

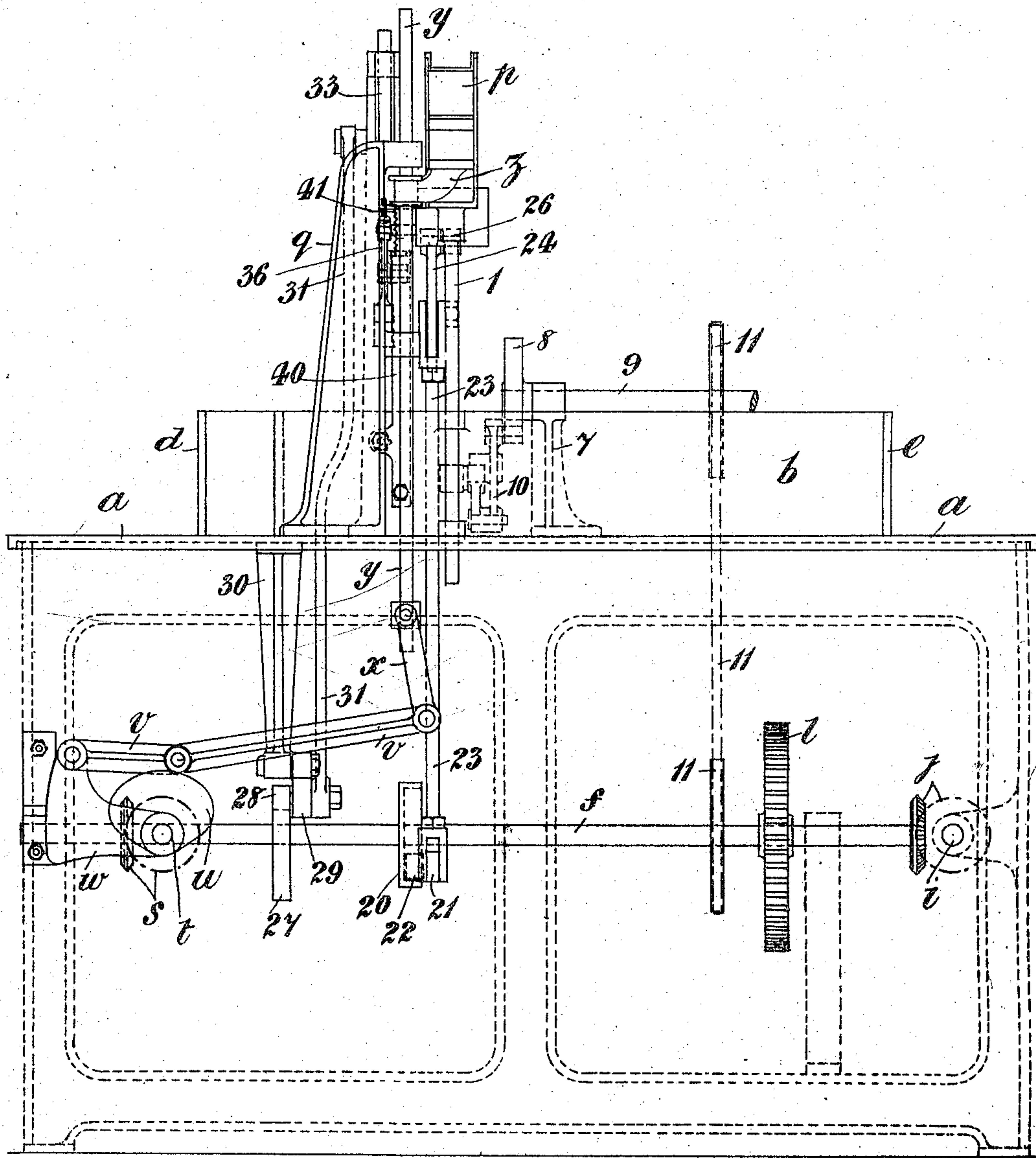
No. 785,203.

PATENTED MAR. 21, 1905.

C. H. & A. DAY.
PACKAGING MACHINE.
APPLICATION FILED MAR. 7, 1904.

5 SHEETS—SHEET 1.

Fig. 1.



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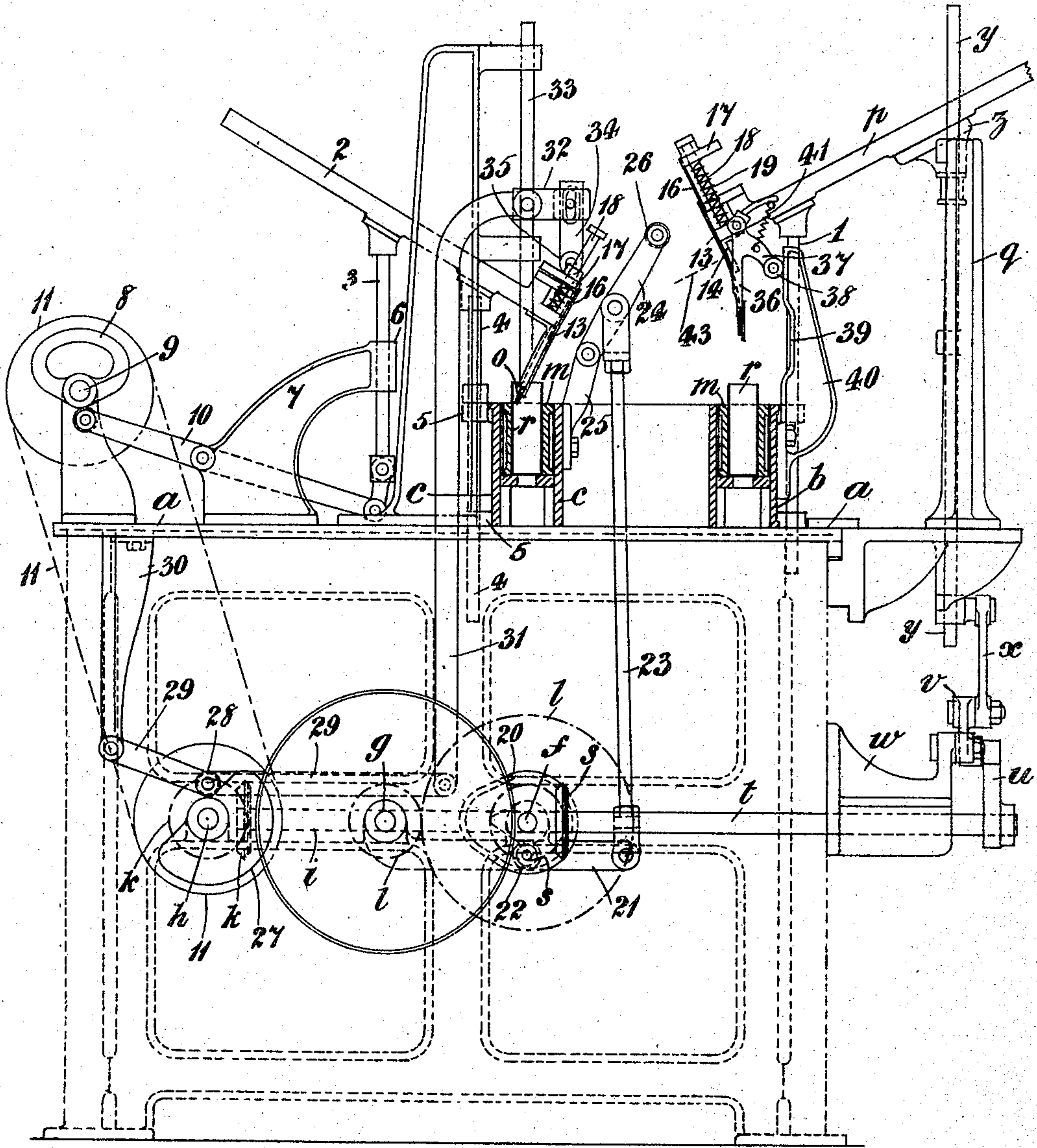
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5 SHEETS—SHEET 2.

