

R. G. RICHARDSON.
MACHINE FOR CUTTING AND STAMPING BANK NOTES.
APPLICATION FILED AUG. 9, 1910.

992,063.

Patented May 9, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

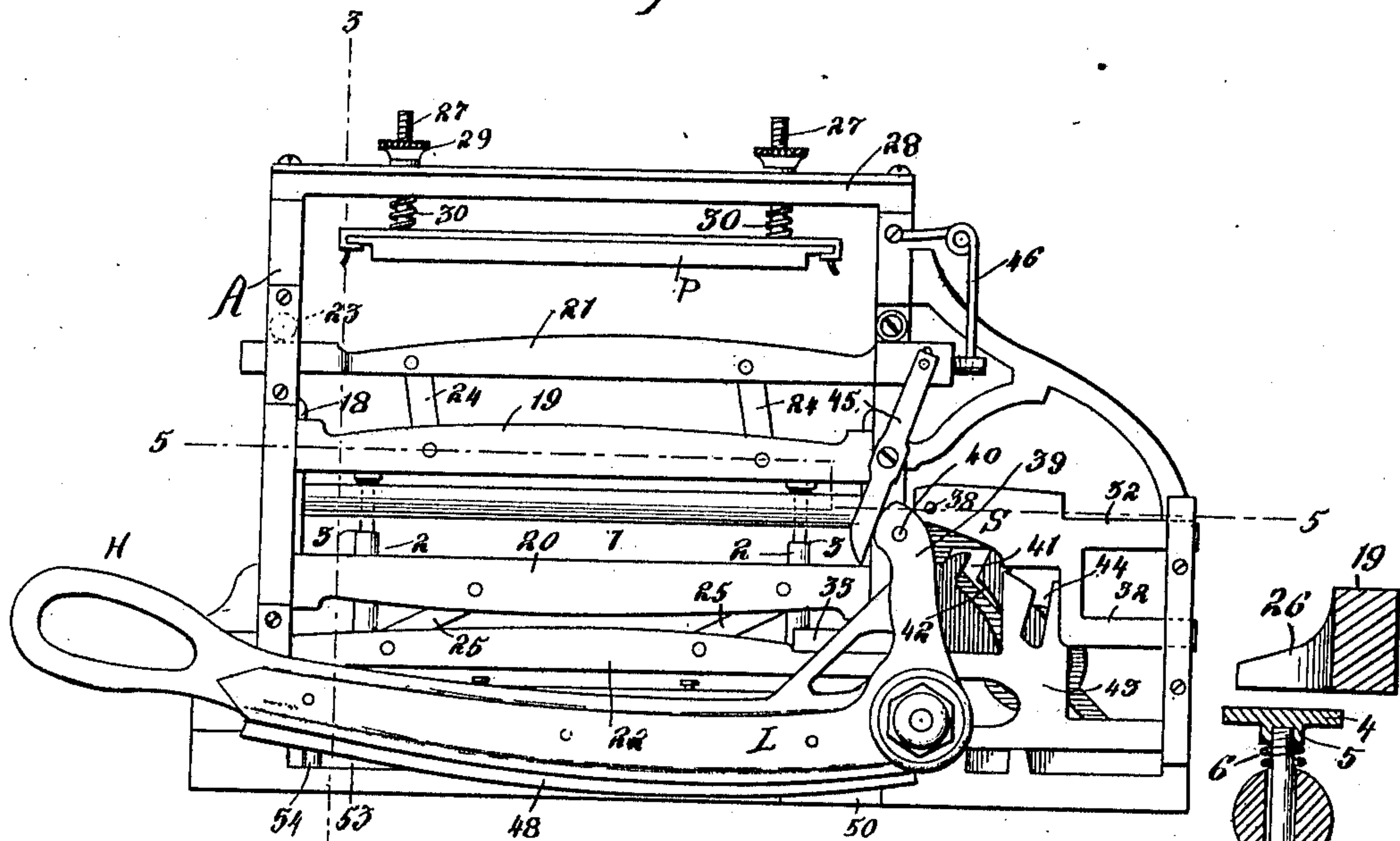


Fig. 2.

