

No. 808,308.

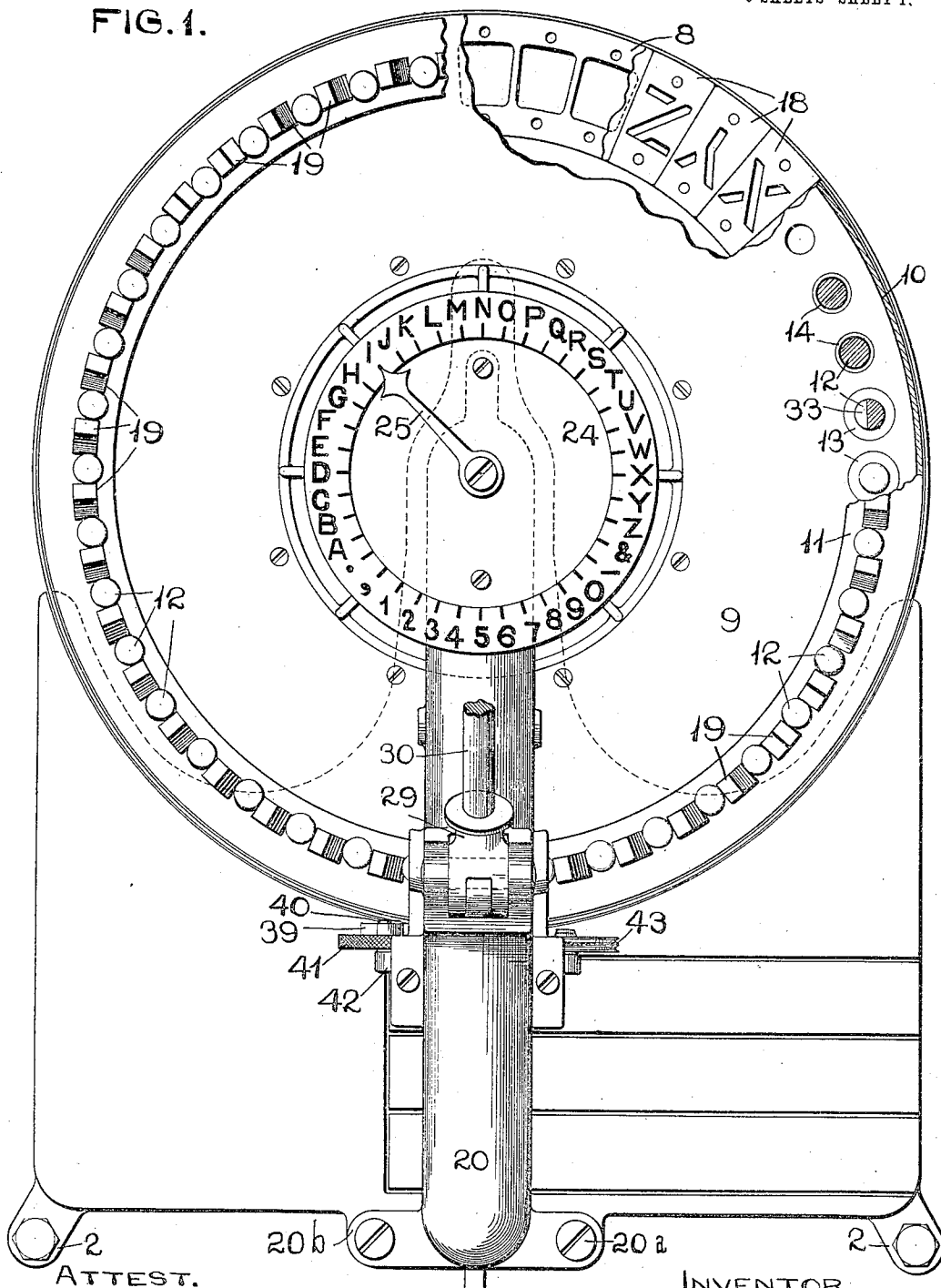
PATENTED DEC. 26, 1905.

T. W. REMMERS.  
STENCIL CUTTING MACHINE.

APPLICATION FILED MAY 8, 1905.

3 SHEETS—SHEET 1.

FIG. 1.



ATTEST.

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INVENTOR.

