

No. 644,087.

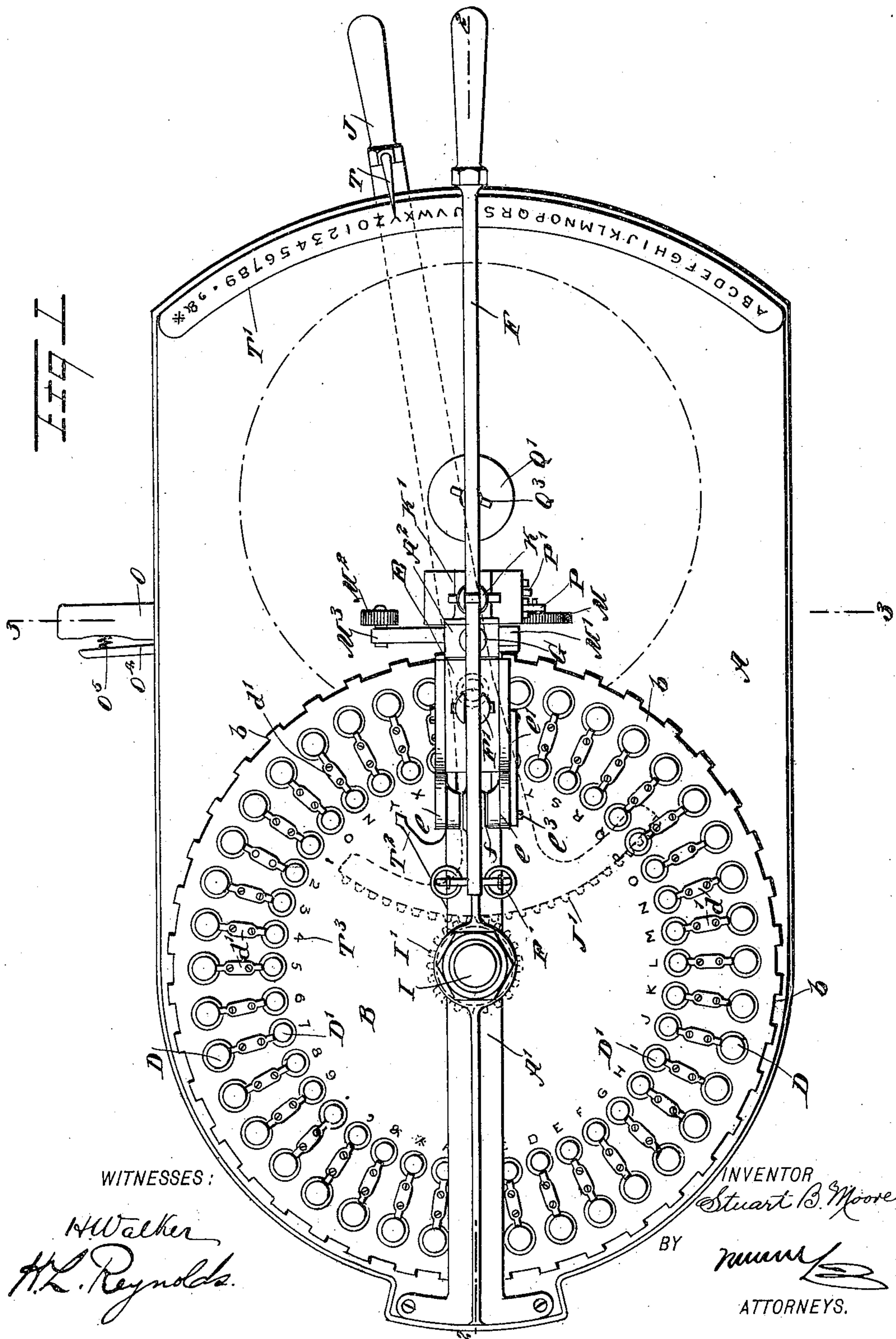
Patented Feb. 27, 1900.

