

No. 859,946.

PATENTED JULY 16, 1907.

W. KAHLE.
MACHINE FOR ATTACHING FABRIC TO BOXES.
APPLICATION FILED APR. 12, 1906.

3 SHEETS—SHEET 1.

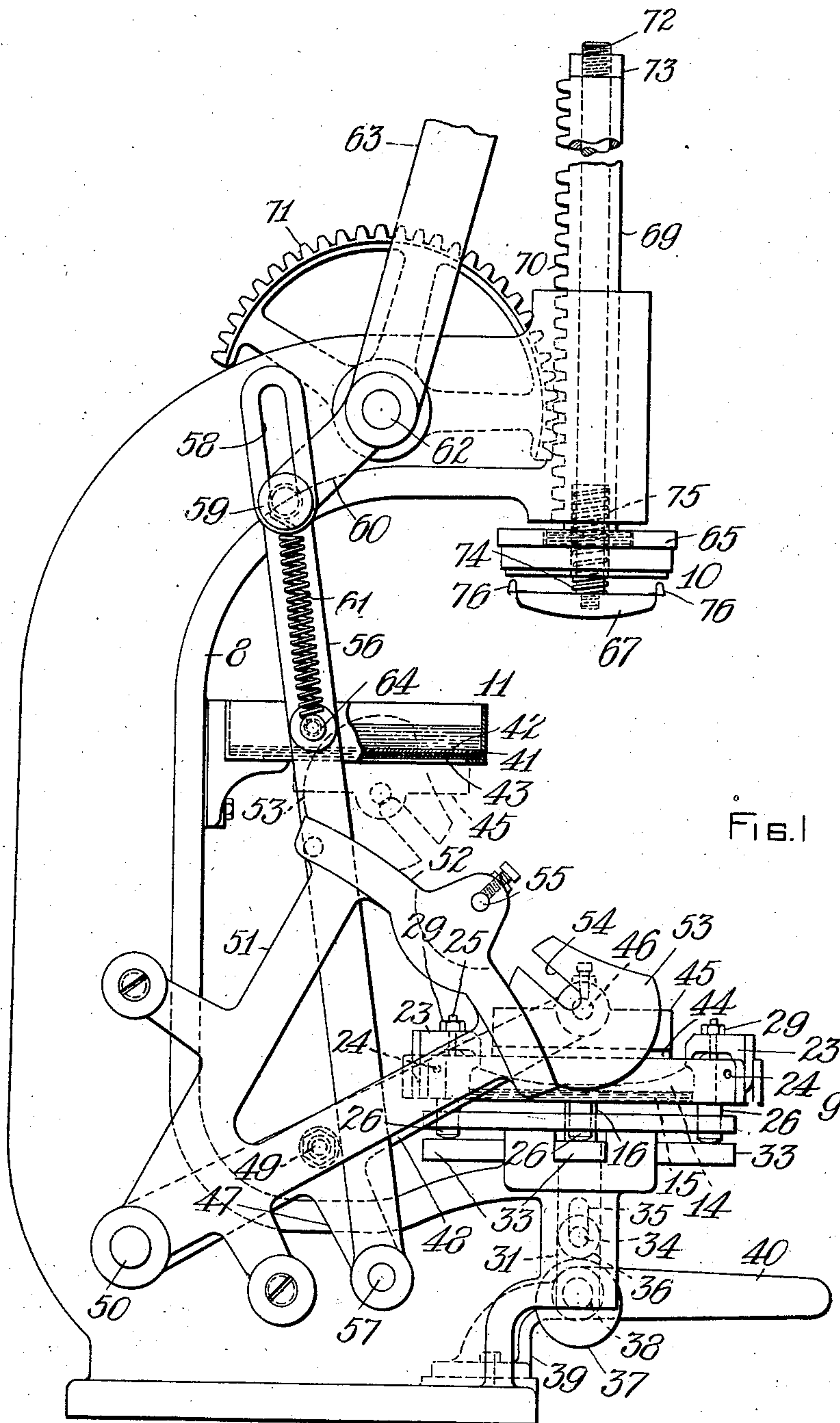


FIG. 1

WITNESSES

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Ernest A. Telfer

INVENTOR

William Kahle
by his attorney, *Charles S. Fordung*

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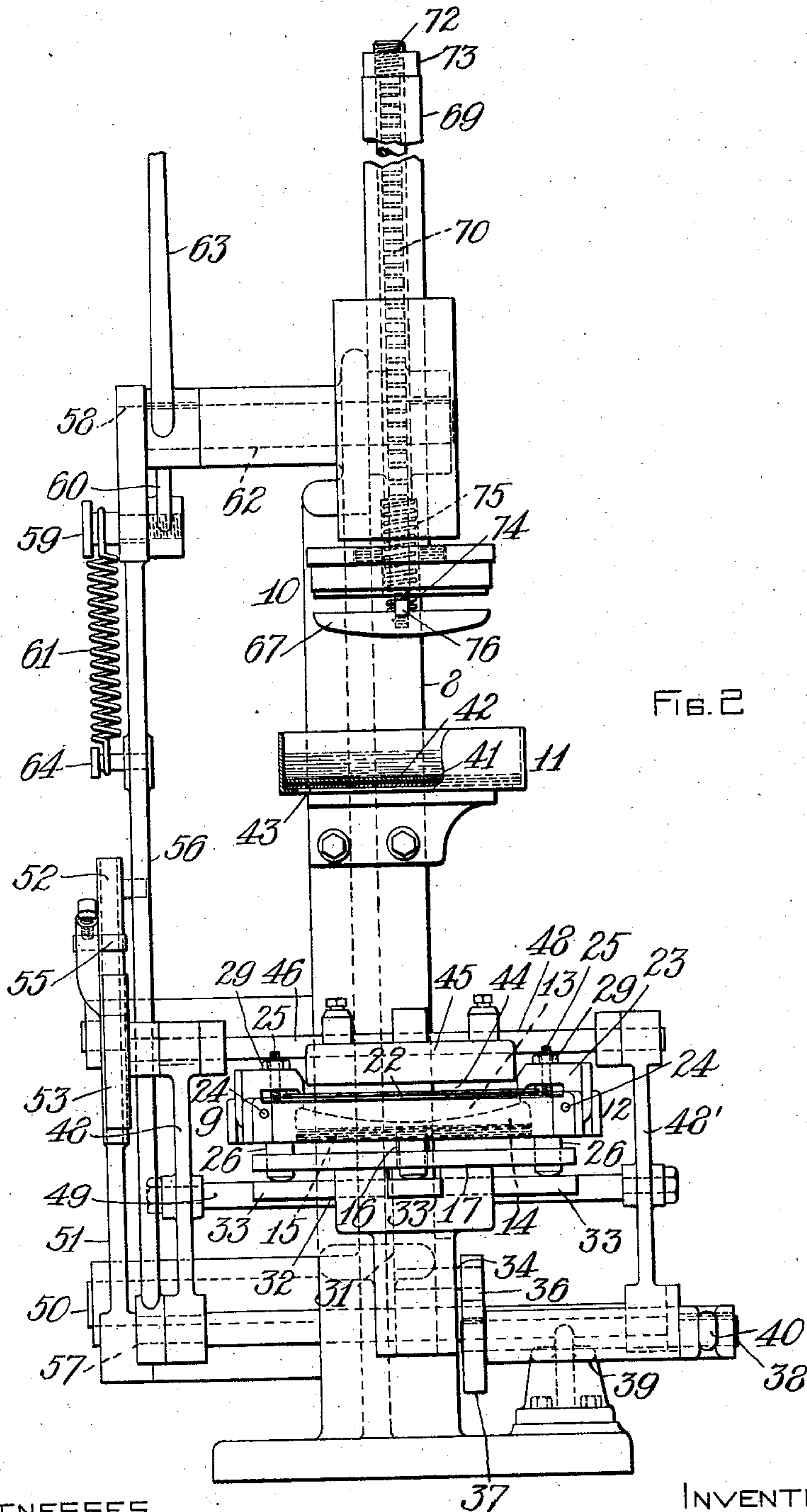


