

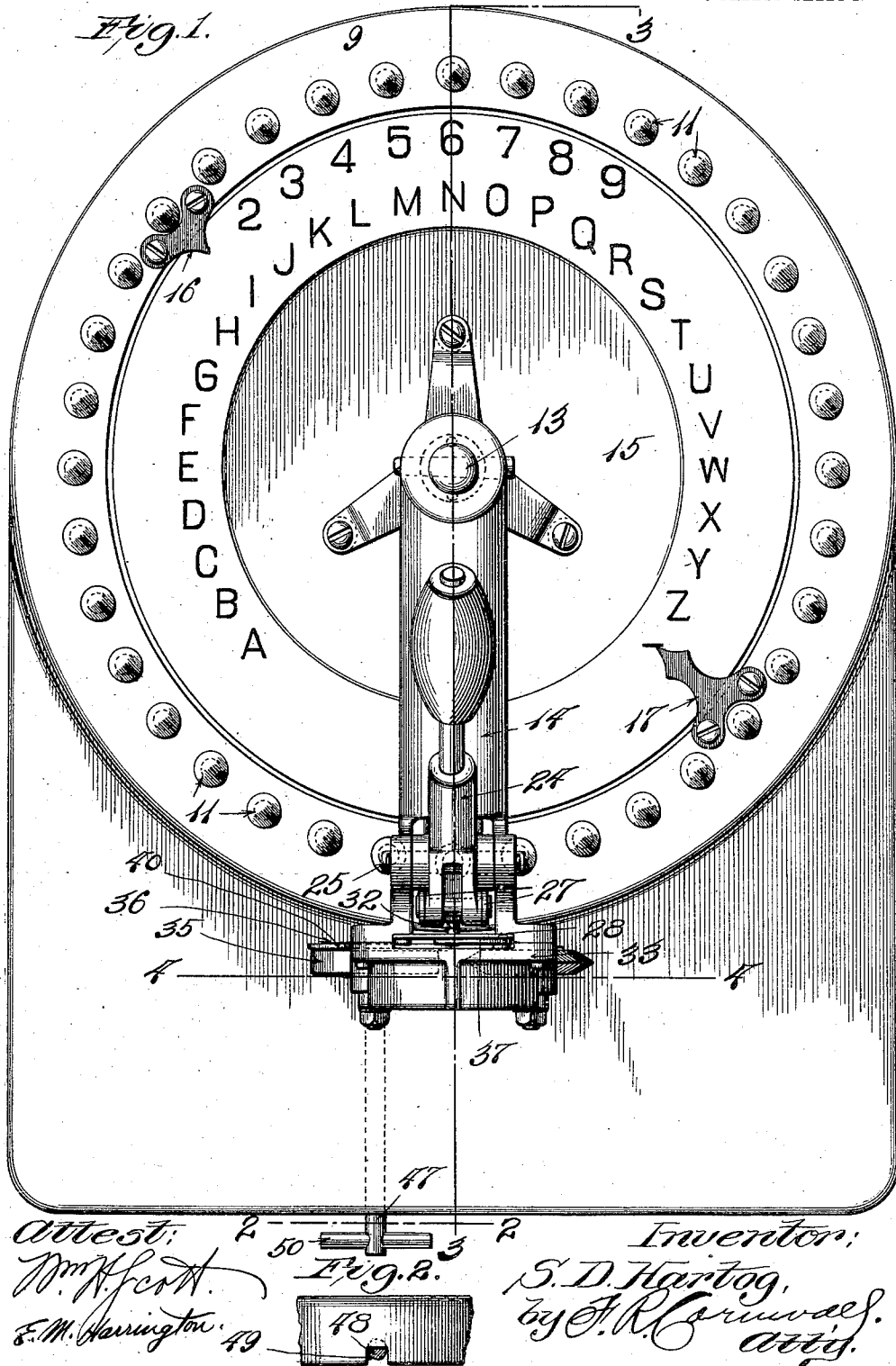
S. D. HARTOG.
STENCIL MACHINE.

APPLICATION FILED APR. 26, 1910.

987,626.

Patented Mar. 21, 1911.

