

No. 671,070.

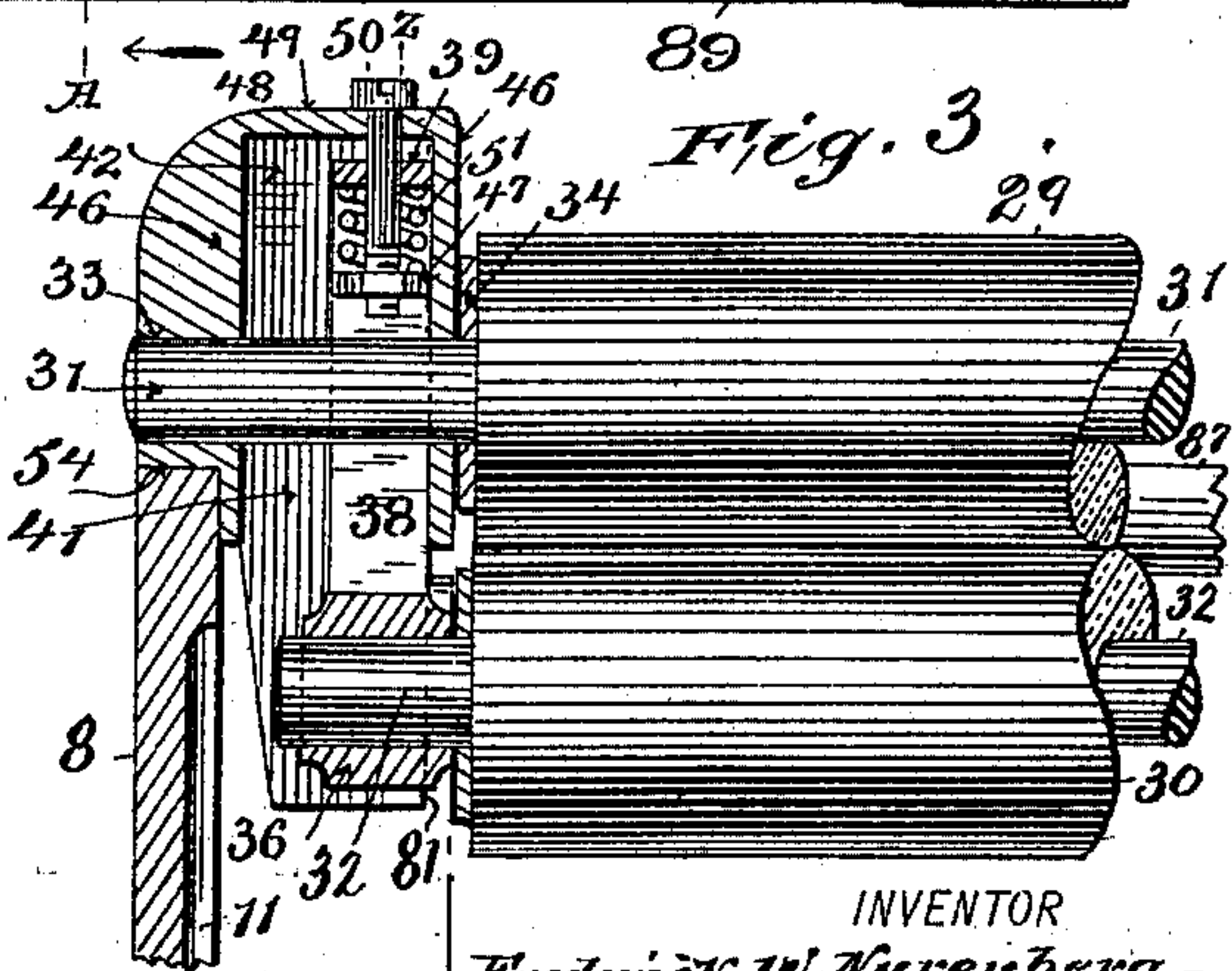
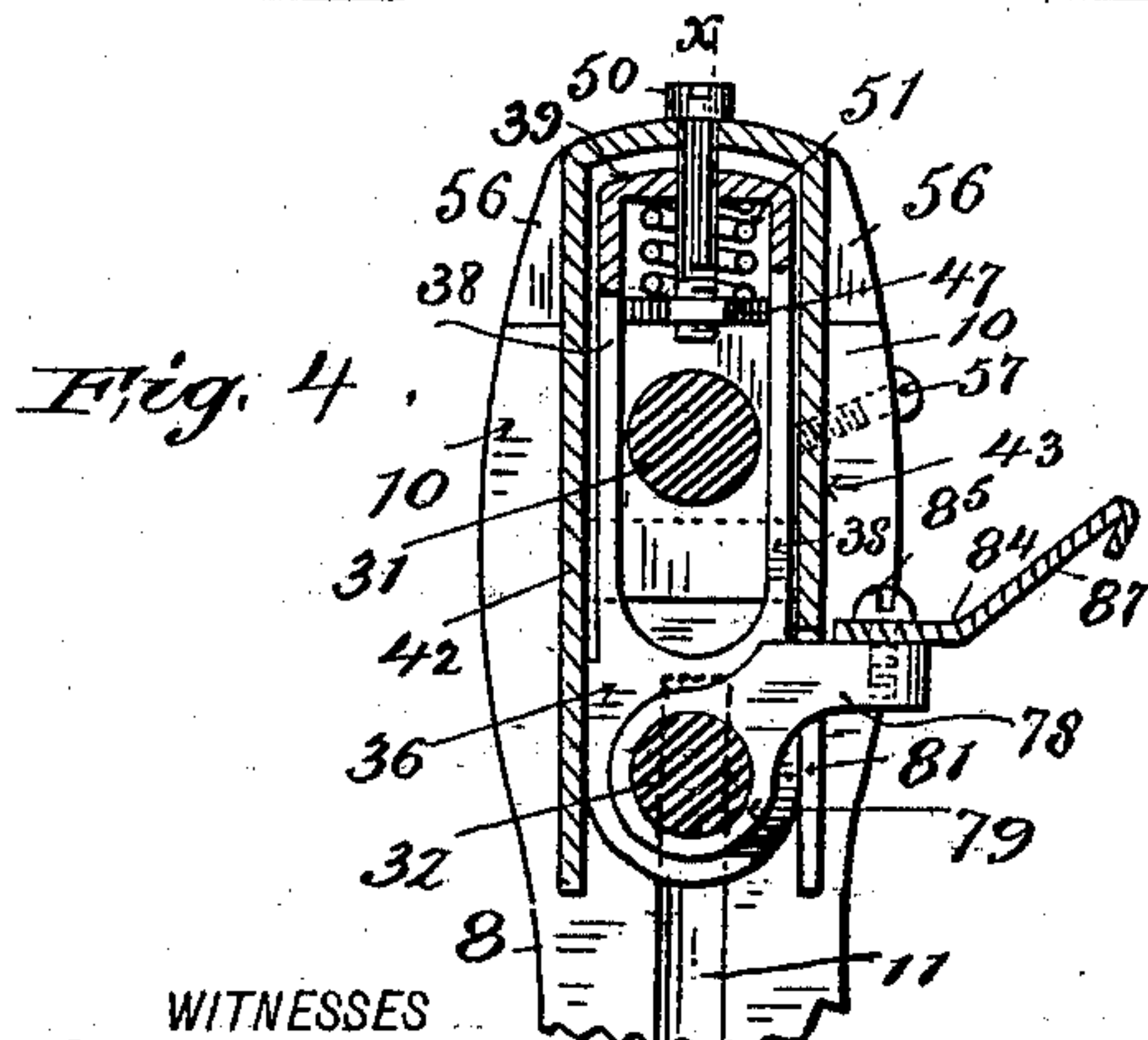