Fig. 2.



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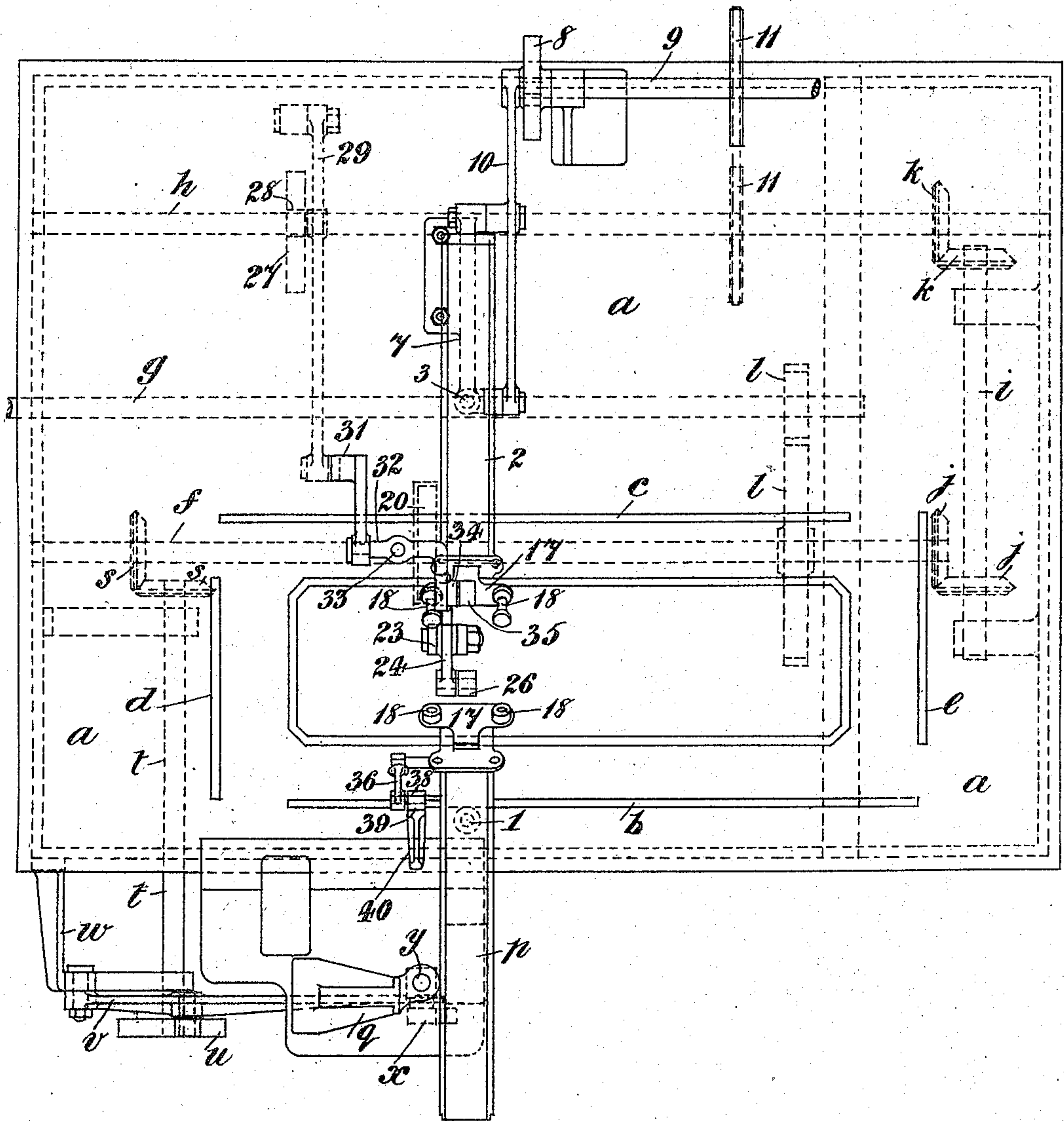
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5 SHEETS—SHEET 3.

Fig. 3.



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5 SHEETS—SHEET 4.

Fig. 11.