FIG. 2

WITNESSES

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3 SHEETS—SHEET 3.

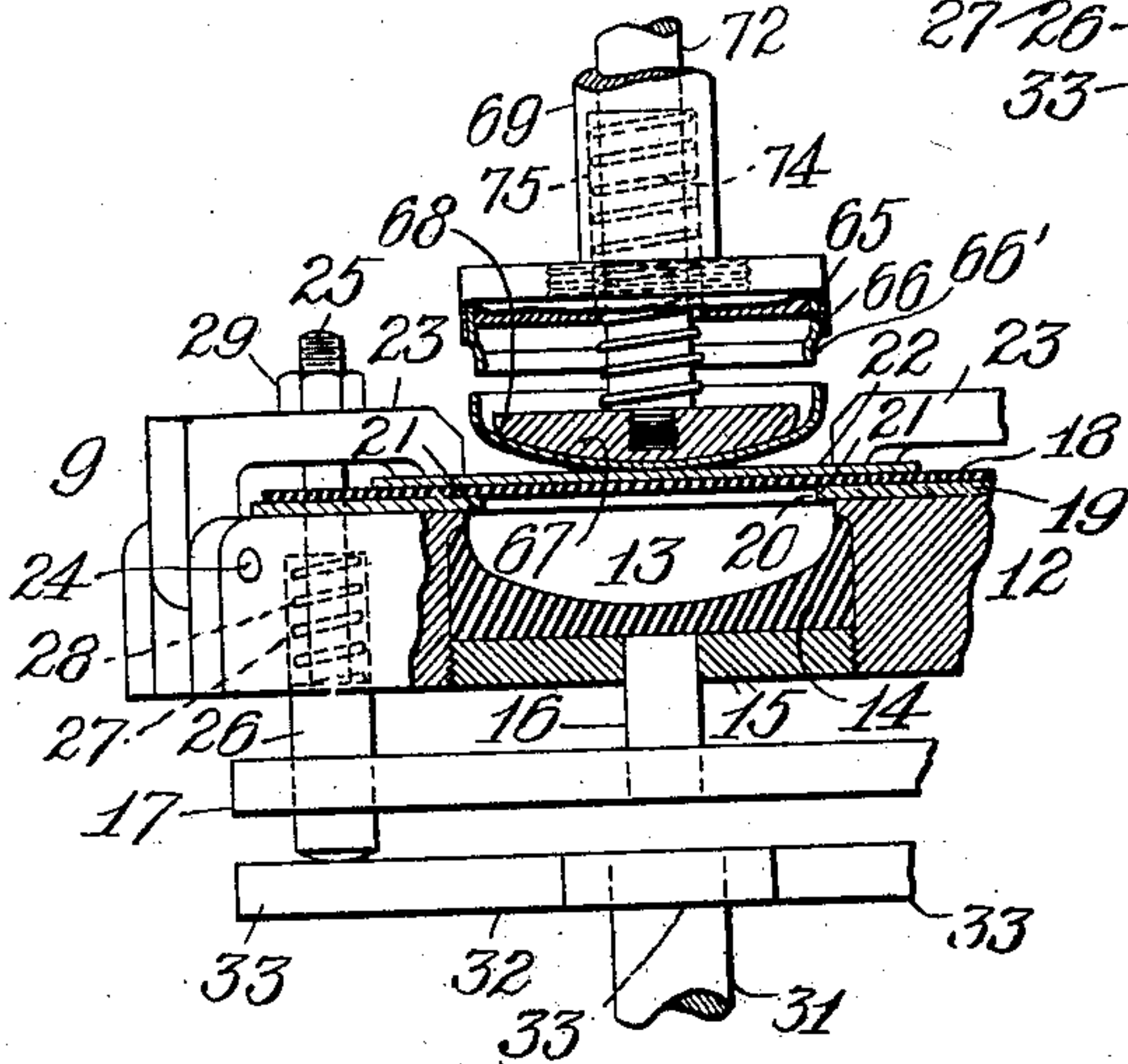
