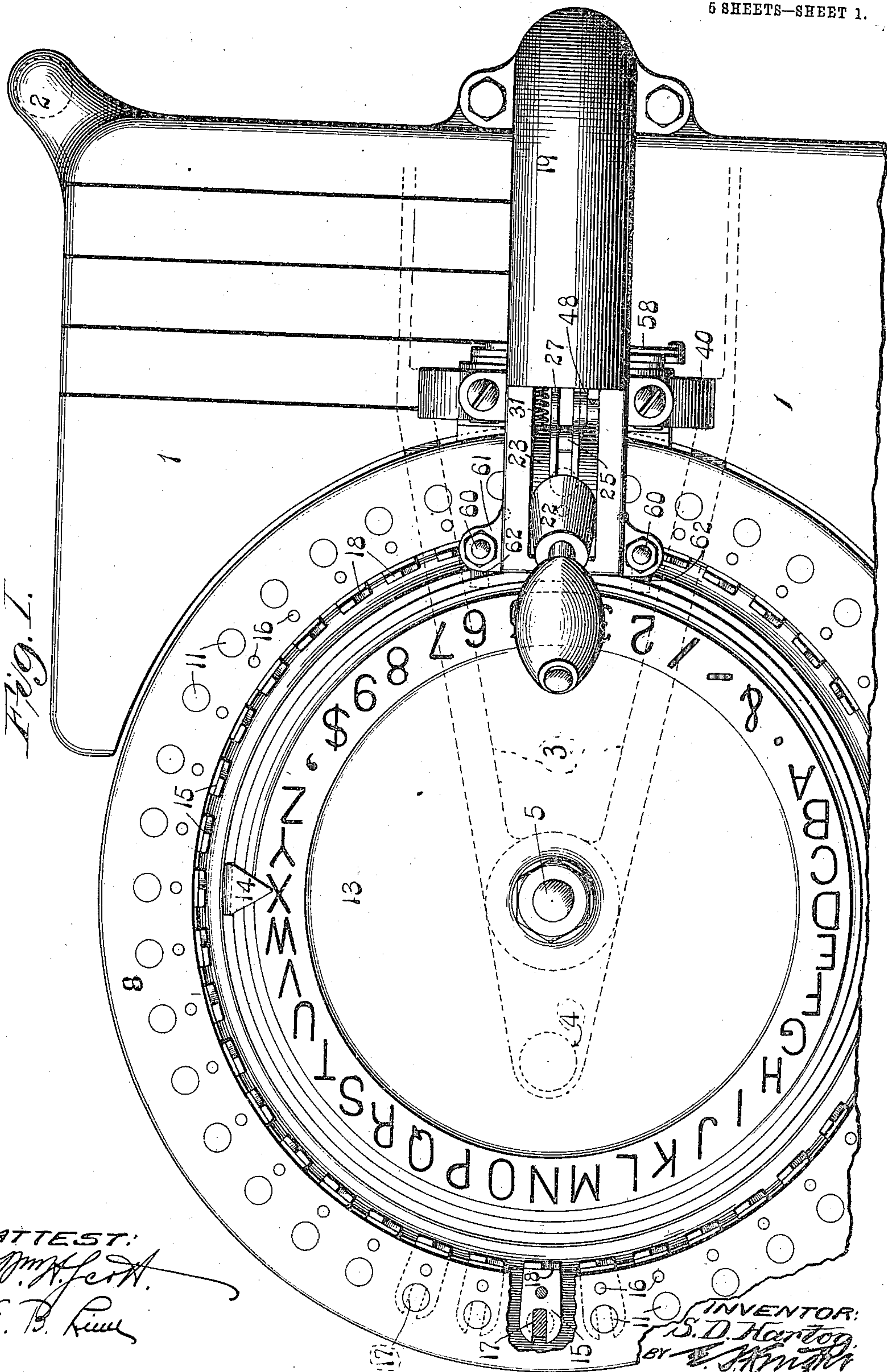


S. D. HARTOG.
STENCIL CUTTING MACHINE.
APPLICATION FILED NOV. 5, 1909.

964,251.

Patented July 12, 1910.

5 SHEETS—SHEET 1.



ATTEST:

E. B. Rice

INVENTOR:

