

No. 811,331.

PATENTED OCT. 10, 1905.

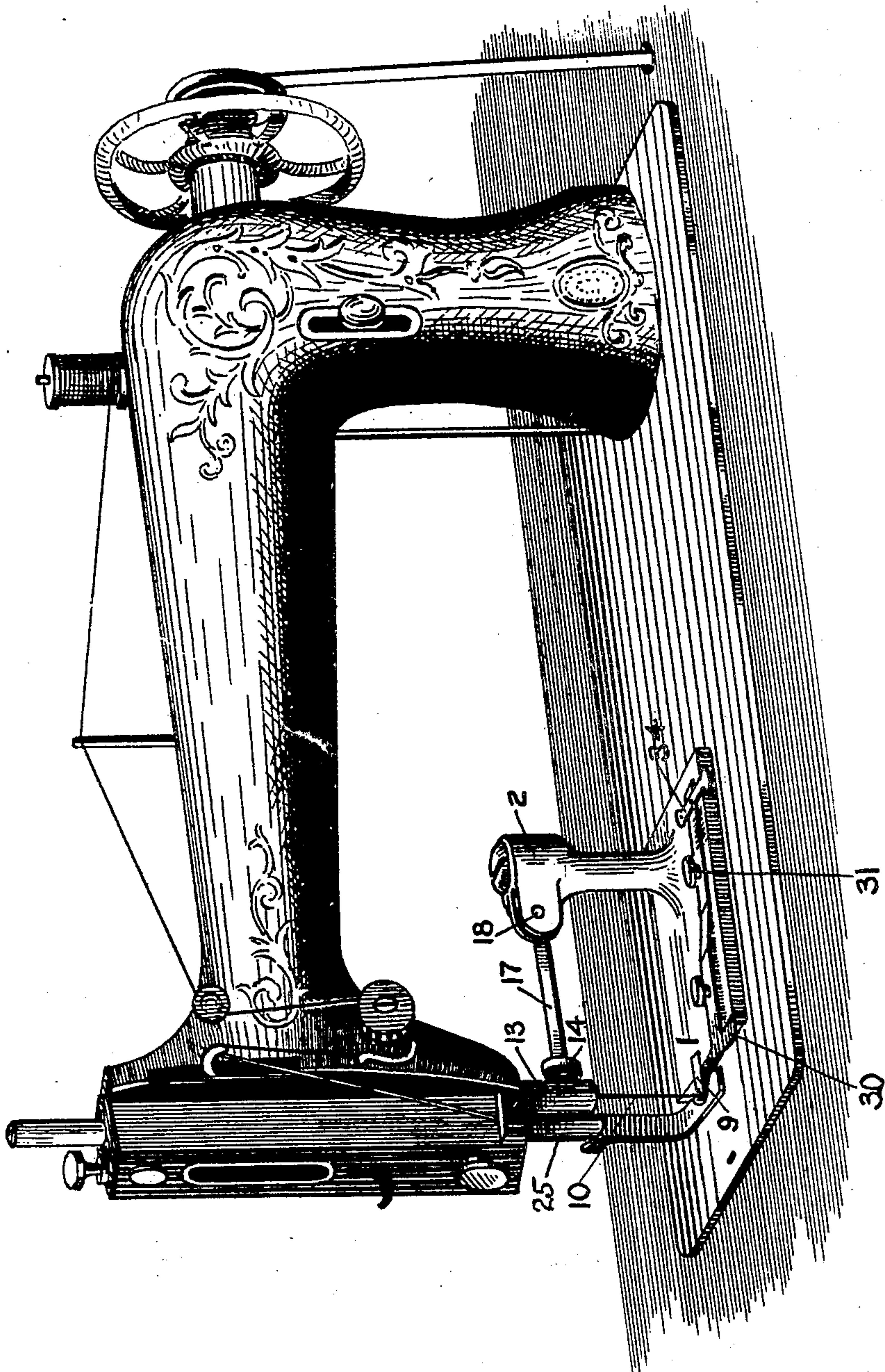
W. M. MURPHY.

