

(No Model.)

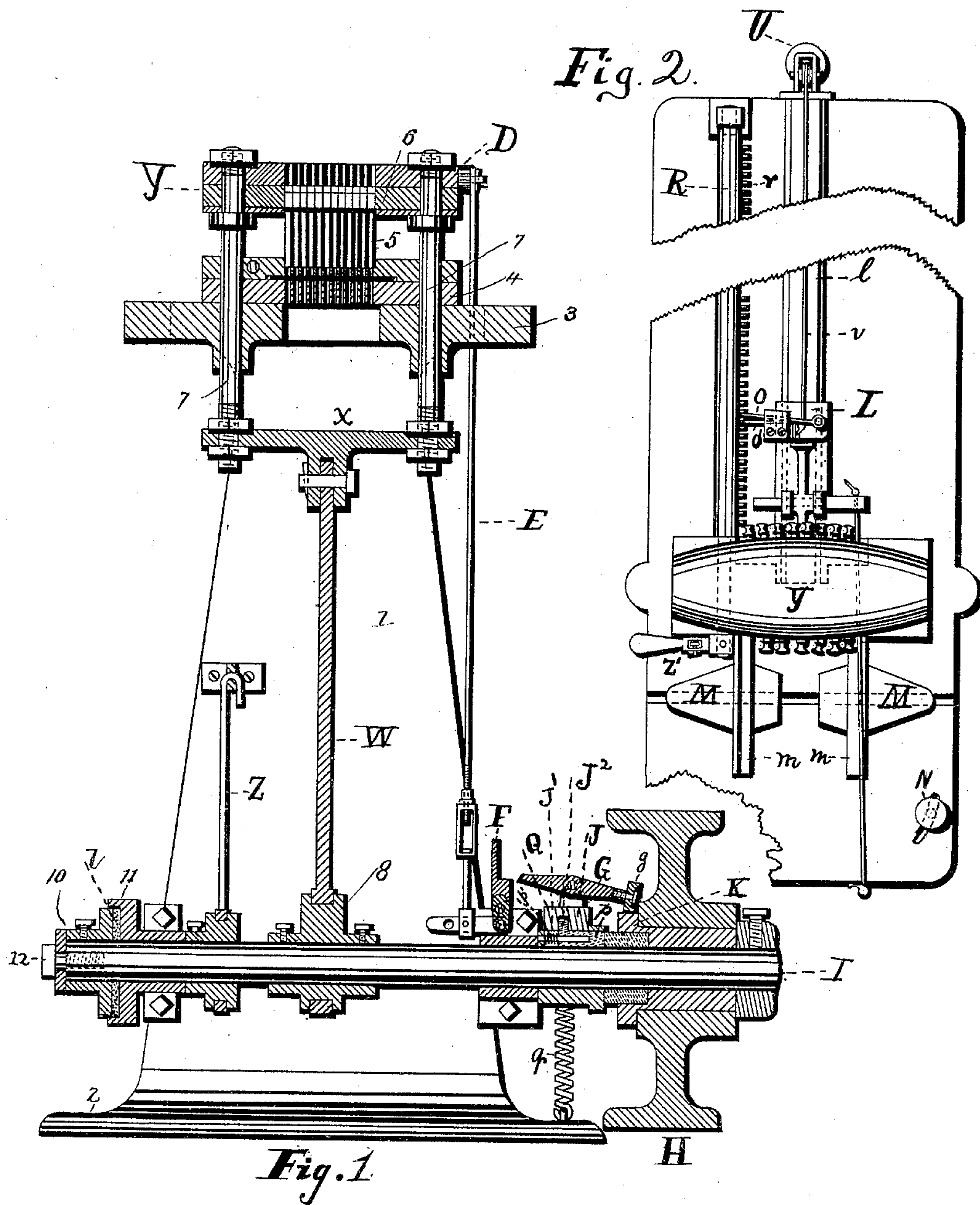
4 Sheets—Sheet 1.

W. P. UHLINGER.

CARD STAMPING MACHINE FOR JACQUARD MACHINES.

No. 411,401.

Patented Sept. 17, 1889.



WITNESSES:

Frank Crown  
Wm. J. Smith

INVENTOR

W. P. Uhlinger  
by G. J. Harding  
his  
ATTORNEY

(No Model.)

4 Sheets—Sheet 2.

W. P. UHLINGER.

CARD STAMPING MACHINE FOR JACQUARD MACHINES.

No. 411,401.

Patented Sept. 17, 1889.

FIG. 3.