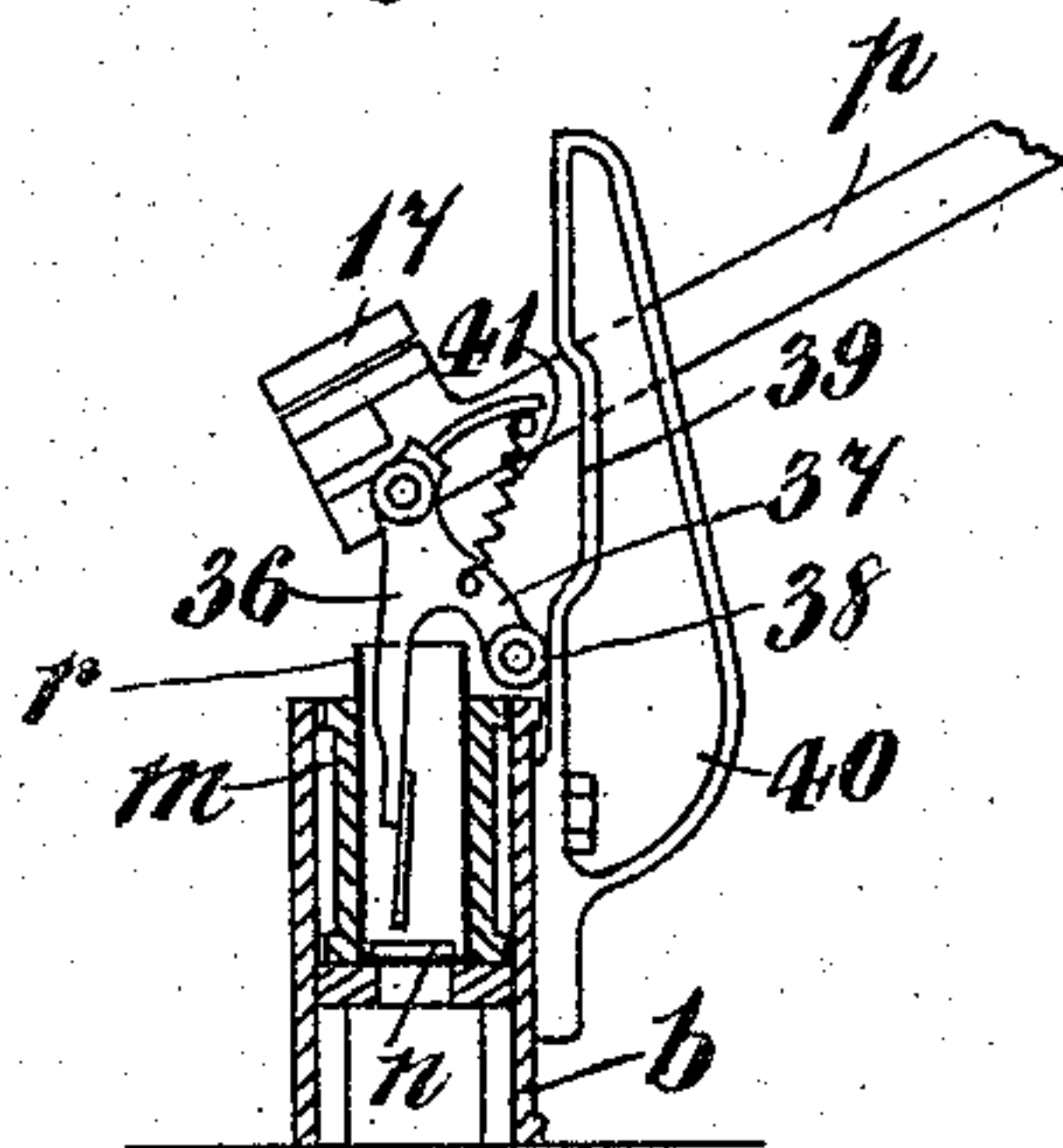


Fig. 4.

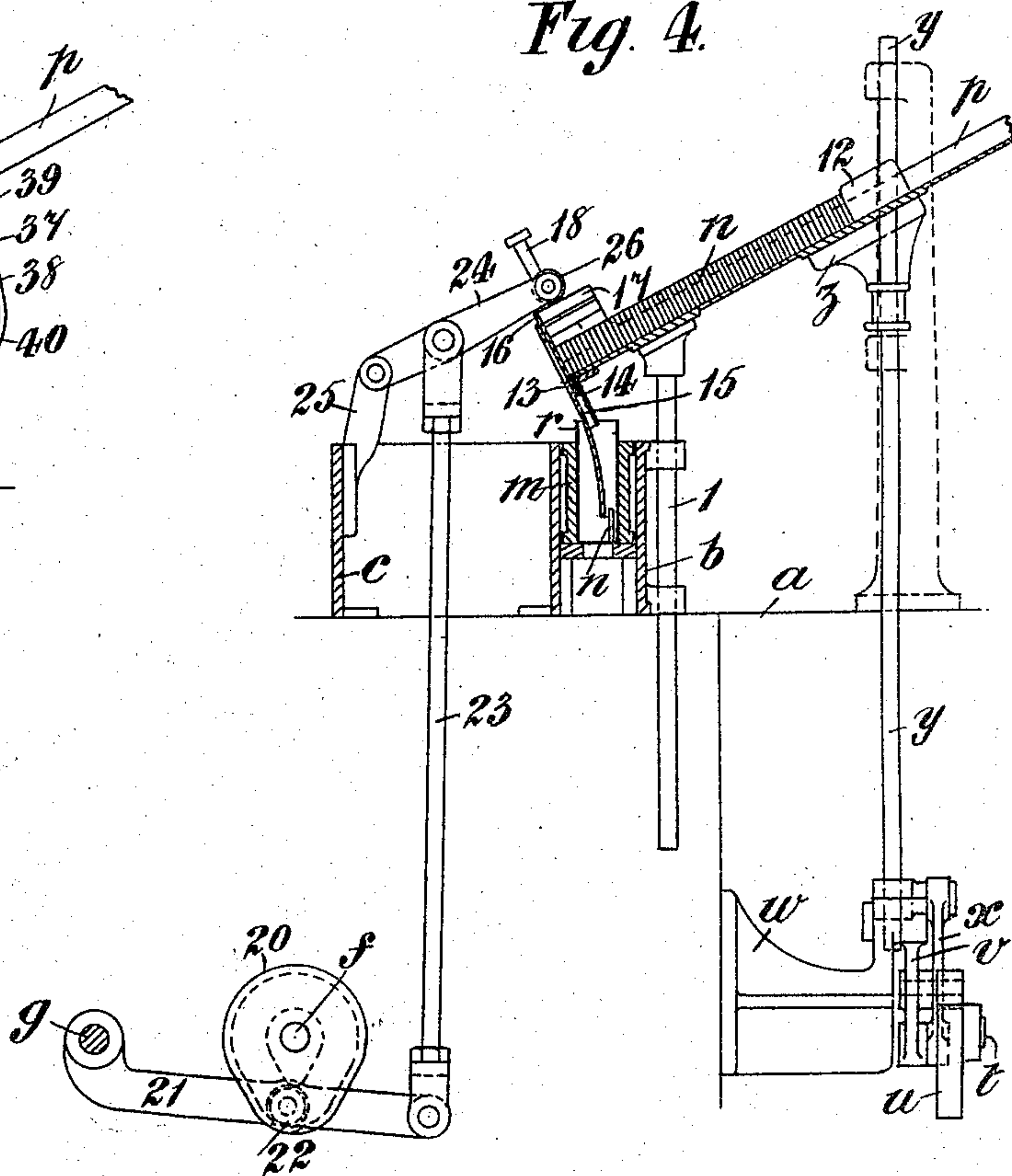


Fig. 10.