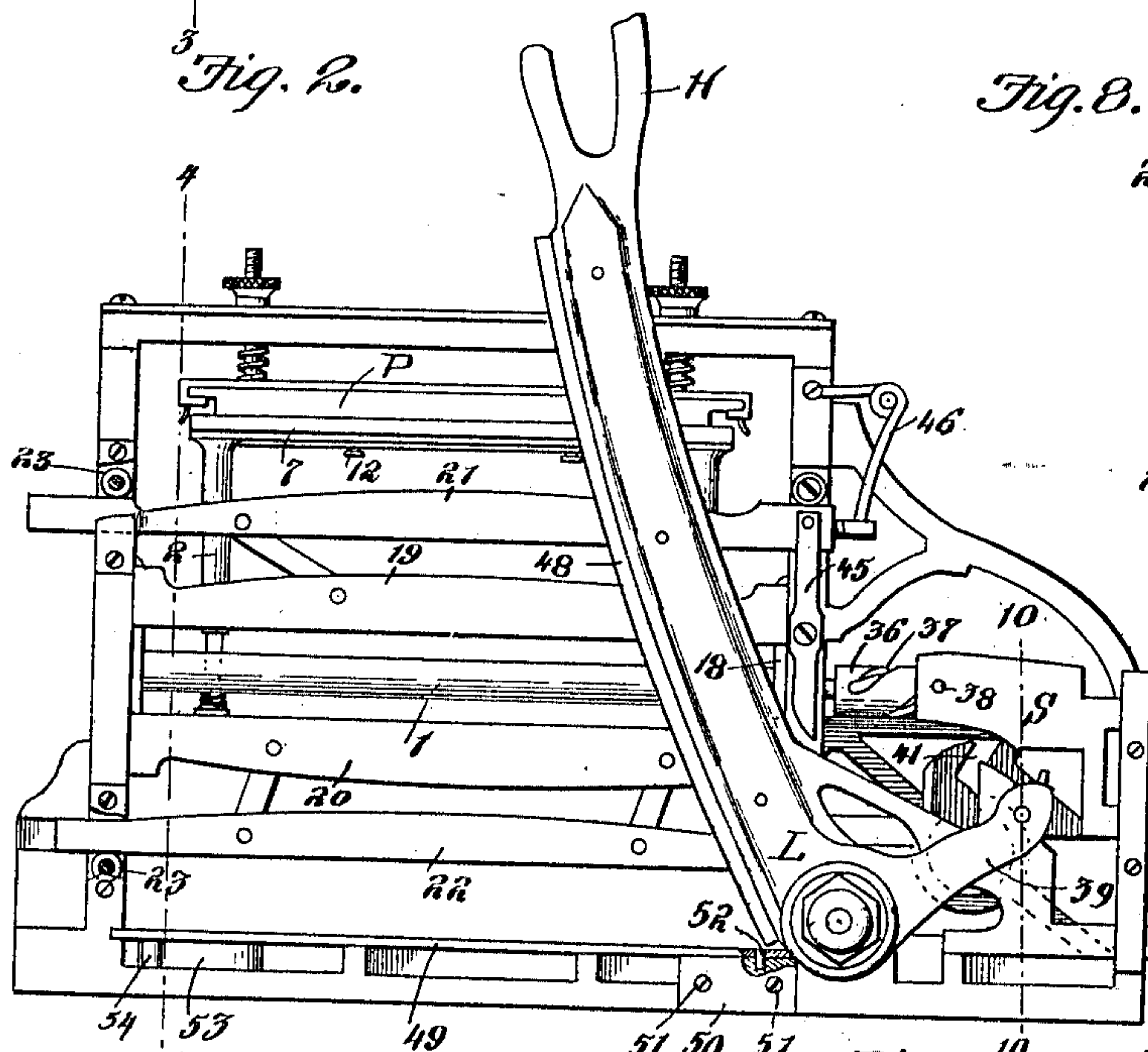
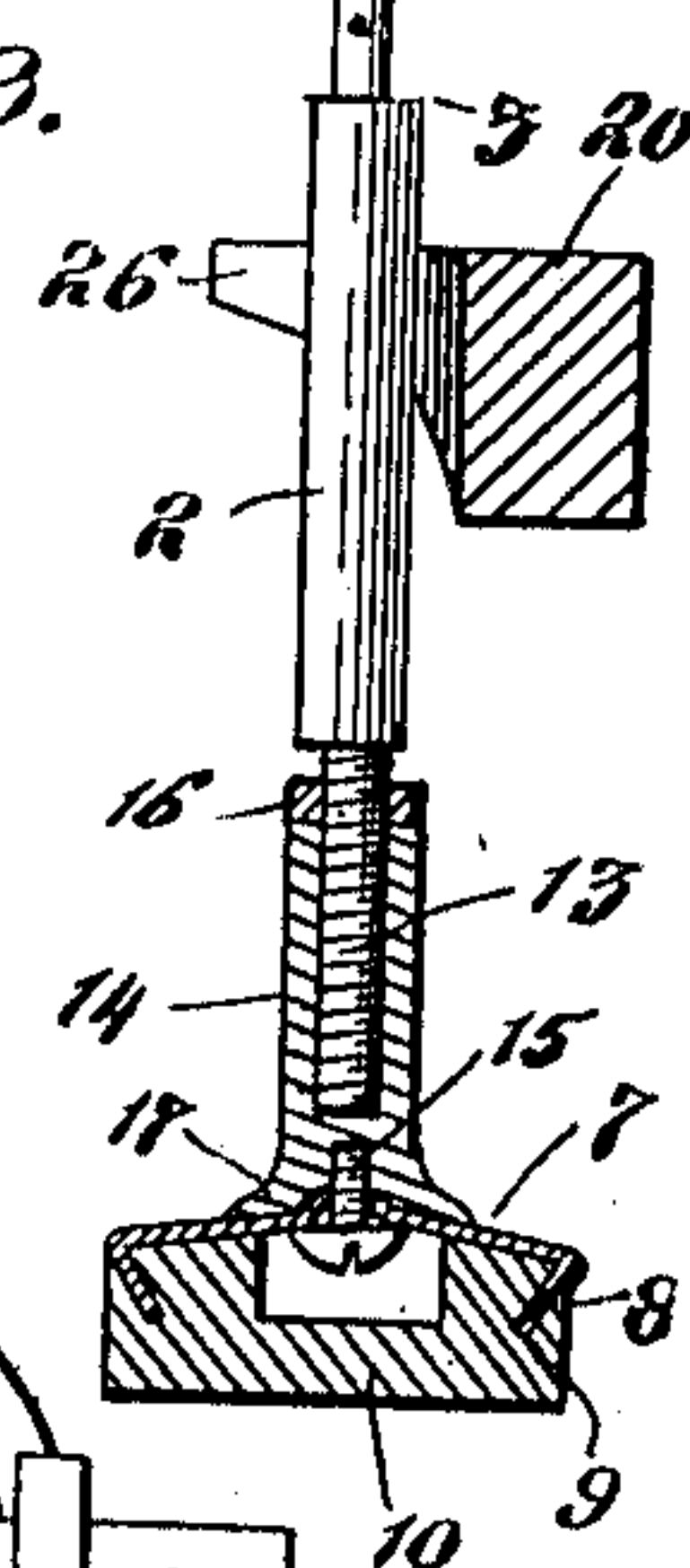


Fig. 3.



Witnesses

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2 SHEETS-SHEET 2.