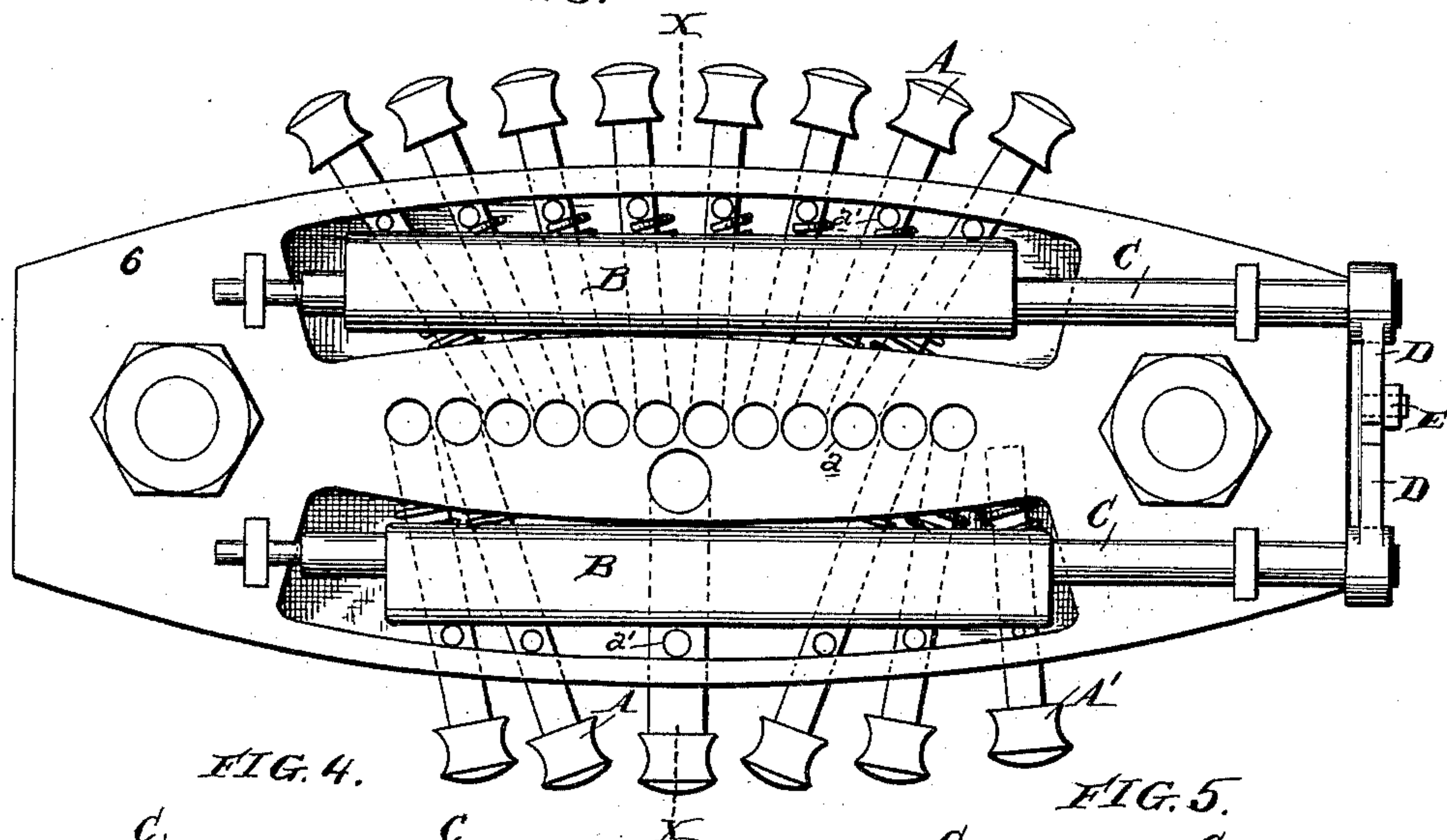


FIG. 4.

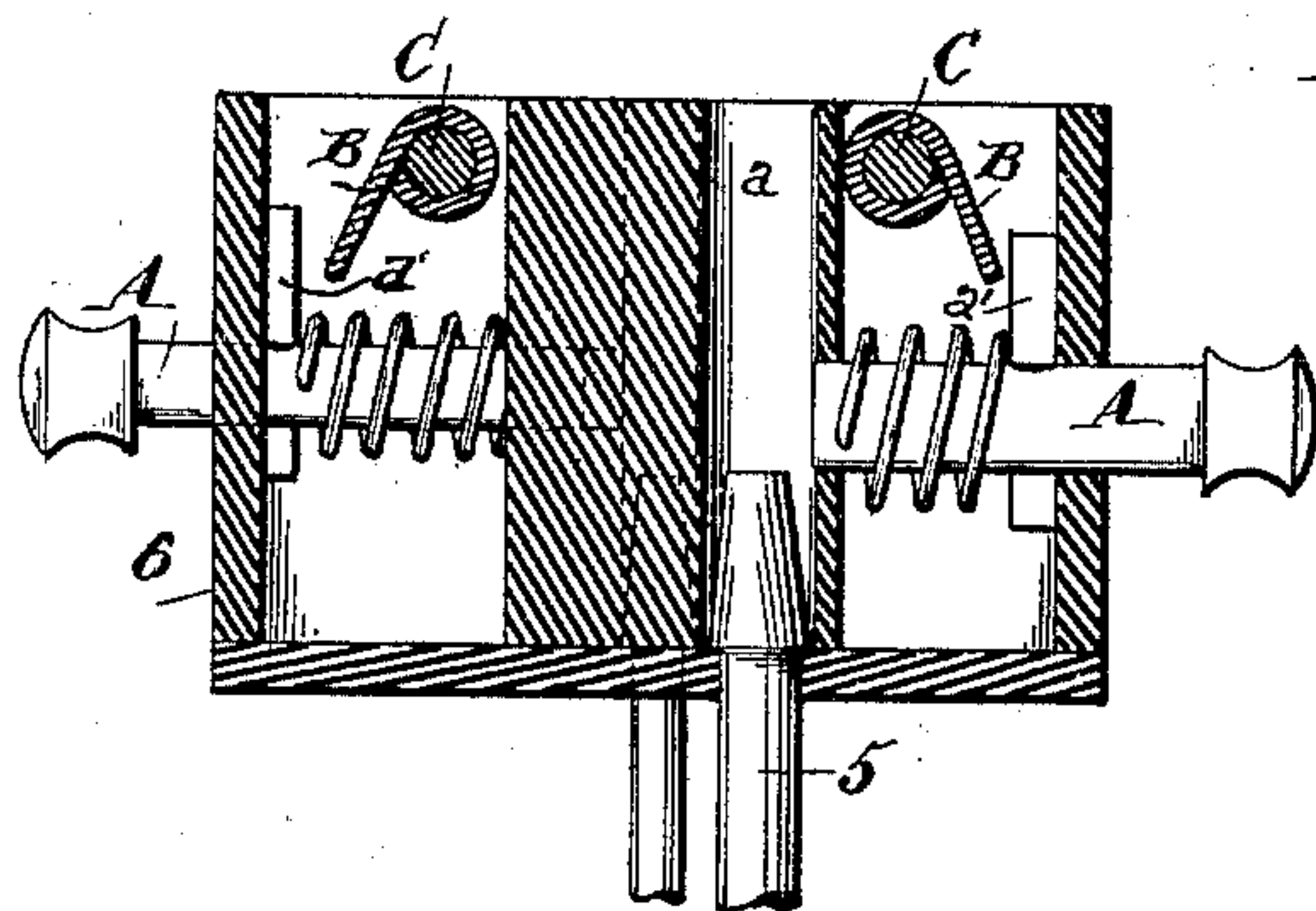


FIG. 5.