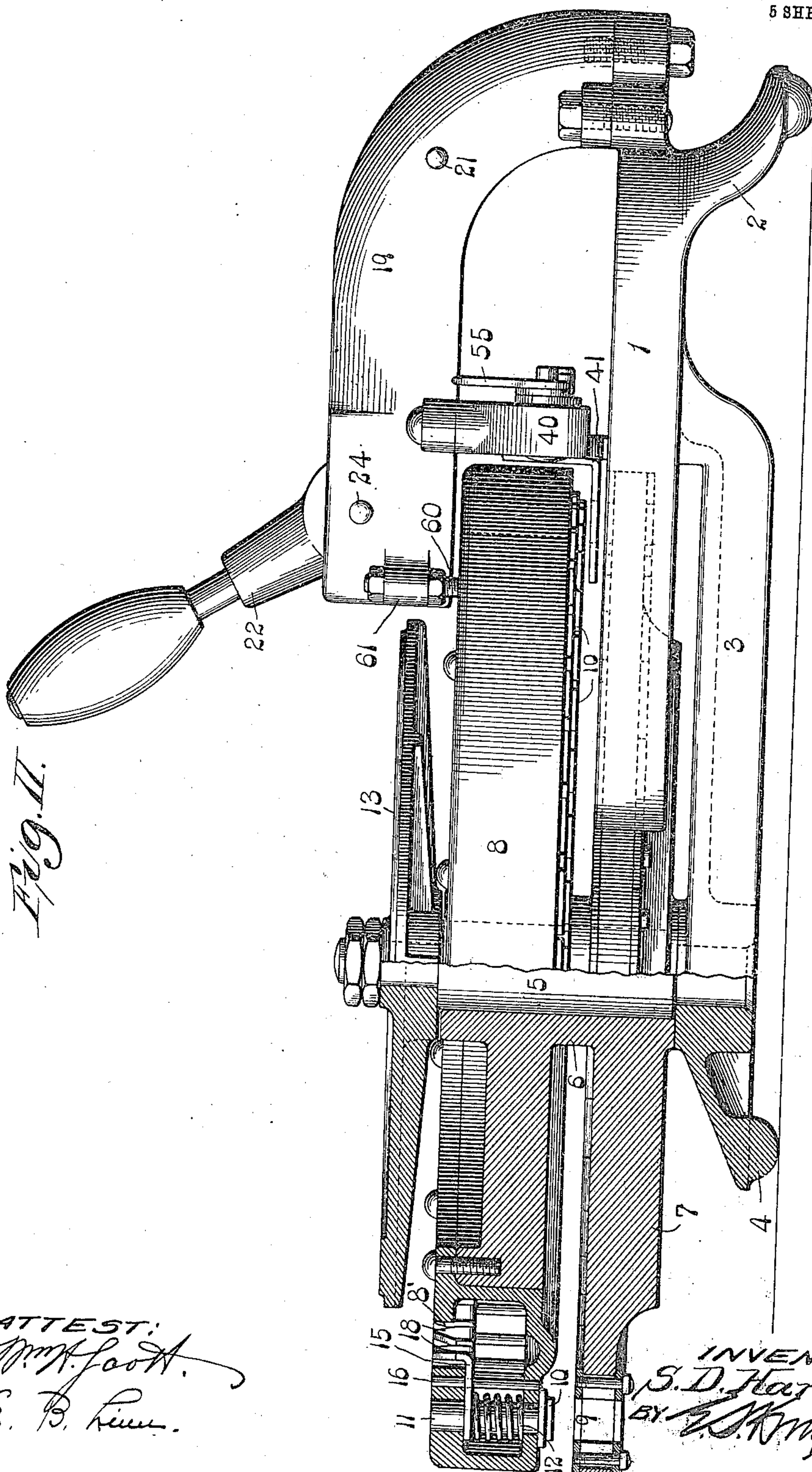
S. D. Hartog

BY *E. B. Rice*
ATTY.

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5 SHEETS—SHEET 2.



ATTEST:
W. H. Lott.
E. B. Linn.

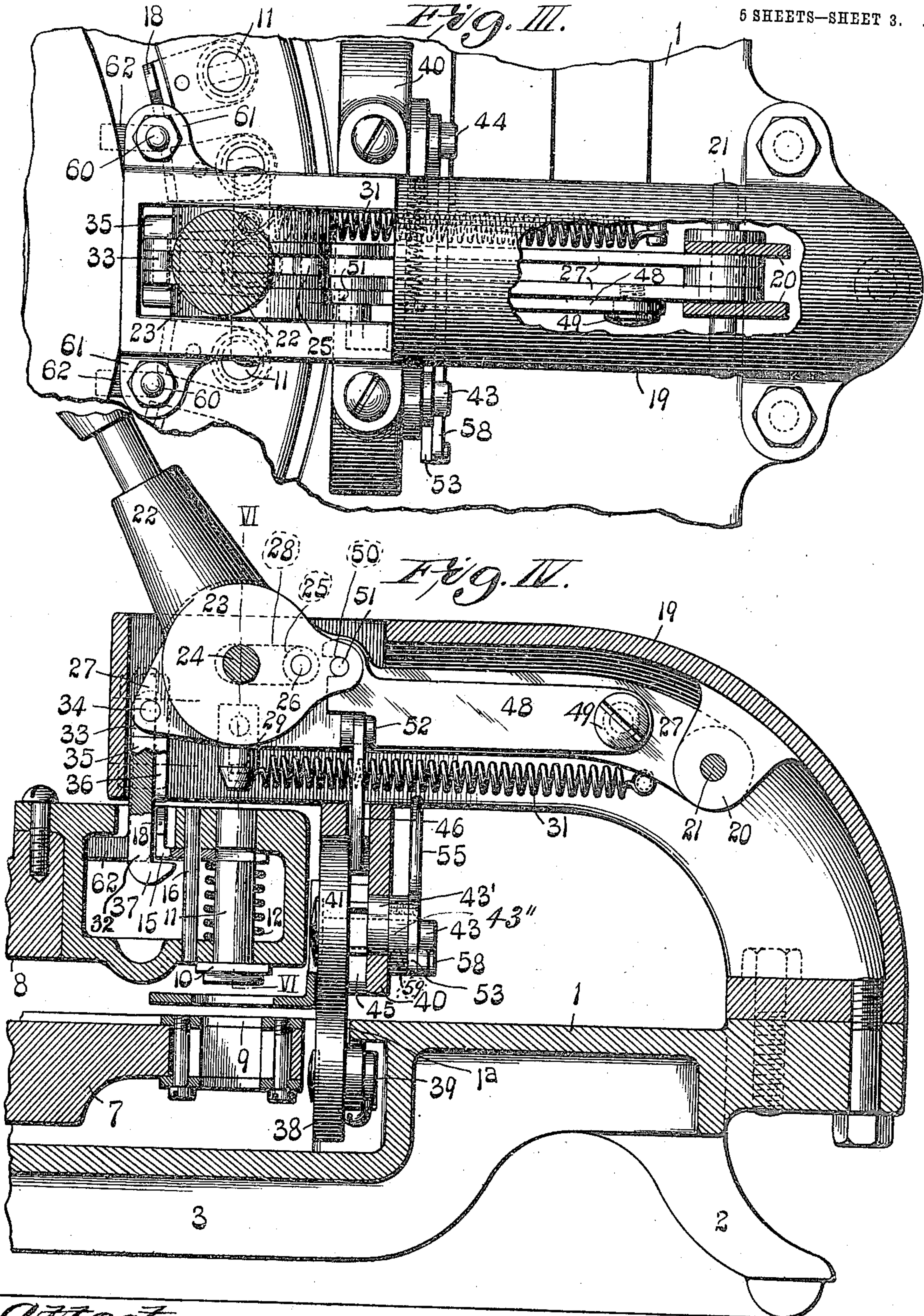
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6 SHEETS—SHEET 3.



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5 SHEETS—SHEET 4.

Fig. V.