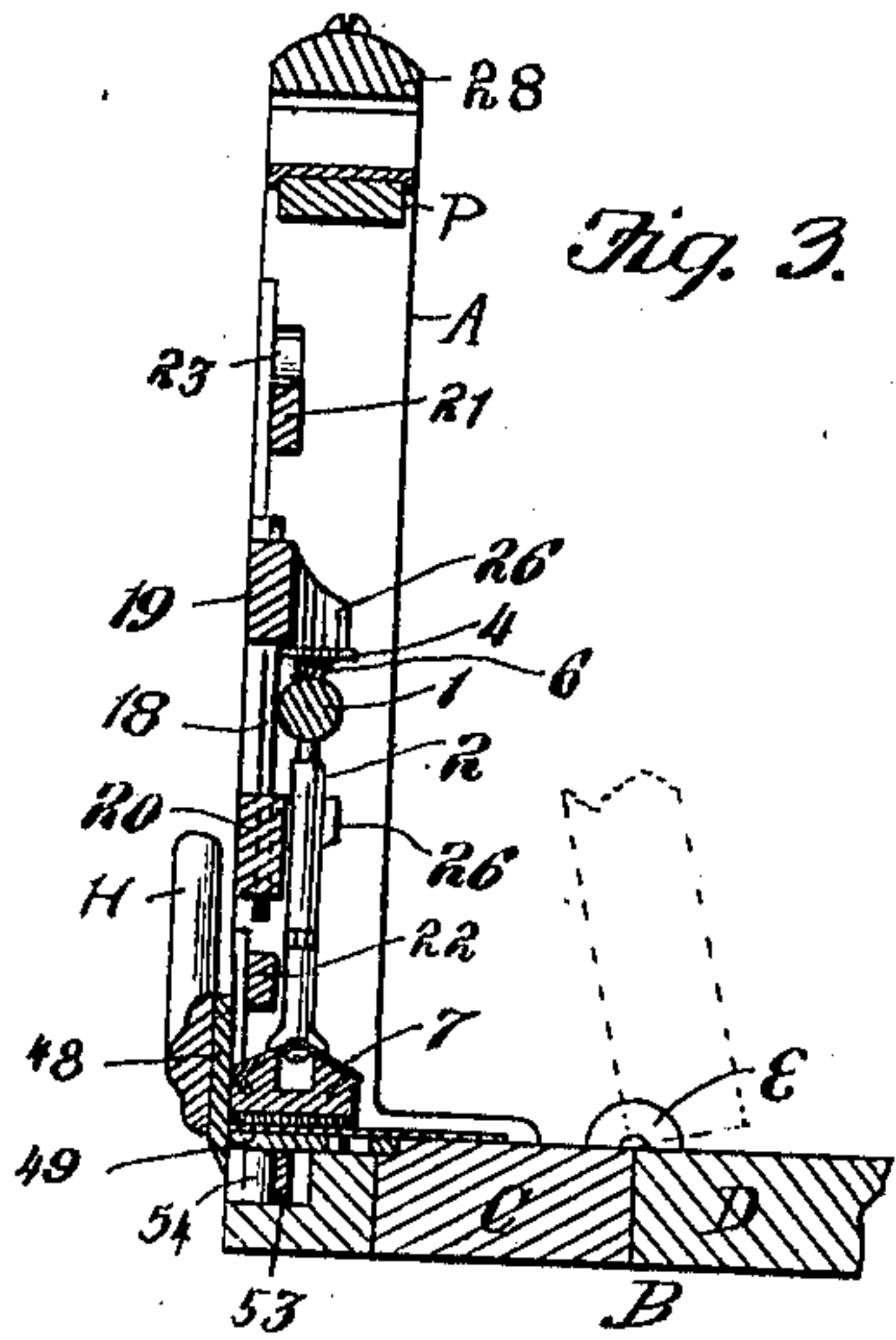


Fig. 3.

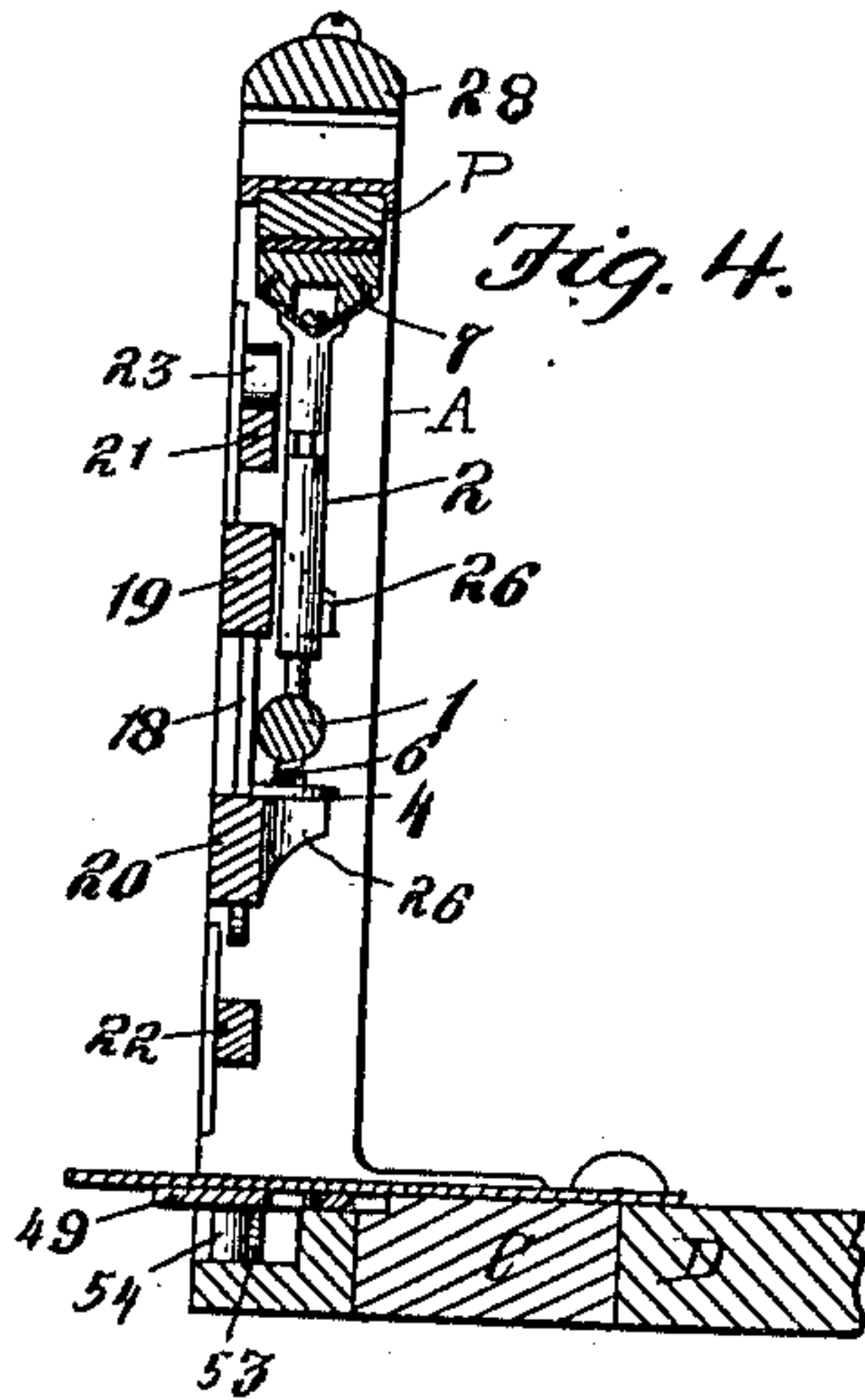


Fig. 4.

