

(No Model.)

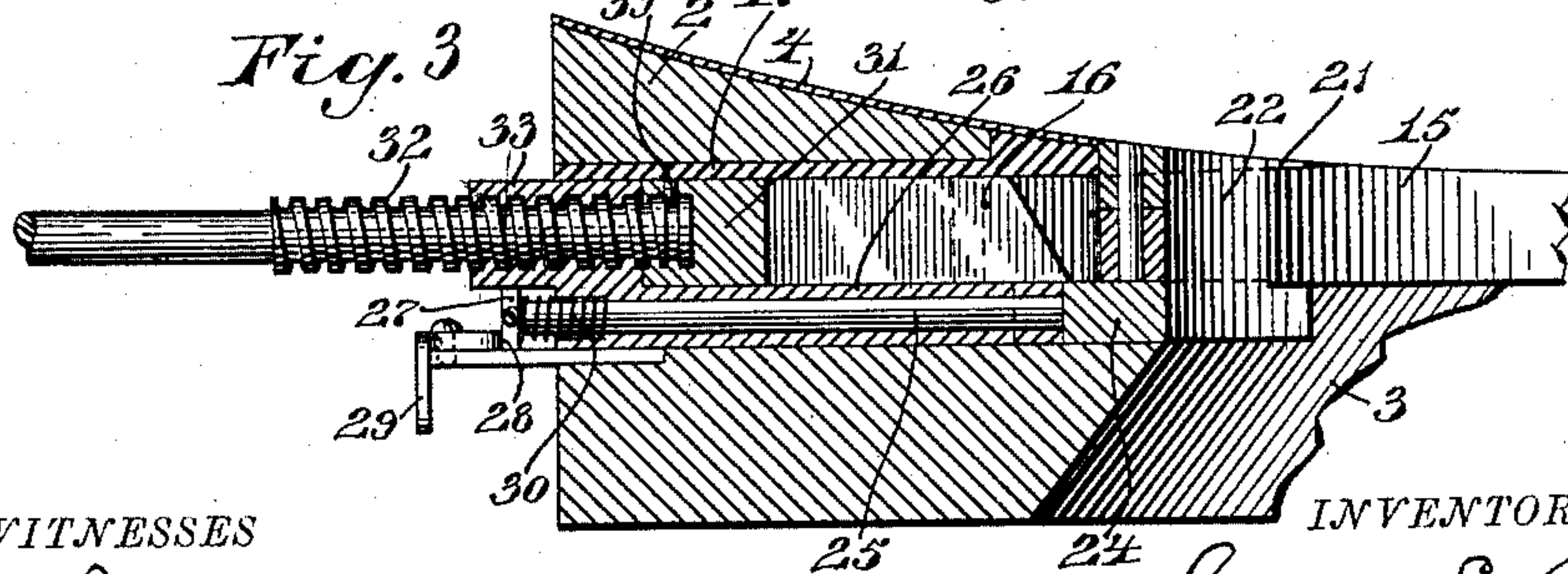
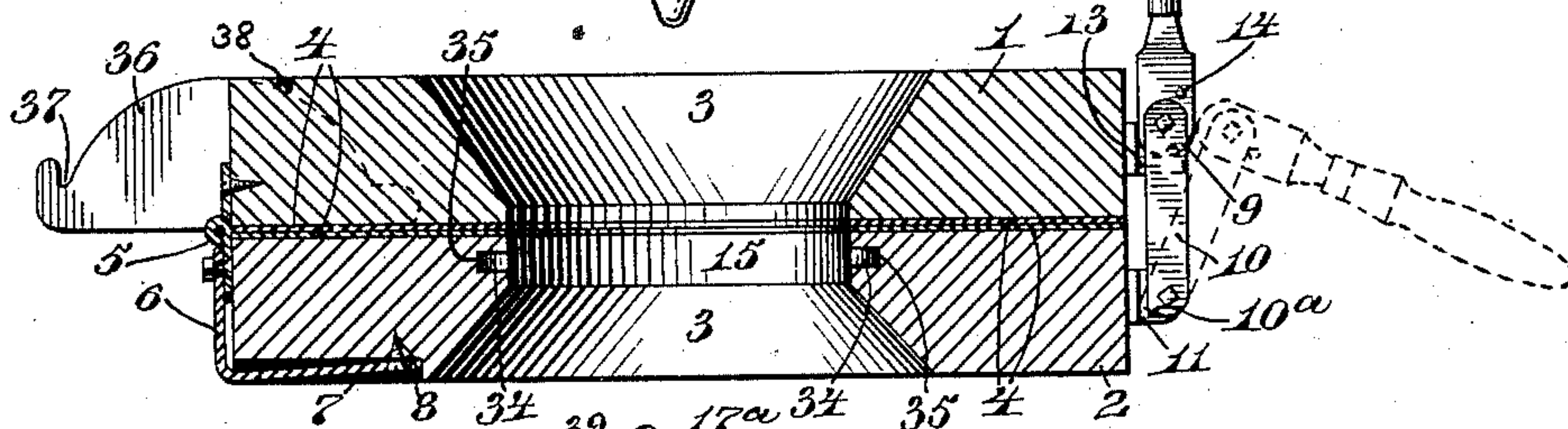
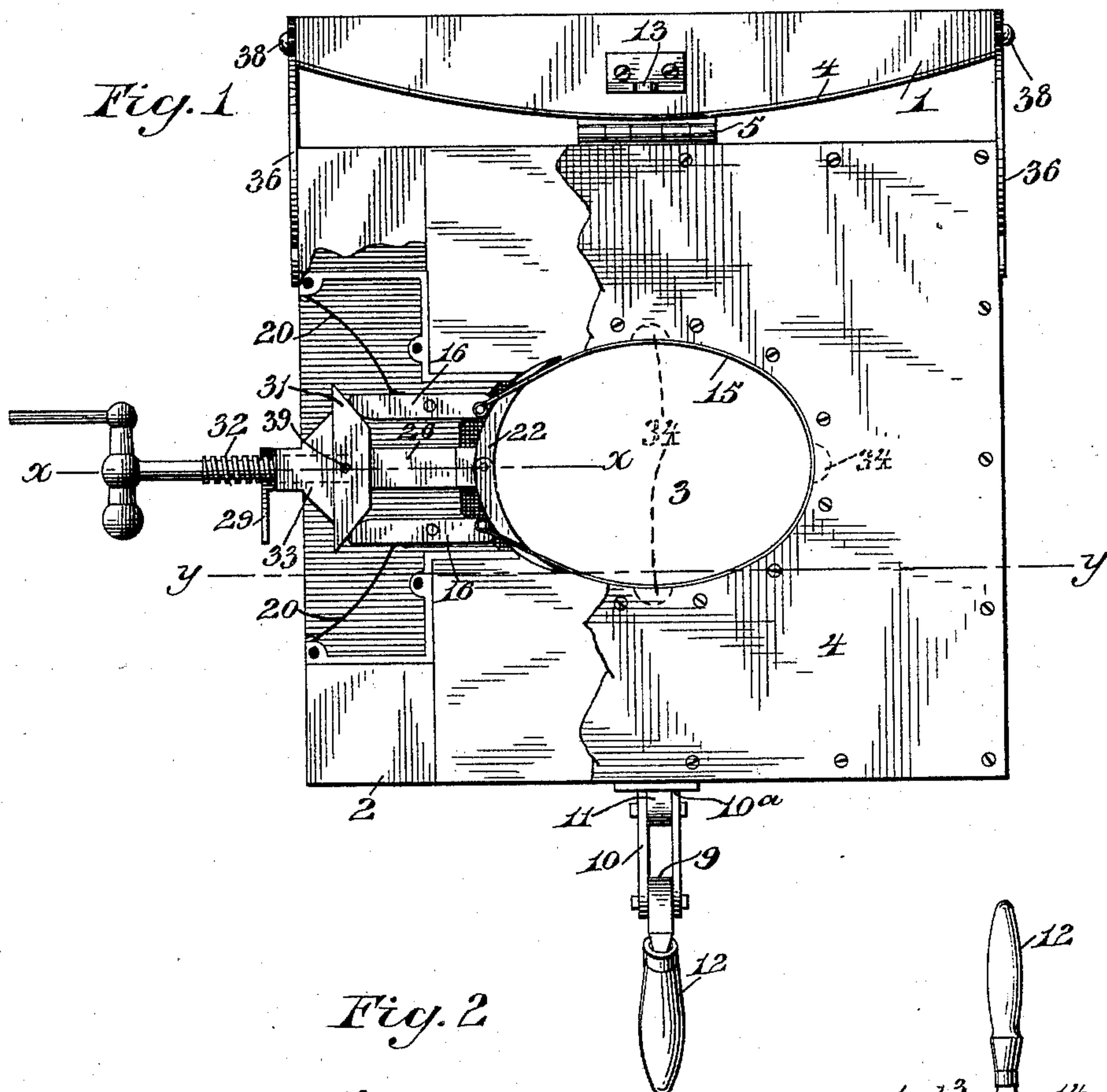
2 Sheets—Sheet 1.