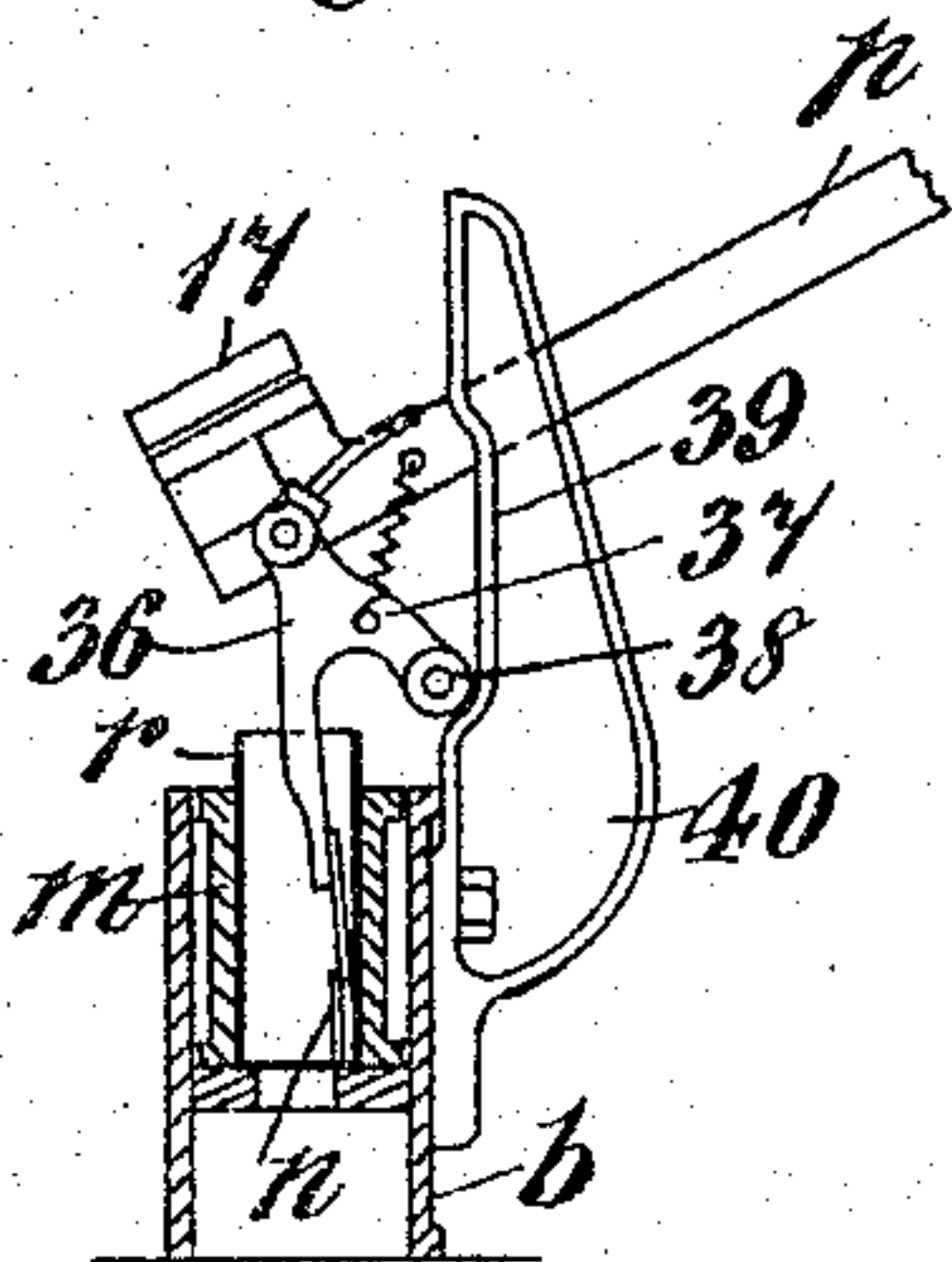
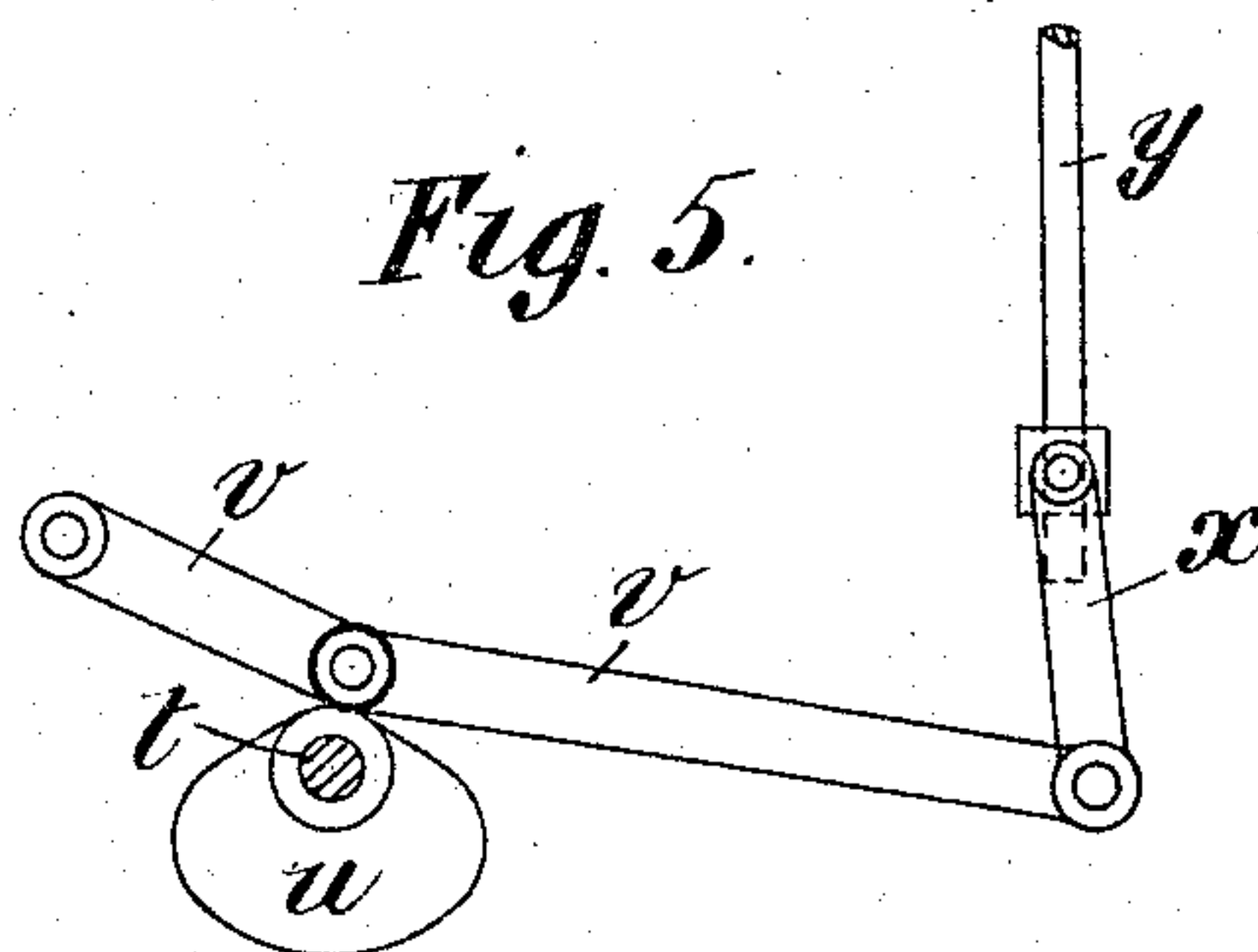


Fig. 5.



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5 SHEETS—SHEET 5.

Fig. 9.