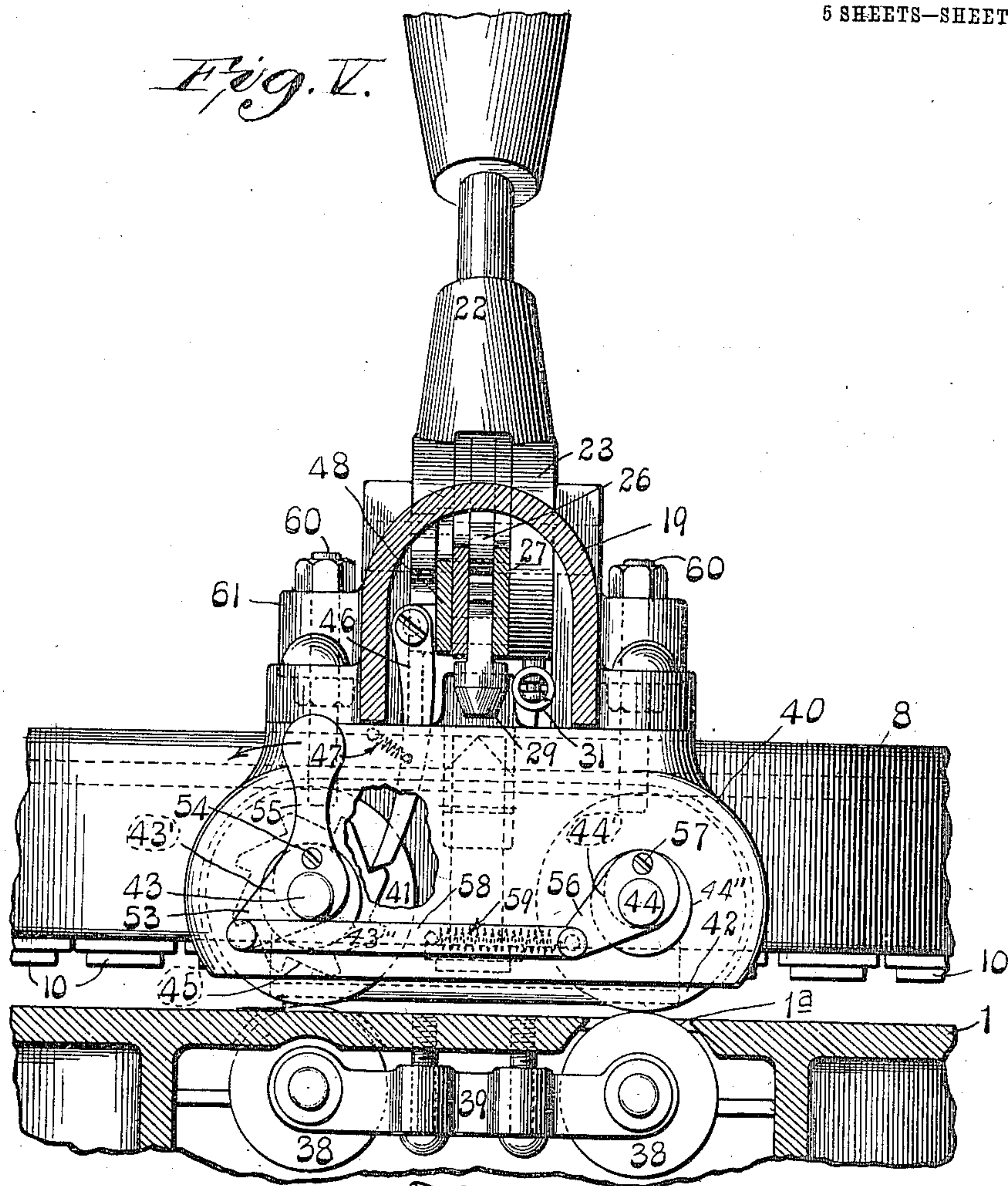
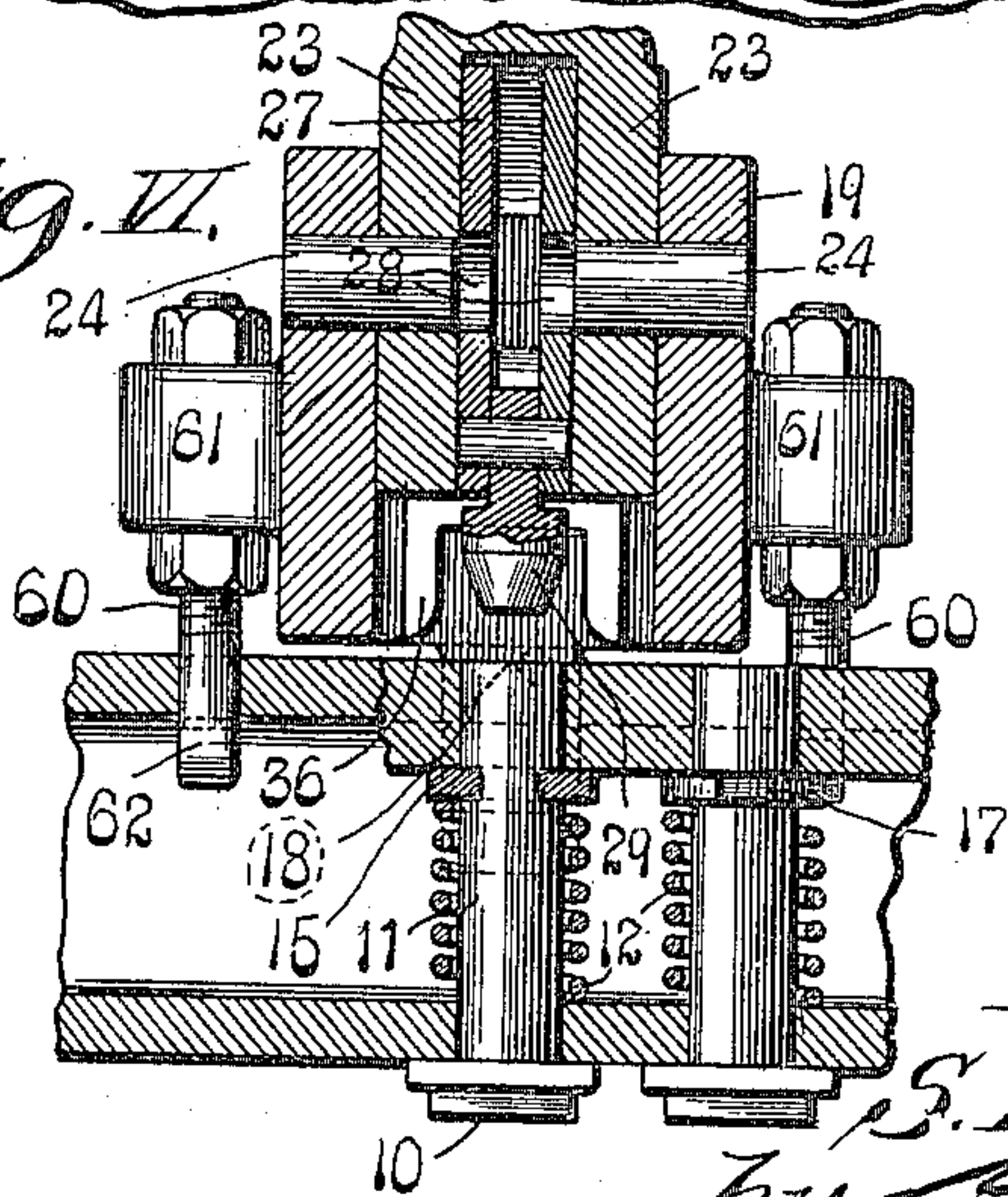


Fig. VI.