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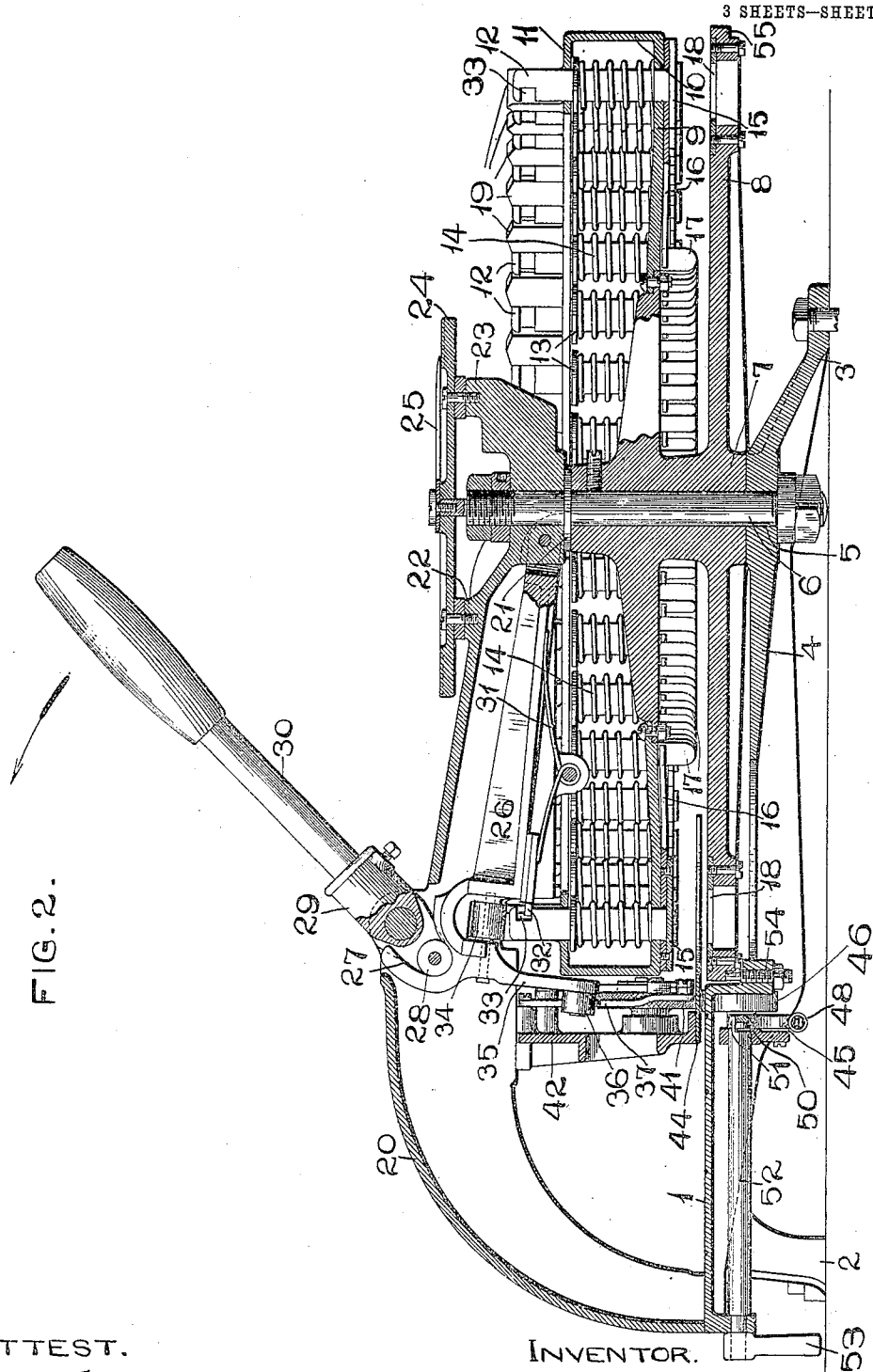
BY *Bakewell & Cornwall*

ATTY'S.

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3 SHEETS—SHEET 2.



ATTEST.