BLINDSTITCHING AND SERGING ATTACHMENT FOR SEWING MACHINES.

APPLICATION FILED DEC. 19, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

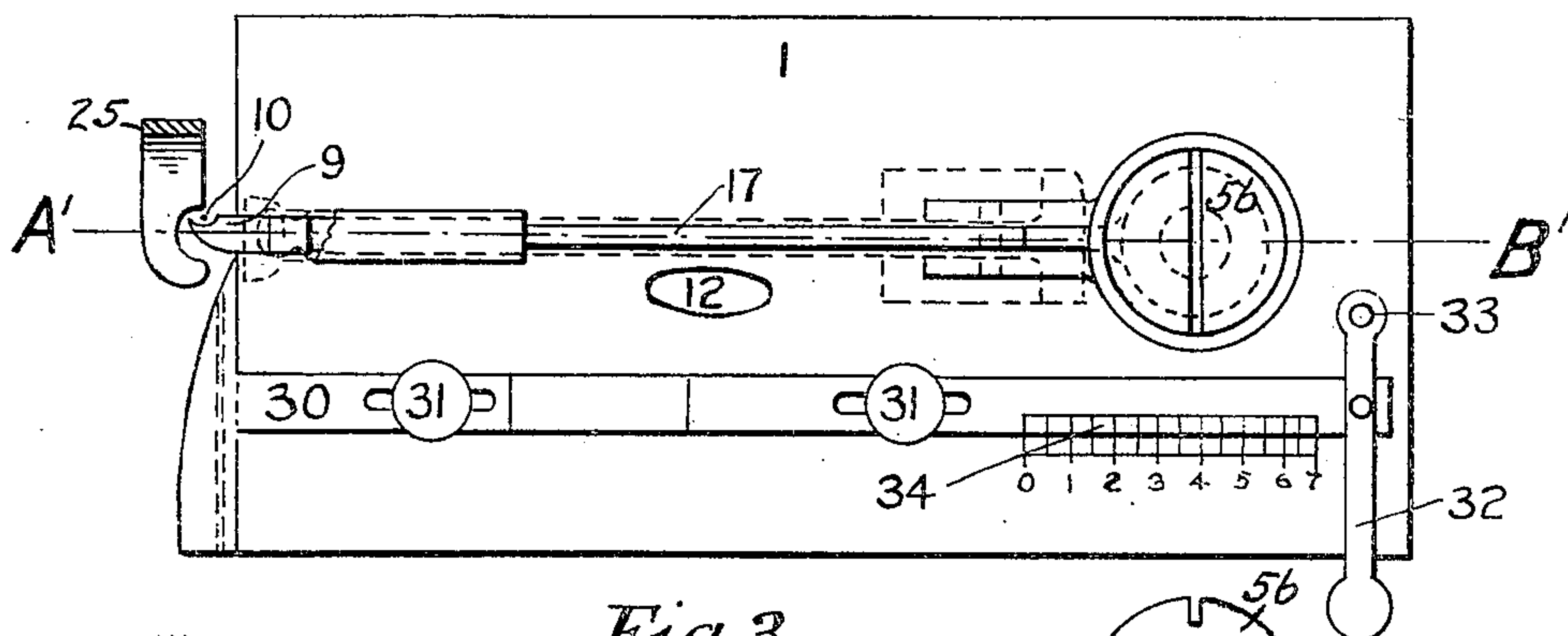


Fig. 3.