Attest:
E. D. Linn

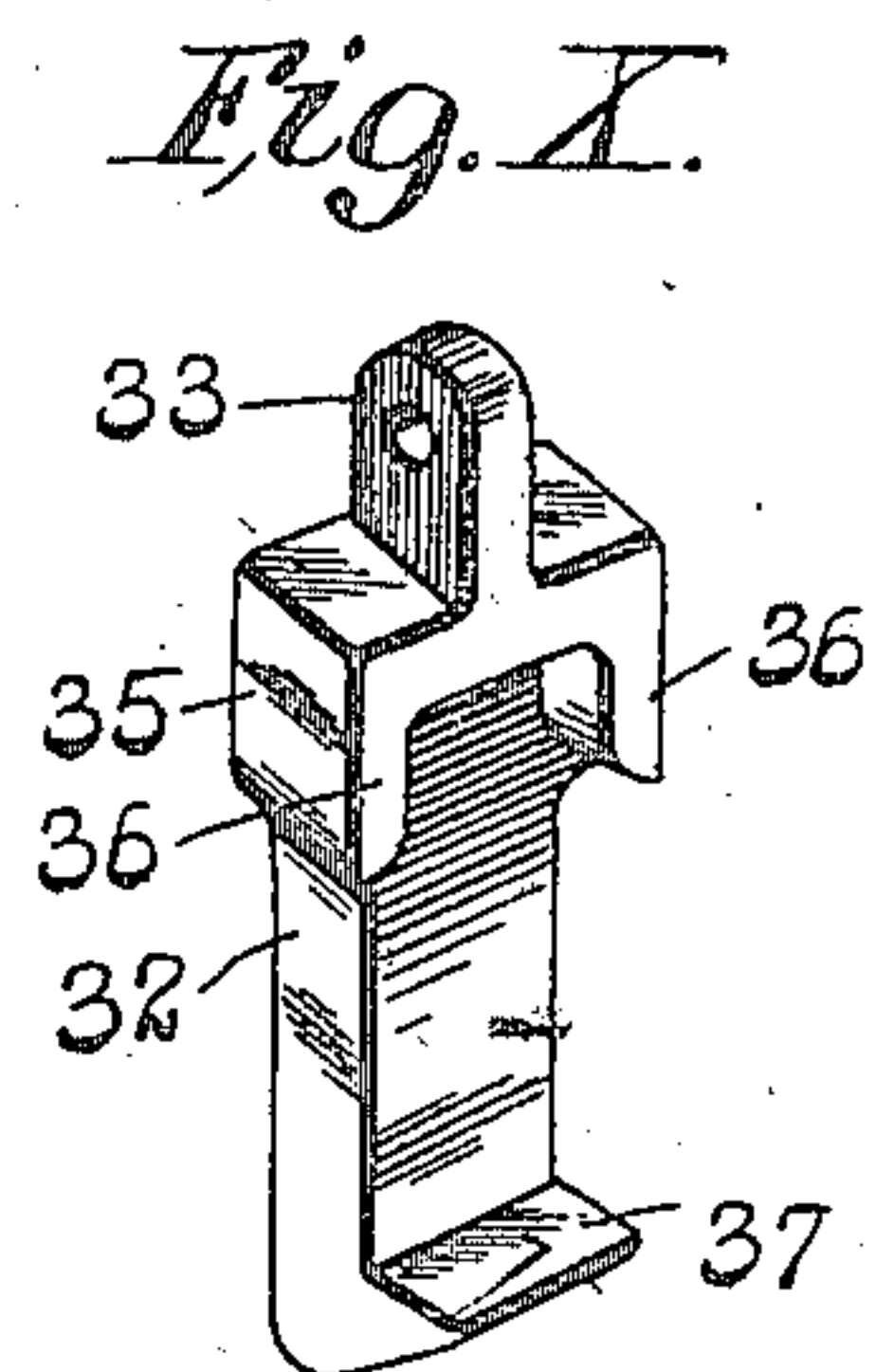
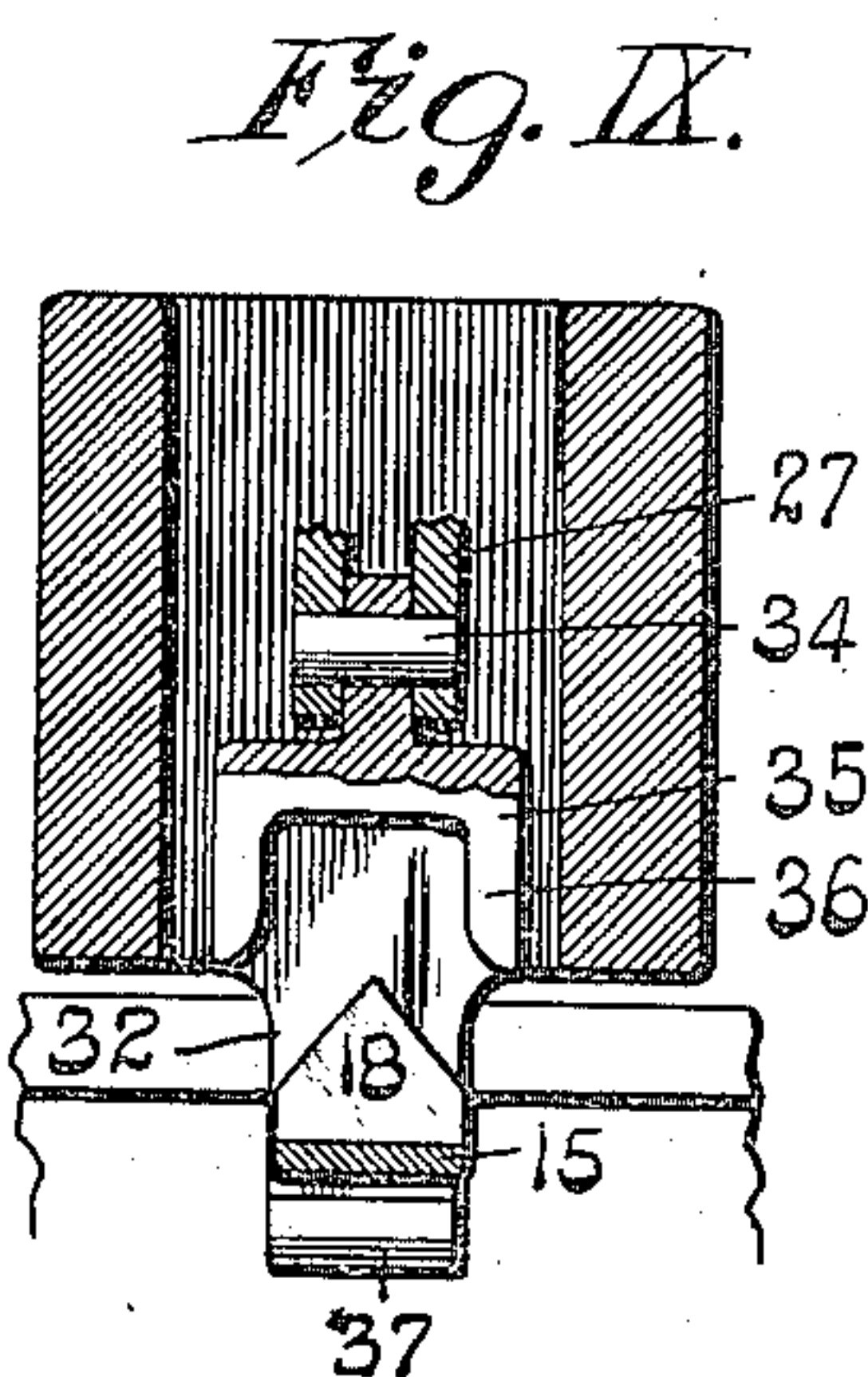