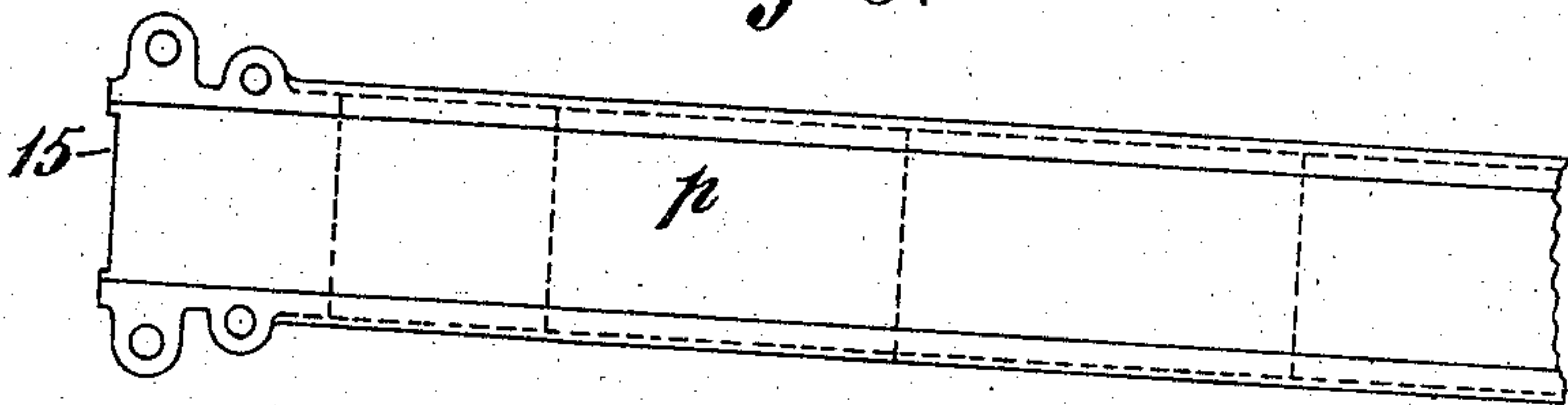


Fig. 6.

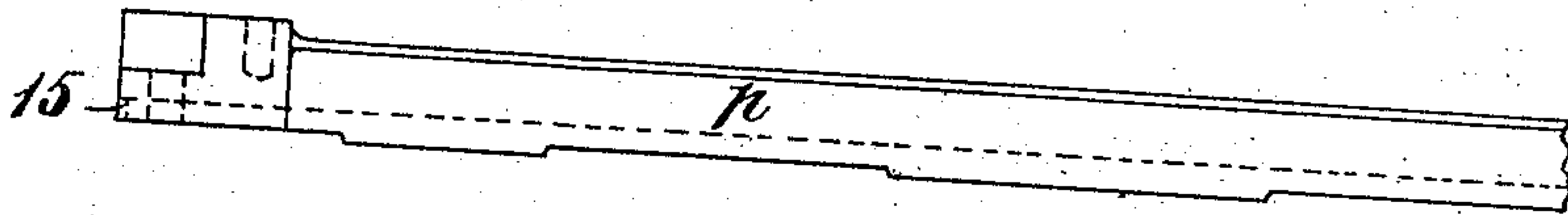


Fig. 7.