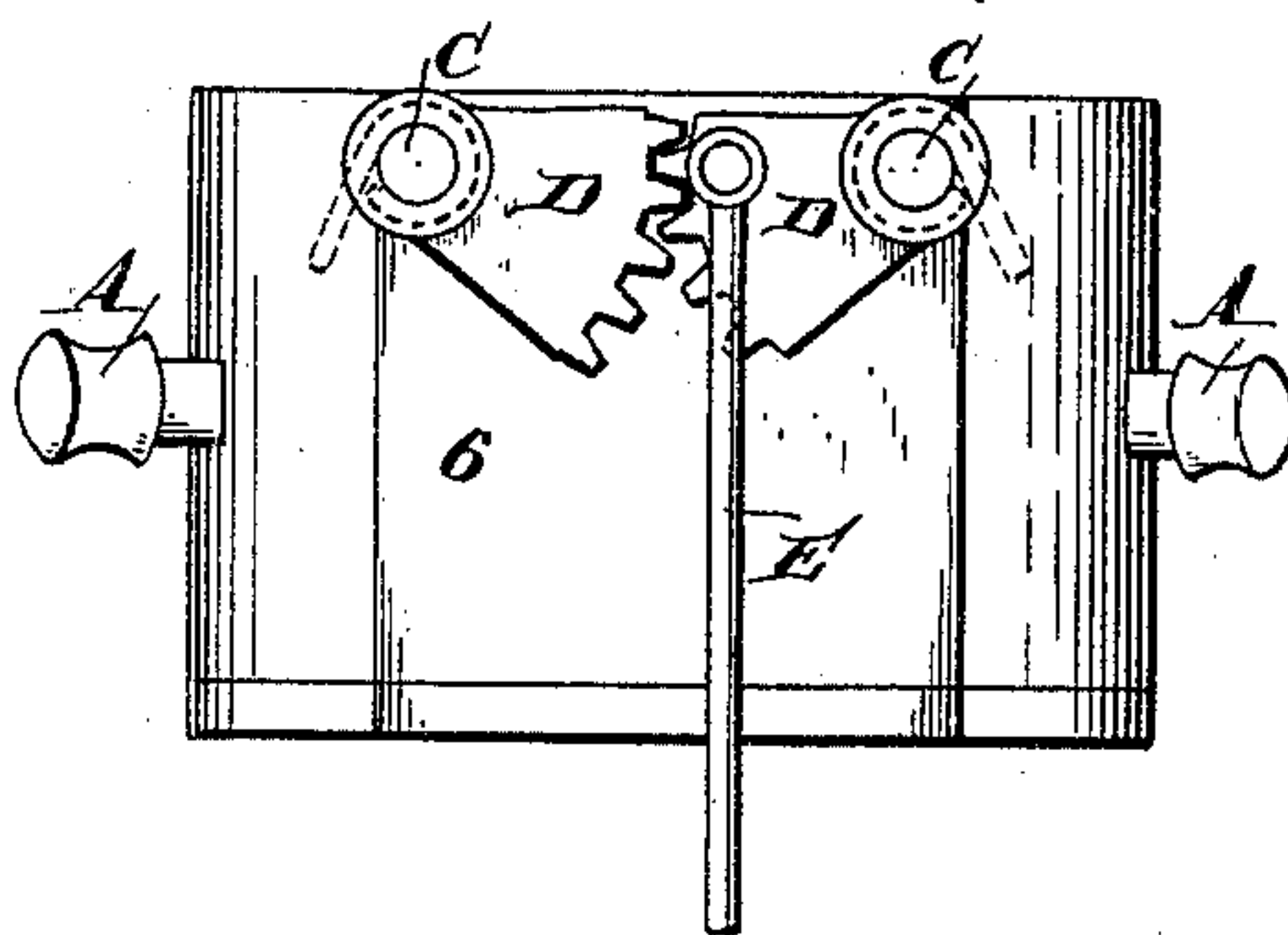


FIG. 6.

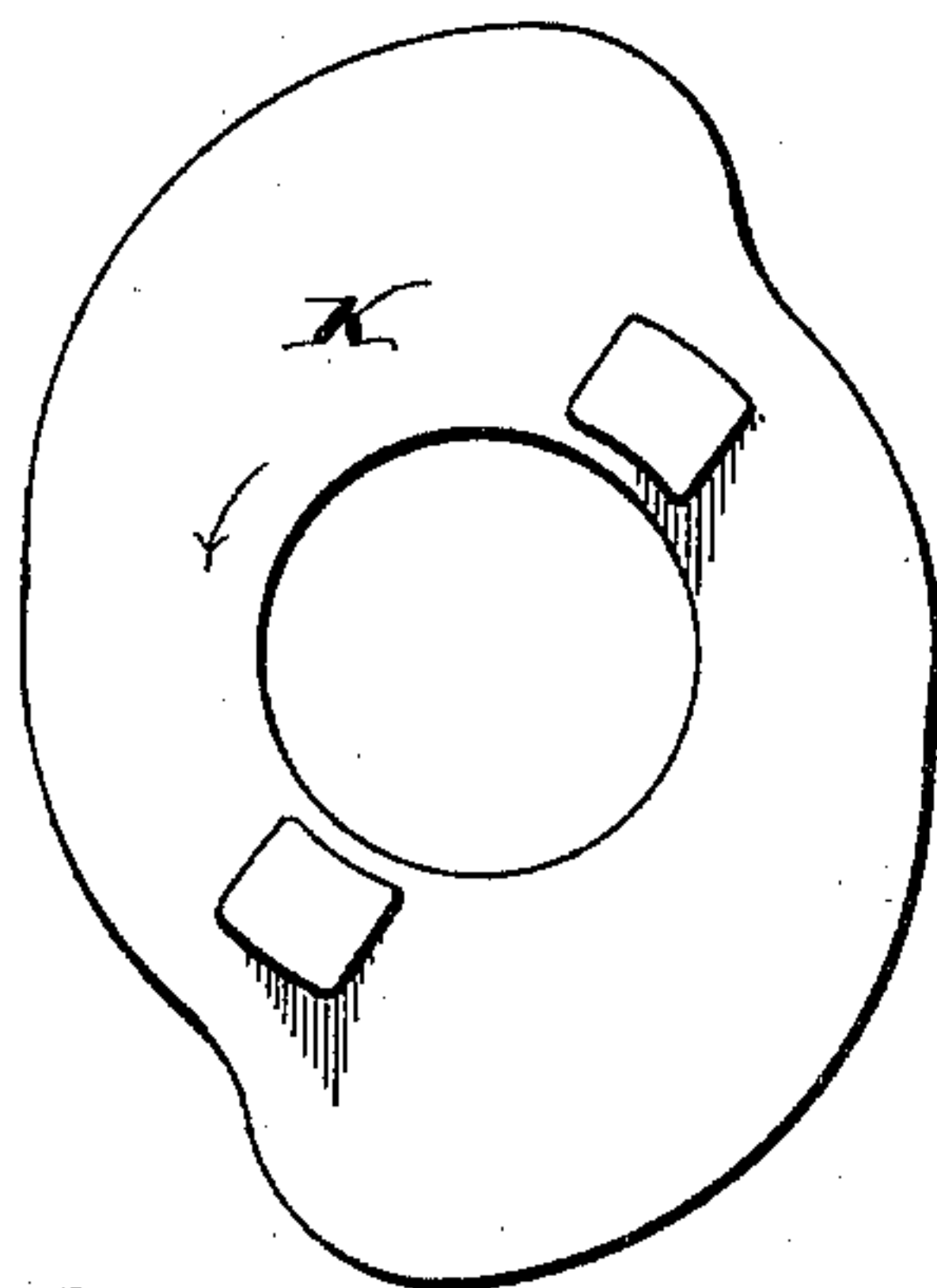
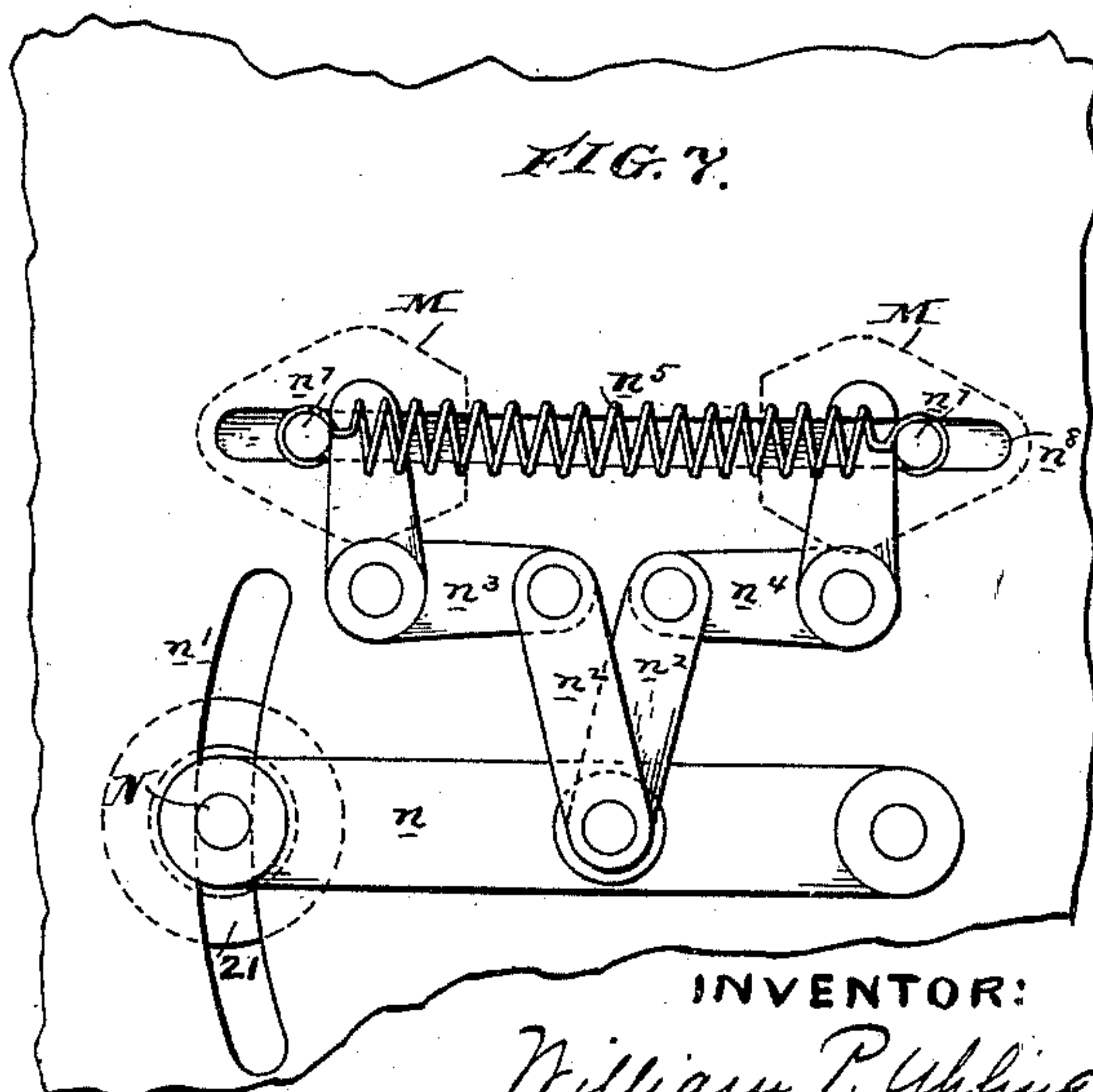


