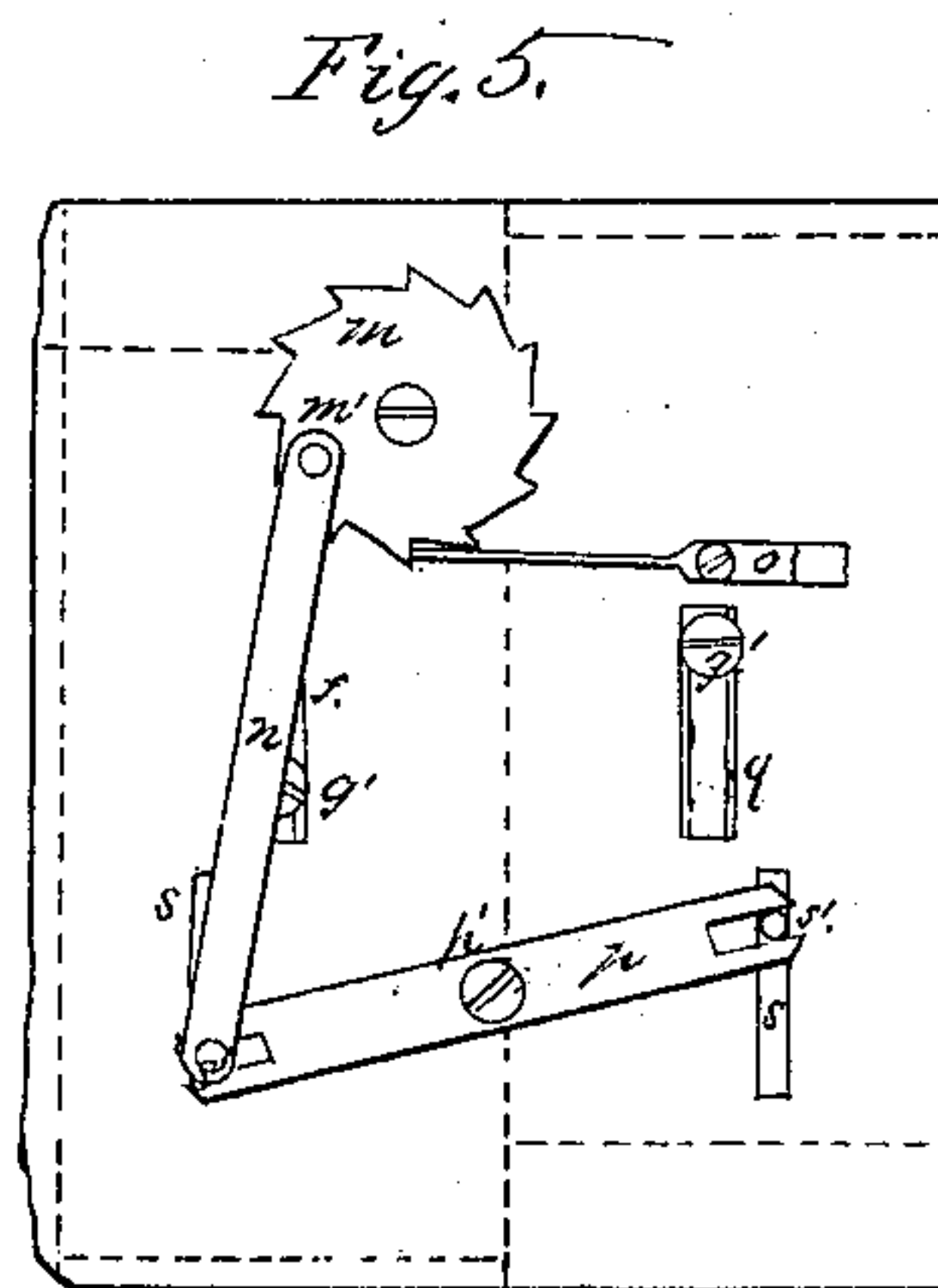
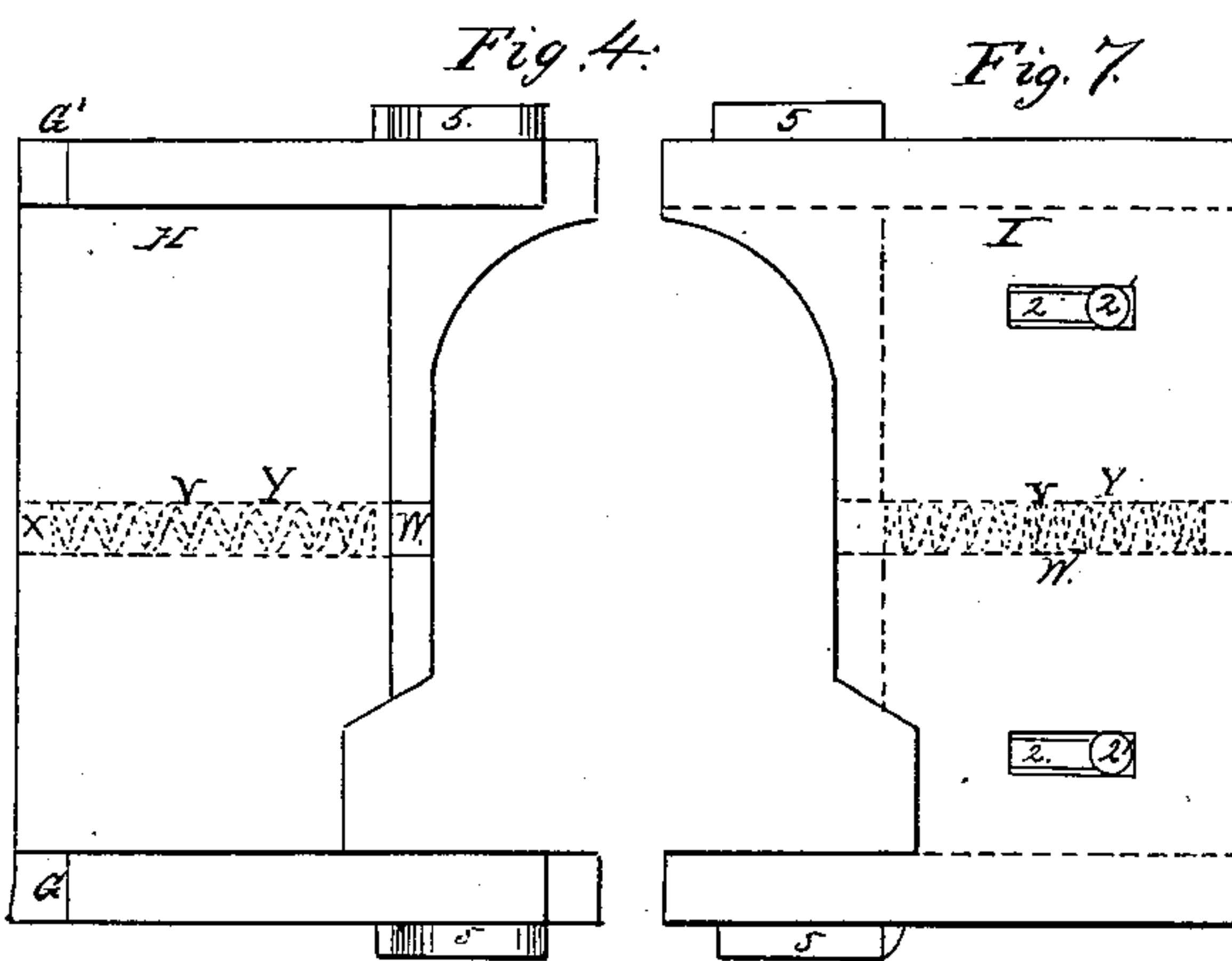