S. B. MOORE.  
STENCIL CUTTING MACHINE.

(Application filed Jan. 20, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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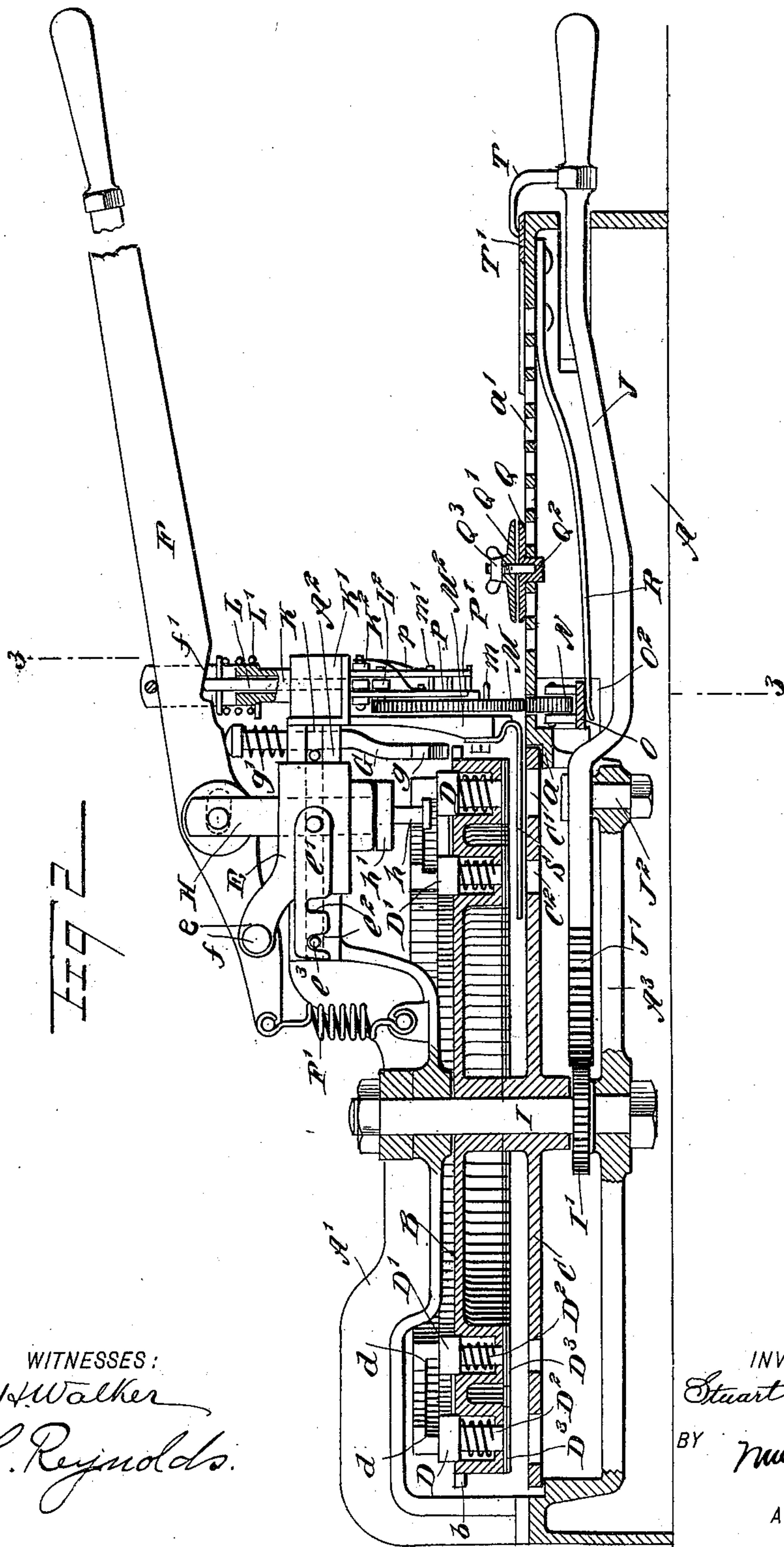
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3 Sheets—Sheet 2.



WITNESSES:  
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*H. L. Reynolds.*