FIG. 7.



WITNESSES:

Henry Drury  
George F. Drury

INVENTOR:

William P. Uhlinger  
by his atty.  
G. T. Harding



(No Model.)

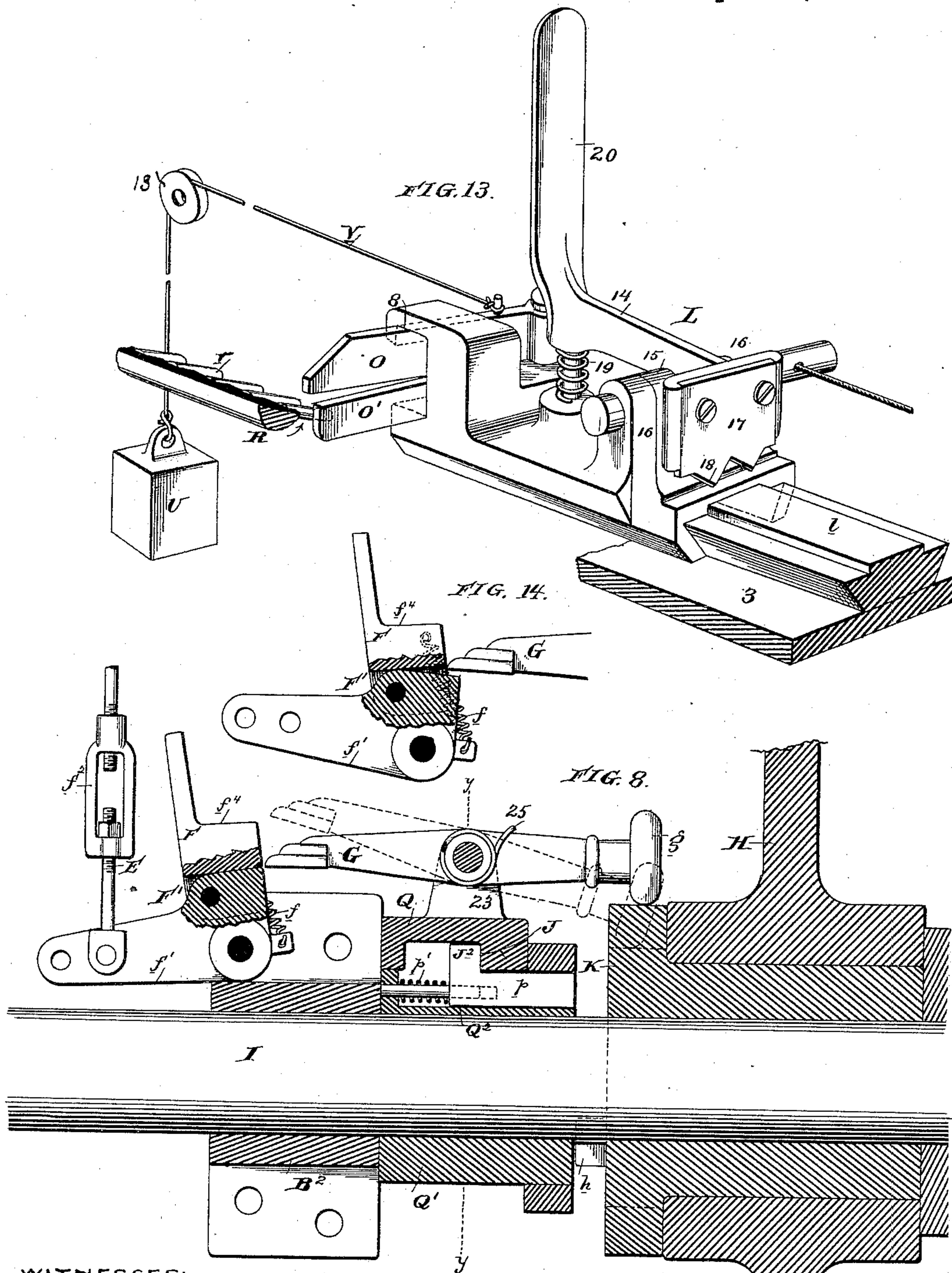
4 Sheets—Sheet 3.