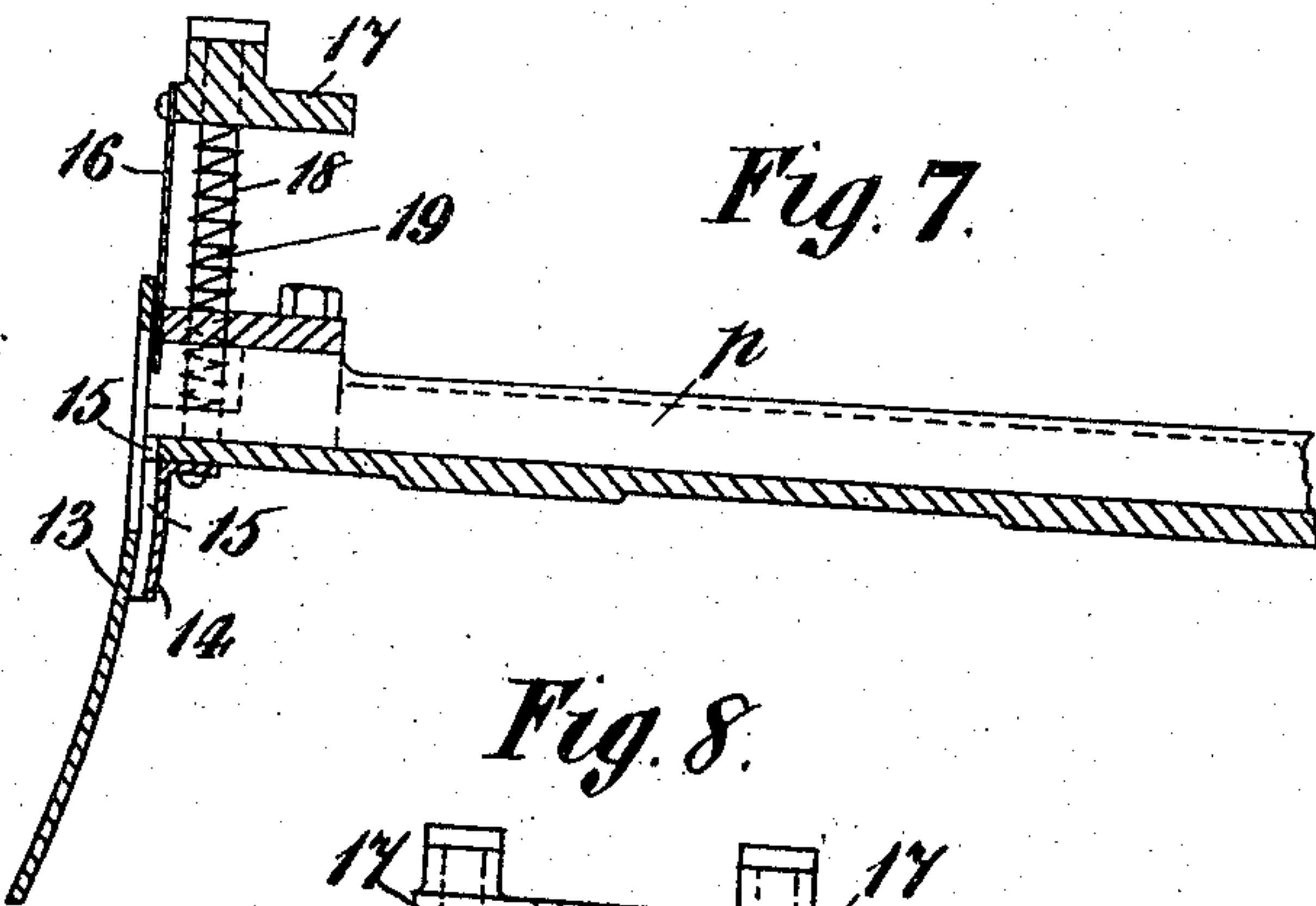
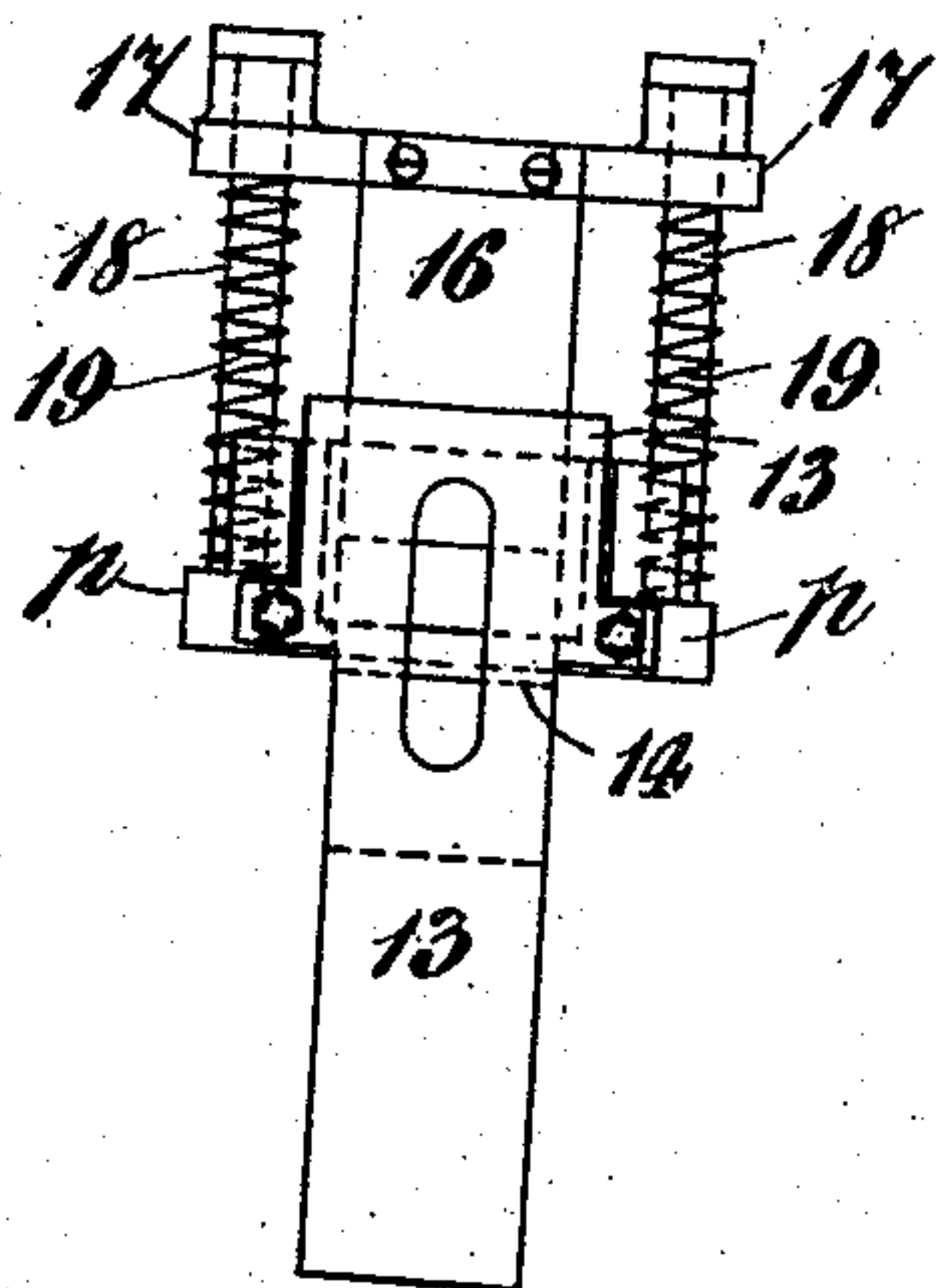


Fig. 8.



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UNITED STATES PATENT OFFICE.

CHARLES HERBERT DAY AND ALBERT DAY, OF LEEDS, ENGLAND.

PACKAGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 785,203, dated March 21, 1905.

Application filed March 7, 1904. Serial No. 196,992.

To all whom it may concern:

Be it known that we, CHARLES HERBERT DAY, residing at 112 Bankside street, and ALBERT DAY, residing at 21 Hartley avenue, Leeds, in the county of York, England, subjects of the King of Great Britain and Ireland, have invented new and useful Improvements in Packaging-Machines, of which the following is a specification.

10 This invention relates to improvements in dry-goods-packaging machinery or apparatus such as is described in the specification of Letters Patent granted to Albert Day the 17th day of November, 1903, No. 744,172.

15 In packaging some classes of dry goods—such as, for example, tea—it is a trade custom to insert a card, with or without printed matter thereon, at the bottom of the bag as well as on the top of the contents of the bag
20 and within its folded ends.

The object of the present invention is to provide a dry-goods-packaging machine—such, for example, as described in the hereinbefore-mentioned specification—with apparatus for
25 receiving and delivering the said card to the bags both prior to the bags being filled with the material as well as after the filling and shaking operations have taken place, but prior to the creasing and folding operations for closing the top or mouth of the bag.

30 In the drawings hereunto annexed we have shown the hereinafter-described card receiving and delivering mechanism applied to a machine constructed as described and illustrated in said specification. We would, however, have it distinctly understood that the said card receiving and delivering mechanism may be applied to and combined with other makes of bag-filling machines.

40 Figure 1 is a part front elevation of a packaging-machine with the card receiving and delivering mechanism applied; Fig. 2, a part-sectional and elevation of same; Fig. 3, a part plan looking at the top; Fig. 4, a part-sectional elevation of the the card receiving and delivering mechanism with the chute in its lowest position; Fig. 5, a front elevation of cam and levers employed for raising and lowering the chute; Fig. 6, an elevation of the
50 chute drawn to a larger scale; Fig. 7, a sec-

tional elevation of same; Fig. 8, a front elevation; Fig. 9, a plan looking at the top; Fig. 10, a sectional elevation of traveling box containing a bag to be filled and card-laying device drawn to the same scale as Figs. 1 to 5; 55 Fig. 11, a sectional elevation of same with the card-laying device in position after laying a card.

In the drawings only the parts of the hereinbefore-named machine are shown that are 60 necessary for carrying this invention into practice.

Like parts in all the views are marked with similar characters of reference.

At Figs. 1 and 2 the framework which supports the table *a* is shown in dotted lines. 65 Upon the table *a* are fixed the two longitudinal sides *b c* of the rectangular trough and its ends *d e*. Underneath the table and mounted in bearings on the framework are the shafts 70 *f, g, h*, and *i*. The shafts *f* and *h* are geared to shaft *i* by bevel-wheels *j k*, while shafts *f* and *g* are geared together by spur-wheels *l*.