3 SHEETS—SHEET 1.

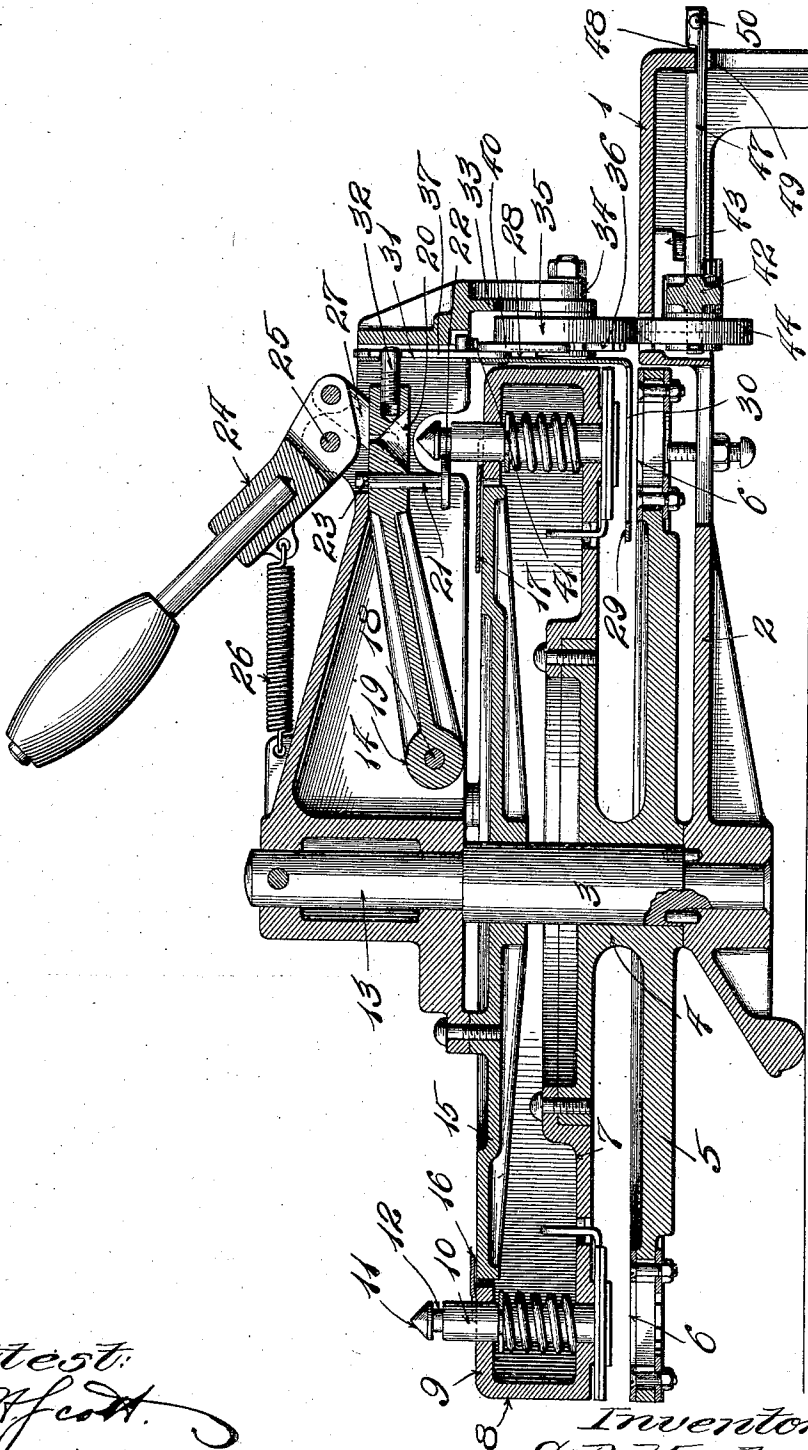


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3 SHEETS-SHEET 2.

Fig. 3.