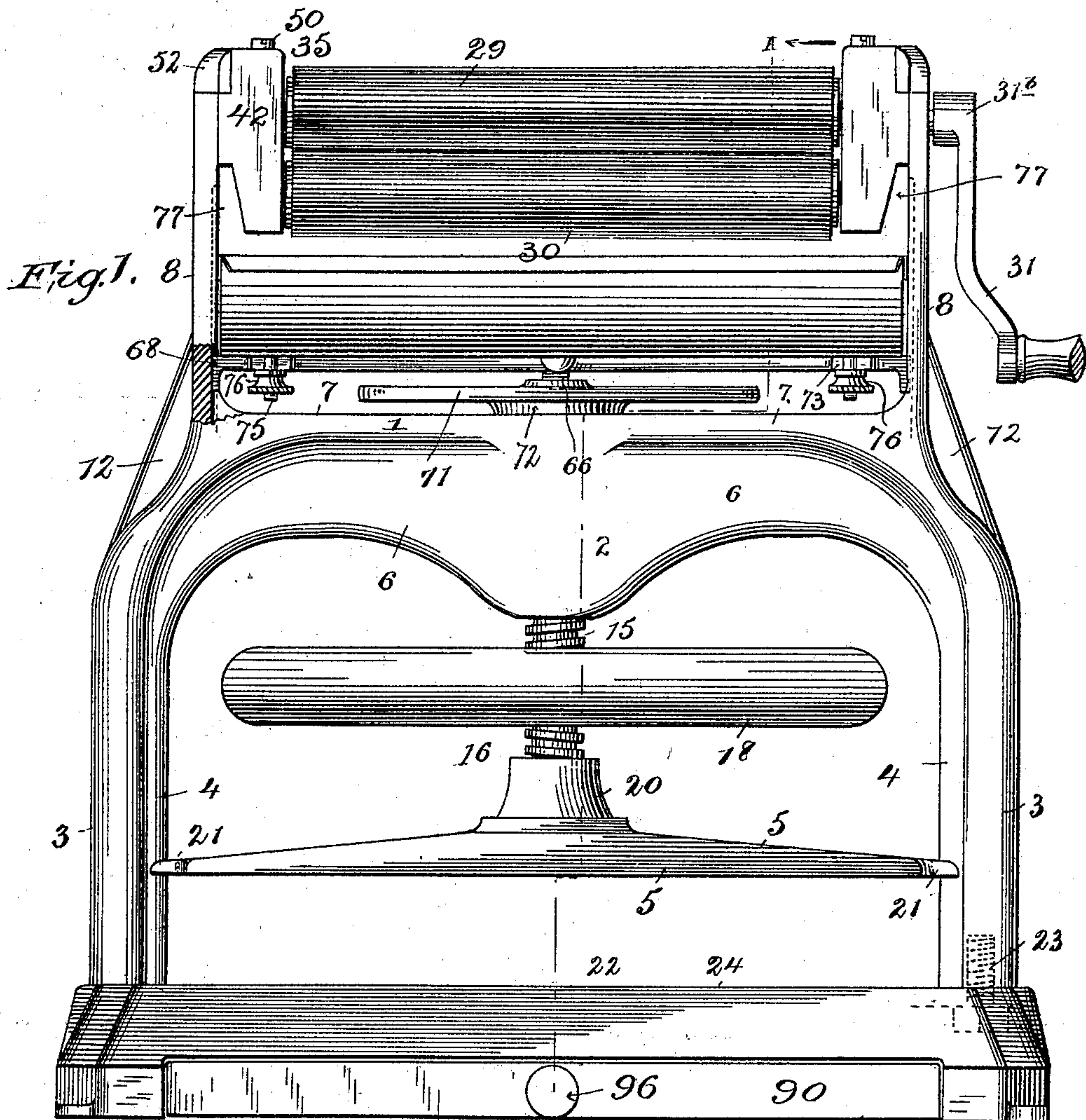
Patented Apr. 2, 1901.