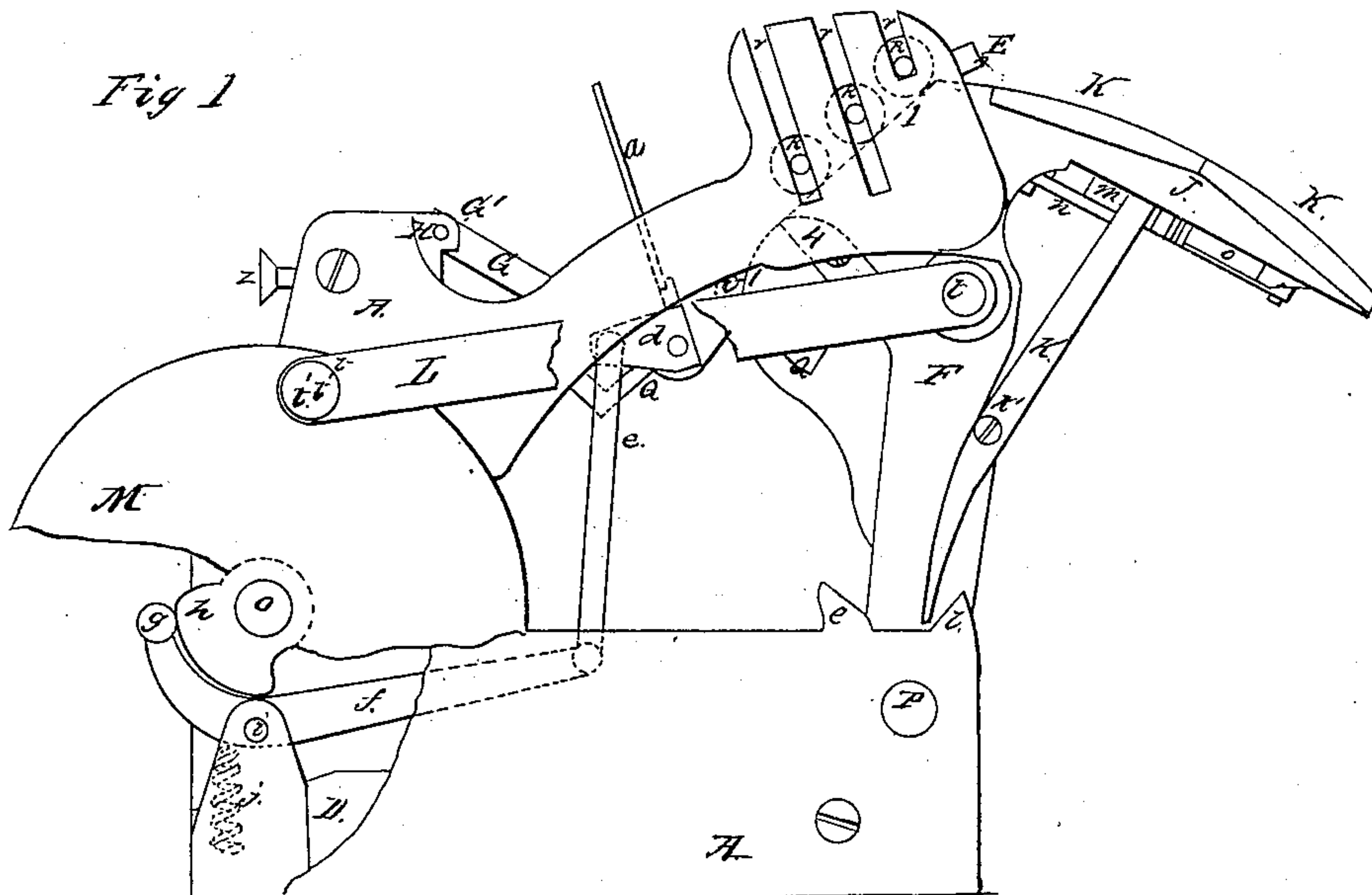