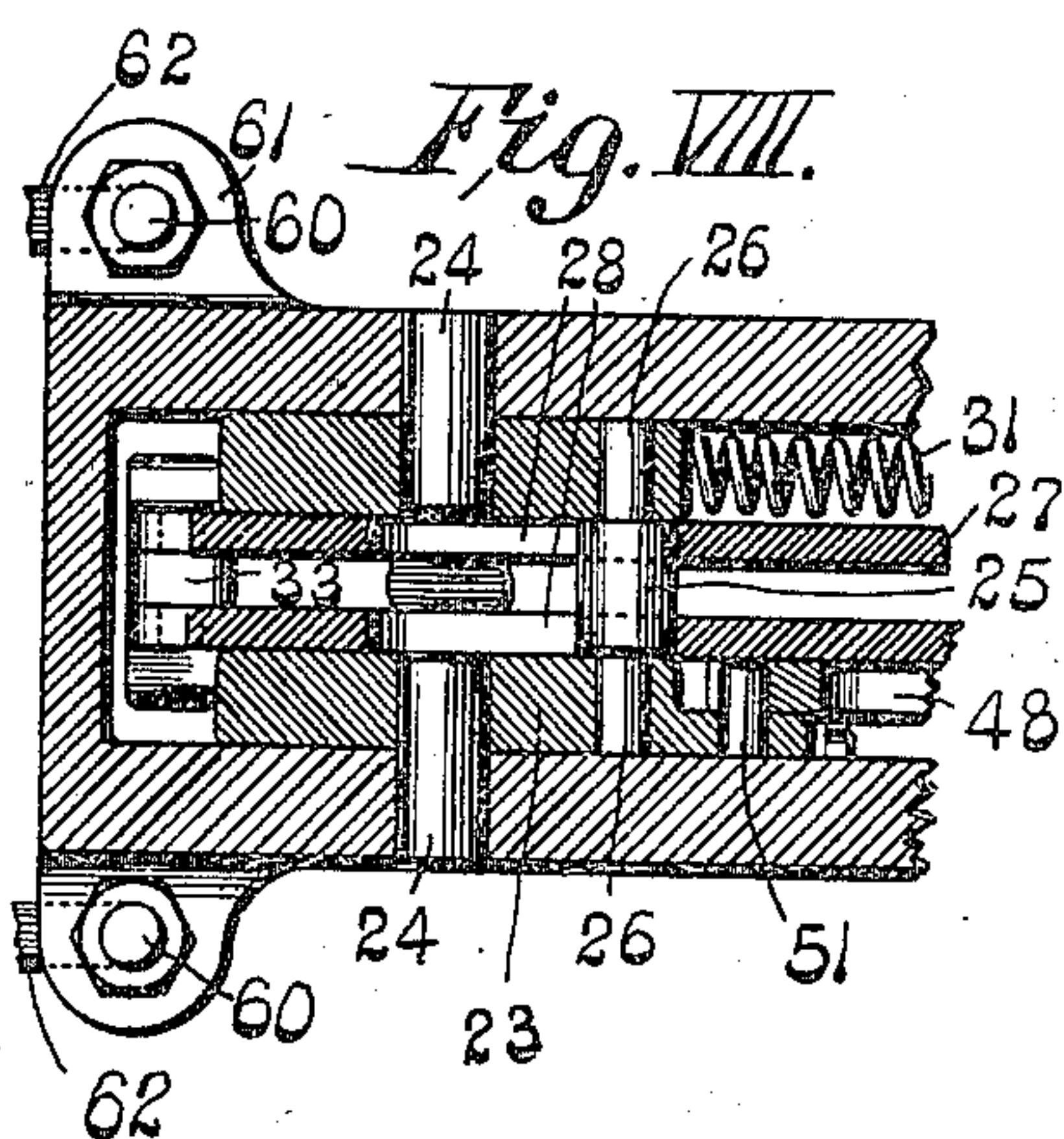
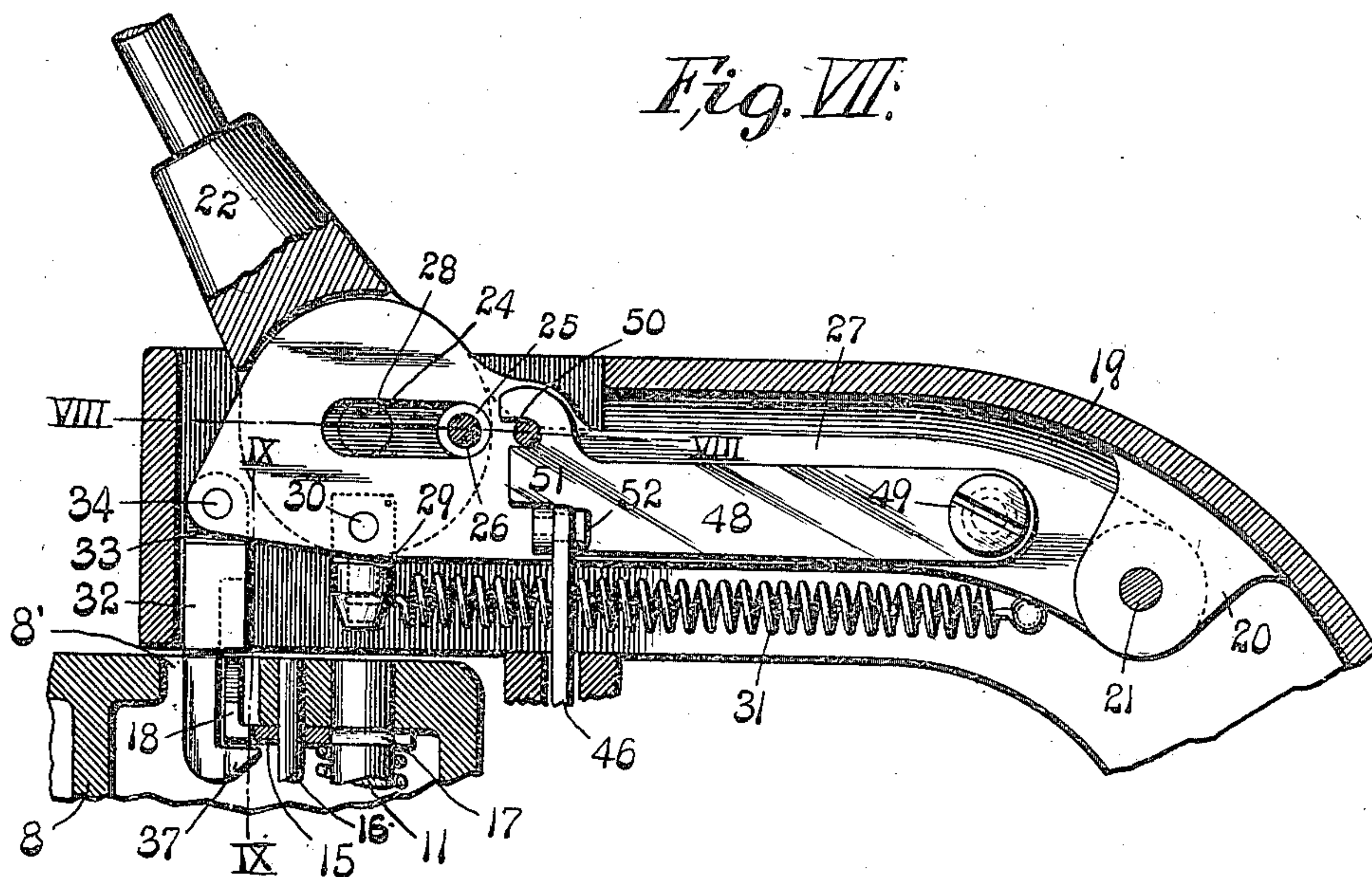
Inventor:
S. D. Hartog.
by E. D. Linn