F. W. NURENBERG.
COPYING PRESS.

(Application filed May 10, 1900.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES

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3 Sheets—Sheet 2.

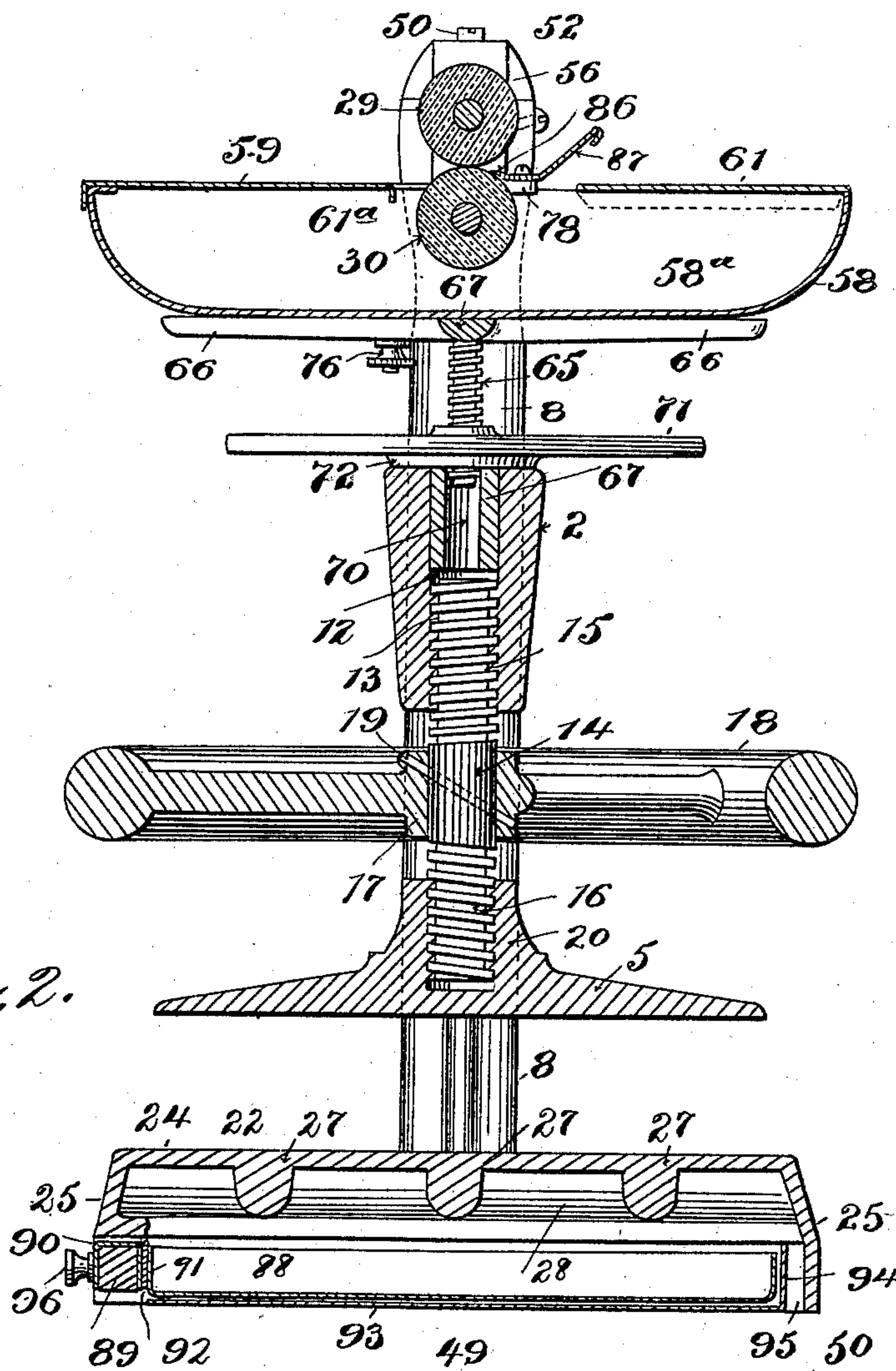
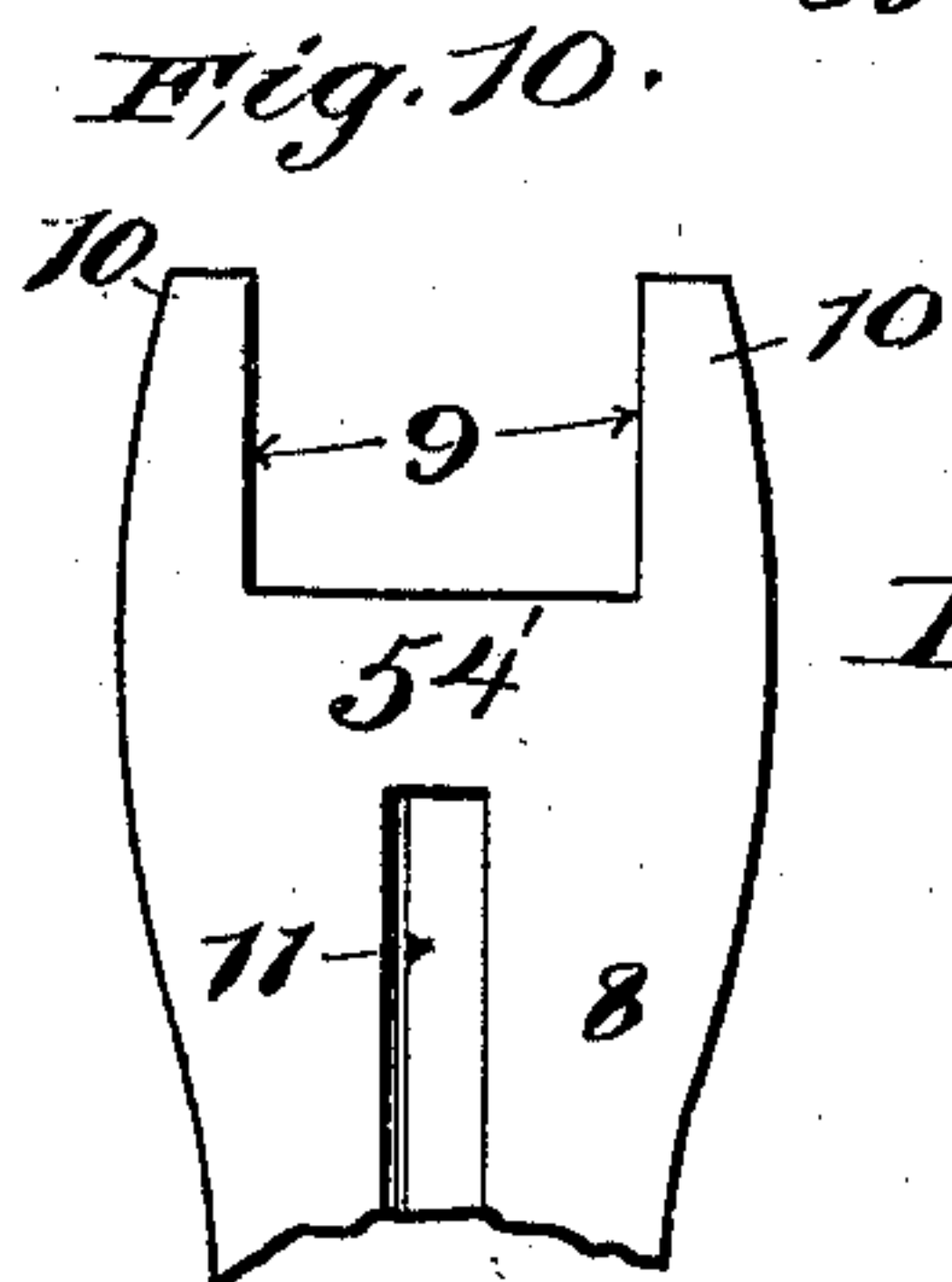
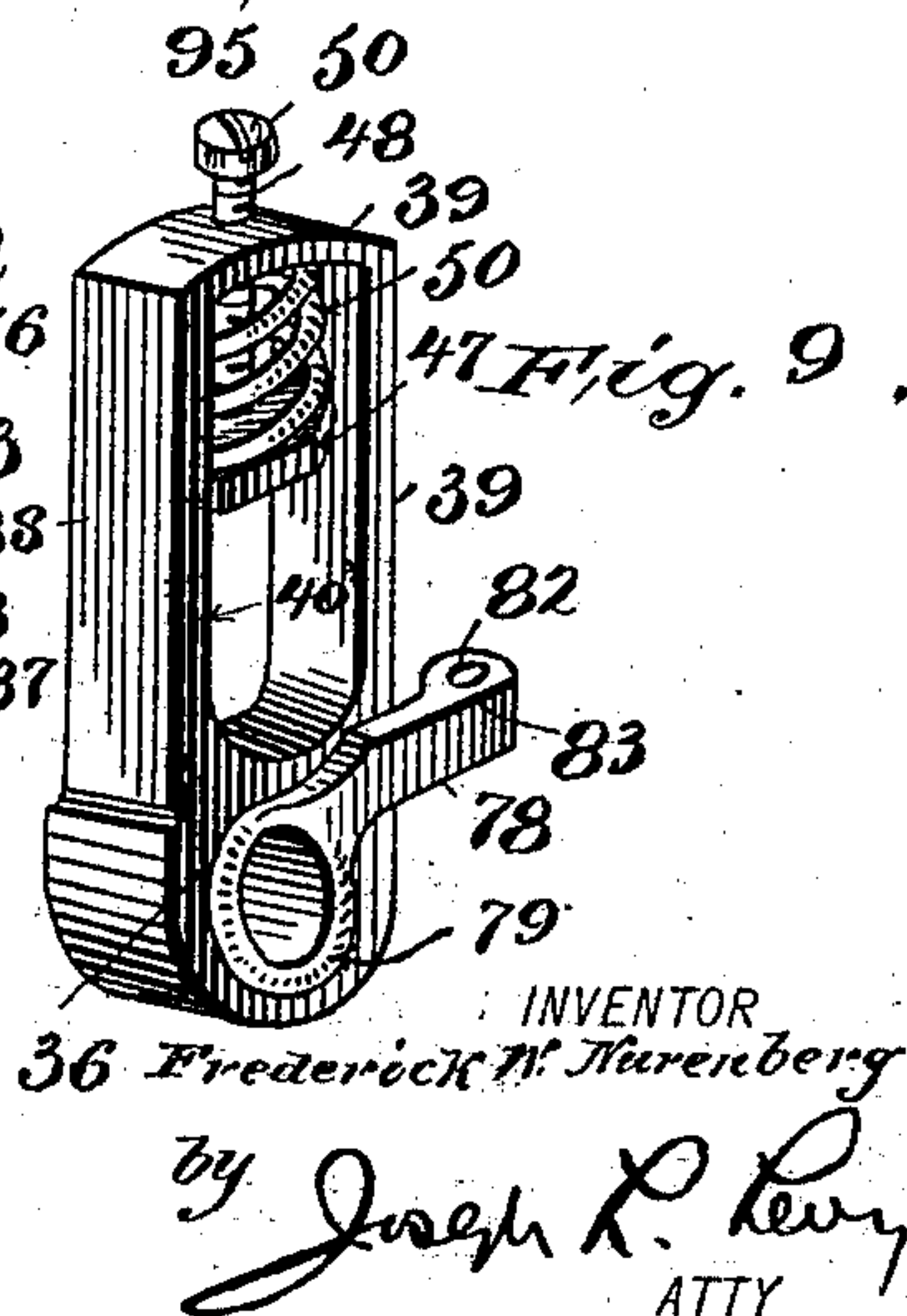
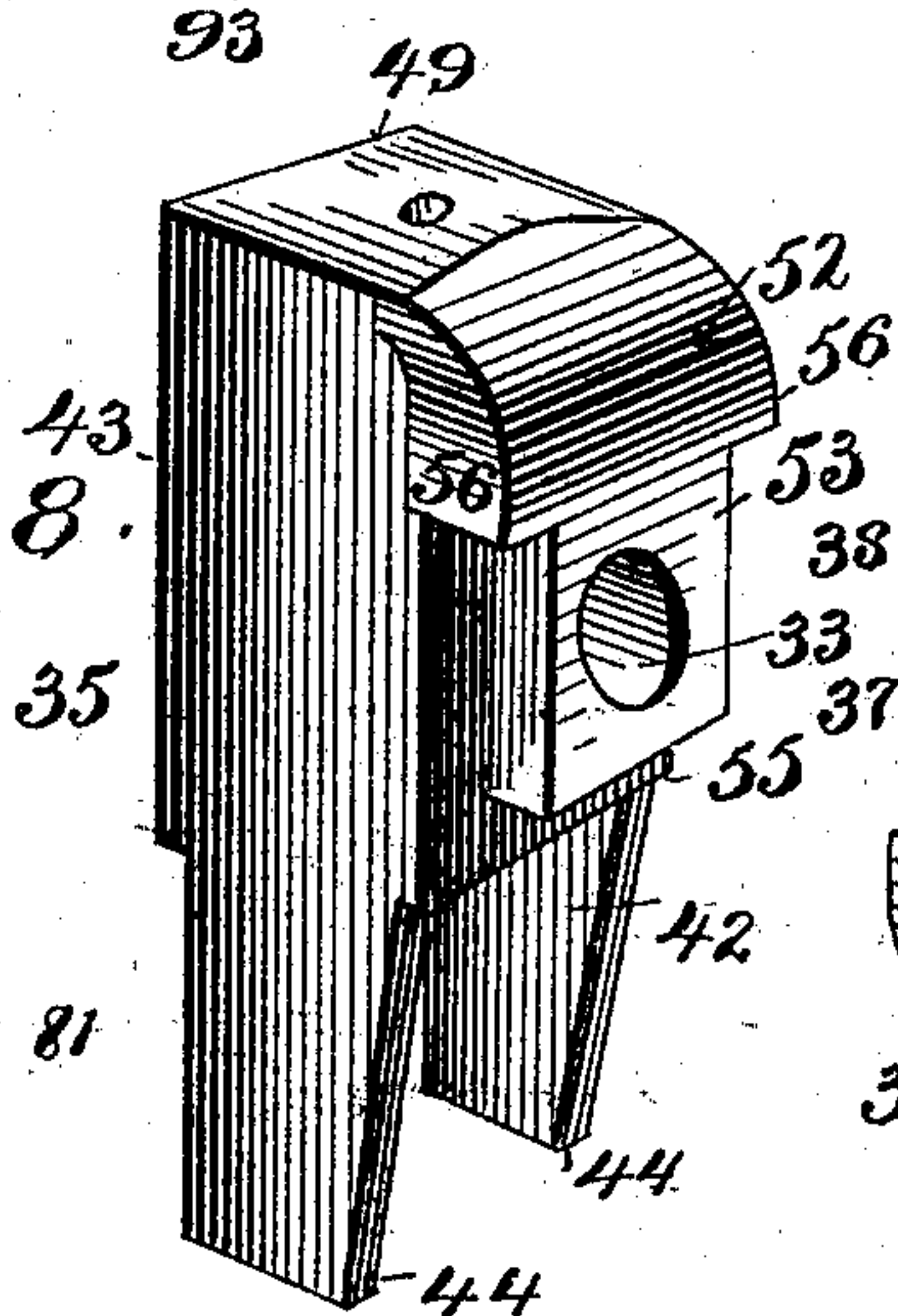