F. L. BAILEY.
PRINTING PRESS.

No. 43,383.

Patented July 5, 1864.



Witnesses.

Samuel Allen
B. E. Perry

Inventor
Franklin L. Bailey.

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Fig. 2.

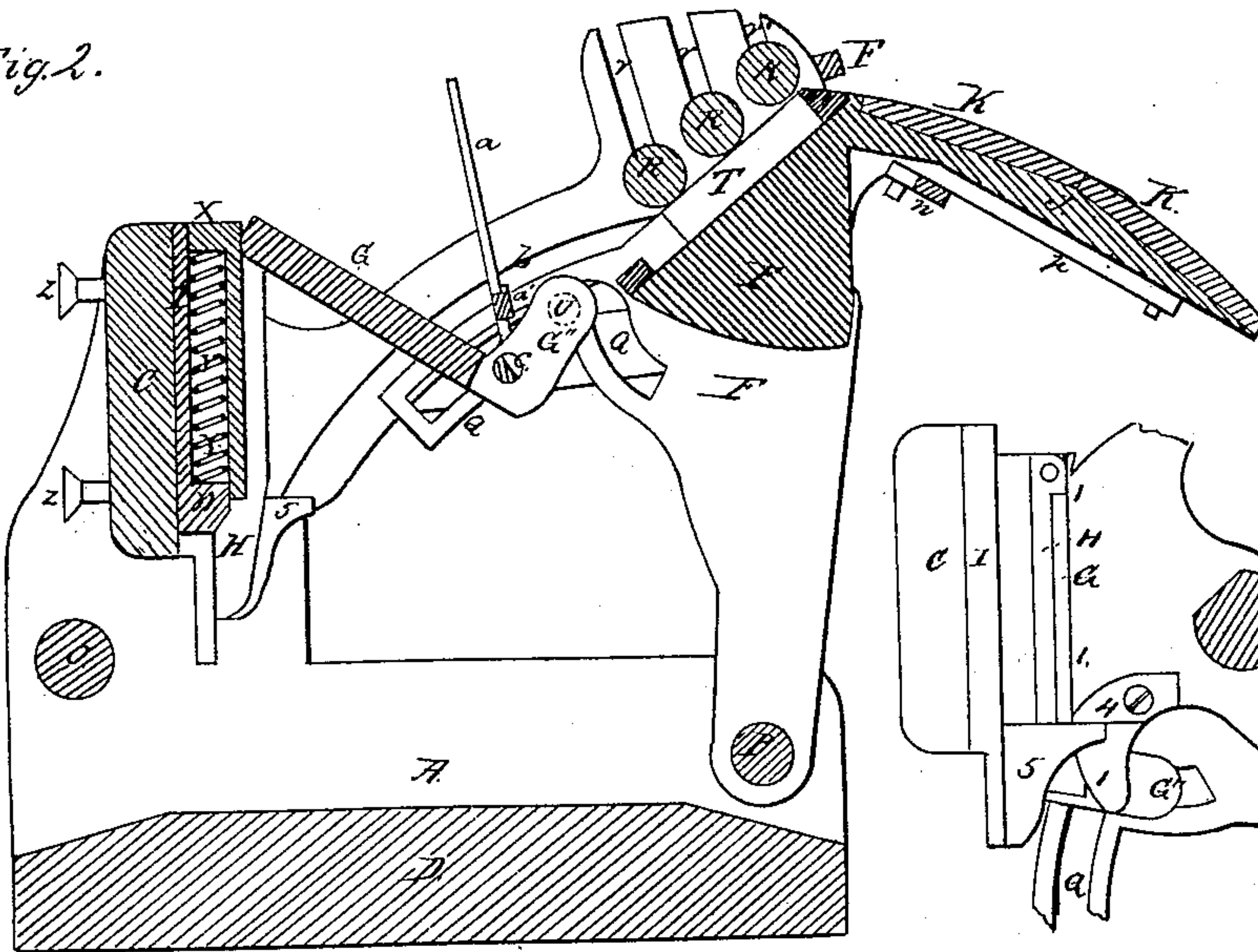


Fig. 6.