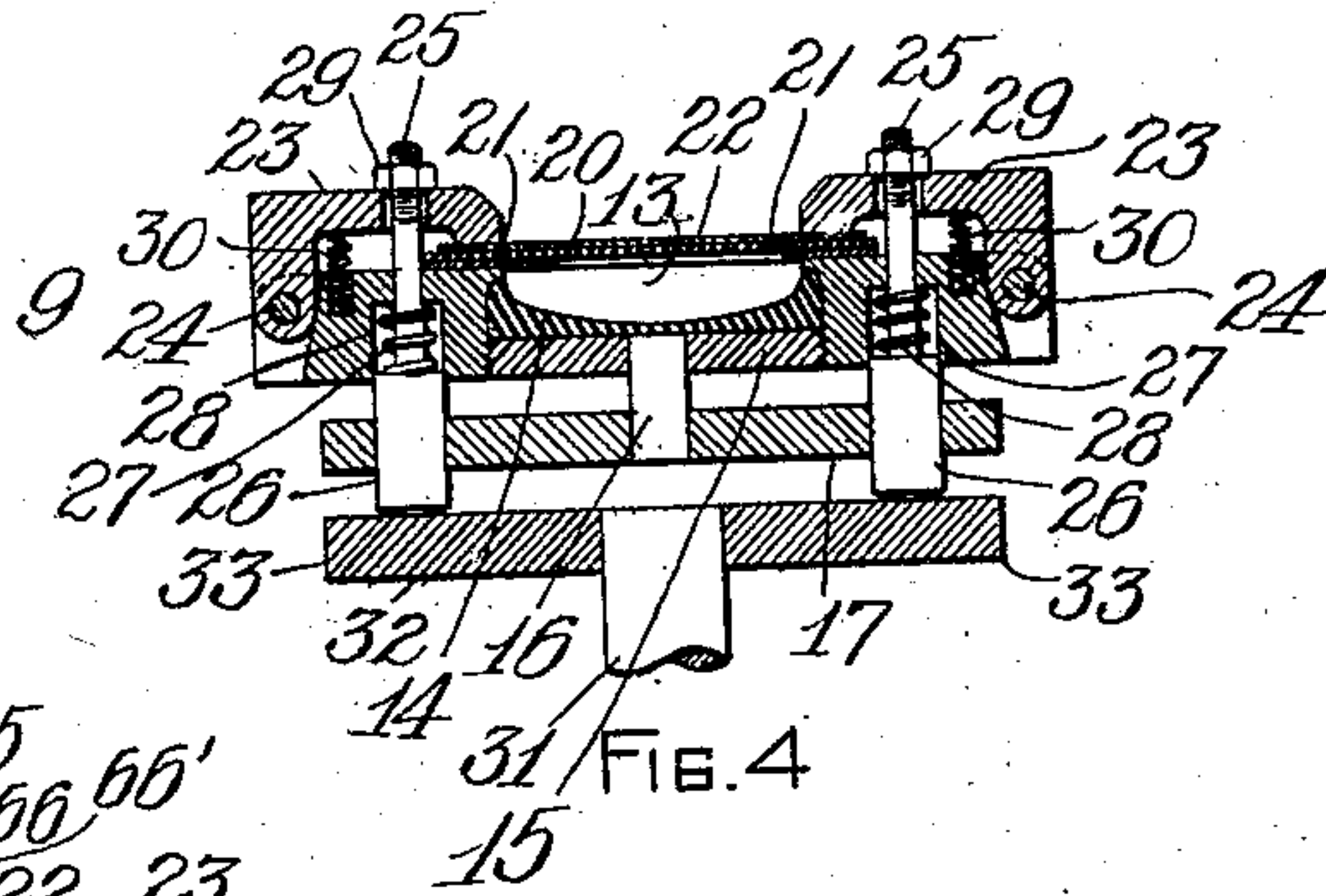
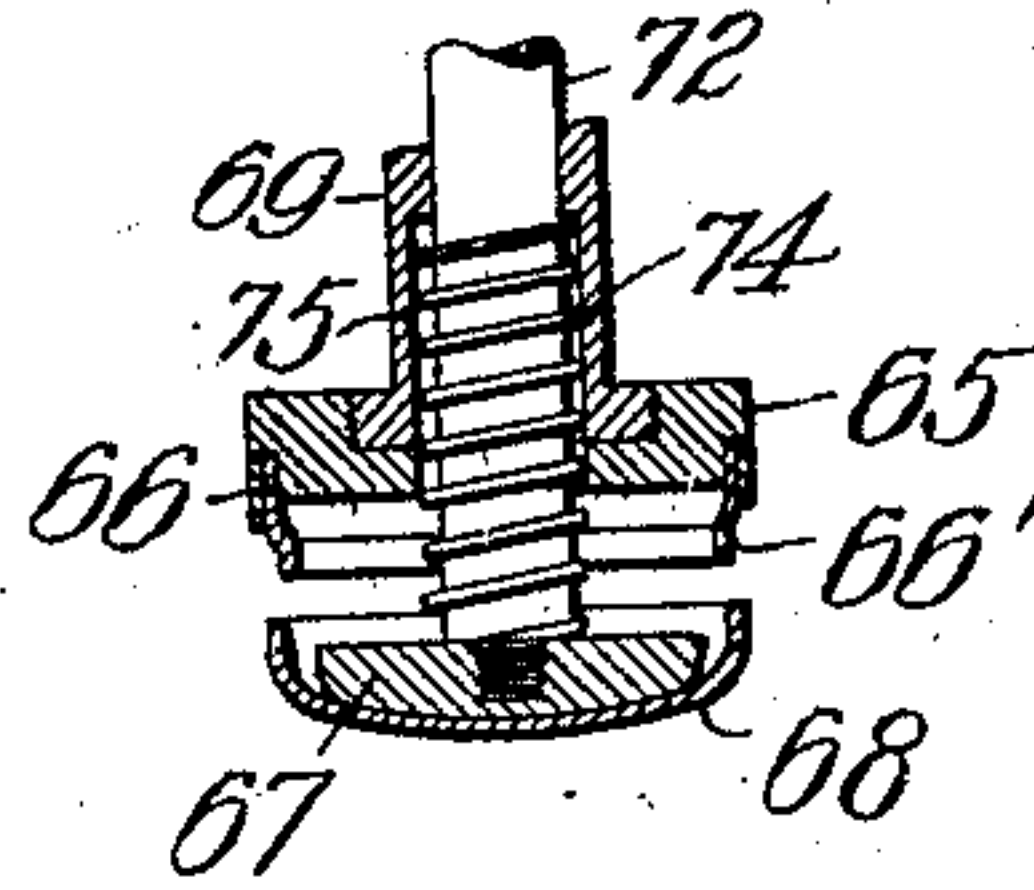
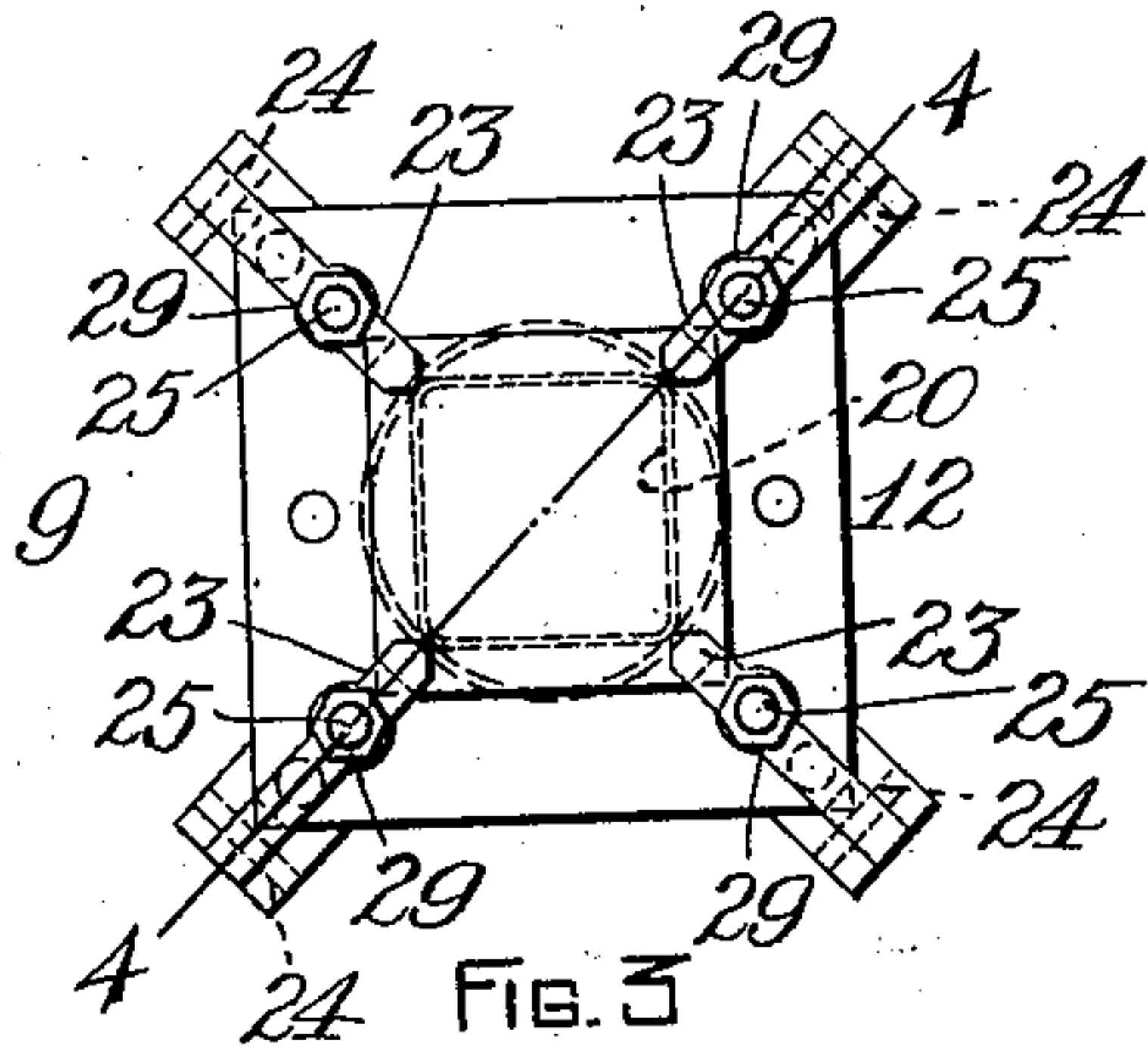