INVENTOR  
*Stuart B. Moore.*  
BY *[Signature]*  
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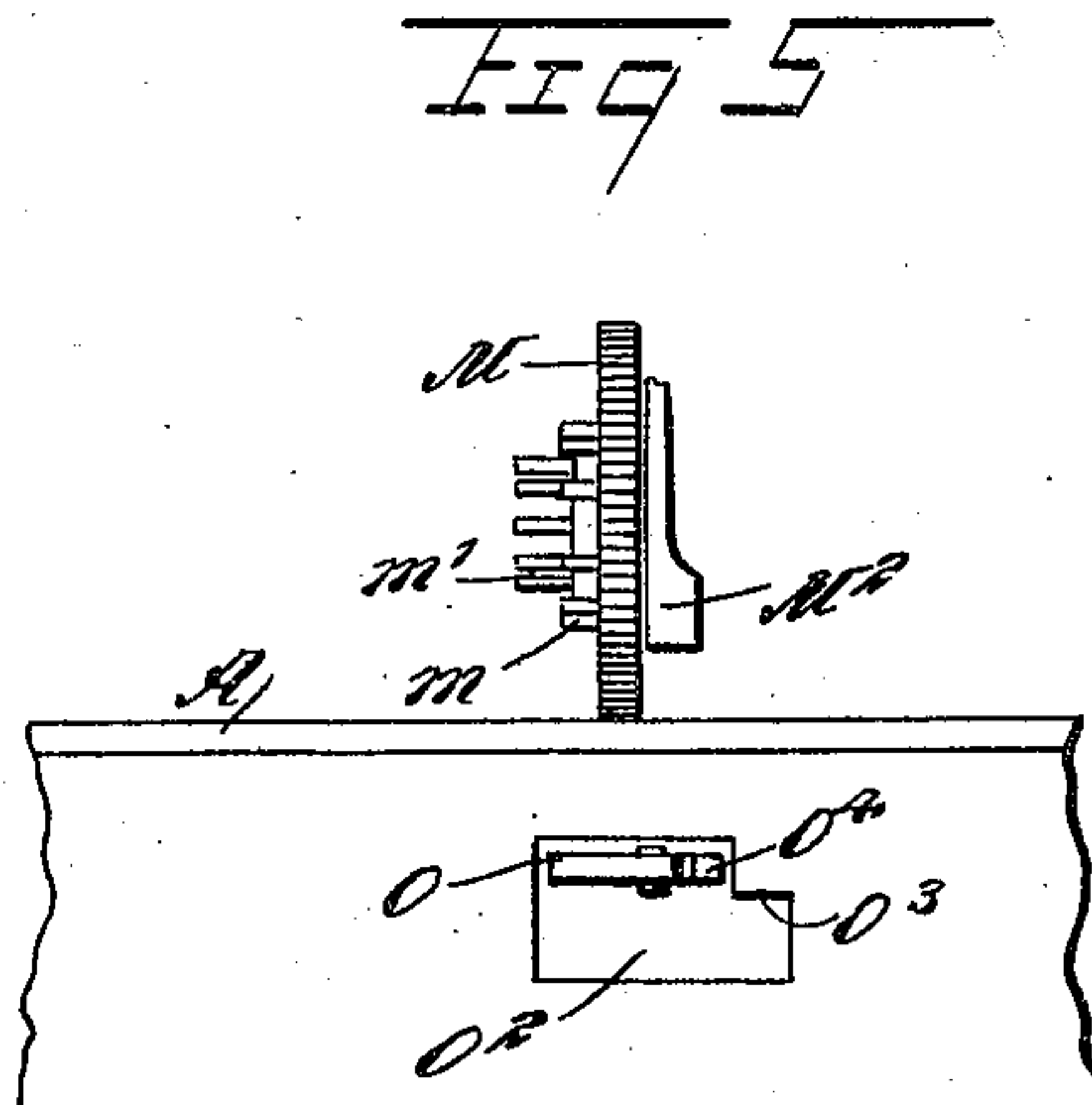
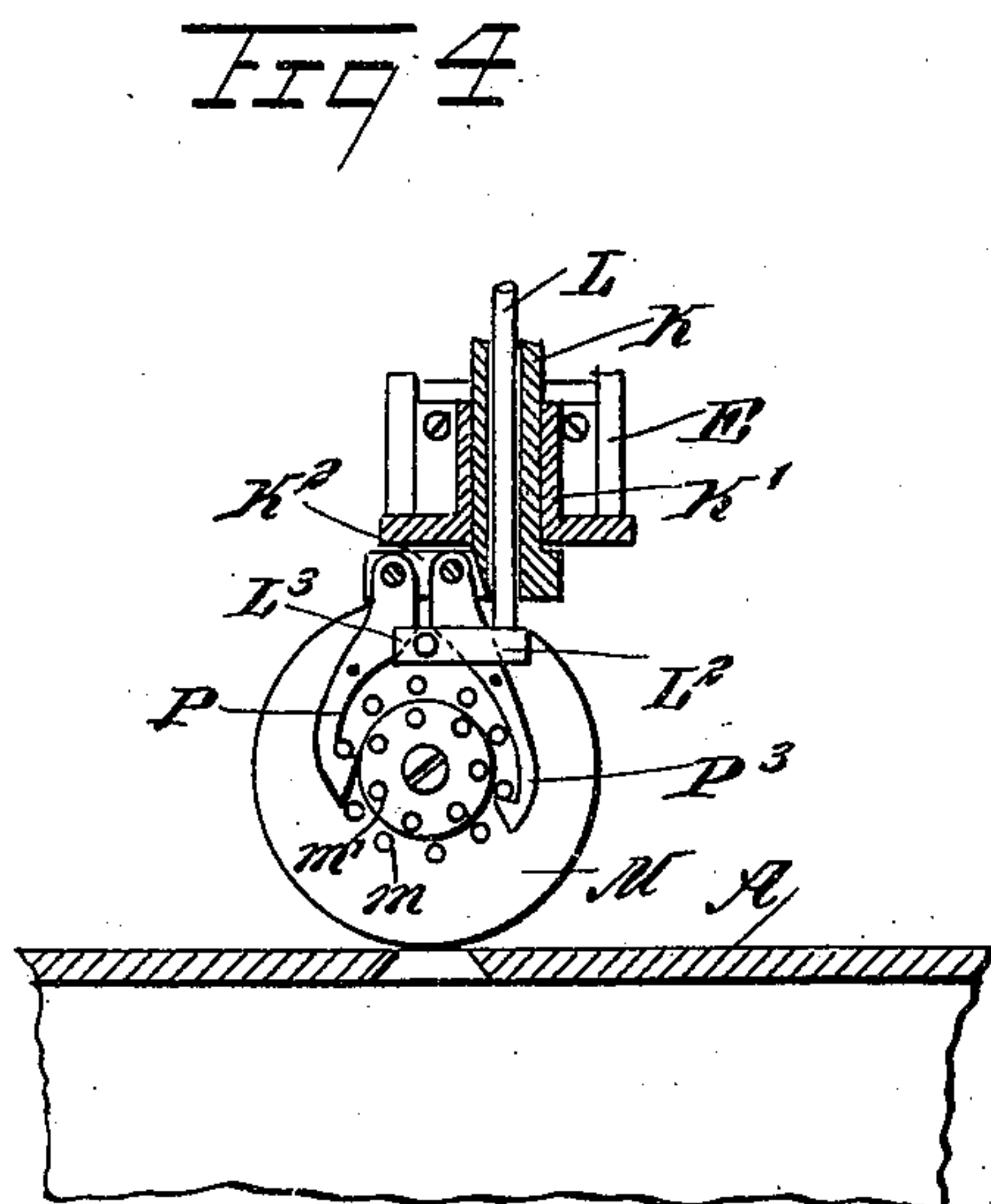