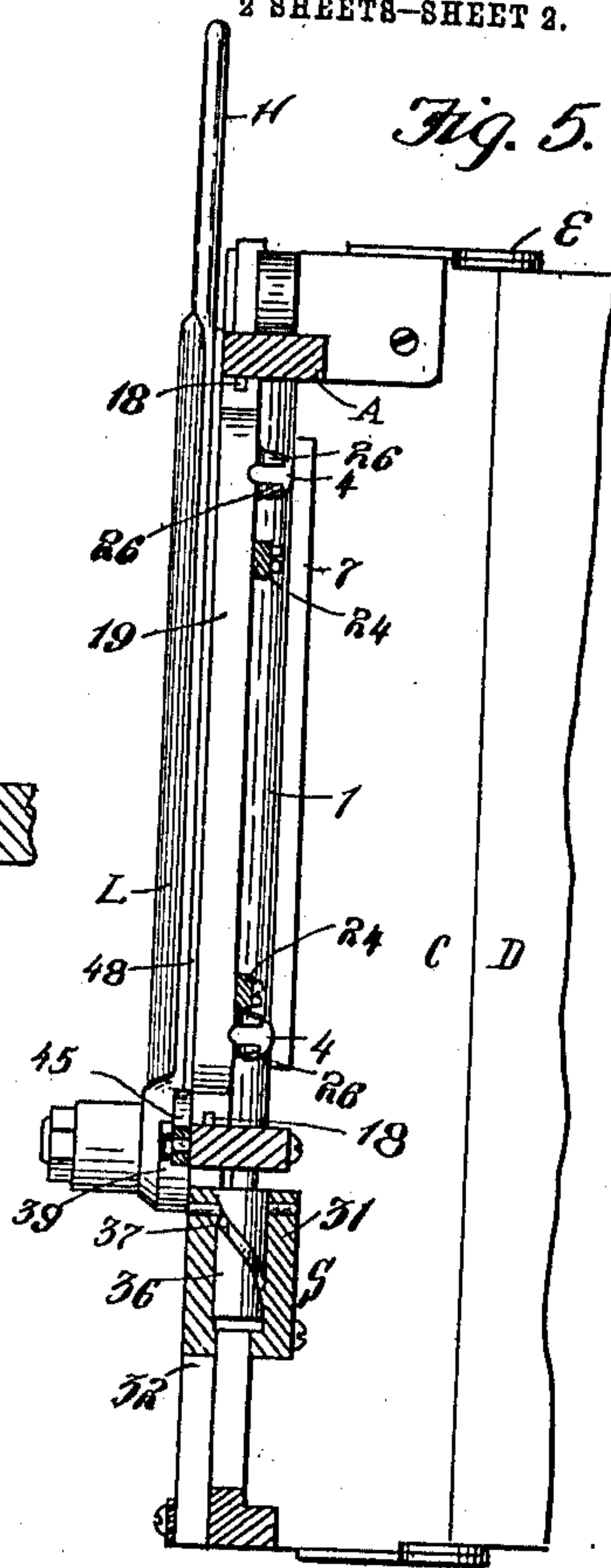


Fig. 5.

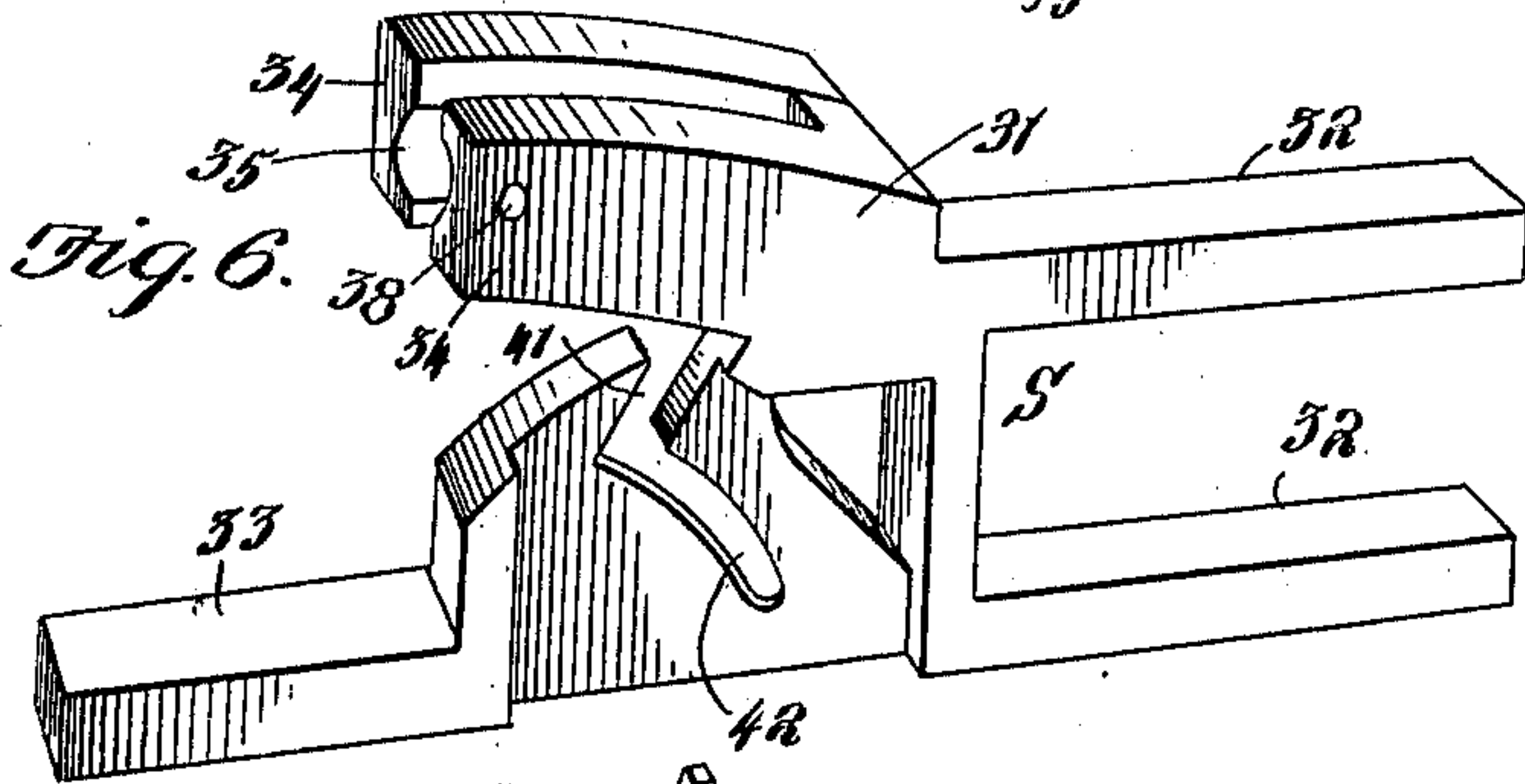


Fig. 6.