W. P. UHLINGER.

CARD STAMPING MACHINE FOR JACQUARD MACHINES.

No. 411,401.

Patented Sept. 17, 1889.



WITNESSES:

Henry Drury  
George F. Drury

INVENTOR:

William P. Uhlinger  
by his atty.  
G. F. Harding

(No Model.)

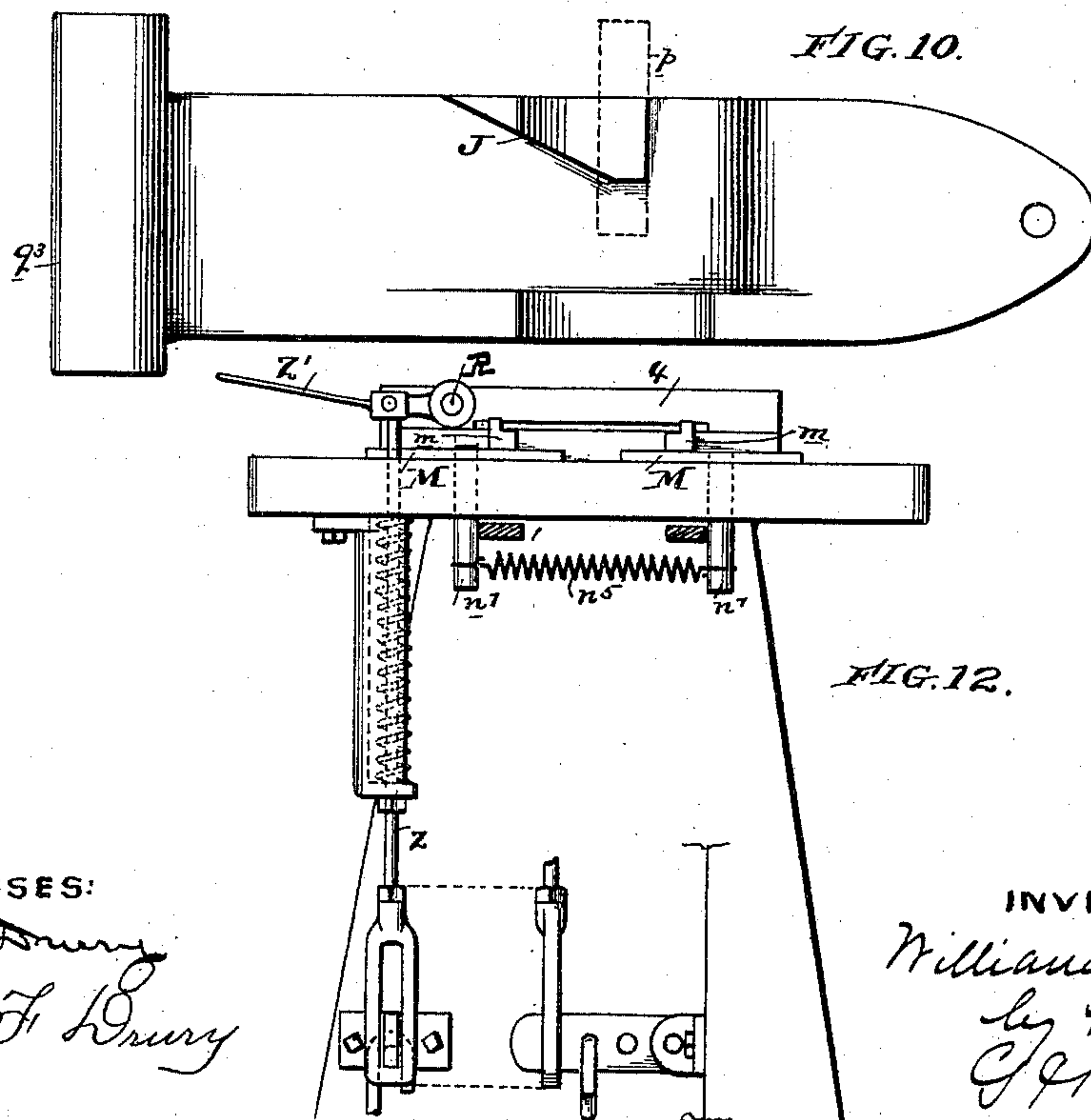
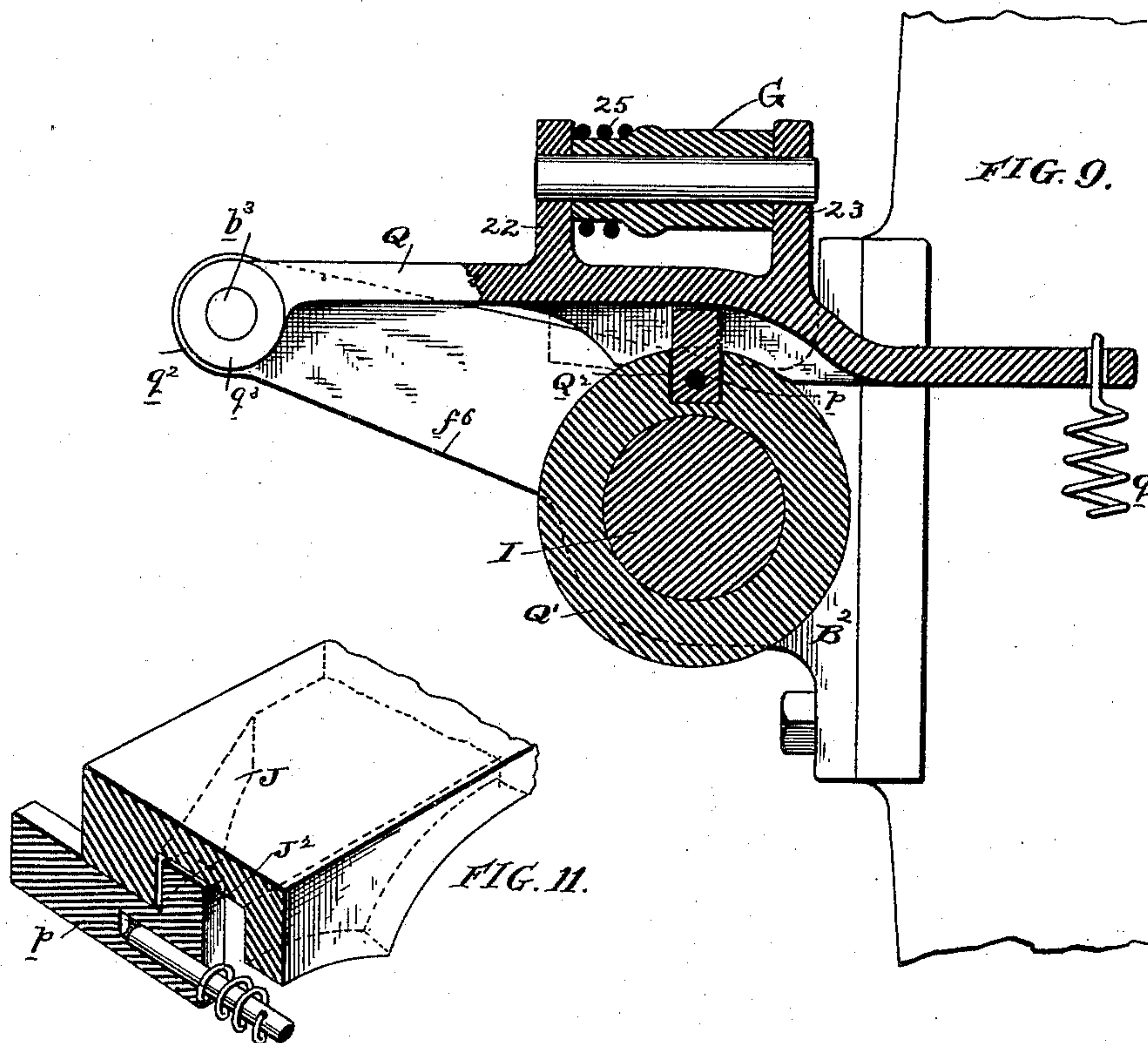
4 Sheets—Sheet 4.