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964,251.

Patented July 12, 1910.

5 SHEETS—SHEET 5.



Attest:
A. J. McCauley
E. B. Riney

Inventor:
S. D. Hartog
by *V. Knight*
Atty.

UNITED STATES PATENT OFFICE.

STEPHEN D. HARTOG, OF ST. LOUIS, MISSOURI, ASSIGNOR TO BRADLEY STENCIL MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

STENCIL-CUTTING MACHINE.

964,251.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed November 5, 1909. Serial No. 526,409.

To all whom it may concern:

Be it known that I, STEPHEN D. HARTOG, a citizen of the United States of America, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Stencil-Cutting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that character of machine utilized for the production of stencils and in the production of stencils which are usually made from heavy paper.

The invention has for its object the construction of a machine of this description in which the dial is stationarily mounted and the die carrier is rotatably mounted, the die carrier being provided with a pointer adapted to traverse the dial in order that the position of the die carriers that are to be utilized from time to time upon a stencil sheet may be readily observed.

A further object of the invention is to provide simple and efficient means for the operation of the male dies, both upon their operating strokes and their re-setting strokes, and a simple and efficient stencil sheet feeding mechanism coöperable with the mechanism by which the male dies are operated.

Figure I is a top or plan view of my stencil cutting machine, portions being broken away. Fig. II is in part a side elevation and in part a vertical section of the machine. Fig. III is an enlarged top or plan view of the forward portion of the machine at the location of the male die operating mechanism and feeding mechanism, with the supporting arm of these mechanisms partially broken out and certain parts shown in horizontal section. Fig. IV is an enlarged vertical longitudinal section taken through the parts shown in Fig. III. Fig. V is in part a front elevation and in part a vertical cross section of the parts shown in Fig. III. Fig. VI is a vertical cross section taken on line VI—VI, Fig. IV. Fig. VII is a longitudinal section through the supporting arm of the male die operating mechanism and the mechanism supported therein and through the inner end of the main operating lever; also showing in cross section a fragment of the die carrier and the members at the top of this carrier. Fig. VIII is a horizontal section taken on line

VIII—VIII, Fig. VII. Fig. IX is a vertical cross section taken on line IX—IX, Fig. VII. Fig. X is a perspective view of the pendent dog carried by the male die operating mechanism and which acts to govern the actuation of the male dies.

In the accompanying drawings:—1 designates the table of my stencil cutting machine which is located at the front of the machine and is provided with front feet 2 and a rearwardly extending leg 3 having a foot 4 located adjacent to the center of the die carrier of the machine. The leg 3 has stationarily mounted therein a post 5.

6 designates a die carrier loosely fitted to the post 5 and which comprises a lower female die supporting member 7 and an upper male die supporting member 8, the members 7 and 8 being separated from each other, particularly at their outer edges to provide a space through or across which the male dies may travel in approaching and receding from the female dies. The female die supporting member has mounted therein female dies 9, and 10 are male dies secured to the rods 11 loosely mounted in the male die supporting member at points above the female dies. The male dies correspond in each instance in configuration to the female dies beneath them, so that the male dies may enter into the female dies when lowered thereto for character cutting action upon the actuation of the operating mechanism, as will hereinafter appear.

12 are lift springs by which the male dies are elevated or retracted after they have been moved to the female dies.

13 designates a dial that is fitted to the post 5 at its upper end and which is held in stationary position above the die carrier 6 that is rotatable beneath the dial. The dial being retained in a fixed position, the characters thereon may be readily observed at all time, irrespective of movement of the die carrier, and the position of the dies that are to be used for stencil cutting action from time to time at the front of the machine and upon the stencil sheet laid upon the table 1 is indicated by a pointer 14 carried by the male die supporting member 8 of the punch carrier, (see Fig. I).

15 designates centering fingers located in the rim of the male die supporting member 8, which is chambered, as seen in the drawings, and which are operable upon guide

rods 16 vertically positioned in said rim and located adjacent to the male die rods 11. These centering fingers have horizontal portions that are slotted at their ends, thereby providing for the fingers straddling the male die rods, provision for the connection of the fingers to the die rods being made by moving the rods transversely, as seen at 17. This connection of the centering fingers to the die rods is provided with an object in view that will be hereinafter made clear. At the inner ends of the centering fingers are vertical members 18, of inverted V-shape, and which occupy positions in a circular opening 8' at the top of the rim of the male die supporting member of the die carrier 6.

19 designates a supporting arm for the operating mechanism of my stencil cutting machine. This arm is securely fastened to the table 1 at its front end and extends rearwardly to a point above the die carrier 6 and in front of the dial 13. The arm is of inverted U-shape in cross section so that it contains a chamber open at the bottom of the arm in which the operating mechanism is housed and operates.

20 are bracket lugs depending from the top of the arm 19 and located at its interior, these lugs having mounted in them a pivot pin 21.

22 is an operating lever, provided with a bifurcated head 23 that is pivotally supported in the arm 19 by pivot pins 24 set into the side walls of the arm 19, and to which the sides of the bifurcated lever head are fitted, as seen most clearly in Figs. VI and VIII.

25 is a roller located between the sides of the head of the operating lever and having spindles 26 mounted in the sides of said head, (see Fig. VIII).