G. E. BRUSH.

MACHINE FOR BLOCKING AND BANDING HATS.

No. 475,662.

Patented May 24, 1892.



WITNESSES

E. M. Gallaher.  
Edith G. Ely.

INVENTOR

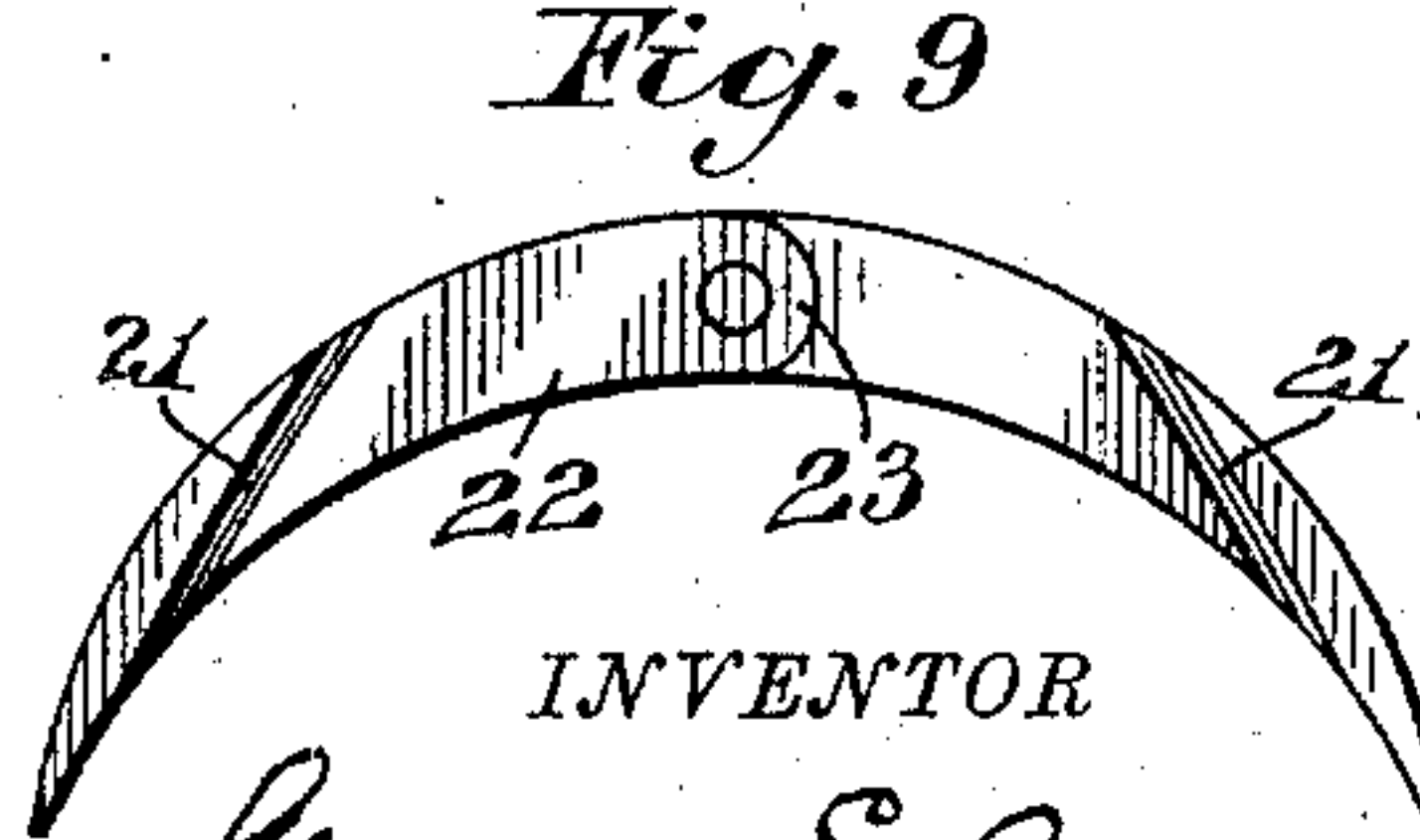
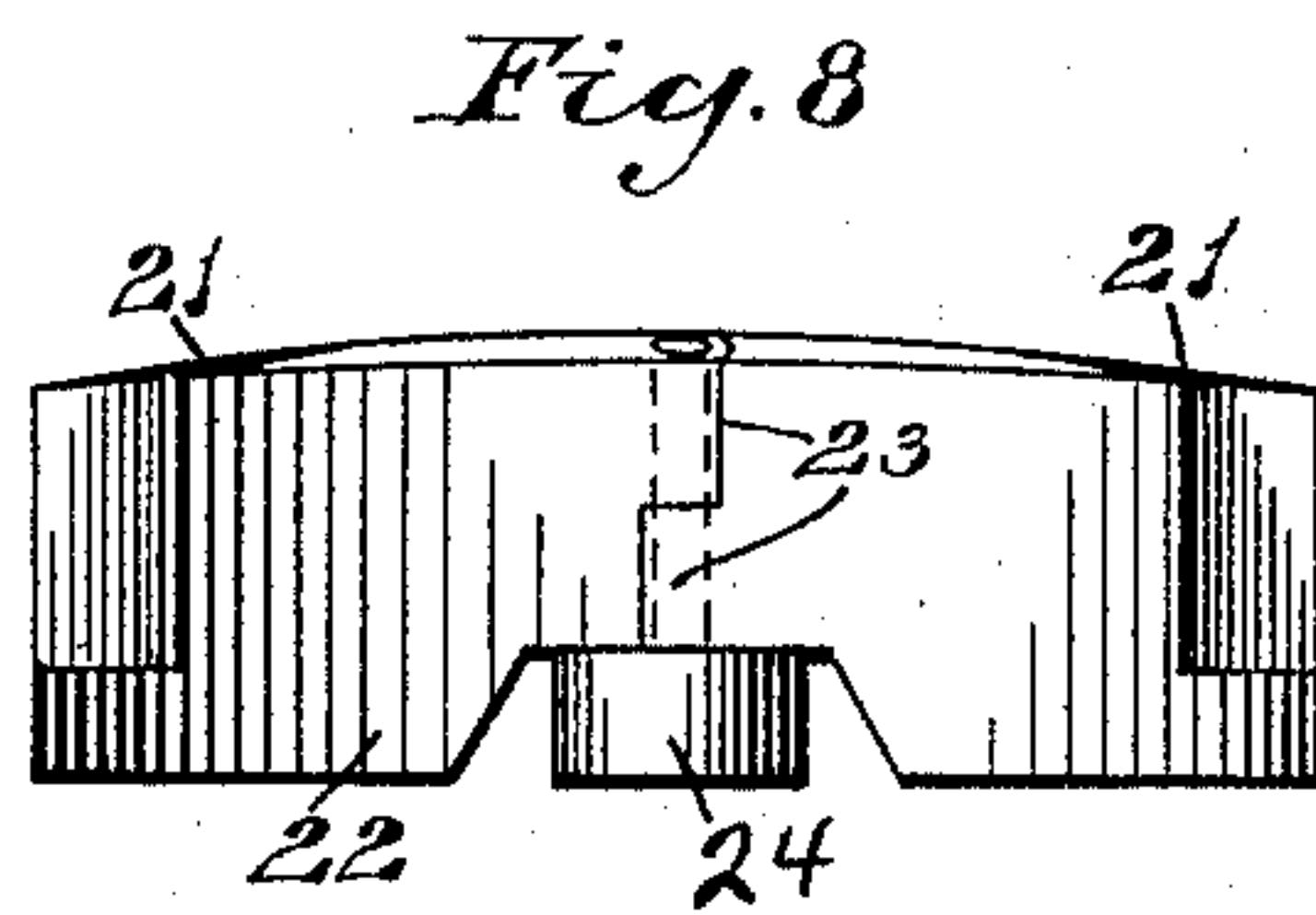
