

No. 713,247.

Patented Nov. 11, 1902.

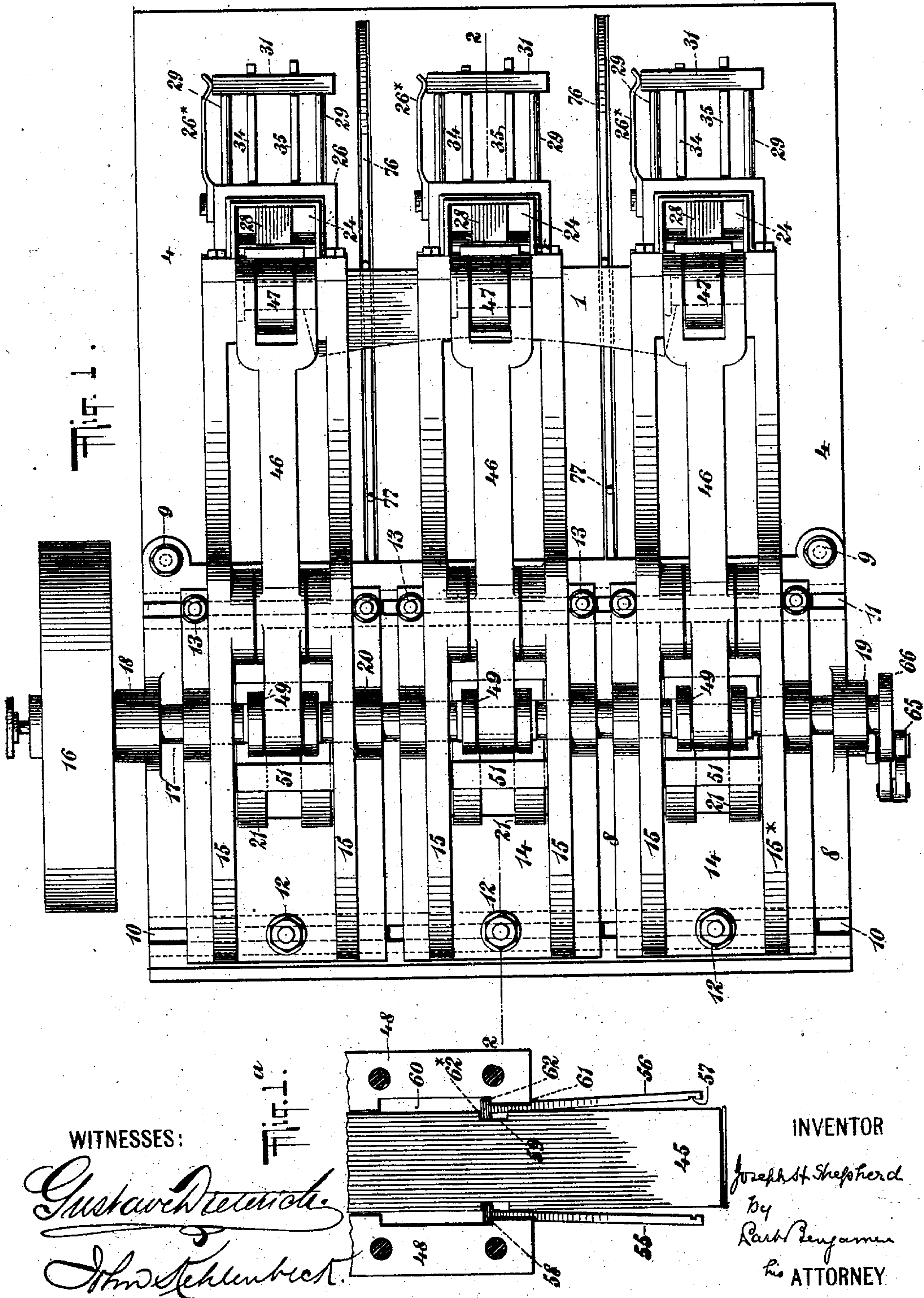
J. H. SHEPHERD.

MACHINE FOR REINFORCING COLLARS, &c.

(Application filed Dec. 30, 1901.)

(No Model.)