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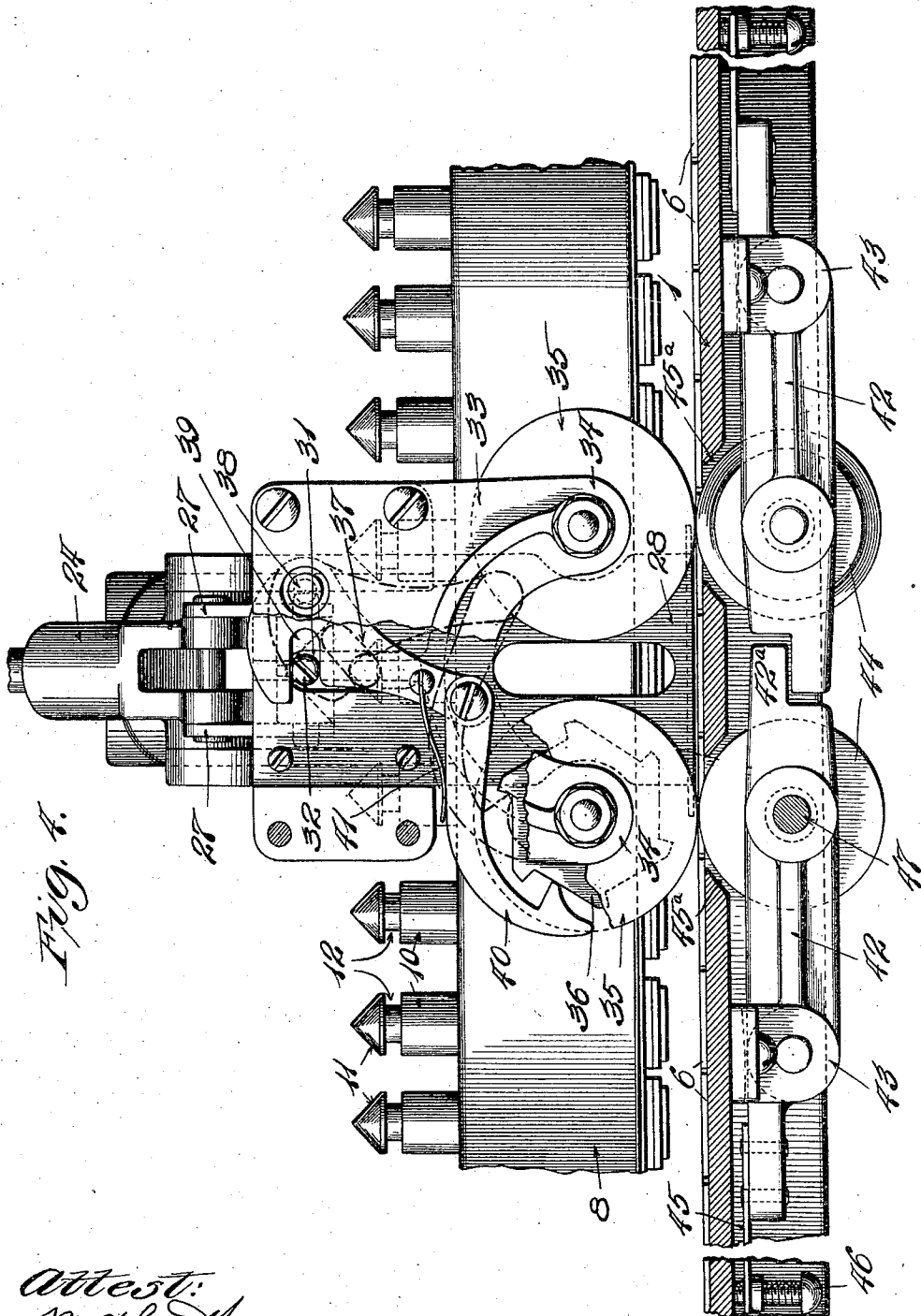


Fig. 4.

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UNITED STATES PATENT OFFICE.

STEPHEN D. HARTOG, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE DIAGRAPH COMPANY,
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STENCIL-MACHINE.

987,626.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed April 26, 1910. Serial No. 557,634.