W. P. UHLINGER.

CARD STAMPING MACHINE FOR JACQUARD MACHINES.

No. 411,401.

Patented Sept. 17, 1889.



WITNESSES:

Henry Drury  
George F. Drury

INVENTOR:

William P. Uhlinger  
by his atty.  
G. Handing



# UNITED STATES PATENT OFFICE.

WILLIAM P. UHLINGER, OF PHILADELPHIA, PENNSYLVANIA.

## CARD-STAMPING MACHINE FOR JACQUARD MACHINES.

SPECIFICATION forming part of Letters Patent No. 411,401, dated September 17, 1889.

Application filed February 1, 1887. Serial No. 226,152. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM P. UHLINGER, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Card-Stamping Machines for Cards for Jacquard Machines, of which the following is a true and exact description, due reference being had to the accompanying drawings, which form a part of this specification.

My invention is designed as an improvement upon that class of machines heretofore in use; and it consists, generally, in improved means for operating the stamping-head, an improved means for automatically feeding the cards to the stamping-head, an improved means for adjusting the slide in which the card travels to the head to suit the different sizes of cards, and also in an improved means for counteracting the inertia given to the head when the operator presses one of the keys, by which, when the key is released, the reciprocation of the head instantly ceases.

In the drawings, Figure 1 is a transverse sectional view of machine, taken through the driving-shaft and head; Fig. 2, a plan view of upper portion of machine. Fig. 3 is a plan view of the stamping-head. Fig. 4 is a section on line  $x x$ , Fig. 3; Fig. 5, end view of stamping-head, showing segmental gear. Fig. 6 is a face view of cam which operates rocking trip; Fig. 7, inverted plan view of mechanism for adjusting the slides for varying widths of cards. Fig. 8 is an enlarged sectional view of mechanism for causing the rotation of the shaft and the reciprocation of the head. Fig. 9 is a sectional view on line  $y y$ , Fig. 8. Fig. 10 is an inverted plan view of clutch-holder. Fig. 11 is a detached sectional view showing clutch-plunger on the cam of clutch-holder. Fig. 12 is a face view of the upper portion of the machine, showing portion of mechanism which operates the rocking shaft. Fig. 13 is a detached perspective view of card-head in its working position, showing escapement-fingers, &c. Fig. 14 is a detached view of flexible step and portion of rocking trip when step is moved into operative position and trip is pushing it back on its upward movement.

Similar letters denote similar parts.

The frame of the machine consists of a suitable vertical casting forming the body 1, laterally extended at its bottom to present a base 2, and having at its upper side a table or platform 3. Rigidly secured upon this platform 3 is a block 4, having a series of holes corresponding with the punches 5 of the stamping-head 6. This latter is operatively supported above the block 4 by means of a pair of vertical rods 7, one at each side, which depend through apertures therefor in the said block 4, and are respectively connected at their lower ends to the cross-head X. A driving-shaft I is journaled transversely in bearings on the front end of the frame, as shown in Fig. 1, and mounted thereon is an eccentric 8, embraced by separable clamp-sections 9, connected to a rod W, which is attached to the cross-head X to effect the reciprocation of the clamp-head through the agency of the eccentric and connections, when the shaft I is revolved.

A represents the key of the head, A' being an idle-key. Each of these keys, except the key A', has a corresponding orifice  $a$ , Fig. 3, in the stamping-head, in which the plunger or punches work. When a key is pressed in, it covers the orifice to which it corresponds, so that when the head is caused to reciprocate the punch or plunger 5 corresponding to the orifice strikes the card, pressing the punch against the key, preventing any further receding movement of the punch and causing it to stamp the desired hole, while the other punches have no effect upon the card. The pressing of a key by the operator pushes a projection  $a'$  on each key A and A' against a plate B, which is attached to a shaft C, thus turning the shaft C. (See Figs. 3 and 4.) At one end of the shaft C is a segmental gear D, working into a corresponding segmental gear D on the rear of the stamping-head, a double series of keys, plates, and shafts being used, one at the front, the other at the rear, of the stamping-head, for convenience of operation. To this segmental gearing the rod E is connected. At the lower end of this rod is the flexible step F. This step is made flexible in one direction by means of the spring  $f$ . (Shown in Figs. 8 and 14.) The purpose for which the step is made flexible is in order



that when it is thrown into operation, as hereinafter described, if the rocking trip G should strike it below the recess portion  $f^4$  on the movement of the end of the trip nearest the step it will, on account of its flexibility, yield, while if it were rigid the step would tend to be broken.