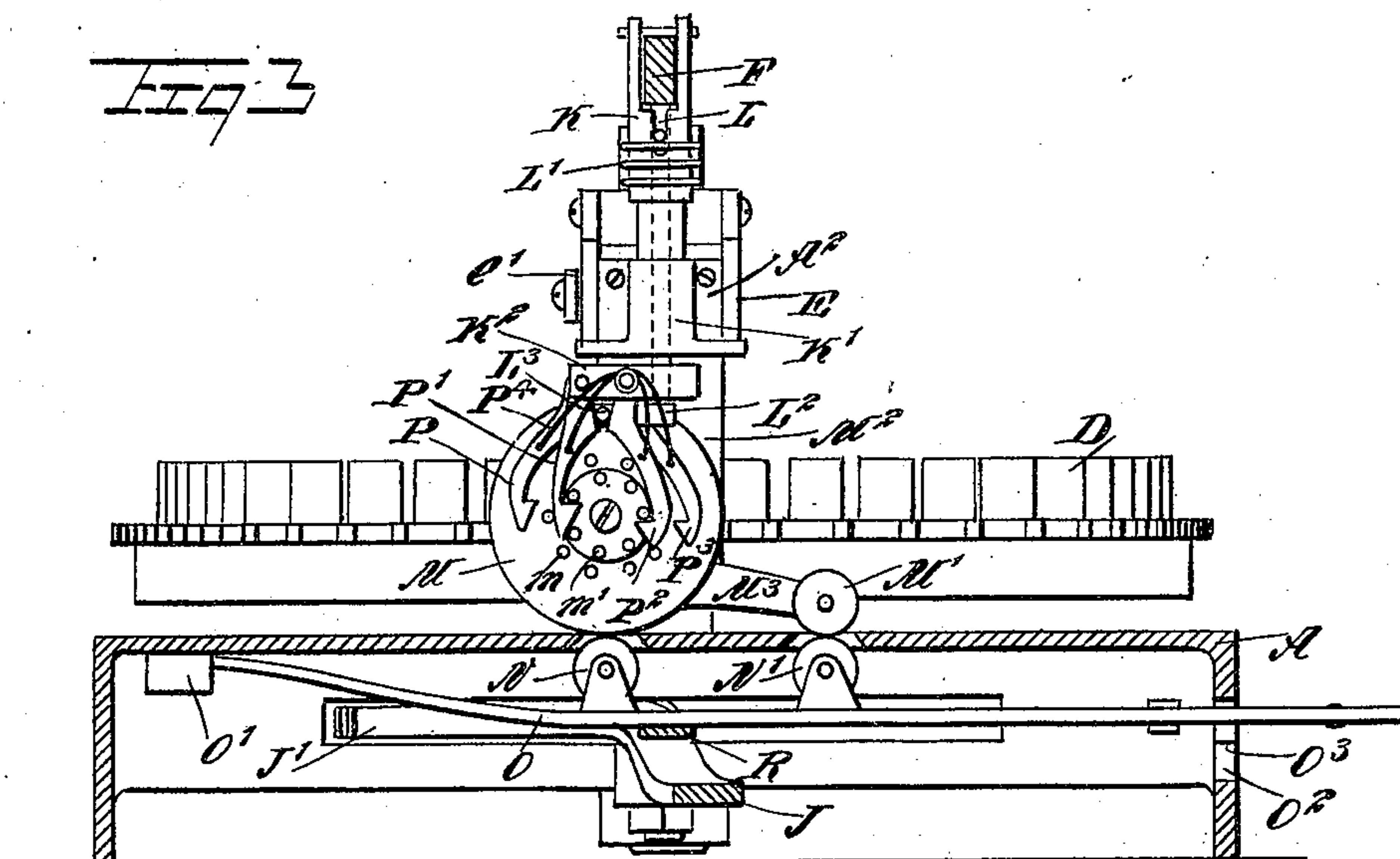
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3 Sheets—Sheet 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