5 Sheets—Sheet 1.



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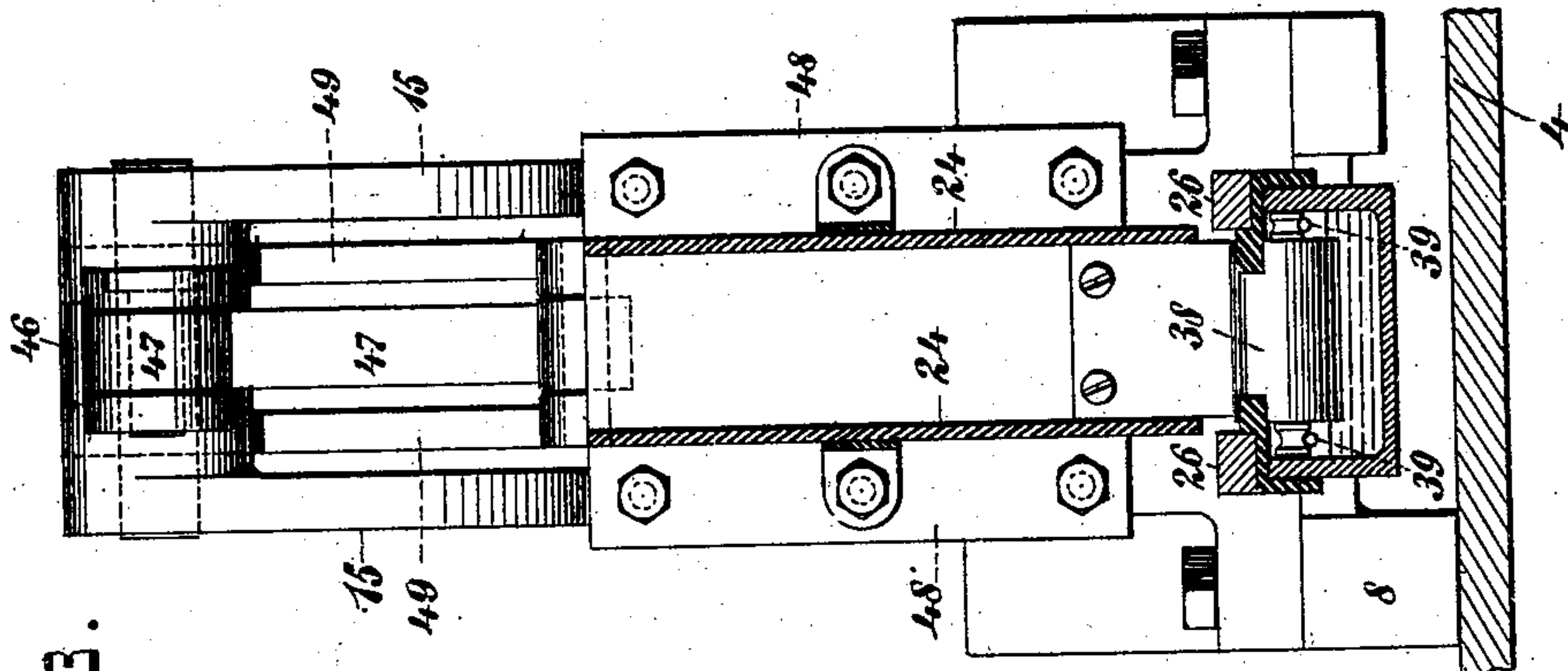


Fig. 3.