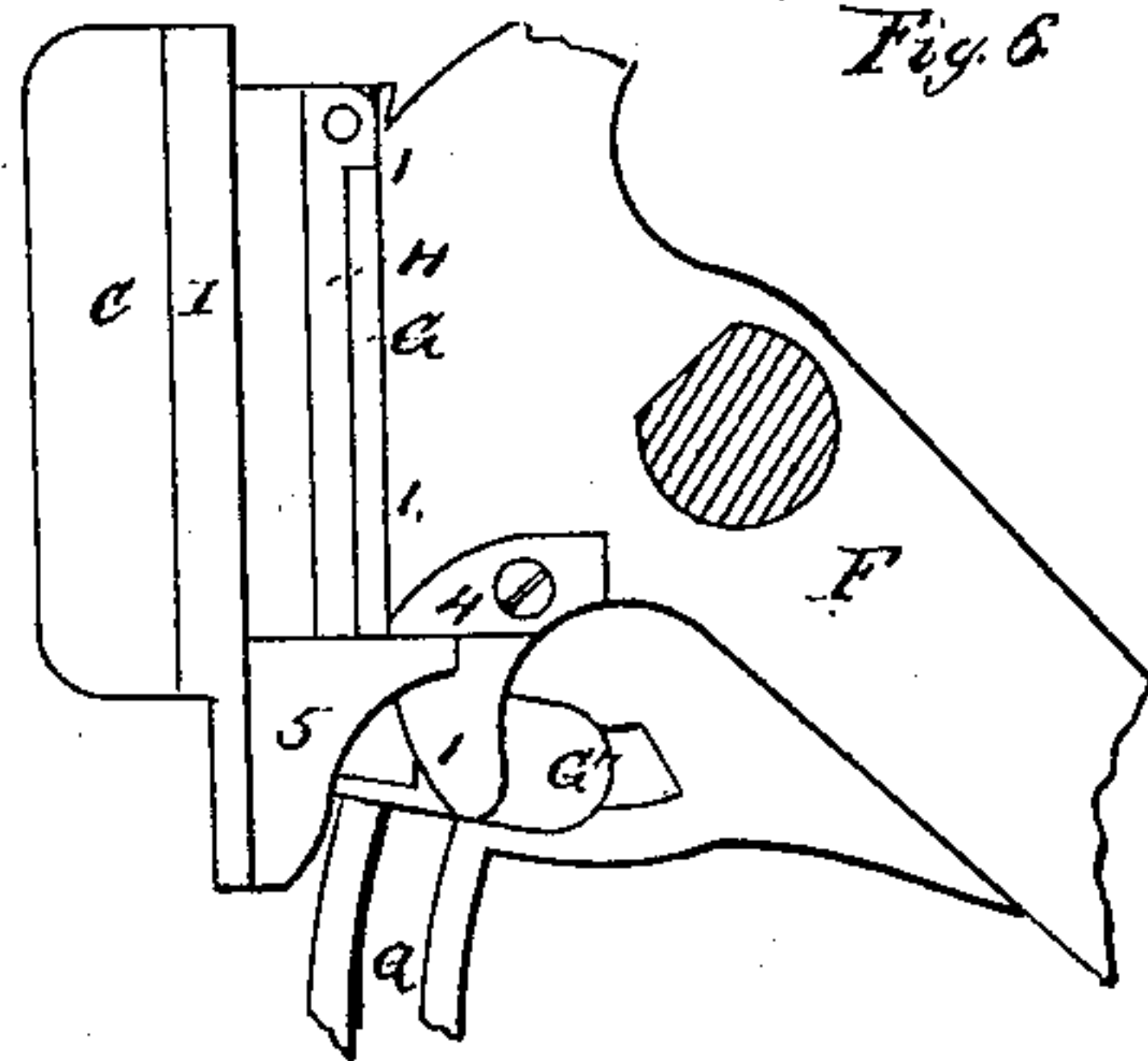