STUART B. MOORE, OF NEW YORK, N. Y.

## STENCIL-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 644,087, dated February 27, 1900.

Application filed January 20, 1899. Serial No. 702,765. (No model.)

*To all whom it may concern:*

Be it known that I, STUART B. MOORE, of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Stencil-Cutting Machine, of which the following is a full, clear, and exact description.

My invention relates to an improvement in stencil-cutting machines of that kind designed for use in making paper stencils and comprises the novel features hereinafter described and claimed.

My invention further comprises the novel features hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a top plan view of my device. Fig. 2 is a longitudinal sectional elevation taken on the line 2 2 in Fig. 1. Fig. 3 is a sectional elevation taken upon the lines 3 3 of Figs. 1 and 2. Fig. 4 is a detail showing the operation of the feed mechanism, and Fig. 5 is a detail showing the means by which a portion or all of the feed mechanism may be thrown out of operation when desired.

The object of my invention is to construct a stencil-cutting machine which shall be accurate and convenient in its operation and which may be used for cutting letters of more than one size. With this object in view the disks which carry the punches and dies are provided with two circular rows of punches, and the punch-operating means is adjustable, so that it may be made to engage with the punches of either row, as desired. The whole device is mounted upon a framework A, which in general is of the form of a low table. At one end of this table (being the rearward end or the end opposite the operator) is secured an arm A', which extends upwardly and then laterally over the surface of the table toward the operator. A bar A<sup>3</sup> extends longitudinally beneath the table and forms a support for the lower end of a pivot-pin I. This pin is journaled to turn in said support and also in the arm A', which supports the upper end thereof. To this pin are secured the two disks B and C, which carry, respectively, the punches and dies by means of which the stencil is formed. The lower disk has openings C' and C<sup>2</sup> therein shaped to form the dies,

while the upper disk has sockets formed therein adapted to receive the bars D and D', which carry the two sets of punches. These bars are enlarged in their upper portions, so as to form an annular recess between the lower portion of the bars and the sockets in the disk B, within which recesses are placed the spiral springs D<sup>2</sup>, by means of which they are normally held in elevated position.

To the lower ends of the bars D and D' are secured the dies proper, D<sup>3</sup>, which have projections adapted to fit the holes C' and C<sup>2</sup> in the disk C. Each of these bars in the same set has a different character formed thereon. At their upper ends they are provided with notches d, facing toward the space between the two rows and adapted to engage with the head formed upon the lower end of a pin h, which is secured to or formed as a continuation of a plunger H, mounted to reciprocate in the frame. By this means the bars D and D', which carry the punches, are positively raised after having been used to cut a letter.

The disks B and C are secured upon the pivot I, so that they may turn, and thus bring any one of the punches into engagement with the plunger H. The pivot-pin I has a pinion I' secured thereto and meshing with a segment-gear J', mounted upon one end of a lever J. This lever extends beneath the table and is pivoted to the frame at J<sup>2</sup>, the outer end thereof projecting beyond the outer end of the table, where it may be readily engaged by the hand. By swinging this lever the disks may be rotated so as to bring one end of the punches into proper punching position.

The periphery of the disk B is provided with a projecting flange, which is provided with a series of notches b, adapted to be engaged by the beveled head g of a plunger G, so as to accurately center the disks. This plunger g is mounted to reciprocate in an extension A<sup>2</sup> of the arm A' and is held elevated by means of a spring g' engaging therewith. The plunger G is depressed by the punch-operating lever F, which is pivoted at f upon arms e, extending rearwardly from a sliding block E. This block is mounted to slide in any convenient manner upon the extension A<sup>2</sup> of the arm A'. The plunger H, by means of which the lever is connected with the punches, moves on a pin at its upper end, which passes through a slot in the lever F.



The lower end of the plunger H has a collar or head  $h'$ , which engages a boss upon the lower side of the block E, so as to prevent its being raised beyond a certain point. This plunger H is guided in the upper and lower portions of the block E, said block being hollow and surrounding the guide-arm extension  $A^2$ . The block E will preferably be formed of several pieces, which are secured together, so as to encircle the guide-arm  $A^2$ . The extension  $A^2$  is also provided with a longitudinal slot adapted to accommodate the plunger H and to permit of the slight reciprocation of the block E.

The block E is locked in adjusted position by means of a catch-plate  $e'$ , which is pivoted to one side of the block and is provided with two notches  $e^2$ , adapted to engage with a pin  $e^3$ , projecting from one end of the block. When the block is adjusted so that the plunger H will engage the punches of one set, the pin  $e^3$  will engage one of the notches in the catch-plate, while when the block is adjusted so that the plunger will engage the other set of punches the pin  $e^3$  will lie in the other notch  $e^2$ .

The handle end of the operating-lever F is normally held in an operative position by means of spiral springs  $F'$ , which are secured to its rear end and to the arm  $A'$ . Upon the end of the guide-arm extension  $A^2$  is secured a block  $K'$ , within which is mounted to reciprocate a plunger K. This plunger is hollow, having a central hole within which reciprocates a rod L. The upper end of the plunger K is slotted to receive the operating-lever F, which is secured in said slot by means of a pin which passes through the upper end of the plunger above the lever F. The rod L, which slides within this plunger, is normally held elevated by means of a spiral spring  $L'$ .