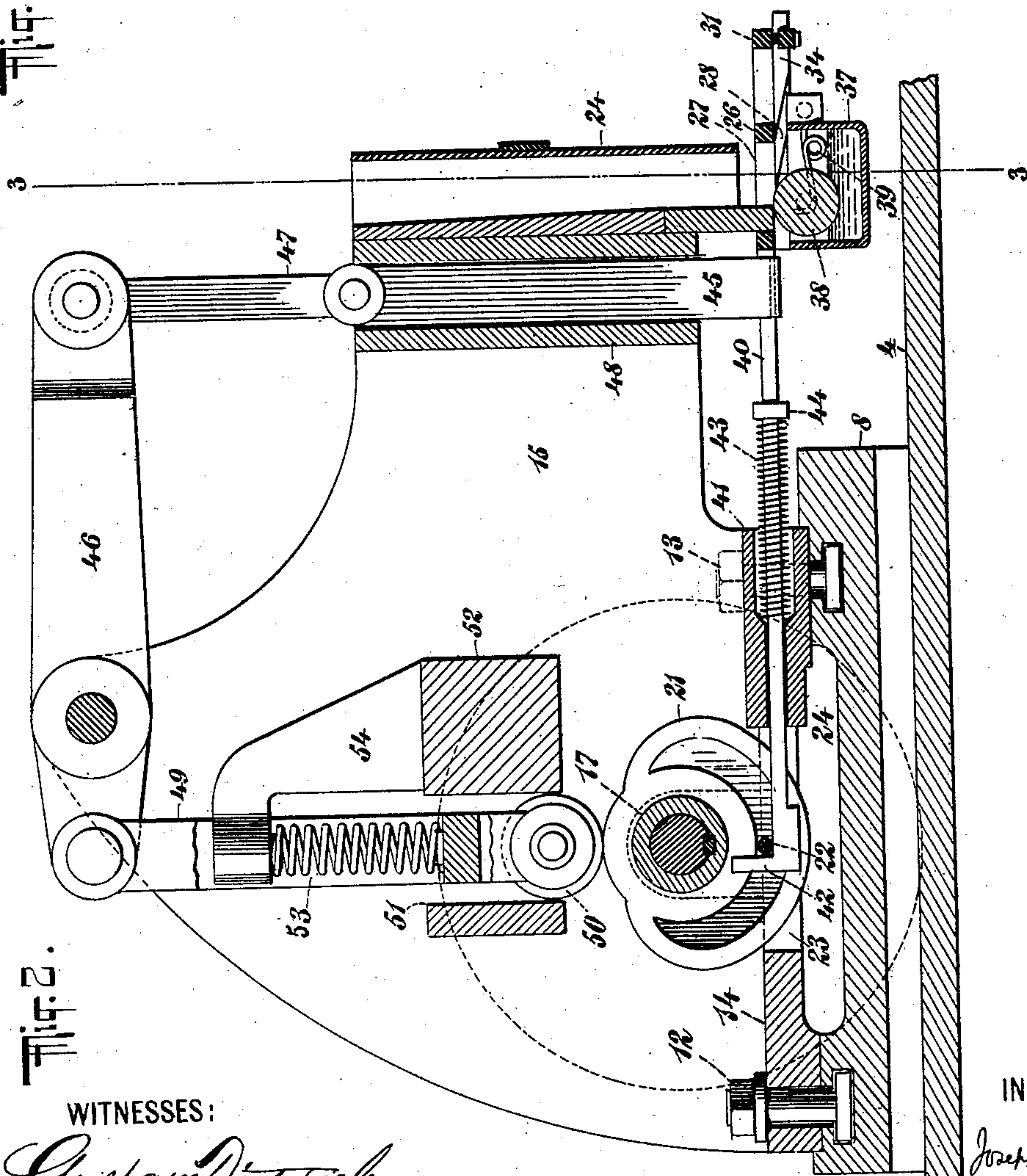


Fig. 2.