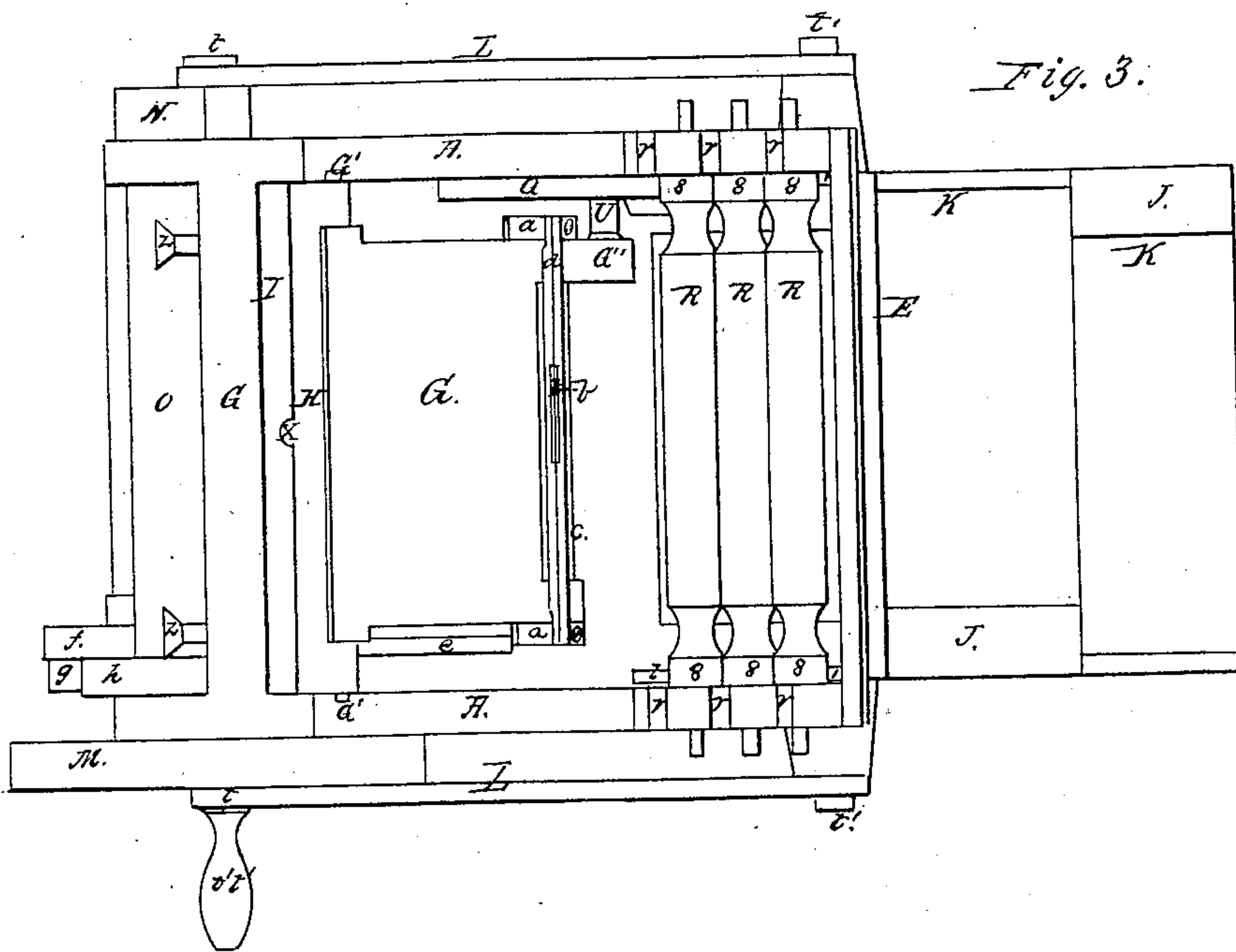