Fig. 2.



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Fig. 8.



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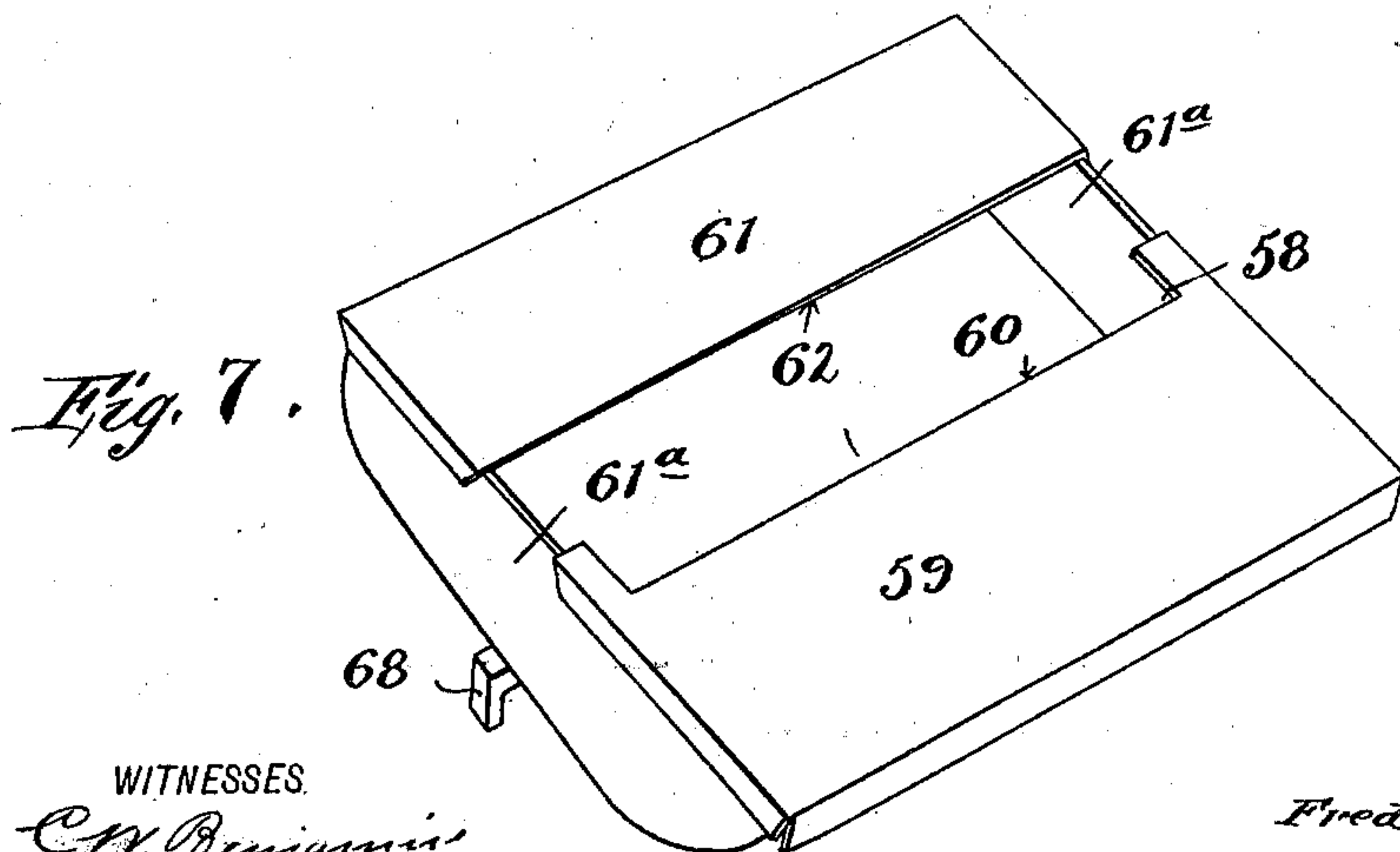
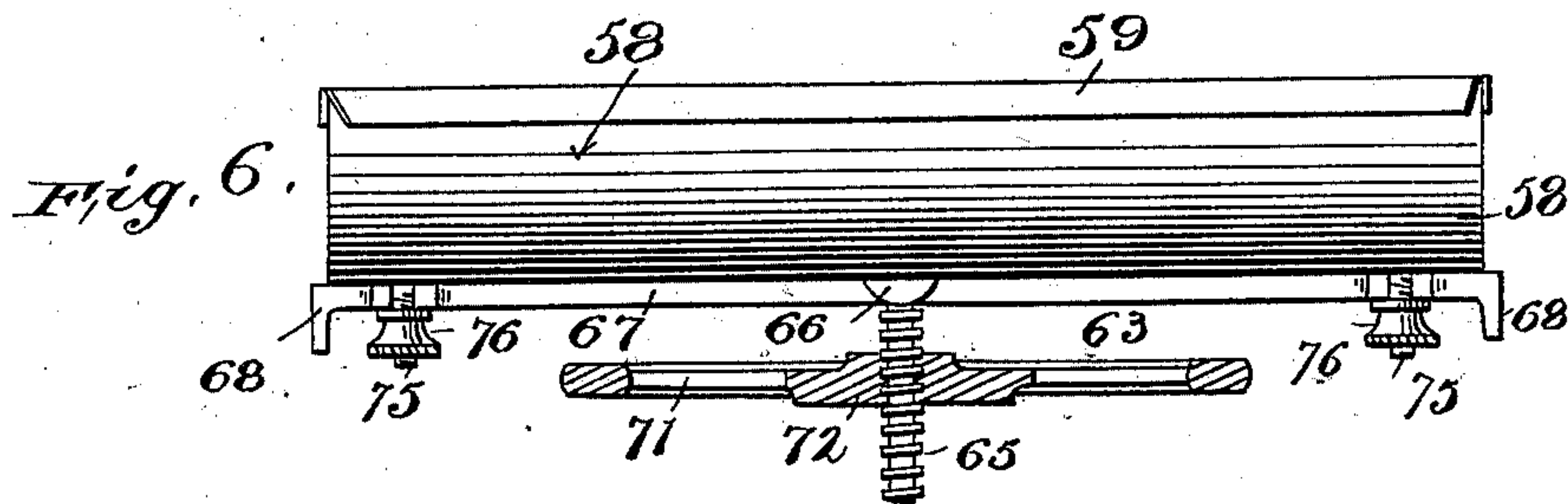
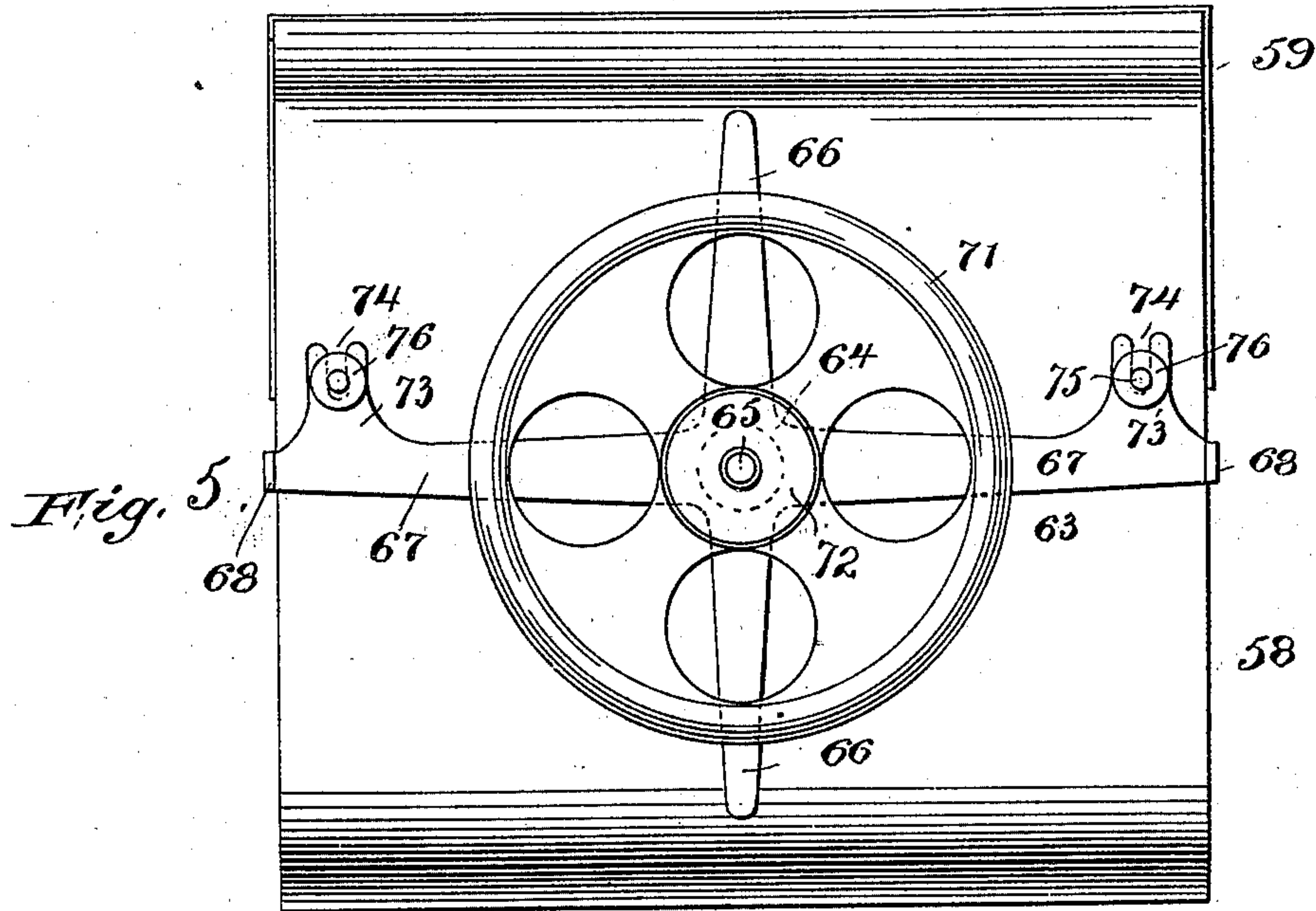
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(Application filed May 10, 1900.)

(No Model.)

3 Sheets—Sheet 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

FREDERICK W. NURENBERG, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE FAIRBANKS COMPANY, OF NEW YORK, N. Y.

COPYING-PRESS.

SPECIFICATION forming part of Letters Patent No. 671,070, dated April 2, 1901.

Application filed May 10, 1900. Serial No. 16,172. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. NURENBERG, a citizen of the United States, residing at the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Copying-Presses, of which the following is a specification.

My invention has for its object the improvement and simplification of devices employed for letter-press copying and the like and the material reduction in the cost and maintenance thereof.