By reference to Figs. 1, 8, and 14, it will be seen that the said flexible step F forms a portion of the vertical member of the bell-crank lever F', pivotally mounted on the bearing B<sup>2</sup> on the frame 1, the horizontal member of said lever  $f'$  being connected to the rod E by means of an adjustable swivel-coupling  $f^2$ .

G is the rocking trip, one end of which is provided with the roller  $g$ , which is operated by the cam K on the driving-wheel H. The wheel H normally runs idle on the shaft I, and is adapted to be clutched thereto by a clutch, (shown herein as composed of a sleeve Q',) rigid on and revolving with the shaft I, and carrying a spring-plunger  $p$ , which, when released by the trip, engages one of the abutments  $h$  on the cam K on the loose driving-wheel H, and causes the shaft to rotate with the wheel. The rocking trip G is pivotally attached to the clutch-holder Q between standards 22 23, and is provided with a torsion-spring 25, adapted to hold the end  $g$  upon the cam-surface K. The clutch-holder has on its inner surface the cam-surface J, on which the stop J<sup>2</sup> of the clutch-plunger rests, and  $p$  is the plunger of the clutch, and  $p'$  the spring which is normally in compression and holds the stop J<sup>2</sup> against the cam-face J. The clutch-holder is held normally down by the spring  $q$ .

In Figs. 1, 8, 9, 10, and 11 the construction and principle of operation of the clutch-plunger are most clearly illustrated. A sleeve Q' is rigidly secured to the shaft L, so as to revolve therewith, and said sleeve is provided with a longitudinal recess Q<sup>2</sup>, in which the said plunger  $p$  plays. The adjacent bearing B<sup>2</sup> of the shaft I is provided upon its upperside with a loop  $q^2$ , through which passes a horizontal bolt  $b^3$ , said bolt passing through a similar loop  $q^3$ , connected integrally to the clutch-holder Q, and forming the pivotal bearing for one end of the latter, the other end, as before stated, being connected to the spring  $q$ . When the key is pressed in by the operator, the plate B, operating on the shaft, elevates the rod E and thus moves the flexible step into the path of the rocking trip G, so that when the end of said trip falls it is stopped by the recess portion  $f^4$  of said trip, which in turn raises the clutch-holder so as to release the stop of the plunger. The distance which the rocking trip must be elevated in order to release the plunger is such that the wheel of said rocking trip must be at the highest lift of the cam K, in order that the distance which the rocking trip is elevated will be sufficient to lift the clutch-holder free from the stop of the plunger. The plunger thus released, acted upon by the spring  $p'$ , is

forced into connection with the idle-wheel H by projecting into the line of rotation of one of the abutments  $h$  on the idle-wheel, so as to be in contact with said abutment, and the plunger, being connected with the shaft I, causes said shaft to revolve with the plunger. Attached to this shaft I is the connecting-rod W, having the cross-head X, attached to the stamping-head, as aforesaid, whereby when the shaft revolves the head is automatically caused to reciprocate and the desired hole to be stamped in the card. When the operator releases the key, the flexible step drops back to its initial position and the clutch-holder returns to its seat, and the cam-face J draws the stop J<sup>2</sup> (and the plunger) out of engagement with the abutment  $h$ , through the rotation of the shaft, and the shaft ceases to revolve when the plunger is drawn out of engagement with the abutment  $h$ .

The withdrawal of the plunger from engagement with the abutment will be more readily understood by referring to Figs. 8 and 11, which show the arrangement of the cam-face J on the under side of the clutch-holder Q. It will be seen that the inner face of the cam J is inclined toward the center of the clutch-holder, so that when the latter descends the stop on the plunger comes in contact with said inclined face at the narrowest portion of said cam, and upon the further rotation of the shaft I is drawn by the said cam to its first position on the cam. At the outer end of this shaft I is placed a friction device, which consists of the projections 11 and 10, the projection 11 being secured to the frame of the machine and the projection 10 is secured to said shaft, between which projections is placed a leather packing. A screw 12 gives the desired pressure upon this leather, and is so adjusted that when the wheel H is released from the shaft the friction of the packing is sufficient to overcome the inertia gained by the shaft, and any undesired reciprocation of the stamping-head is prevented.

The means by which the card is caused to automatically travel is obtained in the following manner: R is the rocking shaft, located in bearings, as shown in Fig. 2, and having any desired number of teeth. L is the card-head having a dovetailed groove to engage with and travel upon the correspondingly-shaped slide 1. A cord  $v$  is attached to the pivoted finger of this card-head, as will be herein described, and passes over a guide-pulley 13 at the rear of the table 3, and at the outer end of this cord is the weight U. Attached to this card-head are the escape-fingers O and O', the finger O' being rigid, while finger O is pivoted and rests above the finger O', and is capable of a limited lateral play and has attached to it the cord  $v$ , and has a travel in the recess 8, as shown in Fig. 13, the extent of which is equal to the distance between the teeth  $r$  on the rocking shaft R. When motion is given to the shaft I, as heretofore described, this mo-



tion is transmitted by means of the connecting-rod Z to the rocking shaft R, said connecting-rod being operated by an eccentric on the shaft. The shaft is thus caused to turn, so as to release the escapement-finger O', and the weight then pulls the card-head along the slide 1. The card is prevented from traveling a greater distance than one tooth by the escapement-finger O, which when the shaft is rocked rests between the teeth  $r$  and has a limited extent of travel, being pivoted, said movement being equal to the extent of the recess 8; but when the motion of the shaft I ceases the rocking shaft returns to its initial position, the finger O escaping from between the teeth and returned by the weight U to its initial position in the recess 8, and the escapement-finger O' rests between the next two teeth from that which it occupied before, and the card is thus moved a fixed distance forward each time the operator pushes one of the keys. The idle-key A' enables the card to be moved without stamping any hole in the card. A handle Z', Fig. 12, on the rocking shaft enables the shaft to be rocked by hand. The said card-head is provided with card-clamping means, so that the movement of the head will occasion the proper feed of the card. For this purpose a lever 14 has studs 15, pivoted in bearing 16 on the head. The end of the lever adjacent to its pivot-bearing has clamped thereto a plate 17, provided on its lower edge with teeth 18, which latter are normally forced into contact with the face of the card-head by means of a spring 19, which exerts an expanding force upon the rear portion of the lever, as shown in Fig. 13. The said lever has a vertical portion 20, for its convenient manipulation. As will be readily understood, by depressing the rear portion of the lever the plate 17 will be elevated sufficiently to permit the card to be inserted beneath the teeth, which upon the release of the lever will clamp the card upon the face.