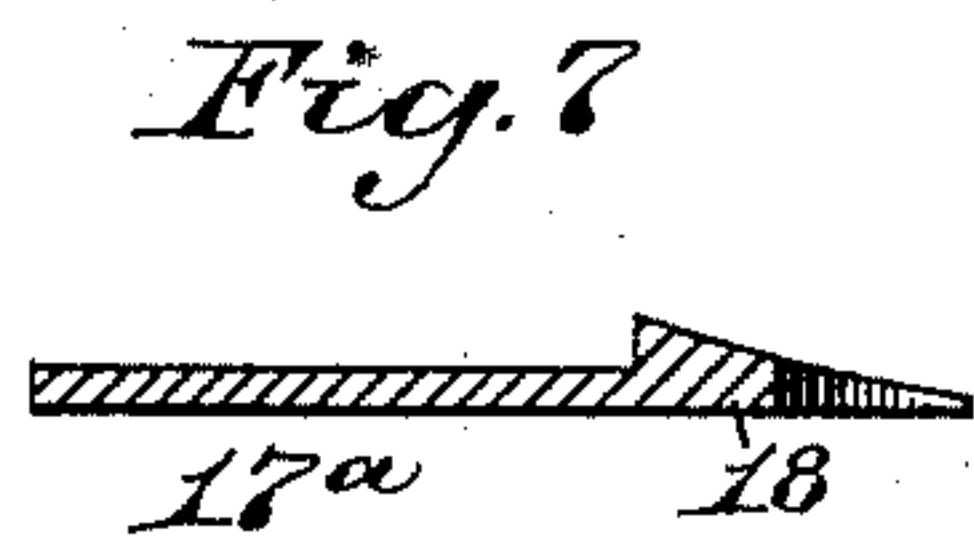
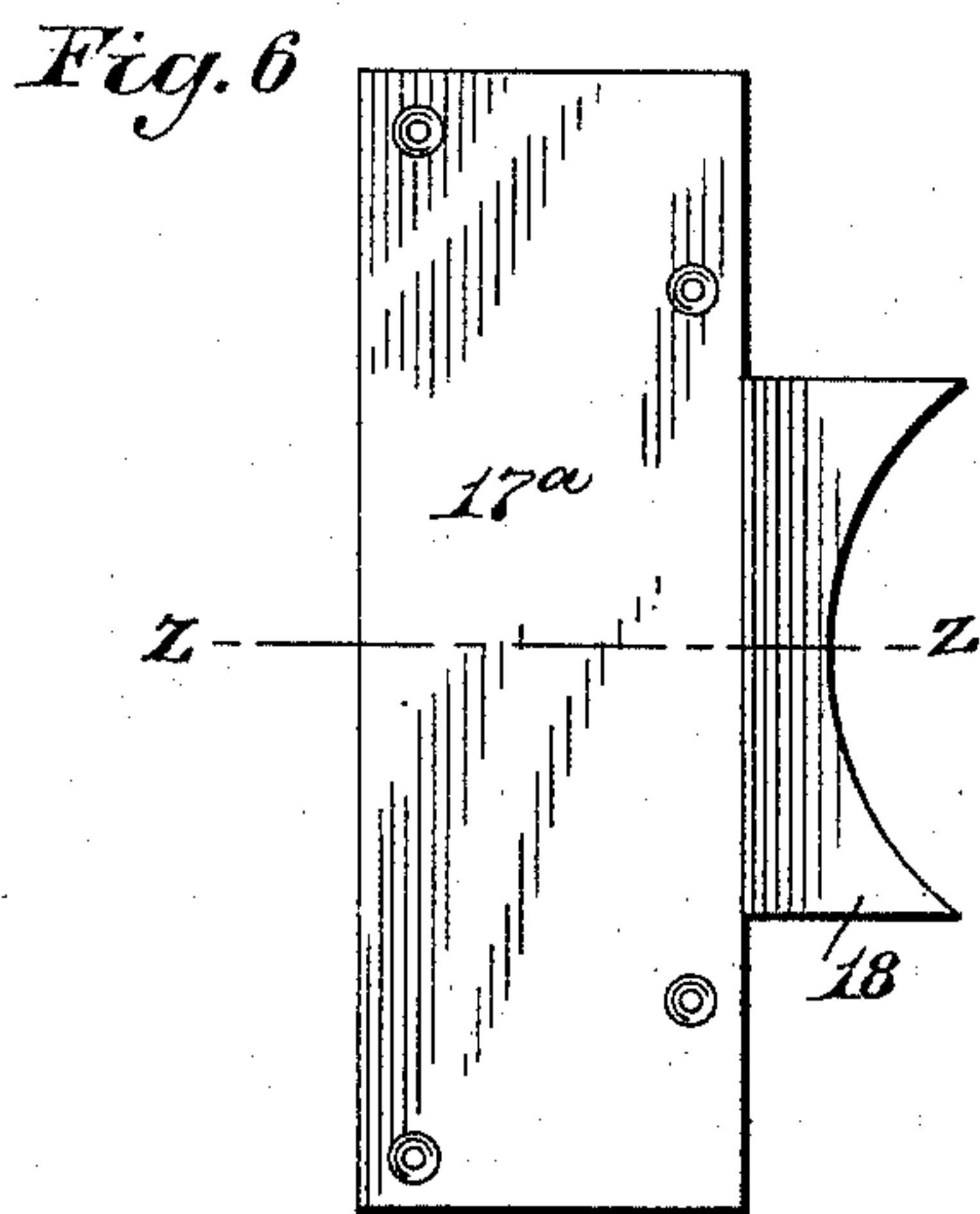