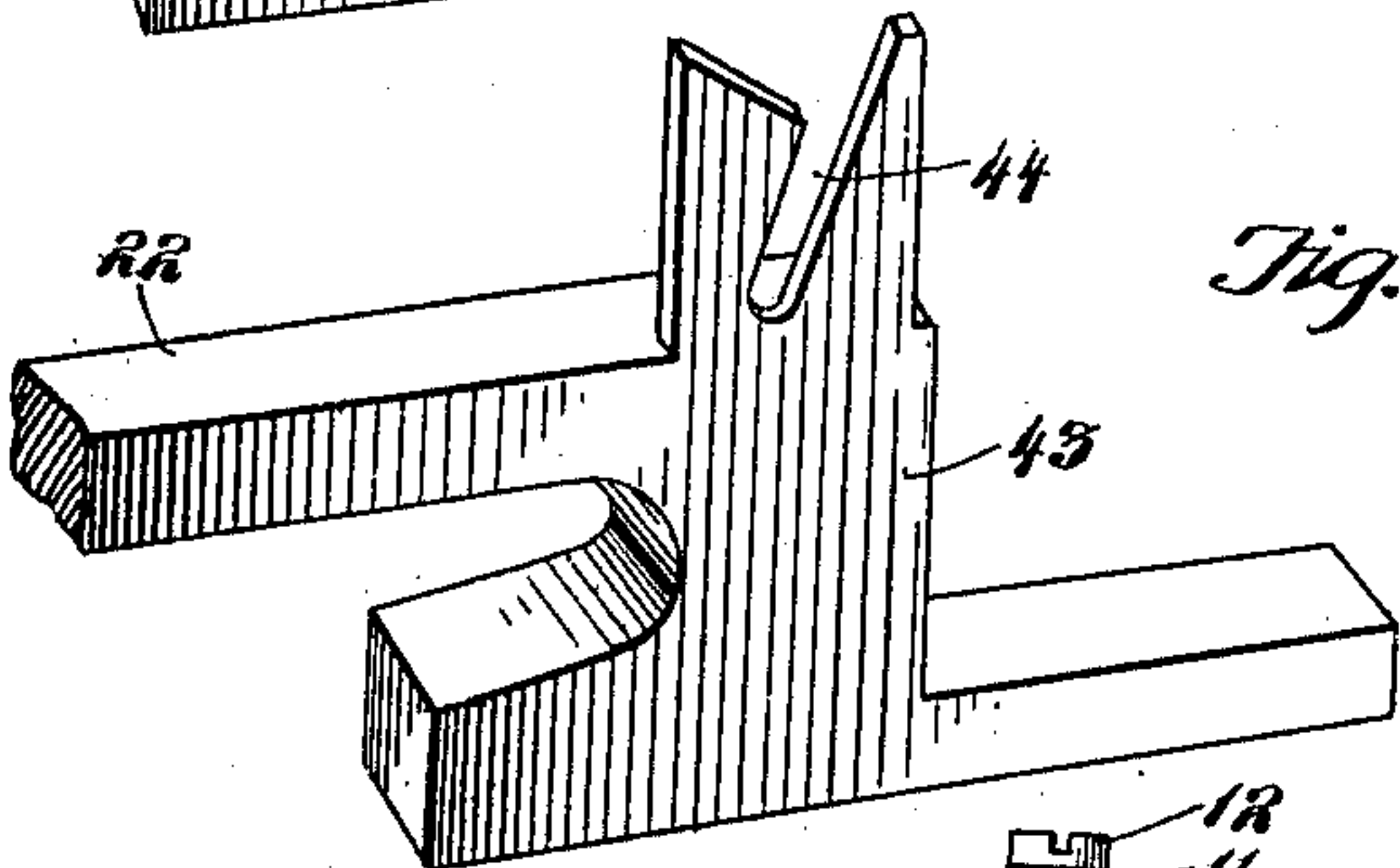


Fig. 7.

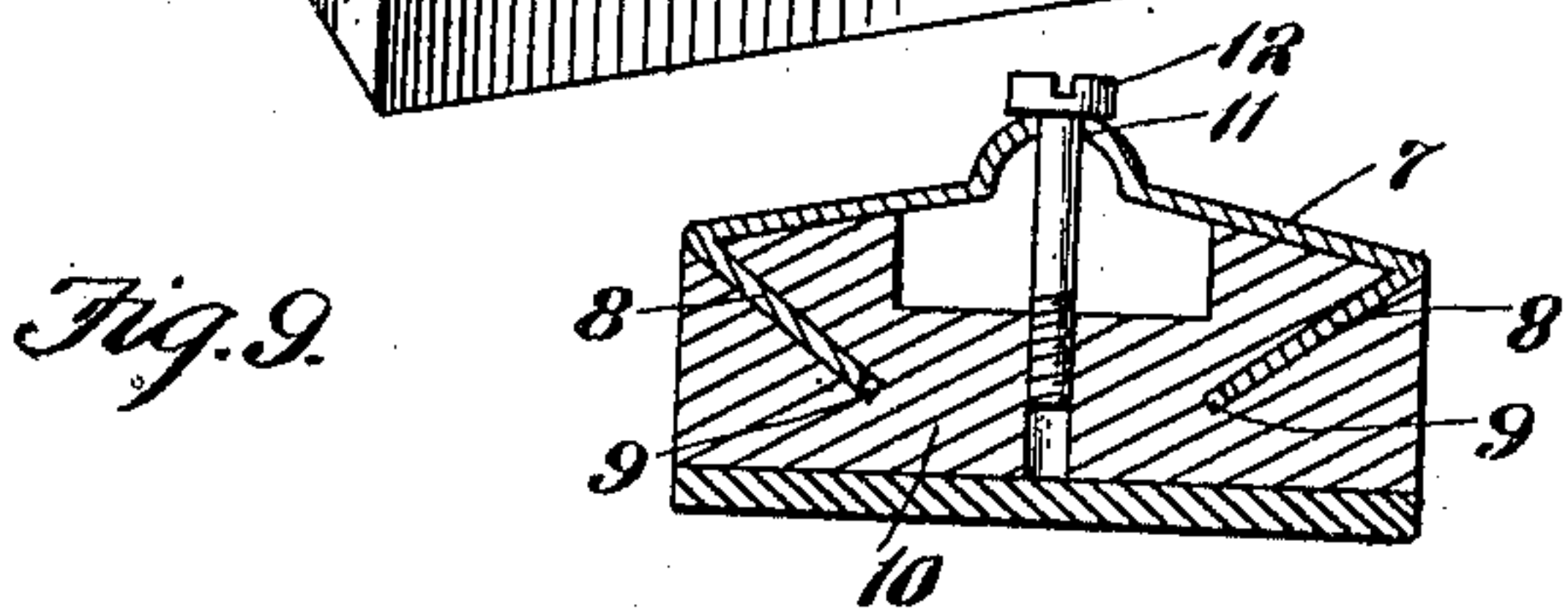


Fig. 9.