FIG. 5

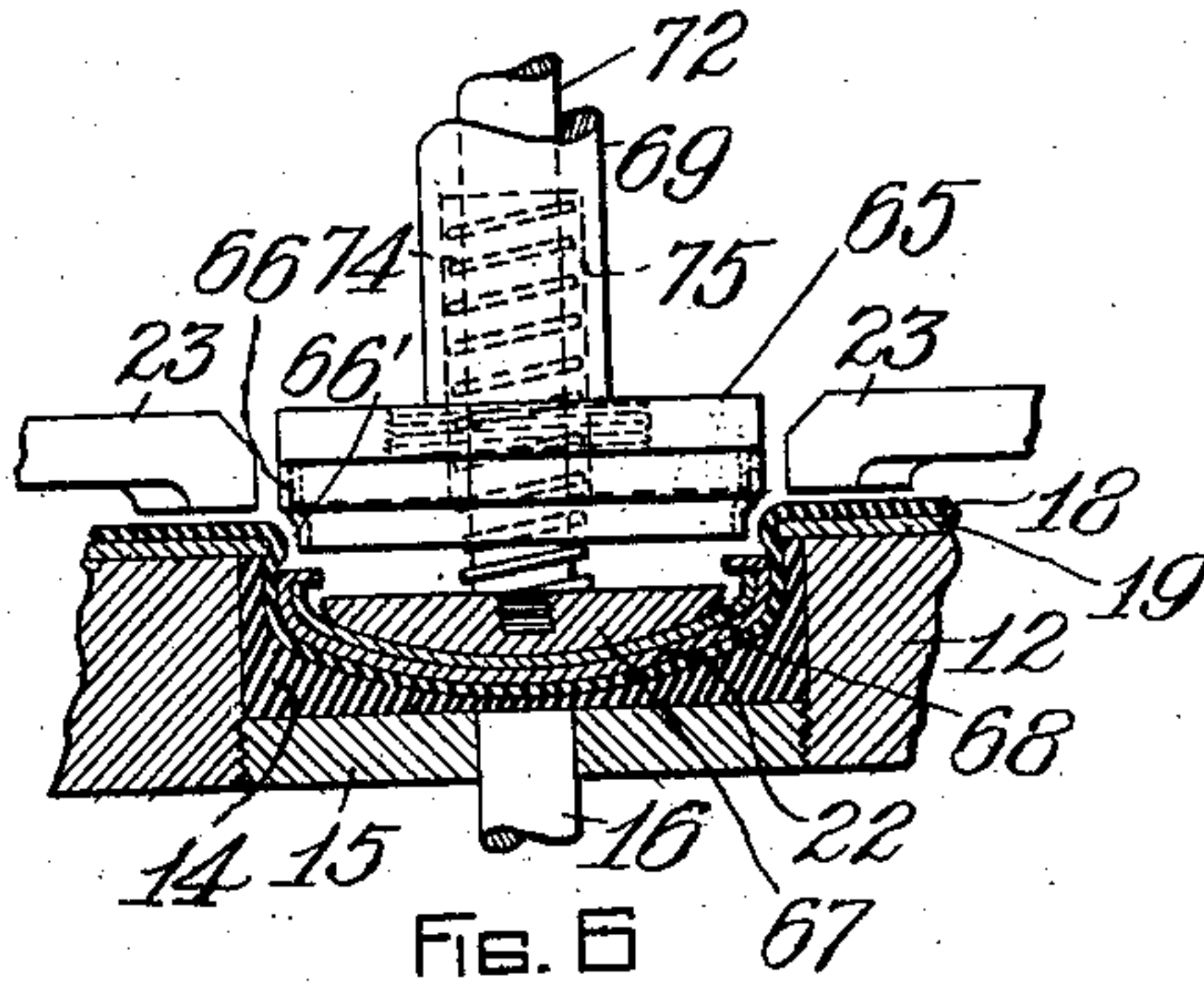


FIG. 6

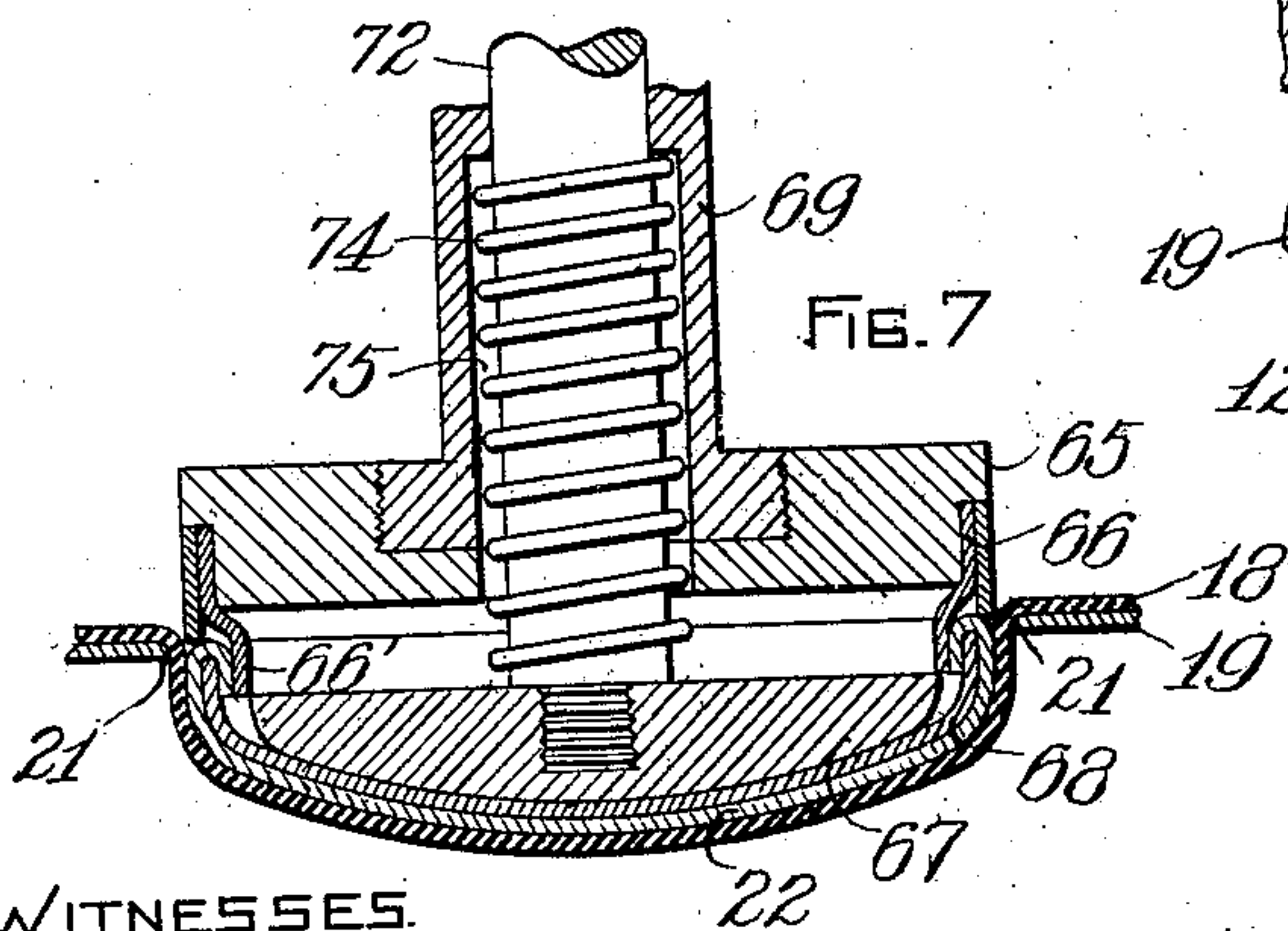


FIG. 7

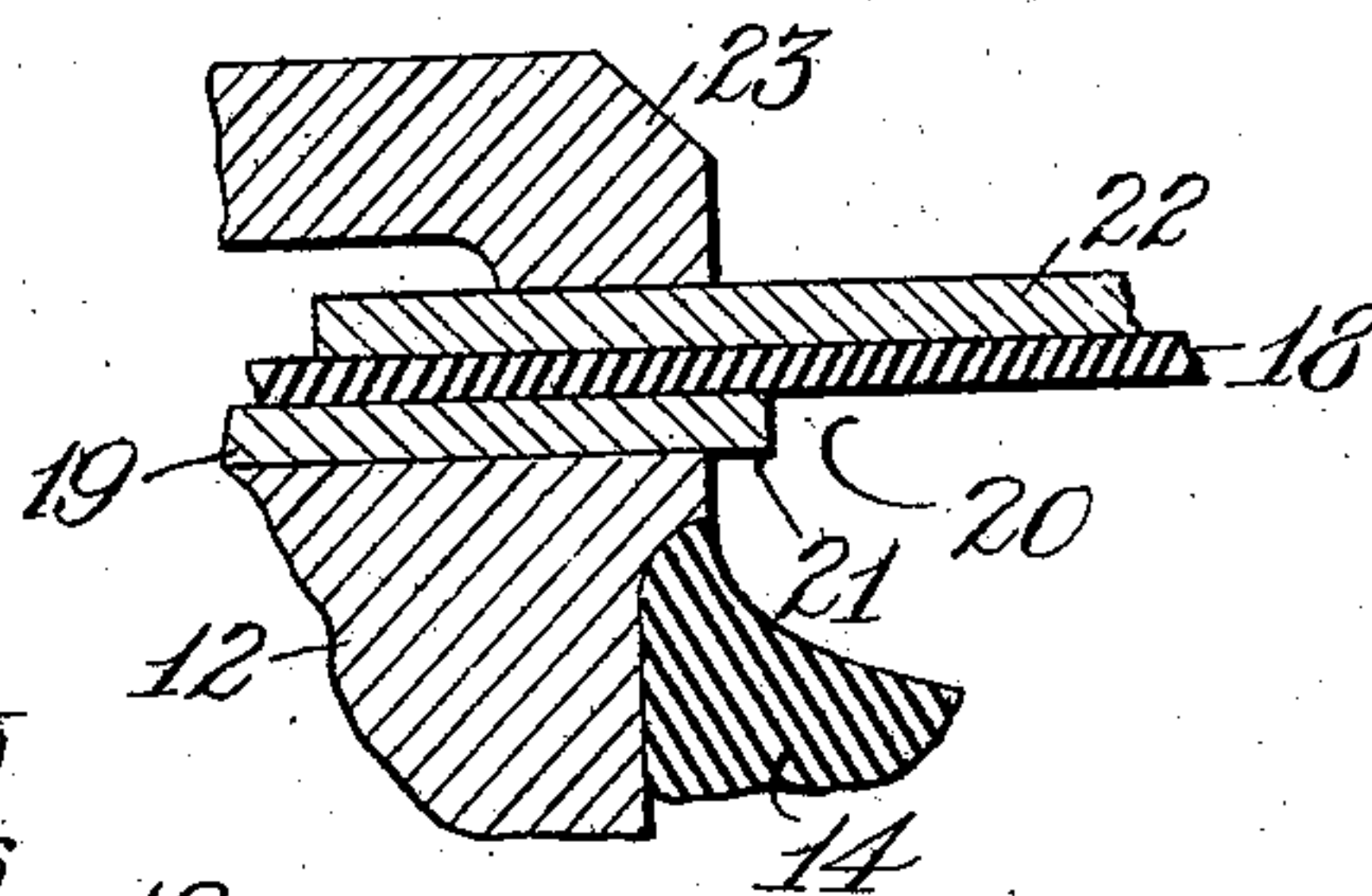


FIG. 8

WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM KAHLE, OF BOSTON, MASSACHUSETTS.

MACHINE FOR ATTACHING FABRIC TO BOXES.

No. 859,946.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed April 12, 1906. Serial No. 311,240.

To all whom it may concern:

Be it known that I, WILLIAM KAHLE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Machines for Attaching Fabric to Boxes, of which the following is a specification.

This invention relates to a machine for covering boxes with fabric and is particularly adapted to covering fancy jewelry boxes with velvet, plush and the like.

10 The machine of this invention is adapted to apply adhesive material to the inner face of a piece of fabric, then form said fabric around the base of a jewelry box cover or bottom, next force said base upon the side flange of said box, and finally leave the different parts 15 of the machine in position so that the covered box may be easily removed therefrom.

The object of the invention is to provide a machine of the character set forth which shall be simple, cheap, and durable in its construction and operation, so that 20 fabric may be quickly and neatly applied to box covers or bottoms by inexperienced help. The machine is further so constructed that different sizes and shapes of boxes may be covered thereon without substantial change in the mechanism of the machine.