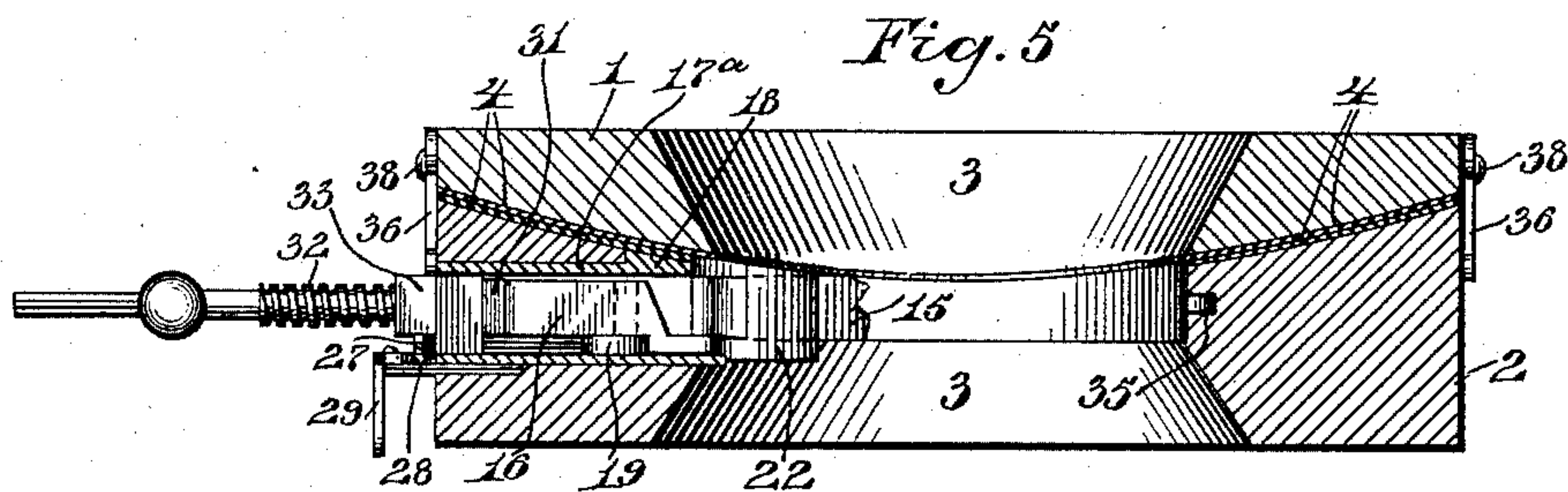
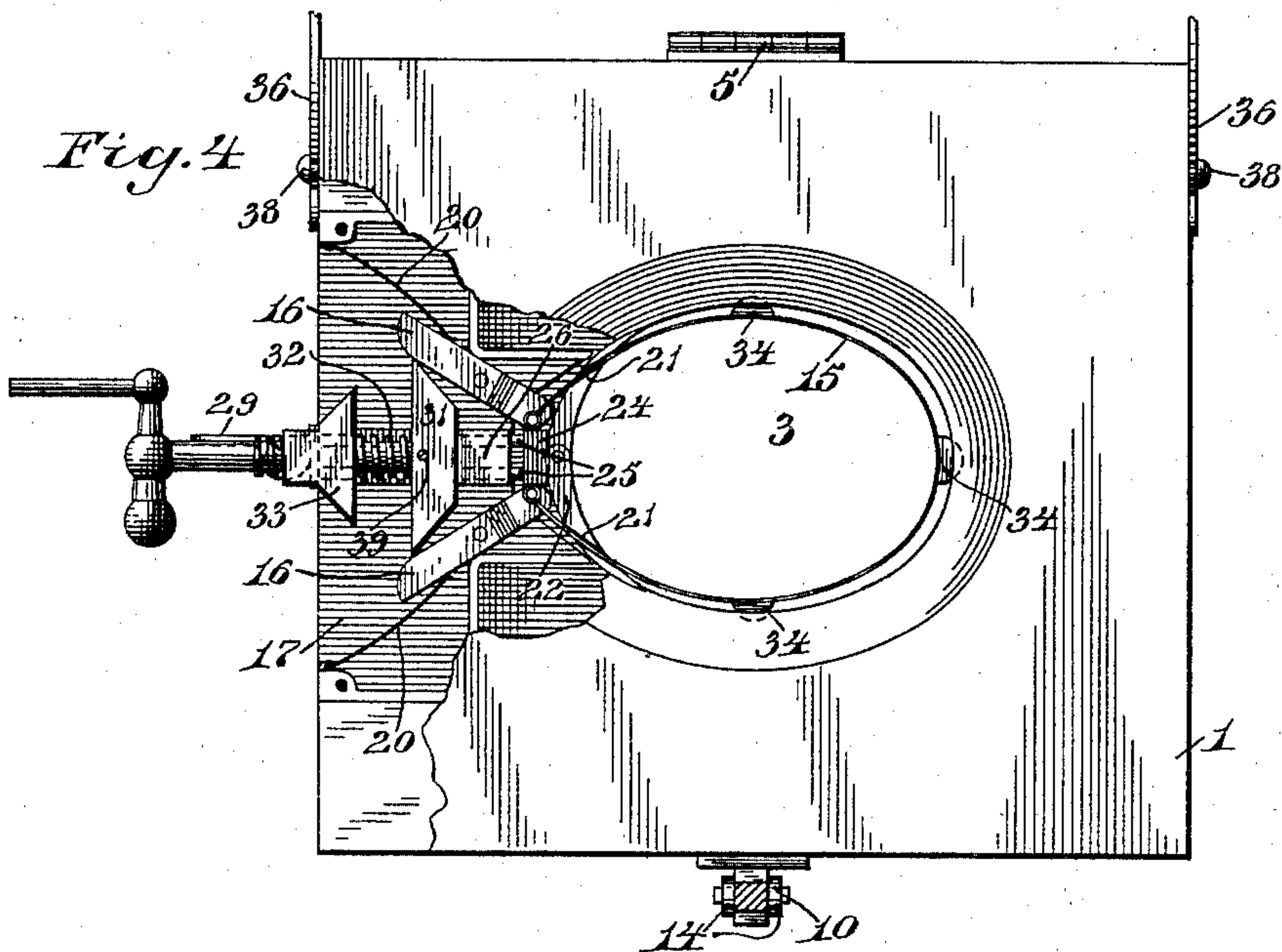
George E. Brush  
By J. M. Wooster atty.