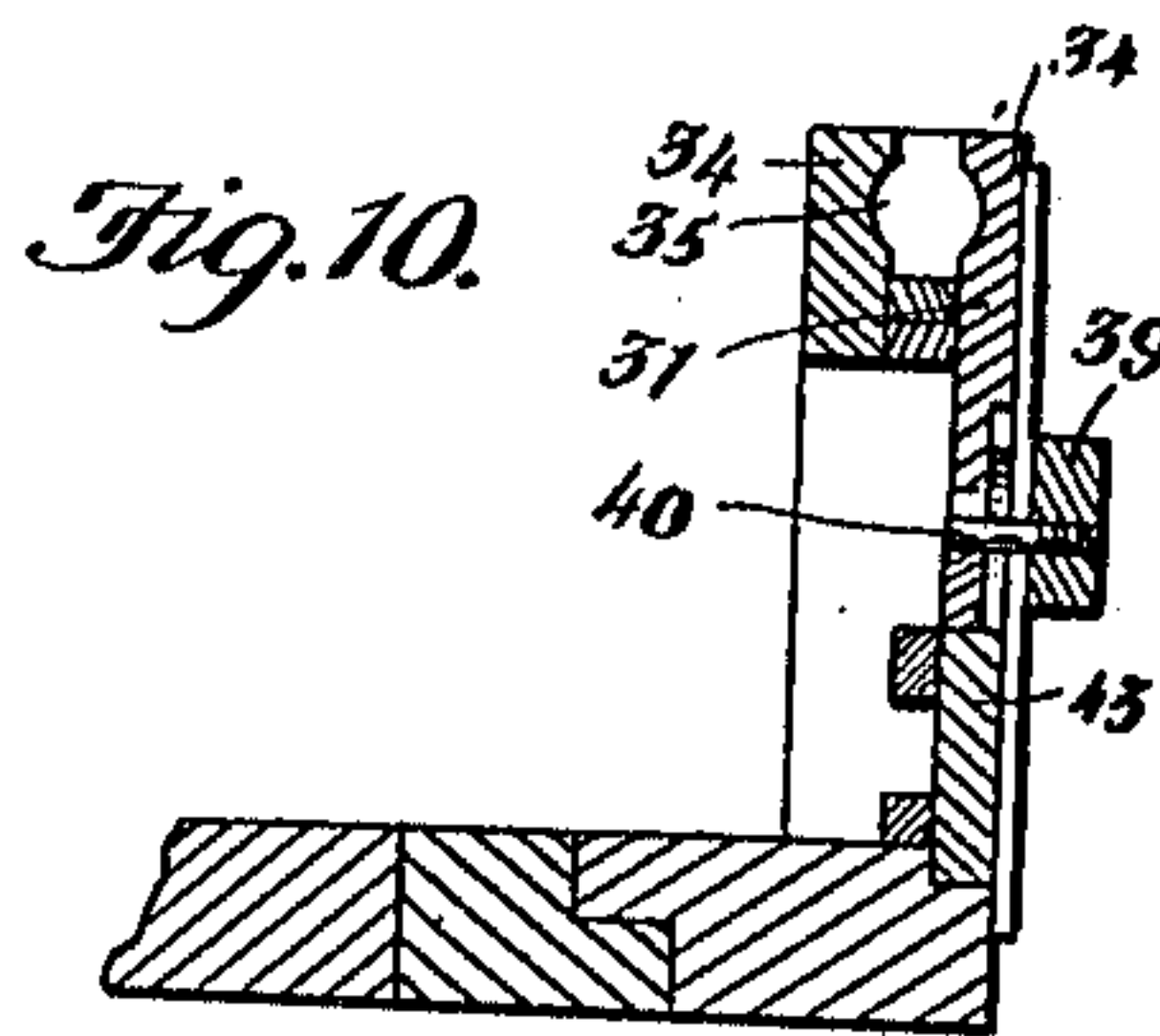


Fig. 10.

Witnesses

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MACHINE FOR CUTTING AND STAMPING BANK-NOTES.

992,063.

Specification of Letters Patent.

Patented May 9, 1911.

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To all whom it may concern:

Be it known that I, RICHARD G. RICHARDSON, a citizen of the United States of America, residing at Piedmont, in the county of Mineral and State of West Virginia, have invented new and useful Improvements in Machines for Cutting and Stamping Bank-Notes, of which the following is a specification.

10 This invention relates to an improved machine for cutting and stamping bank notes.

In the manufacture of bank notes as at present conducted it is customary to print four notes on a sheet. When these notes are supplied to national banks they must receive the signatures, or the imprint of the signatures, of two bank officials, and the sheets are then divided or separated into the individual notes.

20 In large banking institutions this work may be accomplished by machinery or mechanically, but in smaller institutions it involves a considerable amount of work to first sign the notes and afterward to divide the sheets by means of shears or cutting devices.

The present invention has for its object to provide a simple and efficient organized machine which by a single operation will print the desired signatures and sever a note from a sheet, thus insuring the performance of the work with great accuracy and rapidity.

30 A further object of the invention is to simplify and improve the general construction and operation of a machine of the class specified.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

50 In the drawings,—Figure 1 is a front ele-

vation of the improved machine showing the knife or cutter lowered and with the printing stamp in position for making an impression. Fig. 2 is a front elevation showing the knife or cutter raised and the printing stamp in engagement with the inking pad. Fig. 3 is a vertical sectional view taken on the line 3—3 in Fig. 1. Fig. 4 is a vertical sectional view taken on the line 4—4 in Fig. 2. Fig. 5 is a horizontal view taken on the line 3—3 in Fig. 1. Fig. 6 is a perspective detail view of the slidable cam member for imparting oscillatory motion to the rock shaft carrying the printing stamp. Fig. 7 is a perspective view of an auxiliary cam member upon the slide utilized for projecting the printing stamp into engagement with the inking pad. Fig. 8 is a detail view in sectional elevation taken through the rock shaft and the printing stamp and showing one of the stamp carrying arms and related parts. Fig. 9 is a sectional detail view of the printing stamp and the roller or carrier for the same. Fig. 10 is a sectional detail view taken on the line 10—10 in Fig. 2.

Corresponding parts in the several figures are denoted by like characters of reference.

The improved machine comprises a frame structure A which is suitably mounted upon and connected with a base B which may consist of two parts or members C, D connected together by means of hinge lugs E to permit one of said members to be folded in the direction of the frame, as indicated in dotted lines in Fig. 3.

The frame structure A is provided with bearings for a horizontally disposed rock shaft 1 which is transversely apertured for the passage of slidable arms 2, 2, each having a shoulder or offset 3 adapted to engage one side of the rock shaft to limit the movement of the arm in one direction. Each of said arms is also provided with a cap nut 4, threaded thereon and presenting a shoulder 5 between which and the rock shaft a spring 6 is interposed to yieldingly support the arm and to limit the movement thereof.