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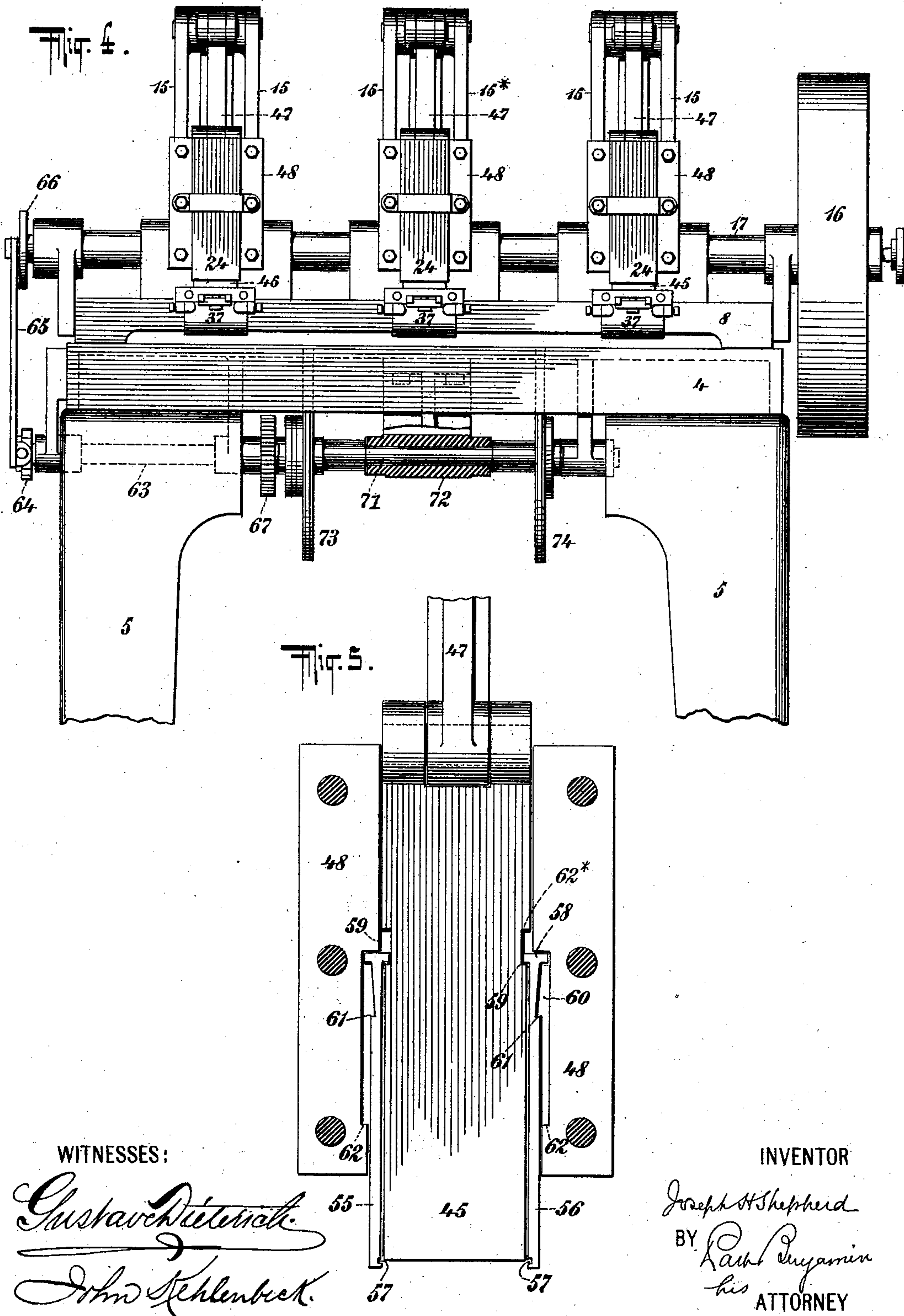
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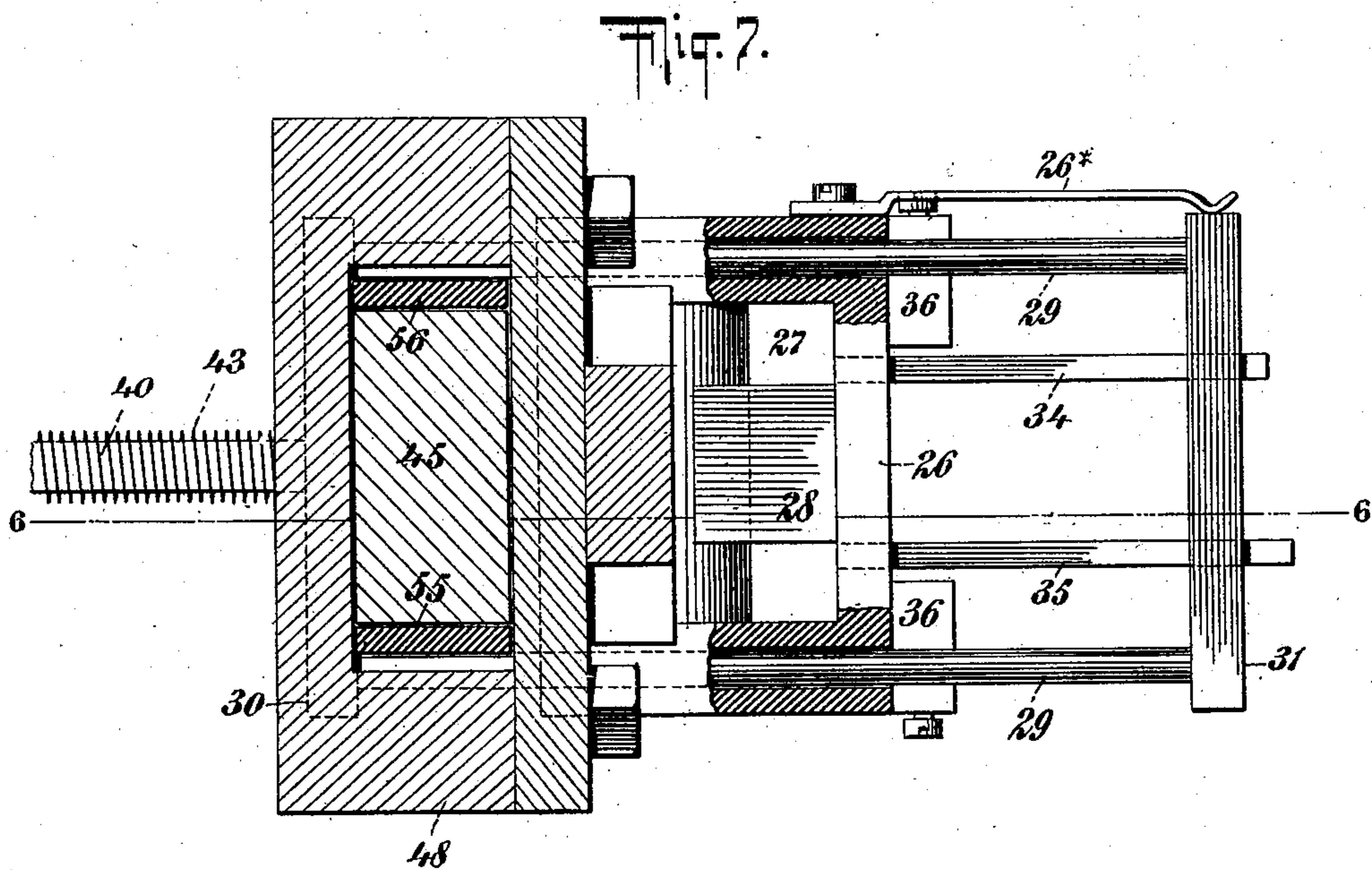
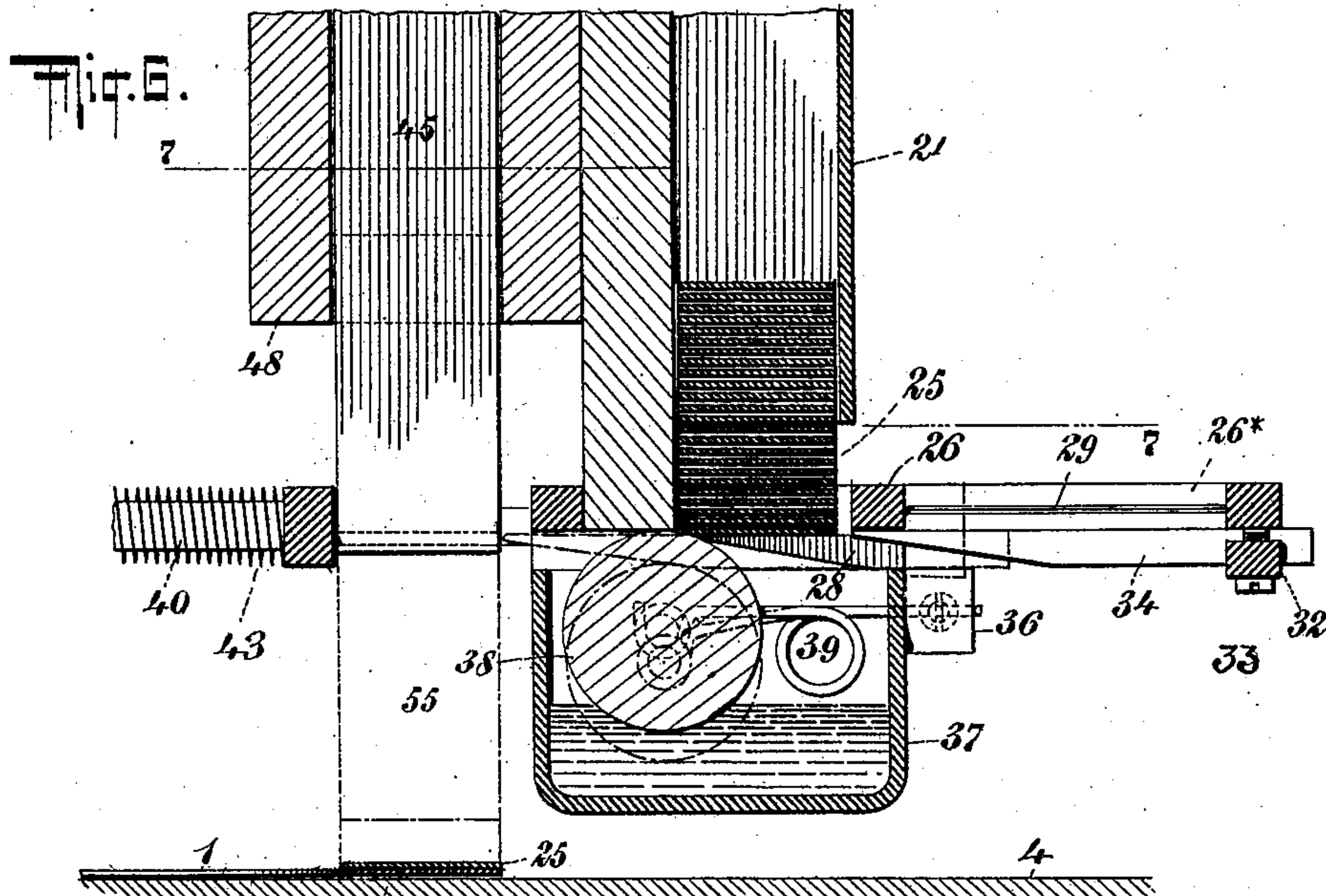
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5 Sheets—Sheet 4.