Fig. 3.



Witnesses.

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Inventor.
Franklin L. Bailey

UNITED STATES PATENT OFFICE.

FRANKLIN L. BAILEY, OF BOSTON, MASSACHUSETTS.

PRINTING-PRESS.

Specification forming part of Letters Patent No. 43,383, dated July 5, 1864.

To all whom it may concern:

Be it known that I, FRANKLIN L. BAILEY, of Boston, in the county of Suffolk, in the State of Massachusetts, have invented and made certain new and valuable Improvements in Printing-Presses; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which compose a part of this specification, and to the letters of reference marked thereon, in which it will be found that—

Figure 1 is a side elevation of this press. Fig. 2 is a longitudinal vertical section taken through the center of the platen and bed. Fig. 3 is a plane view of the press. Figs. 4 and 7 are detached views of the platen-slide and its support, being an obverse and reverse view of the two parts as they are related. Fig. 5 is a reversed detached view of the ink-distributing tables, showing the method adopted for the lateral movement of the distributing slides or tables. Fig. 6 is a detached view of the parts which are immediately involved in taking the impression, and it shows the impression as taken.

To enable those skilled in the art to construct and operate my invention, and that I may make known the number and nature of my improvements, I will describe the construction of this press from the drawings, the same letters referring to corresponding parts in the several figures.

A A are the two sides of the press. D is the base. C is a stationary beam attached to the sides. E is a girt, also connecting the sides, all of which, being bound together, constitute a rigid frame, to which all the moving parts are attached. To the beam C is fixed the plate I, adjustable by the impression-screws Z Z Z Z to and from the beam in a longitudinal direction, or toward or from the bed F, for the purpose of regulating the impression upon the platen G and its slide H, which are also carried by this beam. The slide H has a vertical movement, as seen by comparing Figs. 2 and 6.

G is a vibrating platen hinged to the slide H at G', which vibrates away from and upward, from and downward to the plate II, as seen in comparing Figs. 2 and 6. This vibrating platen, besides its vibrating movement, partakes of the sliding vertical movement of the

said slide H, when, by contact of the moving bed F against the slide, it is forced downward to take the impression, as seen in Fig. 6.