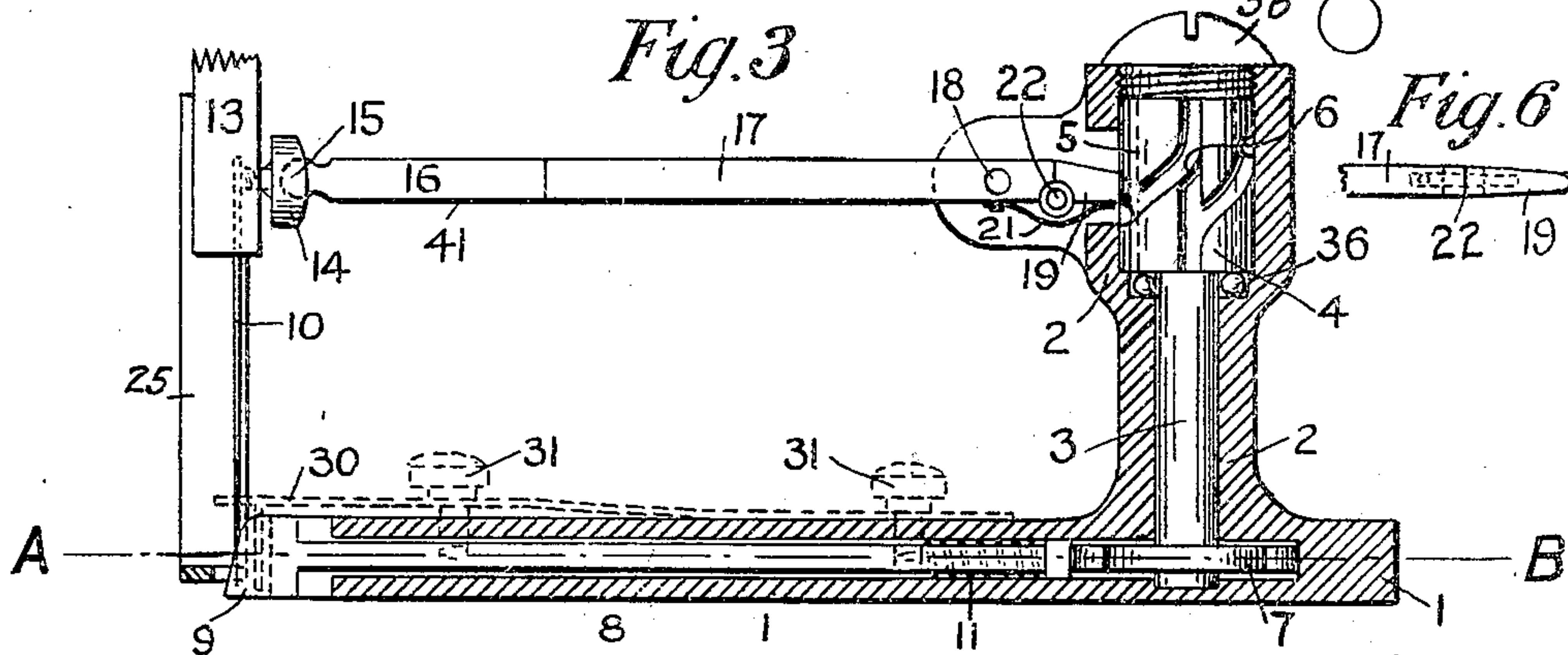


Fig. 6.