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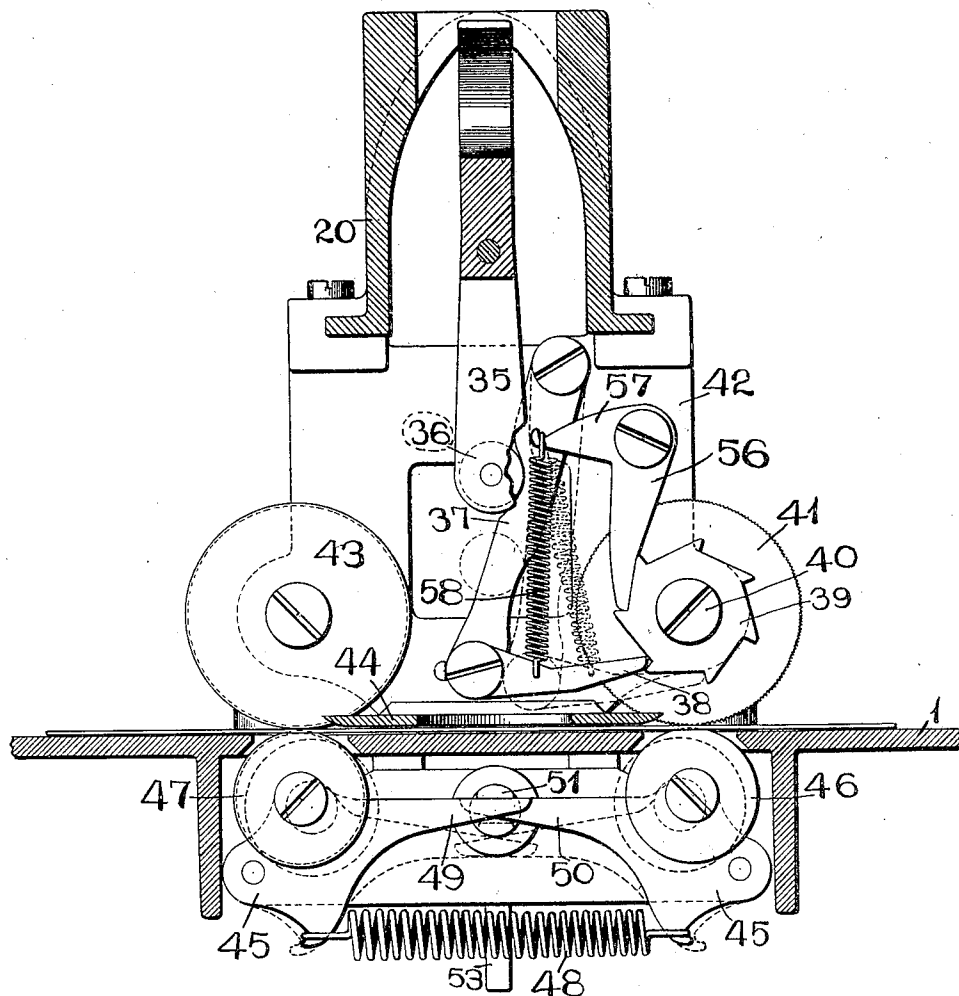
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APPLICATION FILED MAY 3, 1905.

3 SHEETS—SHEET 3.

FIG. 3.



ATTEST.

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# UNITED STATES PATENT OFFICE.

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## STENCIL-CUTTING MACHINE.

No. 808,308.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed May 3, 1905. Serial No. 258,738.

*To all whom it may concern:*

Be it known that I, THEODORE W. REMMERS, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Stencil-Cutting Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of a stencil-cutting machine constructed in accordance with my invention, parts being broken away to show the relative position of the female dies. Fig. 2 is a vertical longitudinal sectional view of the stencil-cutting machine, and Fig. 3 is a view in elevation of the feed mechanism.

This invention relates to improvements in stencil-cutting machines; and one of the objects thereof is to provide an apparatus of simple construction which may be conveniently operated and which will be provided with a visual indicator to indicate when the dies are in proper place to cut the stencil.

Another object is to provide means for operating the dies and for conveniently guiding the operating means in operative position, and a still further object is to provide means whereby the male die-carrying member may be rotated by the operator without danger of injury.