To all whom it may concern:

Be it known that I, STEPHEN D. HARTOG, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain
5 new and useful Improvement in Stencil-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
10 which—

Figure 1 is a plan view of a stencil cutting machine of my improved construction.
15 Fig. 2 is a detail section taken on the line 2—2 of Fig. 1. Fig. 3 is a vertical section taken on the line 3—3 of Fig. 1. Fig. 4 is an enlarged section taken approximately on the line 4—4 of Fig. 1.

20 My invention relates to improvements in stencil cutting machines, and the principal object of my invention being to provide a fixed dial plate on which is arranged a plurality of arcuate rows of characters, and to
25 arrange a pair of pointers on the rotatable punch carrier in such a manner that one of said pointers is always "clear" when the opposite pointer is moved to indicate one of the characters of the corresponding arcuate row.
30

Further objects of my invention are to provide a toggle joint between the operating handle, and the punch engaging lever, whereby great power is obtained and transmitted in the form of pressure to the
35 punches; to provide simple means for imparting positive movement to one of the sheet feeding wheels; to mount the lower pair of sheet feeding wheels on yielding bearings; to provide means for quickly and
40 simultaneously moving the lower pair of sheet feeding wheels away from the upper pair for the purpose of removing and inserting the work and to generally improve
45 on the prevailing type of stencil cutting machines.

To the above purposes my invention consists in certain novel features of construction, and arrangement of parts hereinafter
50 more fully described and claimed.

Referring by numerals to the accompany-

ing drawings 1 designates the base of the machine, which is in the form of a table on which the work is positioned, and formed
55 integral with this table is a rearwardly extending portion 2, which occupies a plane below that occupied by the top of the table 1, and rigidly fixed in any suitable manner in the rear portion of the extension 2 is the lower end of a post 3.
60

A hub 4 is mounted to rotate freely on the post 3 immediately above the extension 2, and formed integral with the lower portion of said hub is a circular plate or disk
5 in the outer edge of which is arranged a series of dies 6.
65

Formed on or fixed to the upper portion of the hub 4 is a circular plate or disk 7, and formed integral with the edge thereof is a vertically disposed wall 8. An inwardly
70 projecting ring 9 is carried by the upper edge of this wall 8 and arranged for vertical movement through the ring and the edge of the disk 7 is a series of spring held punch carrying plungers 10, the upper ends
75 of which are cone shaped as designated by 11, and formed in said plungers adjacent their upper ends are annular grooves 12.

The upper portion of the post 3 is reduced in diameter as designated by 13, and
80 fixed on said reduced portion is the rear end of a forwardly projecting arm 14 the front end of which terminates immediately above the ring 9.

Fixed to the under side of the arm 14 is
85 a circular plate or disk 15 the surface of the outer portion of which occupies the same plane with the top surface of the ring 9, and the edge of said disk 15 terminates just inside the inner edge of said ring.
90

The letters, numerals and characters corresponding to the letters, numerals and characters forming the series of dies and punches are arranged in two concentric arcuate rows on the surface of the disk 15, and I prefer
95 to arrange these rows in the manner shown in Fig. 1, *i. e.*, with the letters of the alphabet forming the inner arcuate row and with the numerals forming the outer arcuate row, and in order that one of the pointers will
100 always be clear it is essential that the space between the ends of the arcuate rows of let-

ters be equal to or greater than the space occupied by the arcuate row of numerals.

Fixed on the ring 9 is a short pointer 16 which overlies the edge of the disk 15 for a short distance, and said pointer being for the purpose of indicating the characters in the outer arcuate row. Fixed on the ring 9 directly opposite the pointer 16 is a longer pointer 17 which overlies the edge of the disk 15, and said last mentioned pointer being for the purpose of indicating the characters of the inner arcuate row.

Pivotaly mounted upon a pin 18 which is seated in the rear portion of the arm 14 is the rear end of a lever 19, and formed in the under side of the forward end of this lever is a conical recess 20 which is adapted to form a bearing for the conical upper ends of the plungers 10 when said plungers are forced downward to move the punches through the dies.

A pin 21 is arranged to slide vertically through the lever 19 immediately to the rear of the recess 20, and carried by the lower end of said pin is a disk 22, the edge of which is adapted to engage in the annular grooves 12 formed in the upper ends of the punches 10. The downward movement of the pin 21 relative to the lever 19 is stopped by a pin 23, which passes through the upper end of said pin 21 over the lever 19.