25 The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a side elevation of my improved box covering machine, certain 30 portions of the mechanism being shown in a secondary position in dotted lines, the glue receptacle being shown broken away and in section. Fig. 2 is a front elevation of the same, partly broken away and shown in section. Fig. 3 is a plan view of the fabric holder. 35 Fig. 4 is a section, partly in elevation, taken on line 4-4 of Fig. 3, with the box-holder shown in section thereabove. Figs. 5, 6 and 7 are vertical detail sections, partly broken away and shown in elevation, taken on line 5-5 of Fig. 1, showing the fabric support and box holder in different positions illustrating 40 the manner in which said parts operate in covering the box. Fig. 8 is an enlarged detail section of a portion of the fabric holder, together with a portion of the fabric.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings 8 is the frame of the machine, 9 is the fabric holder, 10 is a yielding box holder and 11 the glue receptacle. The fabric holder 9 consists of a plate 12 provided with a recess 13 in its upper face. In the bottom of the recess 13 is an elastic cushion 14 which is held 50 in the recess 13 by a screw-threaded plug 15. The plug 15 has a pin 16 fast thereto and projecting downwardly therefrom through a hole provided therefor in the support 17 in which it is adapted to slide. The support 17 55 is rigidly fastened to the frame of the machine.

A sheet of elastic material 18, fast to the plate 12,

extends across the recess 13 and between said sheet of elastic material and the plate 12 is located an elastic pad 19 which is provided with an aperture 20 of smaller area than the top of the recess 13, so that the edges 21 60 of said aperture project over the recess 13. The piece of fabric 22 which is to be applied to the box cover or bottom, as hereinafter described, is held against the upper face of the elastic sheet 18 by a plurality of spring-actuated clamp fingers 23, each of the same construction, and, therefore, a description of one of these 65 fingers and its actuating springs will be sufficient to describe all. Each of said fingers 23 is pivoted at 24 to the plate 12 and has a stud 25 extending there-through and having at its lower end an enlarged portion 26 which slides in a recess 27 formed in the under 70 side of the plate 12. A spring 28 encircles the small portion of the stud 25 and is located within the recess 27, one end thereof bearing against the bottom of said recess, the other against said enlarged portion 26. A 75 nut 29 has screw-threaded engagement with said stud 25 and bears against the upper face of the finger 23, whereby the bottom end of said stud 25 may be adjusted relatively to the upper face of the plate 12, and the tension or pressure of the finger 13 upon the fabric 80 22 may thus be regulated.