Other objects and advantages, as well as the novel details of construction, will be more specifically referred to hereinafter, it being understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In the drawings illustrating the preferred embodiment of my invention the reference-numeral 1 designates the base or table having rear standards 2 and a centrally-located standard 3. The standard 3 is connected to the table by the web 4, offset with relation to the table 1 and in a horizontal plane lower than the plane of the table. The standard 3 is provided with an aperture 5, containing a vertically-arranged spindle 6, on which is rigidly fastened a rotatable die-carrier comprising a hub 7, having parallel horizontally-arranged flanges 8 and 9, respectively. The

flanges 8 and 9 are sufficiently large to provide for a number of dies, the male members of which are supported in the rim 10, carried by the flange 9, which rim 10 is provided with an intumed flange 11, spaced away from and parallel with the flange 9, said flange 11 having openings alining with openings in the flange 9, and through these openings are vertically-movable die-plungers 12. Each plunger carries a collar 13 immediately below the flange 11, and an expansion-spring 14 is coiled about the plunger, so that one end thereof bears against the collar 13 and the other end against the flange 9, the tendency of the spring being to move the plunger in an upward direction. The movement of each plunger, however, is limited by the collar 13 as well as by the male die 15, terminally secured on each plunger and when in a state of rest bearing against the under side of the flange 9. To each plunger is secured an inwardly-disposed guide-finger 16, projecting between spaced guide-lugs 17, of which there is a plurality arranged in circular series beneath the flange 9 to assist in guiding the male die into coincident operative position with the female die member 18, carried by the flange 8, and to prevent any lateral movement of said male dies the flange 8 is spaced a sufficient distance from the flange 9 to permit of a free movement of one of the plungers 12.

19 designates a plurality of upstanding guide projections having downwardly-inclined free ends, which guide projections are carried by the flange 11 and are spaced apart a distance approximately the same as the diameter of the plungers 12, so that the operating member will be moved into actuating position with relation to the plungers 12, as will be hereinafter made apparent.

20 designates an arch, one end of which is supported on the table 1, and said arch is secured thereto by fastening devices 20<sup>a</sup>, passing through the lugs 20<sup>b</sup> on the arch and through the table. The other end of the arch is supported on a washer 21 above the hub 7 of the die-carrying member. This arch is approximately inverted-U shape in cross-section, so that the depending flanges thereof assist the web which connects them in confining the die-operating mechanism within the arch.

Rigidly secured to the lugs 22 and 23 is an

indicator-disk 24, having a plurality of characters thereon corresponding to the characters on the dies. A pointer 25 is rigidly secured on the end of the spindle 6 and is adapted to move in a circular path over the respective characters to indicate the particular die-plunger which will be operated by the die-actuating mechanism.

The operating mechanism for the die-carrying members is clearly illustrated in Fig. 2 as comprising a lever 26, pivoted to the arch 20, adjacent the spindle 6, the free end of said lever 26 having a cam-recess 27, adapted to receive a cam 28, pivoted to the arch, and provided with a socket 29 to receive a hand-lever 30, whereby a forward movement of the lever 30 in the direction indicated by the arrow will depress the free end of the lever 26 and a rearward movement in a direction opposite to the direction indicated by the arrow will permit the spring 31, carried by the arch and terminally bearing against the lever 26, to move said lever 26 in an upward direction. The lever 26 is provided with an engaging projection 32, which may engage any one of the grooves 33 in the respective plungers 12. The idle roller 34, recessed in the lever 26, is adapted to pass over the projections 19, and when the lever 26 is depressed the roller will ride down one of the inclined ends of the projections 19 to guide the projection 32 into engagement with one of the grooves in the plungers 12. This roller materially assists in guiding and holding the die-carrier so that the male die of the particular stencil-cutting members will be positioned in perfect alinement with the female die before the end of the lever is operated.

It is to be understood, of course, that the stencil is cut into a strip or sheet of suitable material, and in order to properly space the characters one from the other it is desirable to provide a feed mechanism which will feed the sheet at regular intervals a predetermined distance. The feed mechanism is automatically operated by depressing the lever 26, and in order that this automatic operation may be insured I provide a depending extension 35 on the free end of the lever 26, which extension 35 carries a roller 36, adapted to engage with one side of a swinging dog-carrying lever 37, fulcrumed at its upper extremity and carrying the dog 38 at its lower extremity, which dog 38 is adapted to successively engage the teeth on the ratchet 39, rotatable around a shaft 40 and rigid with the sheet-feeding wheel 41.