G. E. BRUSH.

MACHINE FOR BLOCKING AND BANDING HATS.

No. 475,662.

Patented May 24, 1892.



WITNESSES

E. M. Gallaher  
Edith G. Ely.

INVENTOR

George E. Brush  
By J. M. Wooster atty.



# UNITED STATES PATENT OFFICE.

GEORGE E. BRUSH, OF DANBURY, CONNECTICUT.

## MACHINE FOR BLOCKING AND BANDING HATS.

SPECIFICATION forming part of Letters Patent No. 475,662, dated May 24, 1892.

Application filed October 5, 1891. Serial No. 407,768. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE E. BRUSH, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Machines for Blocking and Forming Bands on Hats; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to produce a machine for blocking hats and for simultaneously forming or cutting the band. Heretofore the operation of forming, or, as it is commonly called in the art, "cutting," the band upon hats has ordinarily been performed either by hand or by a machine known as a "hat-press" or "hat-blocking machine." The trouble with hat-presses has been that it was impossible to form or cut a good sharp band with them and that it was impossible in any of them to use a bell-crown block. The operation by hand is tedious, and is expensive, as it requires the best of skilled labor. In order that I may be enabled to block bell-crowned as well as ordinary hats and to form clear-cut sharp bands on them, I have devised the novel machine of which the following description, in connection with the accompanying drawings, is a specification, numbers being used to denote the several parts.