The lower end of the handle 24 is journaled upon a pin 25 seated in the forward portion of the arm 14 over the front end of the lever 19, and connecting said handle with the rear portion of the arm 14 is a retractile coil spring 26 which normally maintains said lever in a rearward position as seen in Figs. 1 and 3.

Links 27 are pivotaly connected to the lower end of the handle 24 in front of the pivot pin 25, and the lower ends of said links are pivotaly connected to the sides of the lever 19 at the forward end thereof. This arrangement provides a toggle link connection between the operating handle 24 and the lever 19, and which connection insures ample pressure upon the plungers when the handle 24 is manipulated.

Fixed in any suitable manner to the forward end of the arm 14 is a pivotaly disposed plate 28, which extends downward in front of the wall 8 on the edge of the disk 7, and the lower portion of this plate 28 is bent rearwardly as designated by 29, and said rearwardly bent portion overlies the edge of the disk 5 carrying the dies, and thus forms a stripper to prevent the work from being carried upward with the punch. An opening 30 is formed in the horizontally disposed portion of this stripper plate to permit the punches to pass downward into the

corresponding dies. Passing through a vertically disposed slot 31 formed in the upper portion of the plate 28 and seated in the forward end of the lever 19 is a pin 32.

33 designates a plate which is removably fixed on the front end of the arm 14 there being a space between the central portion of this plate 33 and the plate 28, and journaled in suitable bearings 34, formed on the lower corners of the plate 33 is a pair of upper work feeding wheels 35. Formed on or fixed to the rear face of one of these wheels is a ratchet wheel 36.

37 designates a vertically disposed lever which is positioned between the plate 33 and the plate 28 said lever being fulcrumed on a pin 38 which latter is seated in the plate 33 and arm 14. This pin is located in the same horizontal plane and immediately to the right of the upper end of the slot 31. Formed in the upper portion of the lever 37 is a horizontally disposed notch or recess which is occupied by the forward end of the pin 32. Pivotaly connected to the lower end of the lever 37 is the rear end of a hook-shaped pawl 40, the forward end of which rests upon and is adapted to engage the teeth of the ratchet wheel 36. A flat spring 41 is fixed to the lever 37 and bears against the pawl 40 to hold the end thereof in engagement with the teeth of the ratchet wheel. A pair of short horizontally disposed arms 42 are pivotaly mounted in brackets 43 fixed to the under side of the table 1 and carried by these arms are the lower feed wheels 44 which extend through suitably formed openings 45^a in the table, and the peripheries of said lower feed wheels bear against the peripheries of the upper feed wheels 35.

One of the arms 42 is provided on its free end with an extension 42^a which overlies the adjacent end of the opposite arm 42, and thus when the free end of the arm provided with the extension 42^a is moved downward the opposite arm will be likewise moved.

Fixed to the rear ends of the arms 42 are flat springs 45 through the outer ends of which pass screws 46 which bear against the under side of the table 1. These screws are for the purpose of adjusting the tension in the springs 45, and consequently regulating the degree of pressure of the lower feed wheels 44 against the upper feed wheels.

A rod 47 forms a journal for the feed wheel carried by the arm provided with the extension 42^a, and said rod extends forward beneath the table 1 and terminates at a point in front thereof. At the point where this rod passes beneath the front edge of the table 1 the upper half of said rod is cut away as designated by 48, and this notched portion of the rod occupies a corresponding

notch 49 formed in the lower front edge of the table 1. The forward end of the rod 47 is provided with a transversely disposed operating handle 50.