A casting 42 is provided for the feed mechanism, and this casting carries the lever 37, the feed-wheel 41, and an idle wheel 43, corresponding in diameter to the wheel 41, but adapted to bear upon the sheet to guide it in its advancing position. In order to prevent buckling or creasing of the sheet, a guide is provided which is carried by the casting and

consists of a slotted plate 44 a sufficient distance above the table 1 to permit the sheet to pass therebetween, the said slot in the said plate being of sufficient size to permit the male member of any one of the dies to pass through during the cutting of the stencil.

Immediately below the table 1 is a plurality of swinging bearings 45, one of the bearings carrying a feed-roller 46 immediately below the roller 41 and below an opening in the plate 1. The other bearing carries a roller 47 immediately below the roller 43 and immediately below the opening in the plate 1. These bearings are resiliently connected together by a spring 48, the respective bearings being provided with overlapping fingers 49 and 50, adapted to be engaged by a cam 51 on the shaft 52. On the table 1 and on one end of said shaft is an actuating-lever 53, so that by operating the actuating-lever the cam 51, through the medium of the shaft, will engage the fingers 49 and 50 to depress them and move the rollers 46 and 47 into the positions shown in dotted lines, in which position the sheet may freely move between the rollers 41 and 46 and 43 and 47. By releasing the cam from engagement with the fingers 49 and 50 the spring 48 will move the rollers to the positions shown in full lines in Fig. 3, so that the sheet may be moved only when the feed mechanism is operated.

As is well understood, in a machine of the class above described it is desirable that the die-carrying member be prevented from swaging or warping, and particularly the flange portion 8, which carries the female portion of the die. In order to prevent this, I have provided an anti-swaging-bolt 54, which is carried by the table 1 immediately adjacent the point where the pressure on the table will occur during the cutting of the stencil, and this bolt 54 rests beneath a shoulder 55 on the flange 8.

By reference to Fig. 1 it will be observed that the top of the rotatable die-carrying member is free, so that the operator may grasp it at any point on either side of the arch and turn it without any liability of injuring his hand during its rotation. This is an important feature in a machine of this class, because it has been found in operating machines similar to those heretofore used that accidents were frequent owing to the fact that the hand of the operator would become caught in some part of a projecting brace or web of the die-carrier during its rotation. Owing to the construction of the die-carrier employed in this device, this disadvantage is entirely obviated. Attention is also directed to the novel arrangement of the feed mechanism illustrated in Fig. 3, wherein the lever 37, carrying the dog 38, is so fulcrumed that the downward pressure of the projection 35 will cause the dog 38 to engage one of the teeth on the ratchet, so as to move it a determined

distance, and thereby move the stencil-sheet the desired distance, and after the movement has occurred the locking-dog 56 will prevent a reverse movement of the roller 41, which locking-dog has a right-angularly-disposed arm 57, which is connected to an intermediate portion of the dog 38 by a spring 58. The end of the arm 57 extends beyond the fulcrum-point of the lever 37, so that when the lever 37 is moved into a position as indicated in dotted lines in Fig. 3 and after the feed-roller has been actuated the dog and lever will be caused to assume their original position, as shown in full lines in Fig. 3, owing to the fact that the pull on said lever is out of line with the fulcrum-point thereof and the return of the lever will at all times be insured. In fact, the spring performs three functions: First, it permits the dog to remain in contact with one of the teeth of the ratchet 39 until the lever 37 has moved its full stroke, when the spring will permit the dog to ride idly over the teeth of the ratchet 39. Its second function is that it returns the lever to its normal position as soon as pressure is relieved therefrom by the extension 35, and its third function is that it maintains the locking-dog 56 in locking engagement with the ratchet-teeth as soon as the lever is retracted to its inoperative position, or the position shown in dotted lines in Fig. 3.

From the foregoing it will be apparent that the machine may be simply and easily operated and is well adapted to perform the services for which it is intended.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a stencil-cutting machine, the combination with a base, of a rotatable die-carrier on said base, an arch connected to the base and extending over a portion of the die-carrier, said arch having depending flanges connected by a web to form a housing a die-operating mechanism carried by the arch and within the housing formed by the web and depending flanges, said arch protecting the mechanism so as to house in the movable parts adjacent the die-carrier; substantially as described.

2. In a stencil-cutting machine, the combination with a base, of a rotatable die-carrier thereon having a flange constituting a table for the female die members, a flange constituting the holder for the male die members, resiliently-supported male die members in said holder and arranged in circular series, an arch connected to the base and extending over the die-carrier, said arch having depending flanges, the upper edges of which are connected together by a web to form a housing, and die-member-operating mechanism housed within the arch; substantially as described.