In letter-press copying devices of the advanced type wringers or rotary rollers comprising wringing devices are employed whereby copying-pads may be compressed to deprive them of superfluous moisture. These wringing devices have been used in two ways, known in the art to which this invention relates as that of the "old style" and that of the "new style." In the old-style presses having wringing devices there is provided a pan adapted to contain water, the pan being so located relatively to the lower roller of the wringer that it will carry the water from the pan onto the pad as the latter is being passed through the wringers, simultaneously moistening the pad and pressing out the superfluous moisture therefrom. In this class of devices in order to free the water-pan from the frame of the machine for replenishment, cleansing, or for any other purpose or to introduce the pan under the rollers so that the lowermost roller will lie below the water-level the rollers were mounted in a swinging frame, which was adapted to permit the lowermost roller to be swung upwardly clear of the top of the pan, so as to allow the pan being moved out or in, as occasion demanded, by sliding it on a horizontal plane transversely of the frame, and when the pan was in position it was locked and the lower roller swung to its position within the pan. The class of copying-presses denominated "new style" have the general characteristics of the above, except that the pan is not so located in the frame of the press that the lower roller will lie below the water-level, but is removed therefrom, so as to allow the rollers to act merely as wringers and not as water-feeders.

In using these latter devices the copying-pads are kept in the water in the pan for a considerable length of time, and when sufficiently impregnated they are removed from the pan and passed through the rollers, then acting as wringers, thus relieving the pads of superfluous moisture, the pads then being placed in a suitable receptacle and stored away for ready use. Each of these classes of presses is desirable for use under certain conditions, and it is not usual that the conditions are such as to require that both classes of machines be used in the same place—that is to say, where a large amount of copying is to be done it has been found expedient to employ the new style, with which a large number of pads can be soaked and wrung out and stored away ready for use, while under other conditions, where a comparatively small amount of copying is to be done, it is found sufficient to wet and wring the pads at the same time—namely, in accordance with the old style. Copying-presses are therefore made where wringing attachments are provided either in the new style or old style forms, being both separate and distinct machines.

The copying-press made in accordance with my invention embodies means whereby it can be transformed at once without alteration of the parts from the new style into the old style, or vice versa, in a simple and expeditious manner.

Another important consideration in the construction of devices of this kind is their adaptability to ready repair, it very often occurring that parts of these machines become broken in use and necessitate repairing of the parts. My improved press is organized for the purpose of permitting ready repair in all of its parts, and more particularly the wringing portion thereof, wherein the rollers, the supporting-shafts, journal box or bearings, tension devices, and operating-handle are made bodily detachable from or attachable to the frame of the machine without disturbing any of these parts.

In order to provide for the expeditious change from old and new style machine, means are provided whereby the water-pan may be superposed over the press portion of the

apparatus, also means whereby the pan may be expeditiously raised or lowered to or from the wringer-rolls, and, further, means for allowing the ready attachment or detachment of the pan to or from the said raising or lowering means.

My invention further relates to the support of the rollers in the bearing-blocks and the means for connecting the same to the frame of the machine; further, to the tension devices for the rollers and to the general construction of the frame of the machine, in which the uprights for supporting the wringer and pan, the arch, and the legs are all made integral; further, to a stripping device for the copying-pads, which latter are carried by and adjustable coincidently with the lowermost or adjustable roller of the wringer, so as to at all times bear the proper relationship to the bight between the rollers, enabling the pad to be properly stripped for the rollers.

My invention therefore resides in the construction and combination of parts hereinafter described, and further pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a copying-press embodying my improvements, the pan being arranged to constitute a new-style press. Fig. 2 is a sectional elevation on the line A A, Fig. 1, looking in the direction of the arrow. Fig. 3 is a sectional elevation longitudinally on the line $x x$, Fig. 4, and enlarged, showing the upper portion of one of the main-frame arms, the bearing-block, roller-yoke, tension device, and a portion of the wringers. Fig. 4 is a transverse sectional elevation of the same substantially on the line $z z$, Fig. 3. Fig. 5 is an inverted plan view of the bottom of the pan, its supporting-spider, and operating-wheel. Fig. 6 is a side elevation of the same, partly in section. Fig. 7 is a perspective view of the pan. Fig. 8 is an enlarged perspective elevation of one of the bearing-blocks. Fig. 9 is a like view of one of the roller-yokes, and Fig. 10 is a side elevation of the upper portion of one of the main-frame arms.

Similar numerals of reference indicate corresponding parts throughout the several views.

The frame of the machine is constructed as follows:

1 is the arch or cross-piece, having a central enlargement or boss 2, as indicated in cross-section, Fig. 2, so as to provide great strength to resist vertical strain, which arch is formed integrally with the uprights 3, and an interior or vertical rib 4, forming a guide for the platen 5, which rib merges into a gradually-deepening rib 6, flowing into the boss 2. The top of the arch is flat, as at 7, and of equal thickness with the uprights 3 at the transverse center, as shown in Fig. 2.

At 8 are the arms of the wringer-frame, extending upwardly from the arch 1, preferably within the line of the uprights 3, which

arms are provided with square recesses 9 between the extensions 10 at the upper ends to receive the bearing-blocks and which are formed with grooves 11 (see Fig. 2) in their inner faces to form guides for the projecting arms of the pan-spider, hereinafter to be described. A strengthening-web 12 connects the uprights, arch, and arms 8.

The boss 2 of the arch is provided with a bore 12, the lower section 13 of which is interiorly threaded to receive the thread of the double-acting screw-spindle 14, having the two screws 15 16 working in opposite directions, right and left hand, its intermediate portions 14 passing through the hub 17 of the hand-wheel 18, the latter being secured to the spindle by the pin 19 passing diagonally therethrough, as indicated in Fig. 2, the lower thread 16 of the spindle engaging the bored and threaded boss 20 of the platen 5, which latter has the bifurcated lugs 21 embracing the rib 4 on the uprights 3, whereby the platen is guided in its movements up and down when operated by the hand-wheel and spindle.

At 22 is the base to which the uprights are secured by bolts 23, (indicated in dotted lines in Fig. 1,) the base 22 comprising the crown 24, the side walls 25, and the front opening 26 for the reception of the pad-tray hereinafter described, the side walls being partly vertical and partly inclined.

To strengthen the crown of the base, it is provided with ribs 27 28, formed integrally therewith and extending transversely and longitudinally and across each other, as indicated in Fig. 2.

At 29 30 are the pressure-rollers, mounted upon shafts 31 32, the upper roller 29 and its shaft being mounted in fixed bearings 33 34 in a bearing-block 35, the lower roller and its shaft 32 being mounted in a bearing, forming a cross-head 36 of a yoke 37, having the side pieces 38 and top cross-bar 39, the side pieces forming a slot 40, through which the shaft 31 of the upper roller passes, the yoke and its hereinafter-described adjuncts forming means for adjusting the tension of the rollers in respect to each other, and which yoke, although movable within the recess 41, formed in the bearing-block 35, is portable with it. The yoke at the cross-head 36 is solid and engages the side pieces 42 43 of the block. The inner wall of the bearing is slotted (44) or open at the lower portion to allow of the cross-head of the yoke to extend therethrough, Fig. 3, and above the slotted openings of the blocks the inner and outer walls 45 46 are provided with the apertures 33 34, through which the shaft 31 passes and which provide bearings for said shaft.

At 47 is a plate or follower extending between the side pieces 38 of the yoke and squared so as to prevent its rotation, the follower having the threaded portion of the stem 48 of a screw passing therethrough, the stem also passing through the cross-bar 39 and

through an aperture in the top plate 49 of the bearing-block, the head 50 of the screw resting upon the top plate of the block.

Between the follower and the cross-bar of the yoke extends a spring 51, which also surrounds the stem 48 of the adjunctive screw.