5 The operation of my improved stencil machine is as follows: To insert the work in my improved machine the operator engages the handle 50 and rotates the rod 47, and as a portion of said rod beneath the notch 48
10 rides around against the lower edge of the table 1 said rod 47 will be moved downward a short distance thereby moving the corresponding arm 42 downward, and the extension 42^a engaging the end of the opposite arm 42 moves said last mentioned arm
15 downward, and thus both lower feed wheels 44 are moved away from the upper pair of feed wheels. The sheet in which the stencil is to be cut is now positioned on the table
20 with the upper portion of said sheet positioned between the edge of the disk 5 and the stripper plate 29. The operator now manually rotates the disks 5 and 7 until the desired one of the characters appears directly
25 opposite the corresponding one of the pointers 16 and 17. As heretofore stated these pointers are arranged directly opposite one another and the characters are arranged in arcuate, concentric rows, and thus one of
30 said pointers will always be clear, thus avoiding confusion in noting the positions of the individual characters relative to the pointers. When the proper character is indicated by the corresponding pointer the operator knows that the proper punch and die
35 is at the front side of the machine and in position to be engaged by the forward end of the lever 19. The operator now manually engages the upper end of the handle 24, and pulls the same forward. The link 27
40 connected to the handle and the lever 19 causes the forward end of said lever to move downward. During the first part of the downward movement of the forward end of the lever 19 the pin 32 which passes through
45 the slot 31 and engages in the notch 39 bears upon the lever 37 immediately beneath the notch 39, and as result the lower end of said lever is moved laterally, and the hook on the
50 end of the pawl 40 engages the ratchet wheel 36 and imparts partial rotary movement thereto, and to the feed wheel 35 upon which said ratchet wheel is fixed. The feed wheel 35 which has thus been rotated bears
55 upon the corresponding lower feed wheel 44, and thus the sheet in which the stencil is to be formed is fed or moved laterally upon the table 1 and between the die carrying disk and the stripper plate 29. As soon as
60 this feeding movement is effected the conical recess 20 in the under side of the lever 19 engages the conical upper end of the corresponding plunger 10, and said plunger with

its punch is moved downward until said punch passes through the sheet, and into the
65 corresponding die 6, thus cutting a stencil character in said sheet. During this downward movement of the plunger 10 the pin 32 travels downward through the slot 31, and bears against the side of the lever 37
70 without imparting movement thereto. The operator now permits the handle 24 to swing to its rearward position under the influence of the spring 26, and this movement necessarily carries the forward end of the lever
75 19 upward, and the disk 22, which has heretofore been engaged in the groove 12 of the plunger, just moved downward will elevate said plunger should the punch carried by the same tend to stick in the die. The pin
80 32 carried by the forward end of the lever travels upward through the slot 31, and after passing into the notch 39 causes the lever 37 to resume its normal position and to move the pawl 40 into position where the
85 hook on the end thereof will engage the next adjacent notch on the subsequent actuation of the handle. These movements are repeated until a line of characters is cut in the sheet after which said sheet is shifted rear-
90 ward to cut the second line of characters, and which shifting movement of the sheet is accomplished by rotating the rod 47 to move the lower pair of feed wheels away from the upper pair. The flat springs 45
95 provide means whereby the lower pair of sheet wheels engage with pressure against the upper pair of feed wheels, and the screws 46 regulate the tension of said springs 45, and consequently regulate the degree of
100 pressure of the lower pair of feed wheels against the upper pair.

A stencil cutting machine of my improved construction is comparatively simple, is easily operated, and the rows of indicating
105 characters and the pointers are arranged so that the operator can instantly and accurately observe the character which is to be cut on the next operation of the machine.

It will be readily understood that minor
110 changes in the form and construction of the various parts of my improved stencil machine can be made and substituted for those herein shown and described without departing from the spirit of my invention.
115

I claim:

1. In a machine of the class described, a base, a post thereon, a die and punch-carrying disk mounted for rotation on the post, an arm supported by and projecting horizontally from said post, the unsupported end
120 of which arm terminates at a point immediately above the edge of the disk, a punch-operating lever fulcrumed to the arm adjacent the post, an operating handle fulcrumed on the arm above the free end of
125

the punch-operating lever, and a link pivoted and forming a direct connection between the end of the operating handle and the punch-operating lever.

2. In a machine of the class described, a rotatable die carrying disk, a series of spring held punches arranged above the dies carried by the disk, there being a groove formed in the upper portion of each punch, a frame, a punch actuating lever fulcrumed in said frame, a member loosely carried by the punch actuating lever and adapted to engage in the grooves of the punches, an operating handle fulcrumed on the frame, and a toggle link connecting said handle and the free end of the punch actuating lever.