The finger 23 is moved away from the fabric 22 by a spiral spring 30 when released by the upward movement of the stud 25, as hereinafter described. The studs 25, 25 are moved simultaneously upward to release the fingers 23 and allow them to move upwardly 85 and release the fabric by a slide 31 arranged to slide in the frame 8 and having a top 32 with four arms 33 thereon, each of said arms adapted to engage the under side of one of the studs 25. The slide 31 has a stud 34 90 fast thereto and projecting through a slot 35 formed in the frame 8. A friction roll 36 is journaled upon said stud and rests upon an eccentric disk 37 fast to a shaft 38 journaled to rotate in the bracket 39 fast to the frame 8. The shaft 38 is rotated by an arm 40, which 95 may be actuated either by hand or by connection to a treadle.

The glue is contained in a receptacle 11 which is fastened to the frame 8 (Fig. 1) and consists of a sheet metal box with a perforated bottom 41 having pads 42 100 and 43 fixed to the top and bottom thereof, respectively. Glue or any suitable adhesive material soaks through the pads 42 and 43 and is removed from the lower face of the pad 43 by a gluing pad 44 which carries the glue to the fabric 22 and applies it to the upper 105 face thereof by means of the following described mechanism.

The pad 44 is fastened to a carrier 45 which is fastened, in turn, to a shaft 46 journaled to rotate upon the outer end of a rocker-frame 47. The rocker-frame 110 47 consists of two arms 48, 48' joined together by a stay-rod 49 and fastened to a rocker-shaft 50 journaled to

rock in bearings formed in the frame 8 and in a bracket 51 fast to said frame. Upon the outer end of the bracket 51 is formed a cam surface 52 which serves to guide a rotary cam disk 53 fast to the shaft 46. Said
 5 cam disk has a slot 54 provided therein adapted to engage a stud 55 fast to the bracket 51. A link 56 is pivotally connected at its lower end at 57 to the arm 48. Said link is provided at its upper end with a slot 58 through which projects a pin 59 fast to a rocker-arm 60.
 10 The rocker-arm 60 is fastened to a rock-shaft 62 journaled to rotate in the frame of the machine and has a handle 63 integral therewith. A spring 61 is fastened at its upper end to the pin 59 and at its lower end to a pin 64 fast to the link 56.
 15 The reciprocatory box holder 10 consists of a holder 65 adapted to receive and hold the flange 66 of the box and a holder 67 adapted to receive and hold the base or top 68 of the box. The holder 65 is detachably fastened to a sleeve 69 adapted to slide longitudinally
 20 thereof in the frame 8 and having a rack 70 formed thereon which meshes into a segment gear 71 fast to the shaft 62. The holder 67 is detachably fastened to a rod 72 which is adapted to slide longitudinally of the sleeve 69 and has a collar 73 fast to the top thereof, the
 25 lower end of said rod being surrounded by a spiral spring 74, one end of which bears against the upper face of the holder 67, the other end bearing against the inner end of a recess 75 formed in the lower end of the sleeve 69. The holder 67 is provided with springs 76
 30 (Fig. 1) to prevent the base 68 of the box from falling off said holder.

Having thus specifically described my invention, I will now proceed to describe the general operation of the same. Assuming the parts to be in the position
 35 illustrated in Figs. 1 and 2, the flange 66 of the box is first covered with plush, velvet, or whatever fabric may be desired, and placed upon the holder 65: The top or bottom of the box 68 is then slipped upon the holder 67, the springs 76 (Fig. 1) preventing said box
 40 from falling off said holder. It will be understood that the pressure of the fingers 23 upon the fabric 22 must be adjusted to conform with the different thicknesses of material and different qualities of material, so that said fingers may have an equal pressure upon
 45 each of the four corners of the piece of fabric and also so that said pressure may be neither too slight nor too great. The operator then pulls the handle 63 toward the front of the machine, which moves the link 56 upwardly by the tension of the spring 61 and rocks the
 50 rocker-frame 47, with its rock-shaft 50, upon the frame 8. The arm 48 carries the cam-shaped disk 53 along the cam surface 52 until the slotted portion 54 passes into engagement with the pin 55, and when said pin 55 strikes the bottom of the slot 54 said disk will rotate a half turn, and a further movement will bring the
 55 same into the position shown in dotted lines (Fig. 1) with the gluing pad reversed in position from that shown in full lines in said figure, and in contact with the under surface of the pad 43 upon the glue receptacle
 60 11. Thus said gluing pad will receive a new supply of glue to be applied to a new piece of fabric. The fabric 22, held in the machine upon the fabric support by the fingers 23, is covered with a fresh supply of glue and as the box holder 10 is moved downwardly, by a

further movement of the handle 63, which operates 65 the segment gear 71 and thus through the rack 70 moves the box holder as a whole downwardly, the top 68 of the box is brought into contact with the glued surface of the fabric 22, as shown in Fig. 5. The fingers 23 are adjusted to the proper tension to hold the 70 fabric so that it may be wiped up around the box cover as the same is pushed downwardly from the position illustrated in Fig. 5 toward the position illustrated in Fig. 6, and as the box holder is moved downwardly from the position illustrated in Fig. 5 to that shown in 75 Fig. 6, when a certain predetermined amount of pull upon the fabric is exerted, the fabric holder, as a whole, will be pushed down—i. e., the plate 12 will be pushed downwardly, overcoming the tension of the springs 28 and moving the studs 25 upwardly, thus 80 simultaneously allowing the fingers 23 to be raised by the springs 30 and thus release their hold upon the fabric 22, which by this time has been wrapped or folded over the under face of the box cover 68. A further movement of the box holder downwardly 85 stretches the elastic sheet 18 and brings the parts into the position illustrated in Fig. 6, the fabric being pressed against the elastic cushion 14 at the bottom of the recess 13 and wiped up over the edges of the box top by the elastic pad 19, as illustrated in said Fig. 6. 90 A still further downward movement of the holder 65 compresses the spring 74 and forces the flange 66 downwardly into the box top 68, said flange being recessed around its lower edge at 66' in order to receive the edge of the box top. The box top having now been covered 95 with fabric and attached to the flange, the operator reverses the movement of the handle 63, thus moving the box holder upwardly, and when said box holder has been retracted for a portion of its movement the operator inserts a new piece of fabric beneath the fin- 100 gers 23. To do this, the operator depresses the arm 40, thus moving the slide 31 upwardly until the arms 33 of the top 32 push the studs 25 upwardly and allow the fingers 23 to be moved upwardly by the springs 30. The operator then slips a new piece of fabric in position upon the elastic sheet 18 and releases the arm 40, allowing the studs 25 and fingers 23 to assume the position illustrated in Fig. 4, in which the fingers 23 are shown as clamping the fabric 22 to the upper surface of the elastic sheet 18. During the upward movement 110 of the box holder from the position illustrated in Fig. 7 to that illustrated in Fig. 1 the holder 67 will be separated from the holder 65 by the spring 74, thus leaving the box with the flange attached thereto upon the holder 67, the flange 66 having been pulled off of 115 the holder 65 by the expansion of the spring 74, and the box top with its flange attached and covered is then easily removed from the holder 67 by the operator.