Through the medium of the foregoing instrumentalities a housing is provided for the ends of the shafts and for the yoke which carries the lower roll, the movement of the lower roll up and down is guided, the separation of the rolls is resiliently opposed, and the adjustment of the tension of the rollers through the adjusting-screw, which adjusting means is separable from each end of the roll and each independently of the other, except as the two may be connected by the roller itself, and such adjusting means is retained within the housing, so as to prevent its being interfered with.

By means of the foregoing constructions both rollers, with their bearings, are maintained together as a unit, by reason of which the rolls and the bearings can be readily unshipped from the frame for repair or replacement or separation from each other without dismembering the bearings or the rolls, and the same unit can be expeditiously attached to the frame and set in position. To provide for this latter feature, the face 46 of the bearing-block is provided with an outwardly-extending lug 52, from which depends an outwardly-extending squared boss 53, of less diameter than the shoulder, the aperture 33, forming the bearing for the end of the shaft 31 in the outer portion of the block, extending through this boss. The upper ends of the side arms 8 are bifurcated, as shown in Fig. 10, forming the slot 9, in which the squared boss 53 is received, as indicated in Fig. 3, the extensions 10 bearing against the sides of the boss and the lower portion of the boss resting upon the solid portion 54 of the side arms, as indicated in Fig. 3, the outer wall 46 of the bearing-block having a depending flange 55 extending below the bottom of the slot and bearing against the inside of the arm, the shoulders 56 of the lug resting on the top of the extensions, and interlocking union of the blocks and arms is provided, the bearing-blocks firmly seated, and movement downwardly longitudinally or transversely prevented. A screw 57, Figs. 2 and 4, passing through the inner extension 10, firmly secures the bearing in position.

Another valuable feature secured by this construction is that by reason of the fact that the bearing-blocks are made separate from each other—that is, unconnected above the rollers—the space above the roller is left free and clear.

In prior constructions where the frame is connected by a bar lying above the rollers the copying-pads in passing through the rollers would very often strike the rear of the cross-bar and curl up, and very often when the operator reached over to secure the end

of the pad the top cross-bar of the frame would interfere materially with this manipulation. In the use of the present improvements the copying-pad curls naturally over the top roller toward the operator and will thereby be fed directly into his hands or upon the top of the pan, hereinafter to be described.

Instead of making the water-pan 58, which is provided with a two-part cover, the front 59, having a recess 60 in its inner edge and which is detachable, the rear parts 61 being fixed to the sides 61^a of the pan, leaving a central opening 62 for the passage of the lower roller into the water-space of the pan, slidable transversely in relation to the rollers, I have provided means for raising or lowering the pan to or from the rollers, thereby avoiding the complicated structure involved in the means for pivotally swinging the rollers transversely, my improvements permitting of the pan being raised to bring the lower roller below the water-level or the water-level removed therefrom, so that the roller may be used alternately for either old or new style copying, as previously described, without change in the apparatus—that is, either as a wringer alone or as a combined moistener and wringer. The construction is as follows: At 63 is a frame or spider (shown in plan in Fig. 5) having a central hub 64, which fixedly receives the upper end of the screw-rod 65, from which hub radiate the lateral supporting-arms 66, and from which hub also extend the longitudinal arms 67, coextensive with the distance between the side arms 8 of the main frame, the longitudinal arms 67 having pendant lugs 68, which engage the grooves 11 in side arms, as indicated in Fig. 1, to form guides for the up-and-down movements of the spider and pan and restraining horizontal vibration. The lower end of the screw-rod 65 is guided in a thimble 69, fixed in the bore 12 of the arch-boss 2, the thimble being wholly or partly provided with an internal bore 70 to allow of the latter's free movement up and down. At 71 is a hand-wheel provided with an enlarged hub 72, resting on the arch-boss, Fig. 2, and through which the screw-rod passes. It will be clear that as the hand-wheel is rotated in either direction, so the spider will be moved upwardly or downwardly between the side arms 8 of frame. The longitudinal arms of the spider are provided with bosses 73, having open-ended slots 74, and extending from the bottom of the pan are threaded studs 75, which pass through the slots of the bosses. Nuts 76, movable upon the studs and bearing against the lugs, firmly secure the pan to the spider, permitting it to be readily attached or detached and causing it to be coincidentally movable with the spider. To attach or detach the pan to the spider, the latter is lowered so as to leave sufficient clearance below the lower roller for the insertion or removal of the pan, when the latter may either be attached or detached by loosening the nuts and passing the studs through the

slots in the lugs. The sides 42 43 of the bearing-blocks are cut away to provide a clearance for the sides 61 of the pan when raised, Fig. 2, as shown at 77, Fig. 1.

5 In previous devices of this class means have been provided for "stripping" (as it is called) the pad from the rollers, so as to prevent the pad from following the rollers around and becoming curled upon it. In said prior constructions the stripper has been secured to the pan
10 or to some other part of the device entirely independent of either of the rollers, which has resulted in complicating the device and rendering its use more difficult and uncertain.
15 My improvements contemplate carrying the stripper by a part coincidently movable perpendicularly with the lower roller, so that at all periods of adjustment of said roller the stripper will maintain its operative relationship thereto. To this end I have provided
20 the arms 78, which are cast integrally with or otherwise secured to the cross-head 36, one end of which is formed with an apertured eye 79, through which passes the lower shaft
25 32 and which lies close to the face of the cross-head of the yoke 37, the outer end 80 of the arm extending beyond the sides of the yoke and through a recess 81, cut in the sides 42 of the block and provided with an offset 82, in
30 which is a screw-hole 83, as shown in Fig. 9, upon which the central flat portion 84 of the stripper is secured by the screw 85, passing through it into the hole 83, the portion 84 being cut away at the ends to allow of its being
35 located at the side of the block-bearing, Fig. 4, the stripper-plate having an inwardly-extending edge 86, Fig. 2, located over and in close proximity to the periphery of the lower roll 30 and within the bight of both rollers,
40 the outer portion of the stripper being extended upwardly at 87 to form a guide-plate for the copying-pad, at its exit from the roll, so as to direct its movement upwardly and over the top roll. As the stripper-plate is
45 maintained in a fixed relation to the lower adjustable roller, its coöperative relationship with the roller during all of its periods of adjustment is positively maintained.

At 88 is the pad-drawer, preferably formed
50 with bottom, sides, and ends of metal and a front bar 89 of wood covered with sheet metal 90 for finishing, between which and the front piece 91 is inserted a plate 92, thereby making a light and strong drawer, the bar 89
55 strengthening the thin front. The pan rests on a shelf 93, having a rear stop-piece 94, secured within the recess 95 in the base of the frame. The bar 89 has a pull 96.

I claim—

60 1. In a copying-press, the combination with the main frame, of rollers mounted in series in said frame, a supplemental frame vertically adjustable in the main frame below the rollers, and a pan carried by and laterally detachable from said supplemental frame, substantially as described.
65

2. In a copying-press the combination with

the main frame, of rollers mounted in series in said frame, a supplemental frame having parts engaging the main frame for guidance, 70 and a pan carried by and laterally detachable from said supplemental frame, and means for raising or lowering said supplemental frame, substantially as described.

3. In a copying-press, the combination with 75 the main frame having a cross-bar or arch, of rollers mounted in series in said frame, a supplemental frame guided by the main frame; a pan carried by said supplemental frame, the hand-wheel resting on said arch which latter 80 has a vertical aperture, and a screw-rod extending from said supplemental frame through the threaded hub of said wheel into said aperture, substantially as described.