3. In a machine of the class described, a rotatable disk, a series of spring-pressed punches mounted in said disk, in the outer ends of which punches are formed grooves, a punch-actuating lever arranged to engage the punches and move the same downward, and a member mounted to rotate in and move vertically through the punch-actuating lever, the lower end of which member engages in the grooves of the punches when the same are engaged by the actuating-lever.

4. In a machine of the class described, a rotatable disk, a series of spring pressed punches mounted in said disk in the upper ends of which punches are formed grooves, a punch actuating lever arranged to engage any one of the punches and move the same downward, a member mounted to rotate in and move vertically upon the punch actuating lever, the lower portion of which member engages in the grooves of the punches when the same are engaged by the actuating lever, and means including a toggle link connected to the punch actuating lever for actuating the same.

5. In a machine of the class described, a base, a post fixed thereto, a die carrying disk adapted to rotate on the post, a punch carrying disk mounted for rotation with the die carrying disk, a series of punches each having a conical top, punch actuating means fulcrumed in the frame of the machine adjacent the post which punch actuating means is provided with a conical recess which receives the conical ends of the punches, a fixed dial above the punch carrying disk on which dial appears a plurality of concentric arcuate rows of characters and pointers on the punch carrying disk for indicating the individual characters of said rows.

6. In a machine of the class described, a base, a rotatable die and punch carrying disk mounted on the base, an arm rigidly fixed above the center of the disk, the unsupported end of which arm terminates at a point immediately above the edge of the disk, a

punch operating lever fulcrumed to the arm adjacent the fixed end thereof an operating handle fulcrumed on the arm above the free end of the punch operating lever, and a link pivoted to and forming a direct connection between the end of the operating handle and the punch operating lever.

7. In a machine of the class described, a base, a post thereon, a die and punch carrying disk mounted for rotation on the post, an arm supported by and projecting horizontally from said post, the unsupported end of which arm terminates at a point immediately above the edge of the disk, a punch operating lever fulcrumed to the arm adjacent the post, an operating handle fulcrumed on the arm above the free end of the punch operating lever, a link pivoted to and forming a direct connection between the end of the operating handle and the punch operating lever, sheet feeding wheels supported by the forward end of the arm, and means actuated by the punch operating lever for imparting movement to one of the sheet feeding wheels.

8. In a machine of the class described, a base, a post thereon, a rotatable die and punch carrying disk on said post, an arm supported by the post above the rotatable member, punch operating means on the arm, sheet feeding wheels mounted on the outer end of the arm, one of which wheels is actuated by the punch operating means, independent arms pivotally mounted on the base below the sheet feeding wheels, springs connected to said arms for normally forcing their inner ends upwardly, means for independently regulating the tension of said springs, and sheet feeding wheels journaled on said arms and normally bearing against the first mentioned sheet feeding wheels.

9. In a machine of the class described, a base, a post thereon, a rotatable die and punch carrying disk on said post, an arm supported by the post above the rotatable member, punch operating means on the arm, sheet feeding wheels mounted on the outer end of the arm, one of which wheels is actuated by the punch operating means, independent arms pivotally mounted on the base below the sheet feeding wheels, springs connected to said arms for normally forcing their inner ends upwardly, means for independently regulating the tension of said springs, sheet feeding wheels journaled on said arms and normally bearing against the first mentioned sheet feeding wheels, and means for simultaneously moving the inner ends of the pivoted arms and the sheet feeding wheels carried thereby away from the first mentioned sheet feeding wheels.

10. In a machine of the class described, a base, a post fixed thereon, a dial plate rigidly

supported by the post and provided on its face with concentric arcuate rows of characters, an annular rotatable die and punch carrying member mounted on the post and encircling the fixed disk, a pair of pointers fixed at opposite points on the rotatable member, the ends of which pointers overlies the edge of the dial plate, an arm supported by the post above the dial plate, and means

mounted on said arm for actuating the 10 punches carried by the rotatable member.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 19th day of April, 1910.

STEPHEN D. HARTOG.

Witnesses:

M. P. SMITH,
ALMA GEBHART.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