F is a rotating reciprocating bed (of peculiar construction, for the purposes which will hereinafter appear) hinged at P to the frame of the press, and is made to swing in the arc of a circle to and from the platen G, as seen in Figs. 2 and 6, for the purpose of taking the impression, as seen in Fig. 6, and inking the form of type, as seen in Fig. 2, also to allow the platen to be vibrated upward into a position convenient for placing the sheet to be printed, or for its removal after it is printed, as seen in Fig. 2. The movement of the bed F controls the vibrating movements of the platen G by means of the cam-groove Q, extended from the lower side of the said bed, and the roller U, fixed to the neck G'' of the lower side of the platen G, the said roller fitting into and following the groove through all the movements of the bed. This cam-groove is so constructed that it will swing the platen upward and keep it for a while stationary, while the bed is still moving outward to have its form inked by the ink rollers R R R, as seen in Fig. 2, and this cam-groove is also so constructed that it will make the platen swing downward and quite to the slide H in advance of the arrival of the surface of the bed or form T, which presses against it, as seen in Fig. 6, by the combined movement of the downward sliding motion of the platen and its support H, and the forward sweeping motion of the bed.

Upon the slide H, on a line with the lower edge of the form, is fixed a step, 5, Fig. 6, and in range with it, on the bed, is fixed the inverted step 4, which strikes upon the first-named step and makes the slide H and platen G to partake of as much downward motion as will make the platen and bed make perfect register when they come together.

In a cavity made half in slide H and half in the stationary plate I is placed a vertical spiral spring, Y, which keeps the slide H and platen G in the position in Fig. 2, when not pressed downward by the steps on the bed F, as seen in Fig. 6. This spring stands on the stationary step W on plate I, and presses upward against the step X on slide H. The slide H is kept in its place in relation to the plate I by means of the screws 2' 2', Figs. 7

and 4, which pass through the grooves 2 2 into the slide H. The said grooves allow the screws to partake of the vertical movement of the said slide. The bed F is made to rotate and reciprocate, or sweep in and out, by means of the crank connections L L, the wrists *t t* on the crank N, and the wheel M, which are fixed to the continuously-revolving shaft O, which shaft and wheel, &c., are driven by means of the crank-handle *t' t'*.

The platen G is made to carry some nippers or a nipper, *a'*, fixed to the two uprights *a a*, which are themselves fixed to the rod *c*, Figs. 2 and 3, which is their center of motion. The nipper *a'* is made to clasp the sheet of paper down against the platen and pull the paper from the type after the impression and lift again at the proper time and place, that the operator may remove the sheet from the platen. The nipper *a'* has upon it a lip, *b*, Figs. 2 and 3, so arranged that when the nipper-bar itself rests against the surface of the platen this lip will project upward from the bar and off a sufficient distance from the platen to allow the margin of any card that is to be printed to enter under it and by this lip to be pulled from the type after the impression, at which time the bar and its lip are raised from the platen a distance sufficient to allow the card to drop into a receptacle below. The movements of the nipper and frame are given by means of the crank projection *d*, rod *e*, the vibrating lever *f*, which lever is operated by its roller *g* bearing against the cam *h*, (fixed on the main shaft O of the press,) by means of the spiral spring *j* and fulcrum *i*. The cam *h* is so shaped that the nipper *a'* is made to drop upon the platen G before the impression commences to swing downward to the impression, and the nipper is made by it to lift from the platen to allow the card to drop when the platen is in a vertical position, or nearly so, as represented in Fig. 6. A part of the wheel M and side A in Fig. 1 are cut away, so that these movements may be better seen.

The ink-rollers R R R are made to rise and fall in the grooves *r r r*, to rest upon and roll upon bearers 1 1 1 1 at the ends of the bed F, in range with and of the same height as the type T by means of the bearers 8 8, &c., on the rollers, so by means of these bearers and those on the bed the rolls may always roll against the form in a proper manner, to ink it well, without regard to the sweeping and unequal motion of different parts of the same bed. When the bed sweeps forward to take the impression, the ink-tables K K are brought underneath and against the rollers R R R, to give them their supply of ink for the succeeding impression. The upper surfaces of the slides K K together make the arc of a circle the center of which is that of the motion of the bed F. These slides K K have a lateral reciprocating motion alternately in opposite directions with respect to one another, and also to their support J. The purpose of the lateral

movement is for the lateral distribution of the ink, and the object of the meeting and passing movement of the one in relation to the other slide is that the ink may be the more completely broken up and crossed and lapped and transferred from end to end, and also very rapidly.