The slot 58 in the link 56 allows the stud 59 to play therein during the latter part of the downward movement of the box holder without imparting any movement to the glue carrying pad or to the rocker-frame 47, and also allows the box holder to be withdrawn for about one-half of its upward movement before the glue carrying pad is carried downwardly to apply glue 120 to the newly inserted piece of fabric for the next box to be covered.

As the holders 65 and 67 and the fabric holder 9 are

detachable, it will be seen that boxes of different sizes and shapes may be covered without change in the actuating mechanism of said fabric holder and box holder.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in its upper face, a sheet of elastic material extending across said recess, and an elastic pad located beneath said sheet with an aperture therein of smaller area than said recess, whereby the edges of said aperture project over said recess.

2. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in its upper face, a sheet of elastic material extending across said recess, an elastic pad located beneath said sheet with an aperture therein of smaller area than said recess, whereby the edges of said aperture project over said recess, and an elastic cushion in the bottom of said recess.

3. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in its upper face, a sheet of elastic material extending across said recess, an elastic pad located beneath said sheet with an aperture therein of smaller area than said recess, whereby the edges of said aperture project over said recess, and a plurality of spring-actuated clamp fingers adapted to hold a piece of fabric against said sheet of elastic material.

4. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in its upper face, a sheet of elastic material extending across said recess, an elastic pad located beneath said sheet with an aperture therein of smaller area than said recess, whereby the edges of said aperture project over said recess, a plurality of spring-actuated clamp fingers adapted to hold a piece of fabric against said sheet of elastic material, and means to move said fingers out of contact with said fabric.

5. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in its upper face, a sheet of elastic material extending across said recess, an elastic pad located beneath said sheet with an aperture therein of smaller area than said recess, whereby the edges of said aperture project over said recess, a support for said fabric holder, a plurality of spring-actuated fingers pivoted to said plate adapted to hold the fabric against said elastic sheet, and means to simultaneously rock said fingers out of contact with said fabric.

6. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in its upper face, a sheet of elastic material extending across said recess, an elastic pad located beneath said sheet with an aperture therein of smaller area than said recess, whereby the edges of said aperture project over said recess, a support for said holder, a plurality of fingers pivoted to said plate, a spring-actuated stud engaging each of said fingers, respectively, and a slide adapted to engage said studs and simultaneously move said fingers out of contact with said fabric.

7. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in its upper face, a sheet of elastic material extending across said recess, an elastic pad located beneath said sheet with an aperture therein of smaller area than said recess, whereby the edges of said aperture project over said recess, a support to which said holder is detachably fastened, and an elastic cushion in the bottom of said recess.

8. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in one face thereof, a sheet of elastic material fast to said plate and extending across said recess, and an elastic pad with an aperture therein fast between said plate and elastic sheet, the edges of said aperture projecting over said recess.

9. In a machine for attaching fabric to boxes, a fabric holder comprising in its construction a plate provided with a recess in one face thereof, a sheet of elastic material fast to said plate and extending across said recess, an elastic pad with an aperture therein fast between said plate and elastic sheet, the edges of said aperture projecting over said recess, and an elastic cushion detachably fastened to said plate at the bottom of said recess.

10. In a machine for attaching fabric to boxes, a fabric holder provided with a recess in one face thereof, an elastic folding pad fast to said holder and extending across said recess, means to hold a piece of fabric against said folding pad, mechanism adapted to apply adhesive material to said fabric, and a reciprocatory holder for a box in alinement with said fabric holder recess, whereby said fabric may be attached to said box and folded over the edges thereof.

11. In a machine for attaching fabric to boxes, a fabric holder provided with a recess in one face thereof, an elastic folding pad fast to said holder and extending across said recess, means to hold a piece of fabric against said folding pad, a receptacle for adhesive material, a gluing pad, and mechanism to move said gluing pad from said receptacle into contact with said fabric.

12. In a machine for attaching fabric to boxes, a fabric holder provided with a recess in one face thereof, an elastic folding pad fast to said holder and extending across said recess, means to hold a piece of fabric against said folding pad, a receptacle for adhesive material, a gluing pad, mechanism to move said gluing pad from said receptacle into contact with said fabric and vice versa, and means to impart a rotary motion to said gluing pad when the same is being moved as aforesaid.

13. In a machine for attaching fabric to boxes, a fabric holder provided with a recess in one face thereof, an elastic folding pad fast to said holder and extending across said recess, means to hold a piece of fabric against said folding pad, a receptacle for adhesive material, a gluing pad, mechanism to move said gluing pad from said receptacle into contact with said fabric, and a reciprocatory holder for a box in alinement with said fabric holder recess, whereby said fabric may be attached to said box and folded over the edges thereof.

14. In a machine for attaching fabric to boxes, a yieldingly supported fabric holder provided with a recess in one face thereof, an elastic folding pad fast to said holder and extending across said recess, means to hold a piece of fabric against said folding pad, and means to move said holding means to release said fabric.

15. In a machine for attaching fabric to boxes, a yieldingly supported fabric holder provided with a recess in one face thereof, an elastic folding pad fast to said holder and extending across said recess, means to hold a piece of fabric against said folding pad, and means operated by the movement of said yieldingly supported holder to release said fabric.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM KAHLE.

Witnesses:

CHARLES S. GOODING,
ANNIE J. DAILEY.