27 designates a double lever that extends longitudinally of the supporting arm 19 and the rear ends of which are pivotally fitted to the pivot pin 21 mounted in the lugs 20 in the arm 19. The double lever 27 comprises two members arranged parallel with each other, but spaced apart, as seen in Figs. III, V, VI, VIII and IX. The forward portions of the members of these double levers occupy positions within the bifurcated head of the operating lever 22, and each member of the double lever is provided with a longitudinal slot 28 in which the roller 25 carried by the head of the operating lever is adapted to move when the operating lever is manipulated.

29 designates a plunger having a shank that is pivoted at 30 to the members of the double lever 27 and which is suspended at a point immediately above the circuit of travel of the male die rods 11 in their movement when the die carrier 6 is rotated. The plunger 29 is adapted to press against the rods of the male dies and to press them when the

double lever 27 is lowered, and to provide for this plunger entering properly into the upper ends of the holes that are occupied by the rods of the male dies, I make a plunger with a tapering lower end that will cause it to properly center itself in said holes when it enters thereinto in depressing the die rods.

31 designates a retracting spring by which the operating lever 22 is restored to its normal position after it has been moved forwardly to operate the mechanism that is adapted to be actuated thereby, this spring being connected at one end to the supporting arm 19 and at its other end to the head of the operating lever.

32 designates a depending dog that is pivotally connected to the forward ends of the members comprising the double lever 27 and for which connection the dog is provided at its upper end with a suspension lug 33 that receives a pivot pin 34 mounted in the forward ends of the double lever members, (see Figs. III, IV, VII and IX). The dog 32 is operable in a vertical direction through the forward end of the supporting arm 19 and the circular opening 8' at the top of the rim of the male die supporting member 8 and its lower portion is parallel with the vertical members 18 of the centering fingers 15, (see Fig. VII). At the upper end of the dog 32 is a head 35 at the front side of which are vertical cam members 36, disposed opposite to each other and spaced apart to a sufficient degree to permit of their straddling the vertical member 18 of the centering fingers 15 when the dog 32 is lowered, and whereby said centering fingers may be moved laterally in either direction to properly position the male dies adapted to be governed thereby just previous to the depression of the male dies toward the female dies beneath them for stencil cutting action. The dog 32 is of sufficient length to provide for its extending beneath the path of travel of the centering fingers 15 and the lower end of the dog is provided with the forwardly projecting tooth 37 adapted to engage each centering finger after a male die with the rod of which the centering finger is associated has been depressed for stencil cutting action in order that the male die may be positively lifted through the medium of the operating mechanism, which is returned to its normal position by the retracting spring 31.

I will now proceed with the description of the sheet feeding mechanism of my machine:

38 designates idler wheels located beneath the table 1 of the machine and operable through slots 1^a in said table. These wheels are supported by a hanger 39 suspended from the table, (see Fig. V).

40 designates a supporting plate or housing suspended from the supporting arm 19 and located in such position above the table

1 as to provide for a feeding wheel 41 and idler wheel 42 in said plate or housing being arranged above the idler wheels 38 beneath the table. The feeding wheel 41 and idler wheel 42 are supported by shafts 43 and 44 which extend through the forward wall of the plate or housing 40. The shafts 43 and 44 are respectively provided with spacing members 43'' and 44'' interposed between the eccentrics 43' and 44' and crank arms to be hereinafter mentioned.

It should be here noted that the feed wheel 41 and idler wheel 42 are loosely mounted on the shafts 43 and 44 within the housing 40 in order that they may turn independently of the shafts and in order further that the feeding wheel and idler wheel may be elevated through the medium of the eccentrics 43' and 44' and the crescent shaped journal members 43'' and 44'', as will presently appear. The feeding wheel 41 has rigidly associated with it a ratchet wheel 45 that is adapted to be actuated by a pawl 46 held in engagement with the ratchet wheel by a spring 47, (see Fig. V). The pawl 46 is actuated to impart rotation to the ratchet wheel 45 and consequently to the feeding wheel 41 by a member associated with the double lever 27 and operable thereby, as will appear from the description next to follow.

48 designates a lever that is pivoted at 49 to one of the members of the double lever 27 near the point of pivotal support of said double lever and which extends rearwardly parallel with said double lever. In the rear end of the lever 48 is a socket 50 that receives a stud 51, (see Figs. VII and VIII), projecting from one side of the head of the operating lever 22 and through the medium of which the rear end of the lever 48 may be lowered when the operating lever is moved forwardly. The pawl 46 is pivotally connected at 52 to the lever 48, (see Figs. IV, V, and VII), thereby providing for the downward movement of the pawl 46 upon each depression of the rear end of the lever 48 in order that the ratchet wheel 45 and the feeding wheel 41 may be partially rotated to feed the stencil sheet across the table of the machine and between said feeding wheel and one of the idler wheels 38 and the other idler wheel 38 and idler wheel 42. A novel and efficient construction of parts for the elevation of the feeding wheel 41 and the idler wheel 42 in order that the stencil sheet may be released is provided and into which construction the eccentrics 43' and 44' enter.

53 is a crank arm fixed to spacing member 43'' on the shaft 43 of the feeding wheel 41, preferably by means of a screw 54, the said crank arm being provided with a finger lever 55.

56 is a crank arm fixed to the spacing

member 44'' on the shaft 44, preferably by means of a screw 57.

58 is a connecting rod that is pivotally connected at one end to the crank arm 53 and at its other end to the crank arm 56.

59 is a spring connected at one end either to the link 58 or to one of the crank arms 53 or 56 and at its other end to the feeding wheel housing 40, the spring being shown, (see dotted lines Fig. V), as being attached to the housing and to the crank arm 56 at the point of pivotal connection between said crank arm and the connecting rod 58. The feeding wheel 41 and the idler wheel 42 are shown in the drawings, and most clearly in Figs. IV and V, in their lowered positions so that they are operable upon a stencil sheet. When, however, it is desired to elevate said wheels in order that the stencil sheet may be removed or that a stencil sheet may be introduced into place beneath said wheels, the finger lever 55 is moved in the direction indicated by the arrow Fig. V, whereupon the crank arm 53 is moved backwardly, and corresponding movement is imparted to the connecting rod 58 and the crank arm 56. As a consequence the crescent shaped journal members 43'' and 44'' are rotated in their bearings and the shafts 43 and 44 supporting the feeding wheel 41 and idler wheel 42 are elevated to raise said wheels from the idler wheels 38, in order that a stencil sheet may be put in place below the idler wheels, or withdrawn from a position thereover. When the finger lever 55 is released, the parts are returned to their normal position under the influence of the spring 59.