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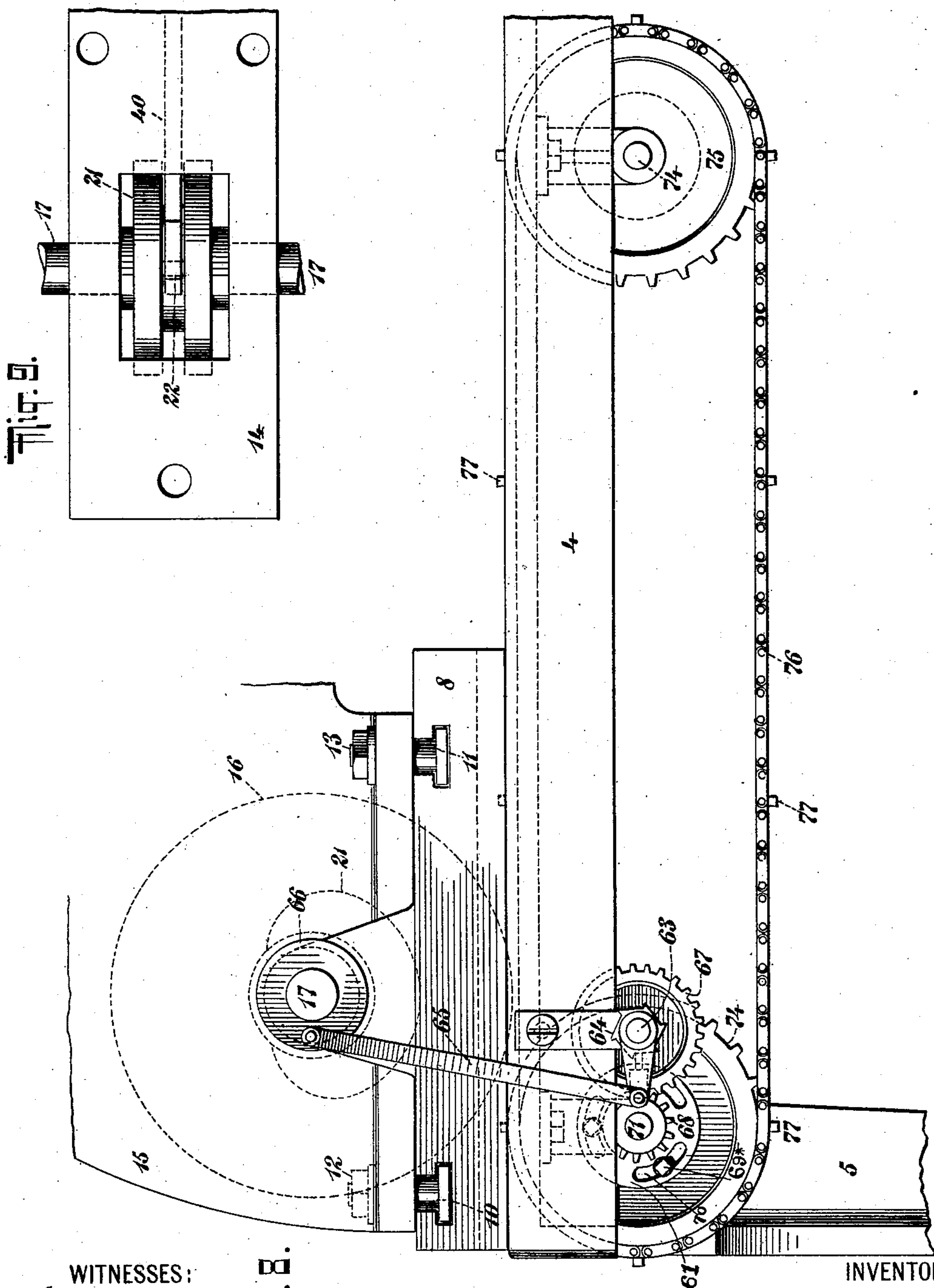
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5 Sheets—Sheet 5.