The arms 2, 2 serve to carry a stamp holder 7, the same consisting of a plate having dovetail flanges 8 to engage converging grooves 9 in the sides of the printing stamp

10, which latter may be of any suitable construction. Said stamp may also consist of an ordinary rubber stamp, a steel die, or a printing member of any description. The plate 7 which constitutes the stamp holder is provided with a groove or slot 11 for the passage of a set screw 12 entering into the back of the stamp. As is well known two separate signature stamps are usually employed, and it is obvious that by mounting stamps in the manner described they may be properly spaced and otherwise disposed to make the impressions precisely in the required places.

For the purpose of connecting the stamp holder adjustably with the arms 2, the said arms are terminally reduced and threaded, as shown at 13, see Fig. 8, and upon each arm there is mounted a socketed cap member 14 having a threaded recess for the reception of a set screw 15 whereby the stamp holder is secured in position. When the stamp holder is detached, or before mounting the same, the cap members 14 may be adjusted upon the threaded portions 13 of the arms to space the said cap members, or to adjust them to cause the stamp holder to be properly spaced from the rock shaft. Each of the arms also carries upon the reduced threaded portion 13 a jam nut 16 which may be tightened against the cap member 14 to prevent displacement of the same after it has been properly adjusted. The cap members 14 are also provided with flanges 17 overhanging the plate constituting the stamp holder, and the latter, when mounted in position by the set screws 15, will obviously assist in preventing displacement of the cap members 14 after the parts have been properly assembled.

The frame structure A is provided with flanges 18 extending transversely of the rock shaft adjacent to the ends of the latter and forming guides for a pair of vertically movable slides 19 and 20, the former of which is disposed above and the latter below and adjacent to the rock shaft 1. The frame structure A is provided with bearings for a pair of horizontally movable slides 21 and 22 arranged, respectively above and below and in parallel relation to the vertically movable slides 19 and 20. Roller bearings are preferably provided for the horizontally movable slides, as indicated at 23. The slides 19 and 21 are connected together by means of links 24 whereby they are maintained in parallel relation, and the slides 20 and 22 are similarly connected together by means of links 25. It will be obvious that by moving either of the slides 20 or 22 horizontally in its bearings, the slides 19 and 20 may be projected or retracted with reference to the rock shaft 1.

The slides 19 and 20 are each provided

with rearwardly extending lugs 26 which are grooved to accommodate the stamp carrying arms 2 that are connected with and projecting from the rock shaft 1, as hereinbefore described, it being obvious that in one position of the rock shaft, as indicated in Figs. 1 and 3, the arms 2 will lie in the grooved lugs 26 of the slide 20, while in another position of the rock shaft, as indicated in Figs. 2 and 4, the arms 2 will lie in the grooved lugs 26 of the slide 19. In the former position of the rock shaft the cap nuts 4 of the arms 2 will lie in the path of the lugs 26 of the slide 19 to be engaged by said slide when the latter is projected in the direction of the rock shaft, thereby projecting the arms 2 carrying the printing stamp against the tension of the springs 6 in a downward direction, for the purpose of making an impression. Contrariwise, when the parts are positioned as indicated in Figs. 2 and 4, the arms 2 will lie in the grooved lugs 26 of the slide 19, and the cap nuts 4 will be presented in the path of the lugs 26 associated with the slide 20, so that when the latter slide is projected in the direction of the rock shaft, the stamp carrying arms will be forced upwardly against the tension of the springs 6, and the stamp will be moved into engagement with an inking pad P of suitable construction, which is resiliently supported by means of arms 27 extending through the top bar 28 of the frame structure A, said arms being threaded and provided with adjusting nuts 29 and with springs 30. The springs 30 are interposed between the inking pad and the top bar of the frame, thus permitting the pad to yield to the upward pressure of the stamp. The inking pad may obviously be of any suitable well known and approved construction.

The frame structure A is provided with bearings for a laterally movable slide S which is shown in detail in Fig. 6 of the drawings, by reference to which it will appear that said slide comprises a body portion 31 having laterally extending arms 32 projecting in one direction and guided in the frame and an oppositely extending arm 33 which is guided upon the slide 20. The body 31 of the slide S is bifurcated to present oppositely disposed side members 34, the opposed faces of which are provided with shallow grooves or cavities 35 to receive between them a sleeve 36 which is mounted upon the rock shaft 1. The sleeve 36 is provided with suitable cam grooves 37 engaged by pins or lugs 38 projecting from the side members of the slide, so that when the latter is reciprocated, oscillatory movement to the extent of one-half revolution will be imparted to the rock shaft. It is obvious that the sleeve 36, so called, may

be simply in the nature of an enlargement upon or an integral portion of the rock shaft.

A lever L, which is fulcrumed upon the frame adjacent to the base of the machine, is provided with a handle H whereby it may be conveniently manipulated, and said lever has an arm 39 provided with a pin 40 adapted to engage a cam groove 41 in the slide S for the purpose of reciprocating said slide by manipulation of the lever. The cam groove 41 has an arcuate extension 42 adapted to be engaged by the actuating pin 40 after the slide S has reached the outward limit of its movement, thus permitting the movement of the lever to continue without affecting the position of the slide after the latter has reached the end of its stroke. The slide 22 has a head or extension 43 which is suitably guided upon the frame adjacent to the slide S, said head being provided with a cam slot 44 adapted to be engaged by the pin 40 when the latter engages the arcuate slot portion 42, thus actuating the slide 22 to move the links 25 from an inclined to an approximately vertical position, thereby projecting the slide 20 in the direction of the rock shaft 1 and moving the stamp carrying arms 2, which at this time extend upwardly from the rock shaft, in an upward direction to bring the printing stamp into engagement with the inking pad.

A lever 45, which is fulcrumed upon the frame A, is connected at one end with the slide 21, while the opposite end is extended downwardly so as to lie in the path of the arm 39 extending from the lever L. When the arm 39 engages the lever 45, the latter will be rocked, thus moving the slide 21 against the tension of a suitably arranged spring 46, and carrying the connecting links 24 from an inclined to an approximately vertical position, thus projecting the slide 19 downwardly in the direction of the rock shaft, and forcing the stamp carrying arms 2, which at this time lie in the notched lugs 26 of the slide 20, downwardly against the tension of the springs 6, thereby projecting the printing stamp downwardly for the purpose of making an impression; the downward movement being in the direction of the bed associated with the base of the machine.