All the above parts are of a similar construction to those described and illustrated in 75 the hereinbefore-mentioned specification.

Two sets of card receiving and delivering mechanism are employed, and they are arranged opposite to each other—namely, one on each of the longitudinal sides *b c* of the 80 rectangular trough in which the bag-receiving boxes *m* are intermittently made to travel, both by the means described and illustrated in the said hereinbefore-mentioned specification—that is to say, one set of card receiving 85 and delivering mechanism is employed for delivering and depositing a card *n* in the bottom of a bag that has been placed in a box *m* in the longitudinal side *b* of the said trough, that is employed for returning the empty 90 boxes. The other set of card receiving and delivering mechanism is on the opposite longitudinal side *c* of the said trough, so as to deliver a card *o* onto the top of the measured contents which have been deposited within 95 the bag. The card *o* is delivered onto the top of the material operated upon after the filling and shaking operations have taken place.

The card receiving and delivering mechanism, Figs. 1 to 4, for the bottom card *n*—that is, 100

the card that is placed in the bottom of bag *r*—consists of a card-receiving chute *p*, connected at one end by bracket *z* to a vertical rod *y*, mounted in bearings of a standard *q*, fixed to the table *a* of the machine, and at its other end to a vertical rod 1, capable of sliding in bearings fixed to longitudinal side *b* of the rectangular trough. This chute is also arranged so as to be capable of having imparted to it an intermittent vertical reciprocating motion from the driving-shaft *g* through shaft *f*, bevel-gearing *s*, shaft *t*, cam *u*, fixed on shaft *t*, lever *v*, pivoted to bracket *w*, fixed to the framework, link *x*, jointed to vertical reciprocating rod *y* (carried by standard *q*) and to end of lever *v*. The chute 2 is of a similar construction to chute *p*, and it is employed for containing the top cards *o*. This chute may in some cases be arranged to be stationary, but in the annexed drawings it is shown to be capable of being intermittently reciprocated in a vertical direction. The chute 2 is arranged on the opposite side of the rectangular trough to chute *p*—that is, on the longitudinal side *c*. The chute is attached to the two vertical rods 3 4, arranged, respectively, to slide freely in bearings 5 6, formed for their reception on the longitudinal side *c* and standard 7, fixed to the top of table *a*. An intermittent reciprocating motion is imparted to the chute 2 from cam 8 on shaft 9, mounted in bearings fixed to the top of table *a*, double-ended lever 10, pivoted to standard 7. The inner end of lever 10 is jointed to vertical rod 3. The cam-shaft 9 receives a rotary motion from the driving-shaft *g* through spur-gearing *l*, shaft *f*, bevel-gearing *j* *k*, shafts *i* *h*, and chain and sprocket wheels 11. Each of the said chutes *p* and 2 is made with an open top and provided with a flat bottom, with two vertical sides arranged at a suitable distance apart to form a trough or channel. The said sides are either a fixture to the said bottom or one or both of them may, if so desired, but not necessarily so, be adjustably mounted and fixed thereon. In the drawings the sides are shown fixed to the bottom. In cross-section each chute *p* or 2 is shaped somewhat like the letter U, only with a flat base or bottom. Further, each chute is placed at an angle, as shown, so that the cards *n* or *o* when placed on their edges, as shown at Fig. 4, in the channel portion of the chute will readily gravitate to the lower inner and delivery end thereof, which is arranged over the traveling boxes *m* in the rectangular trough. A weight 12, Fig. 4, is arranged at the rear of the cards to slide in each chute. The weight is employed for aiding in pressing the cards to the delivery end of their respective chutes. The delivery end of each chute is partially closed with the upper end of a downwardly-projecting finger or strip 13, Figs. 7 and 8, which is also made to act as a guide for the cards. At the rear of the finger 13 a bracket

14 is fixed to the under side of the chute. In the said bracket a vertical recess 15 is formed of such a size and shape that a card to be placed in the bag will readily pass through it and fall into the interior of the bag. If so desired, but not necessarily so, this recess may be made capable of adjustment by any suitable and convenient means; but such adjustment is not shown in the annexed drawings. At the delivery end of each chute is also provided a vertical slide 16, which is employed for forcing one of the cards which is retained over recess 15, but in the chute, by the pressure of the bulk of the cards and the weight 12 against the upper end of finger 13 at the delivery end of the chute, through the said vertical recess 15 into the bag *r*. The slide 16 is fixed at its upper end to a cross-piece 17, which works upon the guide-rods 18, and the cross-piece fixed thereto is retained in its upper and normal position by spiral springs 19. In the case of the slide 16 for the chute *p*, containing the bottom cards *n*, an intermittent reciprocating motion is imparted to the slide during the descent of the chute from a cam 20, mounted and fixed on the rotating shaft *f*, through a lever 21, mounted on driving-shaft *g*, and provided with a runner 22, which engages with the cam, and rod 23, to a double-ended lever 24, pivoted to a bracket 25, fixed to the side *c* of the rectangular trough. Provision is thereby made for mounting lever 24 above the table of the machine. Lever 24 is also provided with a runner 26 at its free end, which is arranged to work upon the top of the cross-piece 17, to which the slide is fixed.

The mechanism for actuating the slide 16 of chute 2, containing the top card *o*, is the same as that employed for actuating the presser described in the aforesaid specification, and it is arranged as follows: A cam 27 is mounted upon shaft *h*, and the periphery of the cam is made to act upon a runner 28, mounted on a double-ended lever 29, fulcrumed at one end to a bracket 30, fixed to the under side of table *a*, and the opposite end of the said lever is jointed to the lower end of a second lever 31, provided with a curved upper end which is connected to a bracket 32, fixed to presser-rod 33. A pendant-arm 34 is adjustably fixed to the bracket 32, and it is provided with a runner 35, which acts upon the top of the cross-piece 17, to which the slide 16 is fixed.

The pendant-shaped projecting finger 13 is attached to chute *p* and is made of such a size and shape as to be capable of being employed for the double purpose of, first, insuring that the bottom card *n* falls to the bottom of the bag, and, second, for simultaneously opening the mouth of the said bag prior to the filling operation. After a card has been deposited in an empty bag *r*, which has been placed within one of the traveling boxes *m* in the side *b*

of the rectangular trough, a movable pendant-piece 36, provided with an arm 37, is made to enter the mouth of the bag. The movable pendant-piece 36 is pivoted to chute *p*, and on its arm 37 is mounted a runner 38, which engages with a vertical cam-path 39, formed in bracket 40, fixed to the side *b* of the rectangular trough or table of the machine. The movable piece 36 is retained in contact with the cam-path by spring 41 and is arranged to be drawn down said fixed cam-path by the same cam and levers and rods that are employed for operating the chute *p*. During a portion of the downward movement of the said movable pendant-piece 36 it is made to move outward by the runner 38 entering the recessed portion of the cam-path 39 for getting behind card *n*, Fig. 10. When this has been done and as the runner continues its downward movement, it is afterward moved inward for laying the card, as at Fig. 11, by the runner working down the lower projecting portion of the cam-path. By this means the movable pendant-piece 36 is first made to enter the bag and to either press an upstanding card down or to get behind it, and when the said inward movement takes place when the said pendant-piece is at or about the bottom of the bag the card is laid flat.