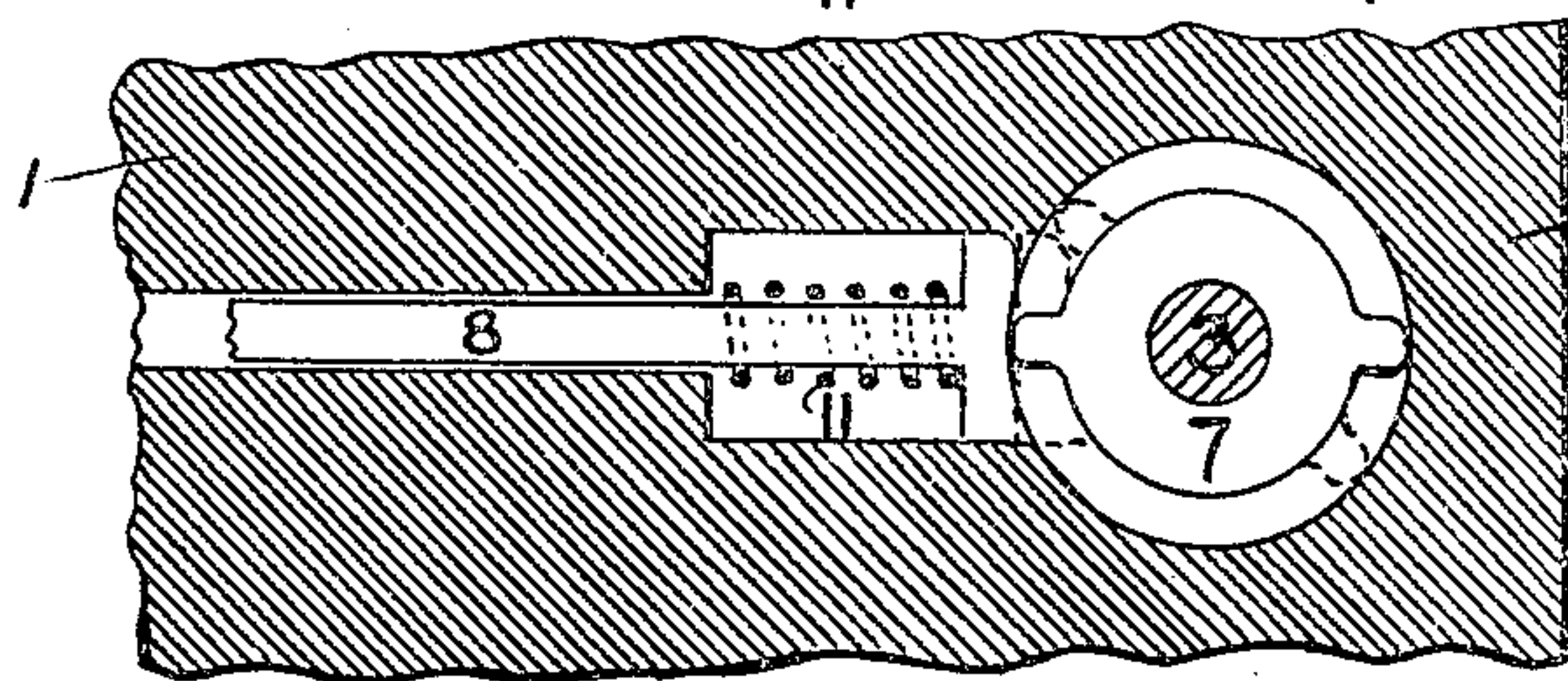