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UNITED STATES PATENT OFFICE.

JOSEPH HEWES SHEPHERD, OF DOVER, NEW JERSEY.

MACHINE FOR REINFORCING COLLARS, &c.

SPECIFICATION forming part of Letters Patent No. 713,247, dated November 11, 1902.

Application filed December 30, 1901. Serial No. 87,760. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HEWES SHEPHERD, of Dover, Morris county, New Jersey, have invented a new and useful Improvement in Patching-Machines, of which the following is a specification.

The object of the invention is to apply patches to reinforce the buttonholes of collars, cuffs, and similar articles such as are usually made from celluloid.

The invention consists in the various combinations and instrumentalities pointed out hereinafter in the claims and embodied in the machine hereinafter described.

In the accompanying drawings, Figure 1 is a plan view of the machine. Fig. 2 is a vertical section on the line 2 2 of Fig. 1. Fig. 3 is a vertical section on the line 3 3 of Fig. 2. Fig. 4 is a front end elevation of the machine. Fig. 5 shows the ram for applying the patches, also the means for holding the patch to the working face of the ram. Fig. 1^a shows the same, the ram being in its lowermost position when the patch becomes released. Fig. 6 is an enlarged detail section on the line 6 6 of Fig. 7. Fig. 7 is a horizontal section on the line 7 7 of Fig. 6. Fig. 8 is a side elevation showing the table and feed mechanism beneath it. Fig. 9 is a view of the support 8, taken from beneath and showing the cam 21.

Similar numbers of reference indicate like parts.

The machine as herein illustrated is arranged to apply three patches simultaneously to a collar, (represented flat at 1, Fig. 1,) and hence has the pasting and pressing devices in triplicate. The table 4 is on legs 5. Upon it is the support 8, secured by bolts 9, Fig. 1. On the upper surface of said support are transverse locking grooves or channels 10 11, which receive the enlarged lower portions of the front bolts 12 and rear bolts 13. Said bolts pass through the base-plate 14, which carries a pair of standards 15. By loosening said bolts 12 and 13 each pair of standards may be moved transversely in the support 8, and in this way may be adjusted with reference to the adjacent pair or pairs in order to dispose the pressing devices so that they may affix the patches upon the work at the desired points.

The main shaft 17, carrying the driving-

pulley 16, passes through bearings 18 and 19 on the support 8 and 20 on standards 15. Between each pair of standards said shaft carries a double cam 21, between the parallel parts of which extends a pin 22. (See Fig. 7.) This cam, as shown in Fig. 2, extends into an opening 23 in the base-plate 14 and into a recess 24 in the upper side of support 8. It serves two functions—namely, to actuate the device for moving a pasted patch into position to be acted upon by the pressing device and to actuate said pressing device so as to carry and press that patch down upon the collar 1 when fed into position to receive it.

The patches to be affixed are placed one above the other in the hopper 24 on the front side of the machine, Fig. 6. The lower portion of the front wall of said hopper is open. At 26 is a fixed frame, having an opening 27 directly beneath the hopper, provided with a shelf 28, which supports the pile of patches in the hopper. The area of a patch and of the opening 27 is larger than that of the shelf 28, so that the lowermost patch while resting on said shelf extends beyond it on each side. There is also a second but movable frame composed of the longitudinal cylindrical rods 29 and front and rear cross-bars 30 31, the said rods freely sliding in the longitudinal bars of the fixed frame 26. Secured to the under side of the rear cross-bar 31, by means of a clamping-bar 32 and set-screws 33, Fig. 6, are two fingers 34 and 35. These fingers are located on each side of the shelf 28. They are beveled to an edge on their forward under sides. This edge comes directly opposite the edge of the lowermost patch resting on the shelf 28, and as there are two fingers each finger meets the edge of the patch at the portions thereof which extend beyond the sides of shelf 28.

