for looms, the combination, with the take-up roll, connections to a gripping-wheel, and said gripping-wheel, and a gripping-lever carrying gripping-pawls adapted to engage and move said gripping-wheel, and means for operating said gripping-lever, of levers adapted to engage the gripping-pawls and regulate the action 15 thereof on the gripping-wheel relatively to the movement of the gripping-lever, for the purpose stated, substantially as set forth.

3. In take-up mechanism for looms, the combination, with the take-up roll, connections to a gripping-wheel, and said gripping-wheel, and a gripping-lever carrying gripping-pawls for operating said gripping-wheel, and means for operating said gripping-lever, 20

of mechanism for acting on the gripping-pawls to prevent them from gripping and revolving 25 the gripping-wheel during the full movement of the gripping-lever, for the purpose stated, substantially as set forth.

4. In take-up mechanism for looms, the combination, with the take-up roll, connections to the gripping-wheel, and said gripping-wheel, and the gripping-lever provided with gripping-pawls for operating said gripping-wheel, of means for regulating the action of the gripping-pawls relatively to the movement of the gripping-lever, consisting of levers adapted to engage the gripping-pawls, connections from said levers to a hand-lever, and said hand-lever, and a notched rim to hold the hand-lever in the position desired, 40 for the purpose stated, substantially as set forth.

GEORGE F. HUTCHINS.

Witnesses:

JOHN C. DEWEY,
PHOEBE SYKES.