The plunger K has a block  $K^2$  secured to its lower end beneath the block  $K'$ , and to the block  $K^2$  are pivoted two sets of pawls P,  $P'$ ,  $P^2$ , and  $P^3$ , by means of which the feed-wheel M is mounted to turn upon an arm  $M^2$ , which depends from the guide-arm extension  $A^2$ . The feed-wheel M coöperates with an idler-wheel N, located beneath the table and projecting through a slot formed therein, so that its upper surface is practically coincident with the upper surface of the table. The feed-wheel has two sets of pins  $m$  and  $m'$  projecting from one side thereof, and these pins are placed at different distances from the center and with a greater number in one row than in the other. It is desired to turn the wheel through the distance between two adjacent pins at each operation of the lever F. The pawls P and  $P^3$  are adapted to engage the outer row of pins  $m$ , while the pawls  $P'$  and  $P^2$  are adapted to engage the inner row of pins  $m'$ . These pawls are reciprocated with the plunger K in correspondence with the motion of the operating-lever F. One set of pawls is held out of operation while the other set of

pawls is working. As shown in Fig. 3, the pawls P and  $P^3$  are held out of operation.

To the lower end of the rod L is secured a block or arm  $L^2$ , which carries a pin  $L^3$ , projecting at each side and between the pawls of each set. The pawls  $P'$  and  $P^2$  have a cam-surface engaging the pin  $L^3$ , so that when the pin  $L^3$  is forced downward from the position shown in Fig. 3 these pawls will be separated and thrown out of engagement with the pins  $m'$ . The pawls P and  $P^3$  have a cam-surface engageable with the pin  $L^3$ , so that when the pin is raised the pawls will be separated and thrown out of engagement with the pins  $m$ . These pawls are provided with springs  $p$ , which normally hold them toward the center or toward the pins upon the feed-wheel.

It will be noticed that the operating-lever F is provided with a slight notch or inclined surface  $f'$ , which permits the rod L to be raised when in one position, but which will force the rod L downward if the lever is forced toward the left, as shown in Fig. 2. This is done when the punch-operating mechanism is shifted from the outer to the inner row of punches. In this case the catch bar or plate  $e'$  is lifted from engagement with the pin  $e^3$  and the block E moved bodily backward, carrying with it the operating-lever F, until the innermost of the notches  $e^2$  will engage the pin  $e^3$ . This forces the rod L downward until the outer set of pawls  $P'$  and  $P^2$  are disengaged from their pins and the inner set P and  $P^3$  are permitted to engage with their set of pins. This last position is the one shown in Fig. 4, except that the outer set of pawls is not therein shown.

In the position shown in Fig. 3 it is obvious that the same amount of movement of the plunger K will cause a greater amount of feed than in the position shown in Fig. 4. This adjustment of feed is done automatically by the mere act of shifting the punch-operating mechanism so as to engage the other set of punches. The outer set of punches are designed for containing characters of a larger size than those upon the inner set, and in consequence would require an increased feed of the stencil.

A stripper-plate S is supported from the lower end of the arm  $M^2$  and projects between the disks B and C. The stencil lies just beneath this stripper-plate and by it is freed from the punches  $D^3$ . The edge of the disk C is supported just beneath the punching position by means of a ledge  $a$ , formed upon a rib which extends across the table. This supports the disks and prevents any straining thereof, due to the pressure of the punch.

To the lower end of the arm  $M^2$  is secured a laterally-extending arm  $M^3$ , which at its outer end carries an idler-wheel  $M'$ , adapted to engage with a similar wheel  $N'$ , supported beneath the table. This provides two sets of wheels engaging the stencil and arranged in the line of feed, so as to more certainly insure a straight feed. The two wheels  $N'$  and  $M'$  are supported beneath the table upon a



spring-bar O, which is pivoted by one end at O' and at its other end projects through a notch or hole O<sup>2</sup> in the side of the table. This hole is provided with a notch O<sup>3</sup>, located at a short distance beneath its upper edge and adapted to be engaged by a spring-arm O<sup>4</sup>, carried by the outer end of the bar O. When the bar O is depressed, the spring-arm O<sup>4</sup>, which is held outward by a spring O<sup>5</sup>, springs outward, so as to engage the notch O<sup>3</sup> and prevent the bar O from being raised until the spring-arm has been pressed inward. In this position the wheel N' is held clear of the wheel M' and the feed is entirely by the two wheels M and N. This condition is required when a circular stencil is being cut. To accomplish this, the stencil is pivotally held at a convenient point upon the table and the feed acts thereon so as to turn the stencil upon its center. To prevent tearing of the stencil, which often happens where the stencil is simply held by a pin passing through the material thereof, I have provided a device which is clearly shown in Figs. 1 and 2. This consists of two washers Q and Q', one of which is provided with a threaded bolt adapted to pass through the other, and the two are clamped together by means of a threaded nut Q<sup>3</sup>, screwing upon the threaded bolt. This clamps a considerable portion of the stencil firmly, and thus distributes the strain over a considerable surface instead of having it all concentrated upon the stencil pivot-pin. The lower washer Q' is provided with a pivotal extension Q<sup>2</sup>, which is adapted to enter any one of a series of holes a', formed in the table and in the same line as the pivot I, upon which the disks turn into punching position. This stencil-clamp may be adjusted toward and from the punches as the size of the stencil increases or diminishes or to correspond with the rows of letters at different distances from the center.