Figure 1 is a plan view with the upper form thrown back, a portion of the rubber holding-pad and the top plate of the lower form being broken away and the band-former being in the expanded position; Fig. 2, a transverse section of the two forms in the closed position; Fig. 3, a longitudinal section, on an enlarged scale, on the line *xx* in Fig. 1; Fig. 4, a plan view, the two forms being in the closed position, a portion of the top form and the rubber pad and top plate of the lower form being broken away and the band-former being in the contracted position; Fig. 5, a longitudinal section on the line *yy* in Fig. 1; Fig. 6, a view of the top plate of the lower form detached; Fig. 7, a section on the line *zz* in Fig. 6; and Figs. 8 and 9 are respectively a front elevation and plan view of the hinged guides or wings for the band-former.

1 denotes the upper form, and 2 the lower

form. The upper face of the lower form is made concave and the lower face of the upper form convex, so as to give the proper scope to the brims of hats, the curvature which gives the scope to the brims being clearly shown in Fig. 5. Both of the forms are provided with openings 3 through them, the inner end of the opening in each form being straight-sided and the outer ends preferably flaring outward, as clearly shown. The outward flare or taper is simply for the convenience of the operator, so as to permit ready access to the crown from below and to the block from above. The inner faces of both forms are preferably covered with pads 4 of rubber to serve as holding-pads for the hat-brims, and the forms are connected together by means of a strong hinge 5, the lower leaf of which, instead of being connected directly to the lower form, is riveted to a heavy spring 6. This spring is preferably made substantially the shape illustrated in Fig. 2—*i. e.*, in the form of a right angle, the lower arm of which lies loosely in a recess 7 in the under side of the lower form, the inner end of said arm being rigidly secured to the form, as at 8. The object of this special construction is to cause the faces of the two forms to register accurately—*i. e.*, to bear evenly upon each other clear across no matter what may be the thickness of the hat-brim between them. The spring is so constructed as to yield sufficiently to permit a very thick brim to be placed between the forms and to cause both sides of the form to meet each other accurately, as clearly shown in Fig. 2. The two forms are retained in the closed position by means of a locking-cam 9, pivoted to a link 10, the lower end of which is pivoted to an ear 11 upon the lower form. The cam is provided with a hand-piece 12 for convenience in operation. The operative face of the cam in use engages a catch-plate 13 on the upper form, as clearly shown in Fig. 2.

14 is a stop-pin on the cam, which engages the link and acts to limit the outward movement of the hand-piece, and 10<sup>a</sup> is a stop on the link which engages the base of ear 11 to limit the outward movement of the link.

15 denotes a flexible band-former, which lies in the straight-sided portion or openings 3, the upper edge of the band-former being



curved to correspond with the curvature of the lower form, as best seen in Fig. 5, the band being of less vertical dimension at its sides than at its ends. This band-former consists of a metallic strip the ends of which are connected to levers 16. The exact details of construction of the operating mechanism is of course not of the essence of my invention.

The operating mechanism is shown as in closed in a case 17, recessed into the end of the lower form. The top plate of the case (denoted by 17<sup>a</sup>) is provided with an extension 18, the forward end of which is a convex curve to correspond with the curvature of openings 3, and is also curved in the transverse plane to correspond with the curvature or scope of the lower form. I have shown the levers 16 as pivoted to blocks 19, extending upward from the bottom of the case. Springs 20 bear against the outer ends of levers 16 and act to throw them toward the position shown in Fig. 1. The ends of the band-former pass through slots 21 in wings or guides 22, the inner ends of which are provided with knuckles 23, by which they are pivoted to a sliding block 24.

25 denotes rods adapted to slide in a guide 26. Sliding block 24 is rigidly connected to the inner ends of these rods and is moved in or out therewith. At the outer ends of the rods is a plate 27, which is adapted to be engaged by a cam 28 to force the rods in or out. The cam is provided with a hand-piece 29 for convenience in operation.

30 denotes springs, the outer ends of which bear against plate 27 and act to throw the rods and sliding block 24 outward to the position shown in Figs. 1 and 3. The outer ends of levers 16 are thrown outward, thereby throwing in the inner ends of said levers and contracting the band-former, by means of a beveled cross-piece 31, carried by a screw 32, passing through a block 33, which is cast integral with or rigidly secured to the bottom of the case. The cross-piece is connected to screw 32 by means of a set-screw 39, the point of which engages an annular groove at the end of screw 32. (See Fig. 3.)

The band-former is provided with outwardly-extending ears 34, which engage recesses 35 in the lower form, thereby acting to hold the band-former in place at all times, whether expanded or contracted.

36 denotes curved plates on opposite sides of the lower form, each of which is provided with a notch 37, which is engaged by a pin 38 in the end of the upper form, thereby limiting the movement of the upper form when it is thrown to the open position, as in putting in or taking out a hat.