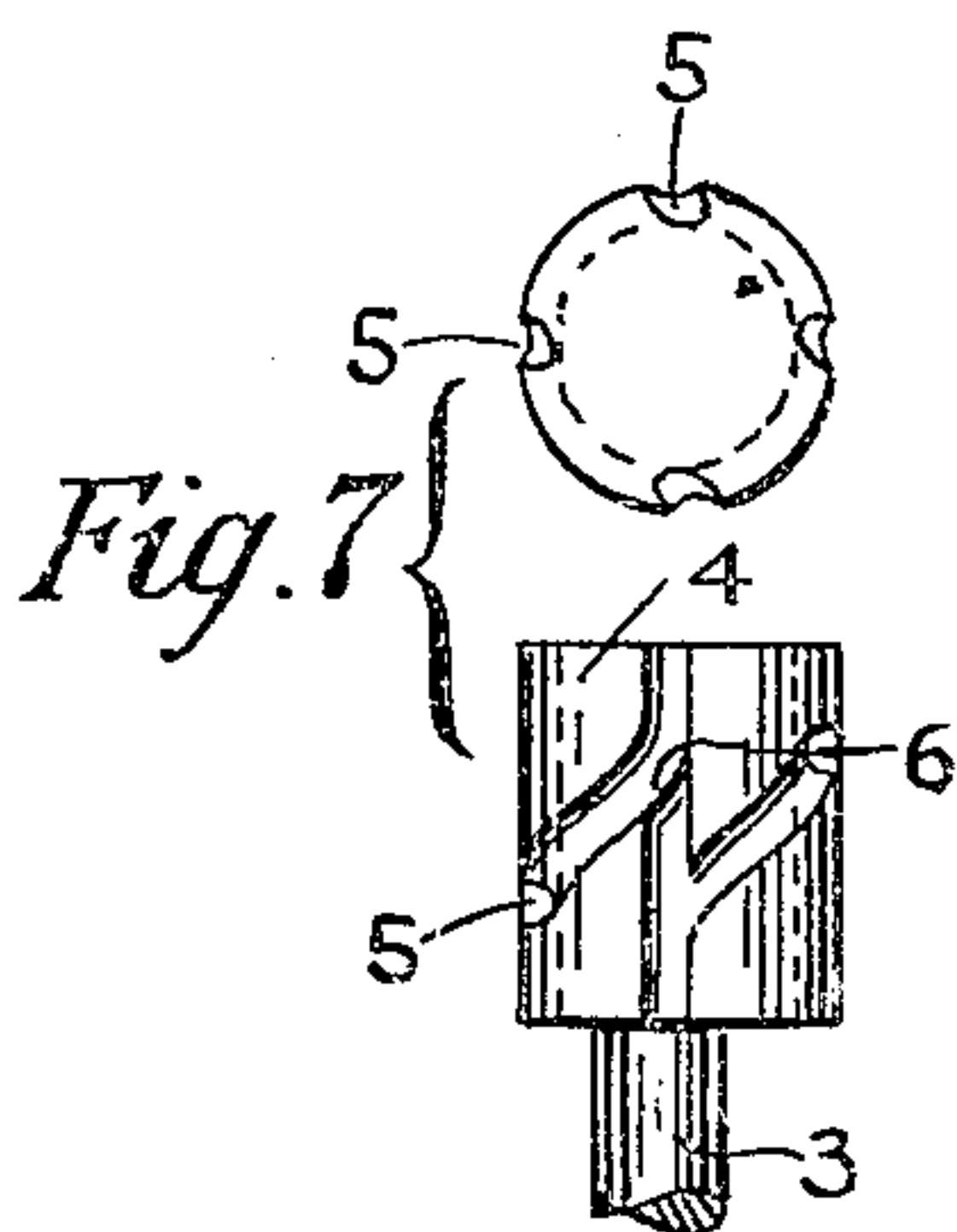