It will be observed that the supporting arm 19 extending rearwardly from the front of my machine does not extend to the periphery of the dial 13 and that consequently a view of said dial throughout its entire top surface is afforded. Inasmuch as said supporting arm is free of connection with the base of the machine, it is important that means be provided whereby upward movement of the rear free end of the supporting arm is resisted, in order that said arm may not be injured by undue strain upon the actuation of the operating lever 22. I provide as means of the description mentioned resistance bolts 60 that are vertically positioned in ears 61 jutting from the sides of the supporting arm 19, and which bolts are provided at their lower ends with hooks 62 that extend beneath the top flange of the rim of the upper member 8 of the die carrier. The hook arms of these bolts are normally so positioned beneath the top flange referred to that they do not touch the flange, nor any part of the die carrier member 8 to interfere with the rotation of the die carrier. In the event, however, of an excessive strain upon the supporting arm 19 under the

influence of the operating lever 22, the bolts 60 are elevated with said supporting arm until their hook arms 62 bear against the rim of the die carrier member 8 and the strain that would otherwise be imposed upon the supporting arm 19 is received by the die carrier, and in turn delivered therefrom to the central post 5 around which the die carrier operates.

10 In the practical use of my stencil cutting machine, a sheet from which a stencil is to be produced is laid upon the table of the machine above the idler wheels 38 and beneath the feeding wheel 41 and idler wheel 42 and so that it extends above the female dies and beneath the male dies carried by the die carrier 6. The die carrier is then rotated by hand until the male and female dies of the character that is to be punched into the stencil sheet are brought to a position back of the feeding mechanism, as will be indicated by the pointer 14 projecting over the dial 13. The operator then grasps the operating lever 22 and, by a forward movement of said lever, causes it to operate the parts adapted to be operated thereby. Upon the commencement of movement of the operating lever, the stud 51 carried by the head of the operating lever acts to move the lever 48 downwardly so that it will actuate the pawl 46 and cause said pawl to operate the feeding wheel 41 to shift the stencil sheet to the proper position. At the same time, the roller 25 carried by the head of the operating lever is, simultaneously with the actuation of the feeding wheel, moved downwardly and rearwardly in the arc of a circle in the slots 28 in the members of the double lever 27, whereby said double lever is lowered and carries therewith the dog 32 and the plunger 29. The dog 32 in its descent is so lowered that either one or the other of its cams 36 may strike an inclined face of the upright member 18 of the centering finger 15 in front of the dog in order that the male and female dies to be utilized may be adjusted to the correct position, if not accurately adjusted, when the die carrier is rotated to bring the desired die characters into operative positions. Immediately after the dies have been centered, the plunger 29 is carried into engagement with the male die rod 11 beneath it and operates thereupon to depress the male die to the stencil sheet and therethrough to the female die for cutting action. Upon the release of the operating lever it is returned to its normal position by the retracting spring 31 and the members that are associated with and operable by the operating lever are retracted to their normal positions with said lever, in which action the tooth 37 of the dog 32 may act to elevate the centering finger 15 above it, and consequently the male die rod with which said centering finger is associated, in the event of

the male die tending to adhere to the female die.

I claim:—

1. In a stencil cutting machine, the combination of a base, a die carrier rotatably mounted on said base, male and female dies carried by said die carrier, guide rods, centering fingers each having a horizontal portion and a vertical member and movable on said guide rods with said male dies, means for moving said male dies to said female dies, and a depending dog carried by said last named means operable upon said centering fingers. 75
2. In a stencil cutting machine, the combination of a base, a die carrier rotatably mounted on said base, male and female dies carried by said die carrier, guide rods, centering fingers each having a horizontal portion and a vertical member and movable on said guide rods with said male dies, means for moving said male dies to said female dies, a depending dog carried by said last named means operable upon said centering fingers, the said depending dog being provided with a pair of vertical cams to move said fingers and the die carrier in either direction. 80 85 90
3. In a stencil cutting machine, the combination of a base, a die carrier rotatably mounted on said base, male and female dies carried by said die carrier, guide rods, centering fingers each having a horizontal portion and a vertical member and movable on said guide rods with said male dies, means for moving said male dies to said female dies, a depending dog carried by said last named means operable upon said centering fingers, the said depending dog being provided at its lower end with a tooth adapted to engage the centering fingers to impart upward movement thereto and to the male dies with which they are associated. 95 100 105
4. In a stencil cutting machine, the combination of a base, a die carrier rotatably mounted on said base, male and female dies carried by said die carrier, guide rods, centering fingers each having a horizontal portion and a vertical member and movable on said guide rods with said male dies and having vertical members provided with inclined sides, a lever mechanism for operating said male dies, and a depending dog carried by said lever mechanism and having a pair of vertical cams adapted to engage the inclined sides of the vertical members of said centering fingers upon the actuation of said lever mechanism. 110 115 120
5. In a stencil cutting machine, the combination of a base, a die carrier rotatably mounted on said base, male and female dies carried by said die carrier, a lever mechanism for operating one set of said dies and which includes a main operating lever, a second pivotally supported lever operable 125 130

by the main operating lever to move the dies, a third pivotally mounted lever adapted to be operated by said main operating lever independently of the operation of the second lever and a sheet feeding device operated by the third lever.

6. In a stencil cutting machine, the combination of a base, a die carrier rotatably mounted on said base, male and female dies carried by said die carrier, a lever mechanism for operating one set of said dies and which includes a main operating lever; a second pivotally supported lever operable by the main operating lever to move the dies, a third pivotally mounted lever adapted to be operated by said main operating lever independently of the operation of the second lever, a sheet feeding wheel, and means actuated by said third lever whereby said sheet feeding wheel is rotated.

7. In a stencil cutting machine, the combination of a base, a die carrier rotatably mounted on said base, male and female dies carried by said die carrier, a lever mechanism for operating one set of said dies and which includes a main operating lever, a second pivotally supported lever operable by the main operating lever to move the dies, a third pivotally mounted lever adapted to be operated by said main operating lever independently of the operation of the sec-

ond lever, a sheet feeding wheel having a ratchet wheel associated therewith, and a pawl carried by said third lever and adapted to actuate said ratchet wheel to impart rotation to said feeding wheel.

8. In a stencil cutting machine, a base, a die carrier rotatably mounted upon said base and provided with a dial located above the carrier, an operating mechanism support extending rearwardly from the front of the base to a point above the die carrier in front of the dial thereabove, and means depending from the rear end of said support adapted to engage said die carrier and resist upward movement of the rear end of the support.

9. In a stencil cutting machine, a base, a die carrier rotatably mounted upon said base and provided with a dial located above the carrier, an operating mechanism support extending rearwardly from the front of the base to a point above the die carrier in front of the dial thereabove, and bolts depending from the rear end of said support and adapted to engage said carrier and resist upward movement of the rear end of the support.

STEPHEN D. HARTOG.

In the presence of—

E. B. LINN,

M. C. HAMMON.