4. In a copying-press, the combination with 85 the frame having an intermediate arch or cross-bar, of rollers mounted in vertical series in bearings in said frame above the cross-bar; a pan adjustable perpendicularly in relation to said rollers and means extending between 90 the pan and cross-bar for raising or lowering it, the parts being so correlated that the lower roller may be substantially inclosed in the pan, or the top of the pan brought below the plane of the lower roller, substantially as described. 95

5. In a copying-press, the combination with the frame having a cross-bar, a pair of rollers mounted in bearings in said frame above the cross-bar, a pan movable up and down in relation to said rollers, a supplemental frame 100 guided by said frame above the cross-bar and supporting the pan, and means for raising or lowering the pan extending between the supplemental frame and cross-bar, substantially as described. 105

6. The combination with the frame having a pair of rollers in vertical series mounted in bearings in said frame, a pan of considerable width relatively to the frame having a cover 110 and a longitudinal opening in said cover, and means for raising or lowering said pan relatively to the lower roller to cause it to extend into the pan through said opening, and to bring the cover substantially at or near the 115 bight of said rollers, substantially as described.

7. The combination with the main frame having the paired rollers mounted in bearings in said frame, a supplemental frame movable 120 up and down below the rollers in guides formed in the main frame, and a pan secured to said supplemental frame below the roller, and means independent of said guides for moving the supplemental frame, substantially as described. 125

8. The combination with the rollers mounted in bearings in the main frame, a supplemental frame movable in guides below said rollers, and a pan detachably supported upon 130 said supplemental frame below the rollers, substantially as described.

9. The combination with the arch portion of the main frame, arms extending upwardly

from the main frame, the paired rollers extending between the said arms above the arch, a pan located between the rollers and the arch and guided vertically by said arms, 5 and means perpendicularly movable relatively to the arms, for raising or lowering said pan to or from the roller, substantially as described.

10. The combination with the frame, the 10 paired rollers, the supplemental frame below the rollers, means for raising and lowering and guiding said supplemental frame relatively to the rollers, and a pan detachably secured to said supplemental frame below the 15 rollers, substantially as described.

11. The combination with the main frame, arms extending upwardly from the main frame, bearing-blocks stationarily fixed to and extending inwardly from said arms, said 20 block having downwardly-extending projections offset from the arms so as to leave clearance between the arms and said projections, a supplemental frame guided in said arms, a pan detachably supported on said supple- 25 mental frame and having a longitudinal opening in its top, and means for raising and lowering said pan, the clearance permitting the sides of the pan to be moved laterally or perpendicularly between the offset and the arms, 30 substantially as described.

12. The combination with the main frame, of the spider having the longitudinal arms, the frame-arms extending upwardly from the main frame and provided with grooves in 35 which the spider-arms move, a pan secured upon said spider, a threaded stem secured to the spider movable in the main frame, and a hand-wheel engaging the stem and bearing on the main frame through which said stem 40 passes, substantially as described.

13. The combination with the grooved frame-arms, the spider having longitudinal arms provided with lugs located within said grooves, a pan secured upon said spider, and 45 means for raising and lowering the spider, substantially as described.

14. The combination with the frame, of the spider having the longitudinal arms and the lateral arms, a pan over the spider; and means 50 for detachably securing the pan to the longitudinal arms, substantially as described.

15. The combination with the frame, of the spider provided with longitudinal arms, of the slotted lugs on the spider, the pan seated 55 upon the spider, and threaded stems extending from the pan through slots in said lugs, and a nut upon said stem adapted to bear against the lugs, substantially as described.

16. The combination with the frame-arms, 60 and the spider guided in grooves in said arms, the arch-boss, the thimble having a bore, the threaded rod extending between the spider and the boss and into the thimble, and a hand-wheel bearing on said boss through the threaded bore of which the rod extends, substan- 65 tially as described.

17. In a copying-press, the combination

with the frame-arms, paired rollers, the bearing-blocks detachably secured to the frame-arms, the upper roller being mounted in sta- 70 tionary bearings in said blocks, the lower roller being mounted in bearings guided by a yoke perpendicularly movable in said bearing-blocks, substantially as described.

18. The combination with the paired rollers, 75 of the frame-arms, the hollow bearing-blocks detachably secured to said arms, the shaft of the upper roller being mounted in bearings formed in the solid portion of said blocks, which bearing is independent of any bearing 80 connection with the said arms, the slotted yoke having a lower bearing carrying the shaft of the lower roller and movable between the sides of the block, and means for raising and lowering the yoke in said blocks, substan- 85 tially as described.

19. In a copying-press, the combination with a frame, of the paired rollers having independent shafts, blocks supporting the ends of said shafts and providing bearings there- 90 for, and means for detachably yet rigidly securing the blocks to the frame, said bearings being independent of any bearing connection with the said frame.

20. In a copying-press, the combination 95 with a frame, of the paired rollers having independent shafts, blocks supporting the ends of said shafts and providing bearings therefor, the frame having recesses and the blocks projections forming interlocking means for 100 affixing the blocks to said arms, and further means for detachably securing the blocks in the frame, said bearings being independent of any bearing connection with said frame.

21. The combination with the frame-arms 105 of the bearing-blocks secured to said arms, the upper roller rotatably mounted in stationary bearings in said blocks, the yoke, the lower roller, and a resilient device contained in said blocks for supporting the said yoke 110 and lower roller in said block, substantially as described.

22. The combination with the yokes each having a vertical slot and a cross-head, a roller rotatably mounted in the cross-head, 115 the bearing-blocks each having side walls forming guides for the cross-head within the block, the upper roller having a shaft extending through the slot of the yoke, and having bearings in the block, an adjustable support 120 for the yoke contained within the block, and a resilient element interposed between the said support and yoke, substantially as described.

23. The combination with the block having 125 the internal guideway, the slotted yoke having a cross-head movable in the guideway, the upper roller having its shaft passing through the slot and into the block, a follower movable within the slot of the yoke, a spring 130 interposed between the follower and the cross-bar of the yoke, and a bolt having an enlarged head resting on the block passing through the top bar of the yoke and adjust-

ably engaging the follower, and the lower roller having a shaft mounted in said cross-head, substantially as described.

24. The combination with the paired rollers, and means for adjusting the tension of one in relation to the other, and the separate bearing-blocks constructed to form housings for said means and bearings for the shafts of said rollers, substantially as described.

25. The combination with the frame-arm, having the projections and intermediate slot, of the bearing-block having the front wall, the squared boss, and the shouldered lug forming an interlocking connection for the said block with the frame-arm, and means for securing the block within the slot, substantially as described.

26. The combination of the paired rollers, one of which is adjustable relatively to the other, and a stripper-plate carried by and coincidently movable with the adjustable roller, substantially as described.

27. The combination of the paired rollers, one of which is mounted in stationary bearings, the other being adjustable relative to the stationary roller, and a stripper-plate adjustable relatively to the stationary roller and movable coincidently with the adjustable roller, substantially as described.

28. The combination with the bearing-blocks, the upper roller mounted in bearings in the bearing-block, the lower roller, the shaft for the same, the yoke supporting said shaft from the blocks, the arms extending outwardly from said yoke, and the stripper-plate secured to said arms.

29. The combination with the bearing-blocks, having the inner slot, and side walls pendent below said slot, the yoke having a cross-head, the roller upon the shaft, the arms extending outwardly from the cross-head through the slot, and a stripper-plate secured upon said arms, substantially as described.

30. The combination with the main frame, the arms extending therefrom, the roller having the shaft supported by the arms, the roller, the stripper-plate supported by said shaft and having a projecting tongue located in close proximity to said roller, and an upwardly-extending projection, substantially as described.

Signed in the city, county, and State of New York this 29th day of April, 1900.

FREDERICK W. NURENBERG.

Witnesses:

CHARLES G. HENSLEY,

C. W. BENJAMIN.