The movable pendant-piece 36 is dispensed with for chute 2. In this case the angle of the chute is made more acute than for chute *p*, and by making the finger 13, fixed thereto, straight instead of curved the cards *o* will readily gravitate into the mouth of the bag onto the top of the material with which it is filled.

The action of the herein-described mechanism is as follows: The traveling boxes *m*, in which the bags *r* to be filled are inserted, having been placed within the rectangular trough, the machine is set in motion and the boxes are made to travel intermittently and progressively in the troughs. The bags are successively filled, shaken, pressed, the folds of the bag creased and folded, and the bags discharged from the boxes, as described in the hereinbefore-mentioned specification. As a traveling bag *m* with an empty box *r* therein passes under the chute *p*, supported above the longitudinal side *b* of the trough, as described, the chute *p* is made to descend by the cam *u* on shaft *t* acting upon lever *v*, link *w*, and vertical rod *y*. During the descent of the chute *p* and when its cross-piece 17 has reached the position indicated by dotted lines 43 the finger 13 and movable pendant-piece 36 will have entered the mouth of the bag, and the runner 38 will then have been drawn by spring 41 into the recessed portion 39 of the fixed cam-path. Simultaneously with the just-described movements the free end of lever 24 will be drawn by cam 20 on the shaft *f*, lever 21, and rod 23 onto the top of the cross-piece 17 for actuating slide 16 for discharging a card

n from the chute *p* into the bottom of bag *r*. Should the card after it has fallen into the bag stand on its edge, as at Fig. 10, as the said chute continues to descend the lower edge of the movable pendant-piece 36 is made either to press it down onto the bottom of the bag or to get behind it in order that when the lower end of the movable pendant-piece is moved inward by the runner 38 working on the projecting lower face of the cam-path the upper edge of the card will then be tilted over and made to lie flat on the bottom of the bag, as at Fig. 11. At the same time the finger 13 will have descended into the next bag and by its shape will have opened the mouth of the latter. The chute *p* and parts connected therewith are afterward returned to the highest position, to be ready for repeating the operation. When the chute *p* is descending, the chute 2 and parts connected therewith are by their operating mechanism being caused to ascend to their highest position.

The chute 2 is arranged to deposit a card *o* onto the top of the material that has been placed within the bag immediately prior to the pressing operation taking place. To do this, the angle of the chute 2 and of the finger 13, fixed thereto, are arranged so as to enable the movable pendant-piece 36 and fixed cam-path to be dispensed with for this chute, but at the same time to permit of the card *o* falling and lying flat on the top of the material that has been placed within the bag. When a card *o* is required to be placed within the bag, the chute 2 is drawn down by rod 3, which is operated by lever 10 and cam 2 on shaft 9. The slide 16, attached to the chute 2, is actuated by the runner 35 of pendant-arm 34 being drawn down by curved-ended lever 31 being operated by cam 27 and lever 29 until it comes in contact with the cross-piece 17. Then by the continued downward movement of the lever 31 the slide 16 is made to discharge a card *o* into the mouth of the bag. When this has been done, the chute is returned to its highest position, to be ready for the next operation.

The above-described card receiving and delivering mechanism may be applied to and combined with other packaging-machines than those herein described and illustrated.

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

1. In a packaging-machine, the combination with a table mounted upon framework, and four guide-troughs arranged in a rectangle thereon, of a card-receiving chute mounted at an angle over one of the said troughs, a bracket fixed to the under side of the said chute, a vertical rod to which said chute and bracket are connected, a standard fixed to the table provided with bearings in which the vertical rod reciprocates, and means for intermittently operating the same and for feeding the cards, as and for the purposes set forth.

2. The combination of a card-receiving

chute having a trough for receiving the cards mounted upon vertical guides, a weight sliding therein for pressing the cards to the delivery end of the chute, a curved pendant projection fixed to the delivery end of the chute, a bracket provided with a vertical recess, said bracket being fixed to the chute at the rear of the pendant projection, a slide fixed to guides and arranged to work in the end of the chute behind the upper part of the pendant projection, springs for keeping the slide in a raised position, and means for intermittently actuating the slide independently of the rise and fall of the chute, as and for the purposes set forth.

3. The combination of a card-receiving chute having a trough for receiving the cards mounted upon vertical guides, a weight sliding therein for pressing the cards to the delivery end of the chute, a curved pendant projection fixed to the delivery end of the chute, a bracket provided with a vertical recess, said bracket being fixed to the chute at the rear of the pendant projection, a slide fixed to guides and arranged to work in the end of the chute behind the upper part of the pendant projection, springs for keeping the slide in a raised position, means for intermittently actuating the slide independently of the rise and fall of the chute, a movable pendant-piece provided with an arm and pivoted to the delivery end of chute, a runner mounted on said arm, a vertical cam-path, and a spring for retaining the runner in contact with said cam-path, as and for the purposes set forth.

4. The combination of a table mounted upon framework, four guide-troughs arranged in a rectangle on said table, boxes having an intermittent and progressive motion in said troughs, a card-receiving chute having a trough for receiving the cards mounted upon vertical guides, a weight sliding therein for pressing the cards to the delivery end of the chute, a curved pendant projection fixed to the delivery end of the chute, a bracket provided with a vertical recess, said bracket being fixed to the chute at the rear of the pendant

projection, a slide fixed to guides and arranged to work in the end of the chute behind the upper part of the pendant projection, springs for keeping the slide in a raised position, means for intermittently actuating the slide independently of the rise and fall of the chute, a movable pendant-piece provided with an arm and pivoted to the delivery end of chute, a runner mounted on said arm, a vertical cam-path, a spring for retaining the runner in contact with said cam-path, and means for intermittently reciprocating the chute as and for the purposes set forth.

5. In a packaging-machine, the combination of a table mounted upon framework, four guide-troughs arranged in a rectangle thereon, boxes having an intermittent progressive motion in said troughs, a pair of card-receiving chutes arranged opposite each other over two of said troughs, means for alternately and intermittently raising and lowering the said chutes to and from their work, weights for pressing the cards down the chutes to the delivery end of the same, a slide arranged in the delivery end of each chute for discharging a card into a bag, springs for keeping the slide in a raised position, means for operating the said slide independently of the rise and fall of the chute to which it is attached, a pendant projection fixed to the end of the chutes, a recessed bracket fixed to the end of one of the said chutes at the rear of its pendant projection, a movable pendant-piece provided with an arm and pivoted to the end of said chute, a runner mounted on end of said arm, a vertical cam-path, and a spring for retaining the runner in contact with said cam-path, as and for the purposes set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES HERBERT DAY.
ALBERT DAY.

Witnesses:

WILLIAM SADLER,
ANNIE PARK.