The apparatus for giving lateral movement to the tables is seen in Figs. 5 and 1. The slides or tables K K hold studs *S' S'*, which pass through the grooves S S in their support J into the forked ends of a lever hinged at *p'*. This lever is made to vibrate, and with it the slides or tables, by means of the rod *n*, crank-wrist *m'* on the ratchet-wheel *m*, which is made to rotate, and the tables to slide one tooth at each revolution of the press, by means of the spring finger-lever *k*, hinged at *k'* on the side of the bed, and going back and forth with it, which lever, at its lower end, toes into the space between the stationary studs *l l* on the frame of the press, alternately against one and then against the other, moving the ratchet forward one tooth and then receding into the next tooth, so continuing the movement of the ratchet-wheel and the sliding of the slides or the ink-tables. The slides K K are kept in their place on support J by means of the screws *q' q'*, which pass through the slots *q q* into the plates K K, as seen in Fig. 5.

The parts of the press being described, I will now describe the operation of the whole together. A sheet of paper being placed on the platen, motion is given to the wheel M and shaft O by its crank-handle. The bed is drawn toward the wheel until the platen closes down and the bed against it and the impression taken. The ink-rollers now, will roll upon the ink-table to take their fresh supply of ink, when, by the continued rotation of the wheel and shaft O, the bed is again pushed back and the platen again raised and the rollers again roll over the type, the nippers lift from the platen, and the ink-tables are now moved, ready for the next entrance of the rollers upon them.

One feature of my invention is seen in the peculiar construction of the bed, which is so made that it allows the face of the type to sweep up against the face of the platen without requiring the said platen to rock and tilt in order to be successfully approached by the bed and allowing the platen to passively receive the impression on its face as it slides downward, without rocking and tilting toward the bed to give the impression, as is the case in those presses where the center of motion of their beds is at right angles to some point in the form of type and the edges of whose forms or beds describe a larger circle than their centers; also, by so inclining the face of the bed no more machinery is required to ink the type than to place the rollers in stationary slots. The bed, with its face so inclined, is an exact compromise (so to speak) between the demands of the inking apparatus and the demands of the impression apparatus,

and this form of bed will allow the bed and the platen at the impression to come so nearly in line with the connecting-rods that a great part of the strain will come upon them, to the greater durability of the press and saving of iron and weight in its construction; and I am also enabled to make a rigid, simple, and strong thing of the bed, being one piece of iron only.

Another part of my invention is the employment of a platen which vibrates upward on a hinge at its top edge, or nearly so. This platen, when down against its support at the time of the impression, is so held that it cannot rock or twist or vibrate or move in any way, so as to cause slurring of the impression; also, a part of my invention is in the locking this platen and the bed together, so that the one may intermit while the other can go on in continued motion.

Another part of my invention is found in the giving to the platen and its supports a vertical motion, (or an impression motion, so to speak,) and combining the same with the sweeping or rotating reciprocating bed for the purpose of impression by means of the steps or any equivalent means; and also the means of regulating the impression through all these parts; also in the arrangement of the nipper and its controlling appendages.

Another part of my invention is the method of inking by means of two or more lateral distributing-tables moving in opposite directions, so, by means of the rollers, to counteract the inequalities in the thickness of the ink and make it even the sooner; also, the means employed for operating these tables.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A rotating reciprocating or sweeping bed, F, whose flat plane surface for the type stands in a plane always obliquely to its center of motion and obliquely to the arc of a

circle which any point on its surface may describe as the bed moves to and fro on its center or centers of motion, so that the lower edge of any form will scribe a smaller circle than any other part of the same.

2. A vibrating platen, which is so arranged that its face swings upward for the reception of the sheets upon a hinge near its top edge; also, the combination of the same with the bed F; also, the giving the same a downward-sliding or equivalent motion, for the purpose specified.

3. The combination of the platen with its movable support or slide H; also, the combination of the spring Y or its equivalent with the slide H.

4. Giving the platen its vibrating movements and period of rest by means of the cam-groove Q or its equivalent, and the moving bed F.

5. The combination of the platen and a movable support, H, or its equivalent, with the adjustable support-plate I, for the purpose specified.

6. The combination of the nipper *a'* and its lip *b* with the platen, which swings upward to receive upon it the card to be printed.

7. The arrangement for operating the nipper *a'* with its lip, for the purpose of dropping the cards.

8. The combination of two or more sliding ink-distributing tables, moving laterally and going in opposite directions to one another, substantially as described; also, the combination with them of the ratchet-wheel *m* and forked lever *p*, which operate them.

9. Combining with a rotating reciprocating bed an ink-distributing table, which moves laterally, for the purpose described.

FRANKLIN L. BAILEY.

Witnesses:

SUMNER ALLEN,
B. E. PERRY.