It is obvious that in the construction of the machine the movements of the several parts must be properly timed to occur in proper sequence. Thus, when the lever L is raised, the slide S will be moved in a direction to cause the rock shaft 1 to rock or oscillate in such a manner that the stamp carrying arms which, when the lever is lowered, extend downwardly from the rock shaft will swing in a rearward and upward direction, thus moving the printing stamp into a position where it lies adjacent to the inking pad.

By the continued movement of the lever L, the slide 22 will be actuated to force the printing stamp upwardly into engagement with the pad to receive a charge of ink. When the lever L is lowered, the slide 22 will be restored to its initial position, and the slide S will be moved to oscillate the rock shaft in a reverse direction, thus swinging the stamp carrying arms to a downward position where the spring supported printing stamp will lie adjacent to and slightly above the bed or printing surface until the lever L completes its downward movement when the slide 21 actuated by the lever 45 engaged by the pin 40 of the lever arm 39 will be actuated to move the slide 19, through the medium of the links 24, downwardly in the direction of the rock shaft, thus completing the printing movement of the stamp.

The lever L carries a knife or cutting member 48 which coöperates with a horizontally disposed cutting member 49, the latter being pivoted upon a block 50 which is adjustably connected with the base of the machine by means of screws 51 so that the end of the blade which is pivotally mounted upon a pin or member 52 may be adjusted with reference to the blade or cutting member 48. The free end of the cutter 49 is forced outwardly in the direction of the blade 48 by means of a spring 53 suitably housed in the base of the machine and operating against a pin 54 which projects downwardly from the blade 49. The latter, it will be observed, is movable in a plane substantially at right angles to the plane in which the cutter 48 moves. The pivotally supported end of the blade 49 is capable of vary delicate adjustment, so that the pivoted edge or end of the blade 49 will be engaged by the blade 48 immediately when the lever carrying the latter blade begins to descend. As the downward movement continues, the blade 49 will be slightly displaced laterally with the obvious result that the active portions of the two blades are in constant engagement with each other, thus enabling an extremely sharp and accurate cut to be made. The upper face of the horizontally disposed blade 49 may be exposed so as to constitute the printing bed upon which the sheet that is to receive the impression may be supported; but said blade may within the scope of the invention be suitably housed in the base of the machine.

In the operation of this invention, the sheet of bank notes that is to be operated upon is guided over the base of the machine which may be provided with suitable guiding means to maintain the sheet in proper position with reference to the cutting apparatus. The sheet is first adjusted in position to enable an impression to be made by the

printing stamp. After such impression has been made, the knife carrying lever L is raised, and the stamped note is projected sufficiently to bring a second note in position to receive an impression. The parts are so arranged and proportioned that when the lever L descends, the projecting note will be severed at the proper place, and an impression will at the same time be made upon the second note, the operation being continued until the last note has been stamped or impressed and severed from its mate.

As will be seen I have provided an apparatus of simple construction which is capable of being easily and effectively operated for the purpose of accomplishing the ends in view.

Having thus described the invention, what is claimed as new, is:—

1. In a machine of the character described, a lever carrying a cutting member, a rock shaft having a cam grooved portion, a slide actuated by the lever and having cam groove engaging means to oscillate the rock shaft, and a printing stamp associated with and carried by the rock shaft.

2. In a machine of the character described, a lever carrying a cutting member, a rock shaft, a slide actuated by the lever and having means to oscillate the rock shaft, spring supported arms extending transversely through the rock shaft, and a printing stamp holder carried by said arms.

3. In a machine of the character described, a cutter carrying lever, a rock shaft, means actuated by the lever for oscillating the rock shaft, resiliently supported arms extending transversely through the rock shaft, a stamp holder carried by said arms, and slides disposed adjacent to opposite sides of the rock shaft and adapted to be projected in the direction of the rock shaft and to engage the stamp holder carrying arms to move the latter transversely of the rock shaft.

4. In a machine of the character described, a cutter carrying lever, a rock shaft, means actuated by the lever for oscillating the rock shaft, resiliently supported arms extending through the rock shaft, a stamp holder carried by said arms, slides disposed adjacent to opposite sides of the rock shaft and having grooved lugs to accommodate the arms, said arms being accommodated in the grooved lugs of one slide while lying in the path of and adapted to be engaged by the opposite slide, and means for projecting the slides in the direction of the rock shaft.

5. In a machine of the character described, a cutter carrying lever, a rock shaft, means actuated by the lever for oscillating the rock shaft, resiliently supported arms extending transversely through the

rock shaft, a stamp holder carried by said arms, slides supported for movement toward and from the rock shaft and adapted to engage the resiliently supported arms to move the arms transversely of the rock shaft, slides supported for movement longitudinally of the rock shaft and in parallel relation to the first named slides, links connecting the first mentioned slides with the slides movable longitudinally of the rock shaft, and means associated with the cutter carrying lever for actuating the longitudinally movable slides.

6. In a machine of the character described, a rock shaft, means for oscillating the same, arms extending transversely through the rock shaft and having shoulders to limit their movement in one direction, caps threaded upon the arms, springs interposed between the caps and the rock shaft to resiliently support the arms, a stamp holder connected with the free ends of the arms, and movably supported means to engage the spring supported arms to move the latter against the tension of the supporting springs, thereby projecting the stamp holder in the desired direction.

7. In a machine of the character described, a rock shaft, resiliently supported arms extending therethrough and having reduced and threaded outer ends, socketed cap members adjustable upon the threaded ends, jam nuts engaging said caps, and a stamp holding member detachably secured upon the caps.

8. In a machine of the character described, a rock shaft, means for oscillating the same, resiliently supported arms extending through the rock shaft, means for projecting the arms in various positions of the rock shaft, a holding member detachably connected with the arms and including a plate having a slot, and a printing stamp having a tightening screw operating through the slotted plate.

9. In a machine of the character described, a cutter carrying lever adapted to swing in an approximately vertical plane, a rock shaft, means actuated by the lever for oscillating the rock shaft, spring supported arms extending transversely through the rock shaft, a stamp holder carried by the arms, slides supported for reciprocation in an approximately vertical plane, said slides being supported adjacent to opposite sides of the rock shaft and movable toward and from the same, and said slides being adapted for engagement with the spring supported arms to move the latter transversely of the rock shaft, auxiliary slides supported for movement in planes substantially at right angles to the movement of the first mentioned slides and connected therewith by links, means associated

with the cutter carrying lever for actuating the last mentioned slides and the connecting links to move the first mentioned slides toward and from the rock shaft, an inking
5 pad supported resiliently in the path of the stamp holder, and a cutting member pivotally supported and adapted to swing in an approximately horizontal plane to coop-

erate with the cutting blade carried by the lever.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD G. RICHARDSON.

Witnesses:

CARL W. RICHARDSON,
WM. BAGGER.

10

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