3. In a stencil-cutting machine, the com-

bination with a base, a supporting-arch carried by the base, a rotatable spindle carried by the base and the arch and having unrestricted rotation, said arch being provided with a circular index about said spindle, a die-carrier supported upon said spindle to rotate therewith, a pointer also mounted on said spindle and lying above said index to co-operate therewith, a pivoted lever carried by said arch and having means for engagement with one of the dies, and a hand-lever for co-operation with the first-mentioned lever to actuate the dies; substantially as described.

4. In a stencil-cutting machine, the combination with a rotatable die-carrier, an arch having one end above the die-carrier, male die members carried by the die-carrier, a lever 26 pivoted to the arch and adapted to engage the respective male die members, a device pivotally connected to the arch and in engagement with the free end of lever 26 for operating the same, and a sheet-feeding mechanism coöperating with said lever 26; substantially as described.

5. In a stencil-cutting machine, the combination with a rotatable die-carrier, of spring-pressed die-plungers carried by said carrier, a lever 26 for actuating said plungers, said lever 26 having a cam-recess, and a cam-lever for operating said lever 26; substantially as described.

6. In a stencil-cutting machine, the combination with a table or base, of a rotatable die-carrier mounted on said base, an arch having one end secured above the axis of the die-carrier and the other end on the base, die members carried by said carrier, a horizontally-arranged lever having one end fulcrumed near the axis of the die-carrier and to the arch and the other end free for vertical movement, means on the free end of the lever for engagement with the respective die members, and a lever in engagement with the free end of the first-mentioned lever to impart a vibratory movement thereto; substantially as described.

7. In a stencil-cutting machine, the combination with a base, of a spindle rotatably secured thereto, a die-carrier rigid with the spindle and rotatable therewith, an arch having an end through which the spindle projects, means on the other end of the arch for securing it to the base, a dial carried by the end of the arch above the spindle, a pointer actuated by said spindle, die members carried by the die-carrier, a horizontal lever carried by the arch and pivoted thereto adjacent the spindle, means on said horizontal lever for engagement with the respective die members, and actuating means for said lever; substantially as described.

8. In a stencil-cutting machine, the combination with a rotatable carrier, die members supported by said carrier, a horizontal lever pivoted near the axis of the carrier and

having means for actuating the die members, a projection on the free end of said lever, a feed mechanism adapted to be actuated by the projection on said lever, said feed mechanism comprising rollers, a ratchet on one of the rollers, a lever, a dog carried by the lever for engagement with the ratchet to rotate it, an independently-mounted pawl for preventing reverse movement of the ratchet, and a spring connected to the dog and pawl; substantially as described.

9. In a stencil-cutting machine, the combination with a set of dies and operating mechanism therefor including a lever, a projection on said lever, a sheet-feeding mechanism comprising rollers, a lever for actuation by the first-named lever, and a pair of dogs one of which is carried by the second-mentioned lever and the other independently mounted with relation thereto, said dogs engaging the ratchet-teeth on the roller, and a spring for actuating said dogs; substantially as described.

10. In a stencil-cutting machine, the combination with a set of dies and an actuating mechanism including a lever having a projection thereon, a lever in engagement with the projection and adapted to be actuated thereby, a dog carried by one end of said lever, a ratchet, a feed-roller movable with the ratchet, said ratchet being adapted to be ac-

tuated by the dog, a second dog for engagement with the ratchet and having a projection beyond the fulcrum of the second-mentioned lever, and a spring terminally engaging an intermediate portion of the first-named dog and the extremity of the second-mentioned dog; substantially as described.

11. In a stencil-cutting machine, the combination with a set of dies and an actuating mechanism therefor including a lever having a projection, a sheet-feeding mechanism comprising parallel sets of rollers between which the sheet may be fed, a ratchet carried by one of the rollers, a locking-dog for engagement with the ratchet and having an arm, a lever, a dog carried by the lever for engagement with the ratchet to actuate it, a spring connecting the two dogs, and means on the projection of the first-named lever for engagement with the second-named lever to move the last-mentioned lever away from the projection to actuate the ratchet; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 1st day of May, 1905.

THEODORE W. REMMERS.

Witnesses:

B. F. FUNK,  
GEORGE BAKEWELL.