The end of the table next to the operator is curved, as clearly shown in Fig. 1, and is provided with an index T', upon which are laid out the various letters and characters for which punches are provided on the disks. The lever J, by means of which the disks are rotated, is provided with a pointer T, extending up so as to slide over the index, thus indicating the proper position for any letter. A second index is provided upon the upper surface of the disk B, as shown at T<sup>3</sup> in Fig. 1. A pointer T<sup>2</sup>, which is mounted upon the arm A', is provided, which indicates the punch which is in operating position. The index T' will be found more convenient in connection with ordinary stencils, in which the letters are struck. Where it is desired to punch very large stencils or circular stencils which extend far enough to cover the index T', the other index may be used.

The punch-bars D and D' are herein shown as being of a circular cross-section. They are prevented from turning and are held in proper position by means of bolts or bars d', which

are secured to the upper surface of the disk B and have their ends entering slots or keyways in the sides of the bars D and D'. This prevents turning and holds the punches in accurate alinement with the dies in the disk C.

The operation of my device is as follows: If an ordinary straight stencil, or one in which the letters are arranged in straight lines, is to be formed, the two washers Q and Q' are removed from the machine and a sheet of paper is inserted between the feed-wheels. Before inserting the paper the bar O, which supports the under set of wheels, is pressed downward, thus making the insertion of the paper much easier than it would otherwise be. The paper having been inserted between the feed-wheels and in position for punching the first letter, the disks are adjusted to the proper position by means of the lever J. The punch-operating lever F and the sliding block E are adjusted to the position corresponding with the size of letter which is to be punched. When the disk has been adjusted to a proper position, the lever F is pressed downward. This first engages the plunger G and forces its beveled head g into the notch b, corresponding with the letter to be punched, and thus accurately centers the disk. The plunger H engages the bar carrying the punch and forces it downward until the letter has been cut out of the stencil. At the same time the plunger K is forced downwardly, so that the pawl P or P', depending upon which set is in use, is in position to engage the next pin of its set upon the feed-wheel M. When the lever F is raised, this pawl engages its pin and turns the feed-wheel. As soon as it has turned the feed-wheel a proper amount the pawl, P<sup>2</sup> or P<sup>3</sup>, which may be in use engages its pin and prevents the wheel from being turned beyond the proper point. These pawls P<sup>2</sup> and P<sup>3</sup> are simply stop-pawls to prevent the overturning of the feed-wheel. The machine is then ready to have the disks turned for the next letter. This operation is then repeated until the entire stencil has been cut. The stencil is shifted farther in, as necessary, to cut additional lines of letters.

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

1. A stencil-cutting machine, comprising a movable member carrying plural sets of punches and dies, a shifting punch-operating mechanism adapted to be moved to engage the punches of either set, and feed mechanisms variable between the different sets, substantially as described.

2. A stencil-cutting machine, comprising plural sets of punches and dies mounted to turn upon a common center, a member carrying punch-operating mechanisms and mounted to slide so as to engage the punches of either set, and a variable feed mechanism, substantially as described.

3. A stencil-cutting machine, comprising a supporting-frame, disks journaled thereon



and carrying plural sets of punches and dies, a member carrying punch-operating mechanisms and mounted to slide on the frame so as to engage the punches of either set, and a variable stencil-feeding mechanism, substantially as described.

4. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block sliding on the said arm, a punch-operating mechanism carried by said block and adapted to engage either set of punches, and a stencil-feed varied in amount by shifting from one set of punches to another, substantially as described.

5. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, a fixed arm or guide extending over the disks, a block sliding on the said arm or guide, a lug adapted to hold the block in adjusted position, and a punch-operating mechanism carried by and adjustable with said block and adapted by said adjustment to engage either set of punches, substantially as described.

6. A stencil-cutting machine, comprising a movable member carrying plural sets of punches and dies, a shifting punch-operating mechanism adapted to be moved to engage the punches of either set, a variable-feed mechanism and means for holding the punch-operating mechanism in either of its adjusted positions, substantially as described.

7. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block sliding on the said arm, a latch carried by the block, a pin on the frame engageable thereby to hold the block in adjusted position, and a punch-operating mechanism carried by said block and adapted to engage either set of punches, substantially as described.

8. A stencil-cutting machine, comprising a member carrying plural sets of punches and dies, a shifting punch-operating mechanism adapted to be moved to engage the punches of either set, and an automatic stencil-feeding mechanism operated by the reciprocation of the punch-operating mechanism and varied in amount by shifting from one set to another, substantially as described.

9. A stencil-cutting machine, comprising a movable member carrying plural sets of punches and dies, a shifting punch-operating mechanism adapted to be moved to engage the punches of either set, and a stencil-feed automatically varied in amount by the shifting of the punch-operating mechanism, substantially as described.

10. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an automatic stencil-feed, a fixed arm or guide extending over the disks, a block sliding on the said arm or guide, and a punch-operating

mechanism carried by and adjustable with said block and adapted by said adjustment to engage with either set of punches, substantially as described.

11. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block sliding on said arm, a punch-operating mechanism carried by said block and adapted to engage either set of punches, and a variable stencil-feed, substantially as described.

12. A stencil-cutting machine, comprising a frame, disks mounted to turn thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block sliding on the said arm, a latch carried by the block, a pin on the frame engageable thereby to hold the block in adjusted position, a punch-operating mechanism carried by said block and adapted to engage either set of punches, and a variable stencil-feed, substantially as described.

13. A stencil-cutting machine, comprising a frame, disks journaled thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block mounted to slide on said arm, a plunger mounted in the block, said plunger and the punches having positively-engaging means, and a lever pivoted upon the block and engaging the plunger, substantially as described.

14. A stencil-cutting machine, comprising a frame, disks journaled thereon and carrying plural sets of punches and dies, an arm of the frame extending over the disks, a block mounted to slide on said arm, a plunger mounted in the block, said plunger and the punches having positively-engaging means, a lever pivoted upon the block and engaging the plunger, and a spring for returning the lever and plunger, substantially as described.

15. A paper-feed device for stencil-cutting machines, comprising a feed-wheel having a circular row of pins projecting from one side, a reciprocable bar or plunger, means for reciprocating said bar, a feed and a stop pawl carried by the bar, said pawls lying on opposite sides of the wheel center and being held in engagement with the pins, substantially as described.

16. A stencil-cutting machine, comprising punching mechanisms, a lever for operating them, a feed-wheel having a circular row of pins projecting therefrom, and two pawls movable with the operating-lever and lying one on each side of the feed-wheel center and engaging the pins, substantially as described.

17. A stencil-cutting machine, comprising punching mechanisms, a lever for operating them, a feed-wheel having a circular row of pins projecting therefrom, a plunger engaged by the operating-lever, and two pawls carried by the plunger and lying one on each side of the feed-wheel center and engaging the pins, substantially as described.



18. A stencil-cutting machine, comprising punching mechanisms, a lever for operating them, a feed-wheel having two circular rows of pins projecting therefrom and having different angular spacing in each row, two sets of pawls movable with the operating-lever, the two pawls of each set lying one on each side of the feed-wheel center and engaging its particular row of pins, and means for throwing either set of pawls out of engagement with its pins, substantially as described.

19. A stencil-cutting machine, comprising punching mechanisms, a lever for operating them, a feed-wheel having two circular rows of pins projecting therefrom and having different angular spacing in each row, two sets of pawls movable with the operating-lever, and the two pawls of each set lying one on each side of the feed-wheel center and engaging its particular rows of pins, and a pawl-controlling bar engaging the pawls of both sets, the said pawls having cam-surfaces oppositely arranged in each set and engaging the controlling-bar, whereby one set is thrown out of engagement when the other set is in engagement, substantially as described.

20. A stencil-cutting machine, comprising plural rows of punching mechanisms, a block carrying punch-operating mechanisms and slidable to engage the operating mechanism with either row of punches, a stencil-feed wheel, and operating means therefor variable in extent by the shifting of the punch-operating mechanism, substantially as described.

21. A stencil-cutting machine, comprising plural rows of punching mechanisms, a block carrying punch-operating mechanisms and slidable to engage the operating mechanism with either row of punches, a stencil-feed wheel provided with separate feeding means for each row of punches, and actuating means therefor carried by the sliding block and automatically shifted to engage different sets of feeding mechanisms by the shifting of the block, substantially as described.

22. The combination in a stencil-cutting

device, of plural sets of punching mechanisms, operating means therefor engageable at will with either set of punches, and a variable-feed mechanism controlled by the shifting of the punch-operating mechanism, substantially as described.

23. A feeding mechanism for stencil-cutting machines, comprising feed-wheels engaging opposite sides of the stencil, actuating means therefor, a spring-held bar carrying the feed-wheels upon one side of the stencil, and having one end projecting from the frame, and a catch upon the projecting end of the bar adapted to engage the frame to hold the bar when depressed, substantially as described.

24. A stencil-cutting machine, comprising plural rows of punching mechanisms, a block carrying punch-operating mechanisms and movable to engage the operating mechanism with either row of punches, a stencil-feed wheel provided with separate feeding means for each row of punches, and actuating means therefor automatically shifted to engage different sets of feeding mechanisms.

25. A stencil-cutting machine having plural sets of letter punches and dies and a lever mounted upon a movable pivot and adapted to engage any set of punches.

26. A stencil-cutting machine having plural sets of letter punches and dies, a movable lever adapted to engage the punches of any set, and a variable-feed mechanism.

27. A stencil-cutting machine having plural sets of letter punches and dies having a common fixed pivot, and means for feeding the stencil-sheet a variable distance.

28. A stencil-cutting machine having plural sets of letter punches and dies, having fixed pivots, means for engaging the punches of any set, and means for feeding the stencil-sheet a different distance for different sets of punches.

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