In use the band-former is placed in the expanded position by turning screw 32 outward, as shown in Fig. 1, and the top form is lifted over like the hinged lid of a box, as is also shown in Fig. 1. In this position of the parts the crown of the hat is passed down into the opening in the lower form, the brim lying

upon the curved upper surface of said form. The top form is then closed down upon the lower form and the two forms locked together by means of locking-cam 9 and the catch-plate, as already explained, spring 6, to which the hinge is attached, yielding sufficiently to permit the upper form to close down with even pressure upon the lower form. The usual hat-block is then passed down through the opening in the upper form and is forced to place in the hat in the usual or in any preferred manner. Having forced the block into the hat, the wings or guides are moved up against it by means of cam 28 and hand-piece 29, the said cam being swung from the position shown in Figs. 1, 3, and 5 toward that shown in dotted lines in Fig. 4, the action of which is to force the sliding block and the wings forward and set them up closely against the hat, as indicated in Fig. 4, the block and hat not being shown. Screw 32 is then turned inward, forcing the cross-piece inward, as shown in Fig. 4, the effect of which is to throw the outer ends of levers 16 outward and to throw inward the inner ends, to which the ends of the band-former are attached, thereby contracting the band-former, as is clearly shown in Fig. 4.

As already stated, the curvature of the top of the band-former is identical with the scope of the forms, so that when the band-former is drawn up tightly against the hat it forms or, as it is called, "cuts" the band sharply and clearly and just alike every time, the work produced by this machine being superior to any work where the band is formed or cut by a cord, or to the work of any machine previously constructed, as it is impossible to form a clear sharp band with an ordinary hat-press. In practice two sizes may be blocked readily, or three if necessary, by a single machine—for instance, a six and seven-eighths, seven, and seven and one-eighth.

It is an important feature of this invention that it will block bell-crowned hats—i. e., hats larger at the crown than at the band—just as easily as it will ordinary hats, it being apparent that in order to block a bell-crowned hat of a certain size the opening through the forms must be one or two sizes larger—as, for instance, a seven and one-eighth opening is required to block a seven bell-crowned hat.

Having thus described my invention, I claim—

1. The combination, with upper and lower curved forms, between which the brim is held and which have block-openings, of a flexible band-former passing from one point of said openings around the same and to a point in proximity to the first-mentioned point, and curved on its upper edge, the sides of the band being lower than the ends, and means connected with the ends of said band for contracting the same, substantially as set forth.

2. The combination, with upper and lower forms, of a bent or angle spring having one arm substantially parallel with and attached



to one of the forms, and a hinge attached to the other arm of said spring and to the other form, so that when said forms are closed together the spring will yield sufficiently to cause the forms to register perfectly without regard to the thickness of the hat-brim.

3. The combination, with a lower form made concave on its upper surface and an upper form made convex on its lower surface, of a spring attached to the lower form and a hinge attached to the free end of said spring and to the upper form, whereby said forms may be caused to register accurately when closed together.

4. The combination, with upper and lower forms, of a flexible band-former passing partly around the form-openings, inwardly-movable guides 22, through which the ends of the band pass, and means for drawing the said ends outward through the guides, substantially as set forth.

5. The combination, with the lower form having recesses 35, of the band-former passing around the form-opening with its ends at the same end of the said opening, having ears adapted to engage said recesses, whereby the band-former is held in position.

6. The combination, with the upper and lower forms and the flexible band-former, of levers 16, to which the ends of band-former are attached, and a beveled cross-piece between said levers and having means whereby it is adapted to be moved inward to contract the band-former about the hat.

7. The combination, with the upper and lower forms and the flexible band-former, of levers 16, to which the ends of the band-former are secured, springs acting to move the rear ends of said levers inward to expand the band-former, a beveled cross-piece adapted to move the rear ends of said levers outward, whereby the band-former is contracted about a hat, and means for actuating said cross-piece.

8. The combination, with the upper and lower forms, the flexible band-former, and suitable means for contracting said former about a hat, of a sliding block and wings 22, pivoted

thereto, the inner sides of said wings being curved to correspond with the curvature of a hat and having slots at their outer ends which serve as guides for the band-former.

9. The combination, with the upper and the lower forms, a band-former, and suitable means for contracting said band-former about a hat, of sliding block 24, wings or guides 22, pivoted thereto, rods by which said block is carried, means for retracting said block, and a cam 28, by which said guides are forced inward in contact with the hat-body against the power of the said retracting means.

10. The combination, with the upper and lower forms, the flexible band-former, and suitable means for contracting said former about a hat, of sliding block 24, wings 22, pivoted upon said block, rods by which said block is carried, springs acting to move said rods and block outward, plate 27 at the outer ends of the said rods, and a cam acting to force said parts inward against the power of the springs.

11. The combination, with the upper and lower forms and the flexible band-former, a sliding block having wings adapted to engage the hat and provided with slots serving as guides for the band-former, suitable means by which the block and wings are moved in or out, levers 16, to which the ends of the band-former are connected, and a sliding cross-piece and actuating means therefor, whereby the levers are operated to contract the band-former.

12. The combination, with the upper and lower forms, the flexible band-former, the sliding block, and actuating means therefor, and the wings, of levers 16, to which the ends of the band-former are connected, beveled cross-piece 31, by which said levers are operated, and a screw 32, engaging block 33, by which the cross-piece is carried.

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

GEORGE E. BRUSH.

Witnesses:

JABEZ AMSBURY,  
JOSEPH E. PLATT.