Secured to projections 36 on the under side of the fixed frame 26 is a well 37, adapted to contain liquid adhesive material in which is a roller 38, carried by spring-arms 39.

The movable frame has attached to its rear side a rod 40, which passes through a guide-way 41, Fig. 2, in the base-plate 14, and terminates in a lug 42, which extends between the parts of cam 21, so as to be engaged by pin 22. Said pin 22 is practically a crank-pin

on shaft 17. In the guideway 41 is a recess which receives the helical spring 43, which surrounds rod 40 and bears at one end against the bottom of said recess and at the other end against a fixed collar 44 on said rod.

It will now be apparent that when the shaft 17 rotates the pin 22 will engage with lug 42 and so draw rearwardly—or from right to left in Fig. 2—the rod 40 against the action of its retracting-spring 43. Rod 40 then moves the frame which carries the fingers 34 and 35 to cause the advancing front edge of said fingers to push the lowermost patch from shelf 28 over and in contact with pasting-roller 38, and to continue to push said patch rearwardly until it comes under ram 45, when it will be engaged by devices on said ram, as hereinafter described. As the fingers 34 and 35 thus move their lower inclined sides ride over the spring-supported pasting-roller 38 and push that roll downwardly into the paste, while at the same time rotating it. This secures a distribution of adhesive material upon the roller-surface. The position of the fingers, patch, and roll then becomes as represented by the dotted lines in Fig. 6. Secured to the frame 26 is a leaf-spring 26*, the curved end of which bears against the end of cross-bar 31, when the fingers are retracted, as shown in Fig. 7.

I will now describe the pressing device and the mechanism for operating it. Pivoted between each pair of standards, as 15 15*, is a lever 46, to one end of which is connected the link 47, which carries the ram 45. When said lever oscillates on its pivot, said ram is moved vertically in the fixed guides 48, formed between standards 15 15*. This motion is imparted to lever 46 by the rod 49, pivoted at its upper end to said lever and carrying at its lower end a roller 50, which bears against the circumference of cam 21. The rod 49 passes through a guideway 51 in a cross-bar 52, extending between standards 15 15*, and has a slot in which is a helical spring 53, one end of which bears against the bottom of said slot and the other end against a fixed arm 54, extending from said cross-bar 52 into said slot. By the rotation of cam 21 through the mechanism described the ram 45 is caused to reciprocate vertically, so as to bring the patch which is held on its lower face down upon the object to which it is to be applied. The spring 53 keeps the roller 50 in constant contact with the circumference of cam 21. In order to retain the patch upon the lower face of the ram and to detach it therefrom after it has been pressed by the ram upon the surface of the object placed to receive it, I provide the device illustrated in Figs. 5 and 1^a. On each side of the arm are plates 55 56, extending at their lower ends below the arm-face and having near said ends transverse grooves 57, into which the side edges of the patch pass when the patch is pushed rearwardly, as already described, by the fingers 34 and

35. Each plate has a flanged head 58, which projects laterally on each side. The flange on the inner side of said head engages in a notch 59 on the ram. The flange on the outer side of said head enters a long vertical recess 60 in the guideway 48. Just below the head 58 the plate is inwardly sloped to form a shoulder at 61. When the arm 45 is in its uppermost position, the plates 55 56 appear as shown in Fig. 5—that is to say, their lower parts are in position to retain the patch in the grooves 57. When the cam 45 descends, the plates also descend until the flanges on the outer sides of their heads 58 strike the shoulders 62 at the bottom of recess 60, while the flanges on the inner sides of said heads are met by the shoulders 62* at the upper part of notches 59. The shoulders 61 on the plates may thus pass under the inner lower edges of the guides 48, and the plates 55 56 so become spread apart, withdrawing the grooves 57 from the edges of the patch until now held in them, and so releasing said patch just before the ram completes its downward movement to press it against the object.

I will now describe the feeding device. Supported on the under side of the table is a short shaft 63, actuated by pawl-and-ratchet mechanism 64, which in turn is operated by pitman 65, connected to crank-disk 66 on main driving-shaft 17, Fig. 8. On shaft 63 is a pinion 67, which engages with pinion 68. Pinion 68 is fast on the slotted disk 69 of a coupling, the other disk 70 being fast on shaft 71. Disks 69 and 70 are connected by bolts 69*, passing through the slots in the slotted disk. Shaft 71 is supported in the hanger 72 and carries two sprocket-wheels 73 and 74. Under the table at the front side of the machine is supported a shaft 74, on which are two sprocket-wheels in line with wheels 73 and 74, one of said wheels being shown at 75, Fig. 8. Chain belts, as 76, pass over the sprocket-wheels and are provided with pins 77, which extend through and as the belts move traverse longitudinal slots in the table in direction from front to rear thereof.