The means by which the slides  $m$  are adjusted to varying widths of cards are as follows, (shown in Figs 9 and 12:) N represents a stop working in the slot  $n'$ . This stop is connected by means of the levers and links  $n$ ,  $n^2$ ,  $n^3$ , and  $n^4$  with the wings M, having the slides  $m$  secured to them, and pins  $n^7$ , secured to wings M, project through from the plate, the spring  $n^5$  being connected to these projections, as shown, Figs. 7 and 12. The operator forces the stop in the slot  $n'$ , and, through intermediate mechanism hereinbefore described, forces the pins  $n^7$  and the slides to which they are connected farther apart, acting against the spring, or allows them to come closer together, the pins  $n^7$  moving in the slot  $n^8$ . The stop is held in a fixed position by a nut 21.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a machine for stamping Jacquard cards, the combination, substantially as here-

inbefore set forth, of a stamping-head, keys in said head, punches controlled by said keys, an intermittingly-operated shaft connected to said head to reciprocate the same, a driving-wheel running normally idle on said shaft, a clutch interposed between the wheel and the shaft, and connecting mechanism between said clutch and the keys, whereby the operation of any one of the keys causes the wheel to engage with and revolve the shaft.

2. In a machine for stamping Jacquard cards, in combination, keys, a projection upon each of said keys, a shaft, a plate attached to said shaft, segmental gearing at the end of said shaft, a driving-wheel, a shaft upon which said driving-wheel normally runs idle, a clutch upon said shaft, and intermediate mechanism, substantially as described, between said clutch and segmental gearing, whereby, when the operator presses one or more keys, the clutch is caused to engage the driving-wheel and revolve with it, substantially as and for the purpose described.

3. In a machine for stamping Jacquard cards, in combination, keys A, shaft C, a plate upon said shaft, segmental gearing D and D', rod E, flexible step F, driving-wheel H, normally running idle on shaft I, cam K upon said wheel, rocking trip G, having roller  $g$ , clutch-holder Q, having cam J, a plunger  $p$  upon said shaft I, a stop  $J^2$  upon said plunger, and a connecting-rod connecting said shaft with the stamping-head, whereby, when the operator presses one or more keys, the clutch-holder is released from the stop  $J^2$  and the plunger brought into engagement with the idle-wheel H and the stamping-head automatically caused to reciprocate.

4. In a machine for stamping Jacquard cards, in combination, keys, a flexible step, intermediate mechanism, substantially as described, connecting said keys and said flexible step, a clutch-holder, a driving-wheel, a shaft upon which said driving-wheel revolves, a cam upon said wheel, plunger  $p$ , a stop  $J^2$ , and a rocking trip, the path of movement of one end of which is in the path of the flexible step when a key is pressed, the other end having a wheel which revolves on the cam, whereby said rocking trip is on the highest throw of the cam in order to release said stop  $J^2$  when the operator presses one or more keys.

5. In a machine for stamping Jacquard cards, in combination, a shaft, a driving-wheel which normally runs idle upon said shaft, a stamping-head provided with keys and connected to the shaft, a clutch upon said shaft, means, substantially as described, operated from the keys to cause said clutch to engage said driving-wheel, and a brake, substantially as described, at the other end of said shaft, whereby, when the clutch is disengaged from said driving-wheel, the inertia gained by said shaft is overcome by said friction device.

6. In a machine for stamping Jacquard cards, in combination, the stamping-head and its operating devices, substantially as de-



scribed, a rocking shaft, teeth upon said shaft, escapement-fingers, one of which rests between the teeth of said rocking shaft, a card-head and means to cause said head to move 5 when the said escapement-finger is released from between the teeth of the rocking shaft, substantially as set forth, and mechanism to rock said shaft, whereby, when said shaft is rocked, said escapement-finger is released, 10 substantially as and for the purpose described.

7. In a machine for stamping Jacquard cards, in combination, the stamping-head and its operating devices, substantially as described, a rocking shaft, teeth upon said shaft, 15 a card-head, escapement-fingers, one of which is rigid, the other flexible and having a movement in a slot in the card-head, means, substantially as described, to rock said shaft, whereby the rigid escapement-finger is released from between the teeth of the rocking shaft and the flexible finger is engaged 20 between the teeth of the shaft, and means, substantially as described, to move said head, whereby, when the shaft is rocked, the card-head travels, but said travel is limited to the extent of travel of the flexible escapement-finger in the slot of the card-head. 25

8. In a machine for stamping Jacquard cards, in combination, keys, a driving-wheel, 30 a shaft upon which said driving-wheel normally runs idle, a clutch on said shaft, intermediate mechanism, substantially as described, to cause said clutch to operate and the shaft to revolve when a key is pressed, a 35 connecting-rod upon said shaft, a rocking shaft connected with said connecting-rod, teeth upon said rocking shaft, a card-head, and escapement-fingers, one of which rests between the teeth of said rocking shaft, whereby, 40 when the operator presses a key, one of the escapement-fingers is released from and the other engaged with said teeth of said rocking shaft.

9. In a machine for stamping Jacquard 45 cards, in combination, a stamping-head, keys, punches corresponding to each of said keys, a driving-wheel, a shaft upon which said driving-wheel normally runs idle, a clutch

upon said shaft, intermediate mechanism, substantially as described, to operate said 50 clutch and cause the shaft to rotate, a connecting-rod connecting said shaft and the stamping-head, a rocking shaft, an eccentric on said driving-shaft, and a connecting-rod 55 between said rocking shaft and the eccentric on said driving-shaft, teeth upon said rocking shaft, escapement-fingers, one rigid and the other flexible, the rigid finger normally resting between the teeth of said rocking shaft and a card-head, and means, substantially as 60 described, to cause said card-head to move, whereby, when the operator presses keys, the stamping-head is automatically reciprocated and the desired hole or holes cut and the card-head caused to travel a fixed distance. 65

10. In a machine for stamping Jacquard cards, in combination, two or more keys, all but one of said keys having plungers corresponding to said keys, a driving-wheel, a shaft 70 upon which said driving-wheel normally runs idle, a clutch upon said shaft, intermediate mechanism, substantially as described, to operate said clutch and cause the shaft to rotate, a connecting-rod connecting said shaft and the stamping-head, a rocking shaft, a correspond- 75 ing rod between said shaft and the driving-shaft, teeth upon said rocking shaft, a card-head, escapement-fingers O and O', and means, substantially as described, to cause said card-head to move, whereby, when the 80 operator presses the key having no corresponding plunger, the card is moved and the stamping-head reciprocated without punching any hole on the card.

11. In a machine for stamping Jacquard 85 cards, in combination, the slides *m*, a spring connecting said slides, wings M M, a stop N, working in the slot *n'*, and intermediate mechanism, substantially as described, connecting said stop and the wings M, whereby a move- 90 ment of the stop causes a varying distance between the slides *m*.

WILLIAM P. UHLINGER.

Witnesses:

RICH'D. S. CHILD, Jr.,  
JOSHUA MATLACK, Jr.