The operation of the entire machine is as follows: The hopper 24 being full of patches and the driving-pulley 16 being set in rotation, the collar 1 to be patched is placed upon the table 4, so as to be engaged by the pins 77 on the belts 76 and so carried rearward by an intermittent motion due to the ratchet mechanism through which said belts are actuated. Meanwhile the rotation of cam 21 causes the fingers 34 and 35 to push a patch from the hopper, as already explained, over the pasting-roller 38, (whereby the under side of said patch becomes covered with adhesive material,) and finally into the grooves 57 of the plates 55 and 56, by which it is supported beneath the lower face of ram 45. Cam 21 now causes the descent of ram 45 to convey the patch to the collar at a time when said collar has come beneath said ram, and its

motion is momentarily stopped. Just before the ram comes to the collar the plates 55 and 56 open in the manner already explained to release the patch, which the ram now presses upon the upper surface of said collar, thus causing it firmly to adhere thereto. As soon as the ram begins to rise the collar continues its rearward movement and is carried by the pins 77 under the support 8 to the delivery or rear side of table 4.

Of course it will be understood that the three rams here shown act simultaneously to apply three patches to the three buttonholes of the collar.

I claim—

1. In a patching-machine, a ram, means for reciprocating said ram in a straight line, means for moving the object to which a patch is to be applied into the path of reciprocation of said ram, a receptacle for individual patches, a feeding mechanism for moving each patch successively in a desired direction from said receptacle and into the path of said ram, and for engaging and retaining each patch when moved as aforesaid upon the working face of said ram and means for releasing said patch from said working face.

2. In a patching-machine, a ram, means for reciprocating said ram in a straight line, means for moving the object to which a patch is to be applied into the path of reciprocation of said ram, a receptacle for individual patches, a feeding mechanism for moving each patch successively in a desired direction from said receptacle and into the path of said ram, means for engaging and retaining each patch when moved as aforesaid upon the working face of said ram, and means for automatically releasing said patch when said ram, in moving toward said object, shall have reached a certain predetermined point.

3. In a patching-machine, the combination of the reciprocating ram 45, a device on the working face of said ram for retaining a patch on said face, receptacle 24 for patches, support 28 for said patches beneath said receptacle, and the horizontally-moving fingers 34, 35 constructed and arranged to push the lowermost patch in said receptacle from said support 28 to and into said retaining device on said ram.

4. In a patching-machine, a horizontal support adapted to receive a patch, a spring-supported pasting-roller disposed in proximity to said support, a paste-receptacle and horizontally-moving fingers having their forward under surfaces inclined; the said fingers being constructed and operating, first, to move a patch edgewise from said support, over and in contact with said roller periphery and thereafter to depress said roller.

5. In a patching-machine, a horizontal support adapted to receive a patch, a well below said support for liquid adhesive material, a roller in said well, a spring-support for said roller, and a horizontally-moving finger hav-

ing an inclined under surface; the said finger being constructed and operating, first, to move said patch edgewise from said support over and in contact with said roller, and thereafter to depress said roller downwardly in said well, while simultaneously rotating said roller on its axis.

6. The combination of the patch-hopper 24, the fixed frame 26 having opening 27 and shelf 28 in said opening, and below said hopper, the horizontally-reciprocating frame 29, 30, 31, and fingers 34 and 35 supported on said frame, and constructed and arranged to meet the edge of a patch resting on said shelf 28, and to push the same therefrom.

7. The combination of the patch-hopper 24, the fixed frame 26 having opening 27 and shelf 28 in said opening and below said hopper, the paste-well 37 below said frame, spring-supported roller 38 in said well, the horizontally-reciprocating frame 29, 30, 31 and fingers 34 and 35 supported on said frame and constructed and arranged by their advancing ends to push a patch resting on said shelf edgewise therefrom and over and in contact with the periphery of said roller.

8. In a patching-machine and in combination with a horizontally-moving patch-conveying device, a rod for actuating said device, a lug on said rod, a rotary shaft, a crank-pin on said shaft engaging said lug to move said rod in one direction, and a retracting-spring connected to said rod and operating to move the same in the opposite direction.

9. The combination with the horizontally-moving patch-conveying fingers 34 and 35 and supporting-frame therefor, of the horizontally-reciprocating rod 40 connected to said frame, lug 42 on said rod, rotary shaft 17 having crank-pin 22 adapted to engage said lug, and retracting-spring 43 for said rod 40.

10. The combination of the rotary shaft 17, cam 21 thereon, pivoted lever 49, ram 45 connected to one end of said lever, arm 49 connected to the other end of said lever, and roller 50 carried by said arm 49 and bearing against the periphery of said cam.

11. The combination of the pivoted lever 46, ram 45 supported from one end thereof, arm 49 supported from the other end, rotary cam 21, roller 50 on arm 49 and bearing against said cam, fixed abutment 54 and spring 63 interposed between said arm and said abutment.

12. The combination of the vertically-reciprocating ram 45, having notch 59, guides 48 having recesses 60 and plates 55 and 56 interposed between said ram and said guides and having grooves 57, inclined portions and heads 62.

13. In a patching-machine, a table, a plurality of pairs of standards thereon, patch-affixing mechanism supported by said standards and means for independently adjusting each pair of standards transversely said table.

14. In a patching-machine, a table, a support 8 thereon, having transverse grooves 10, 11, a base-plate 14 on said support, a pair of standards 15, 15* carried by said base-plate, 5 and clamping-bolts passing through said base-plate and having enlarged portions entering said grooves 10, 11.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH HEWES SHEPHERD.

Witnesses:

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PERCY L. GALLAGHER.