Fig. 4.

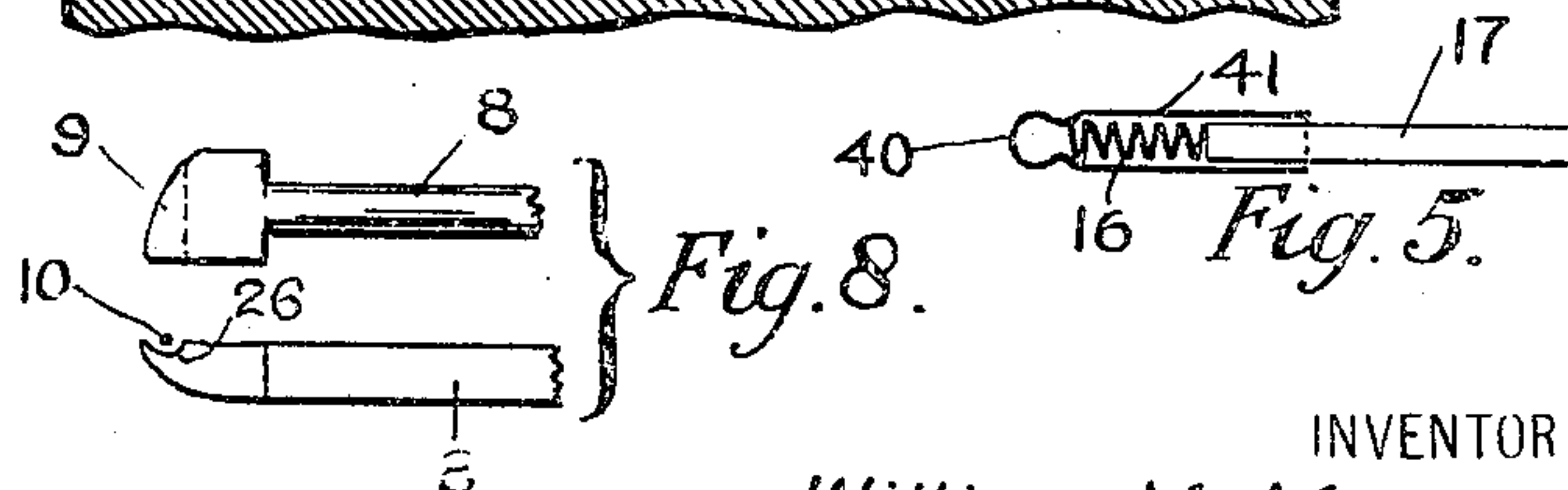
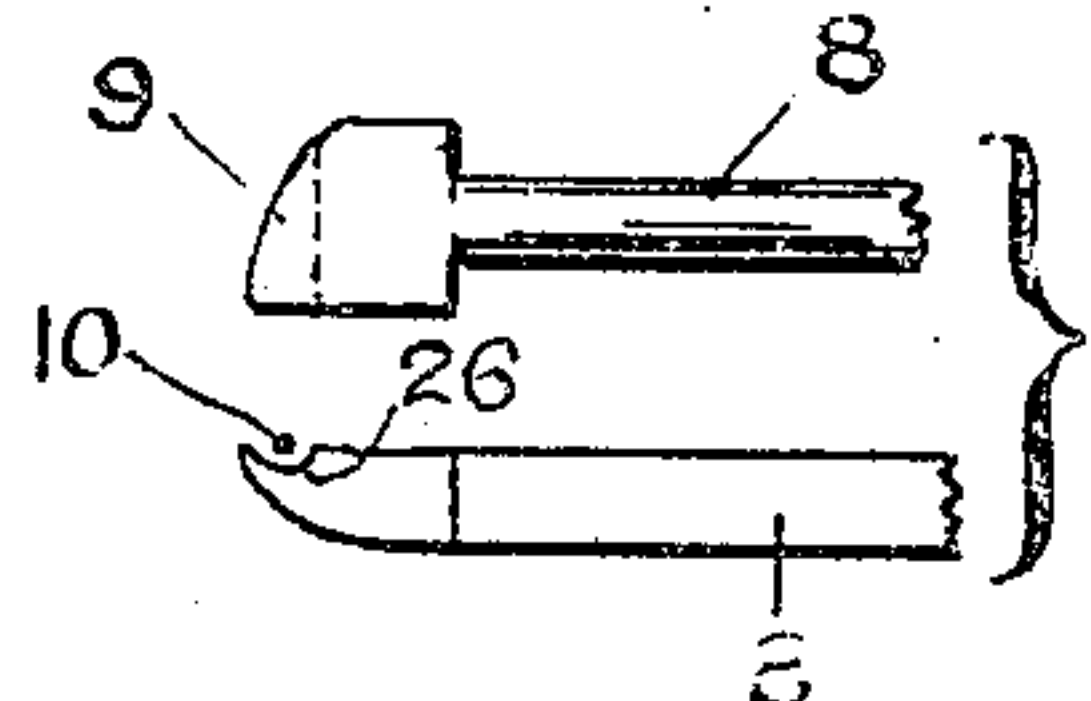


Fig. 5.



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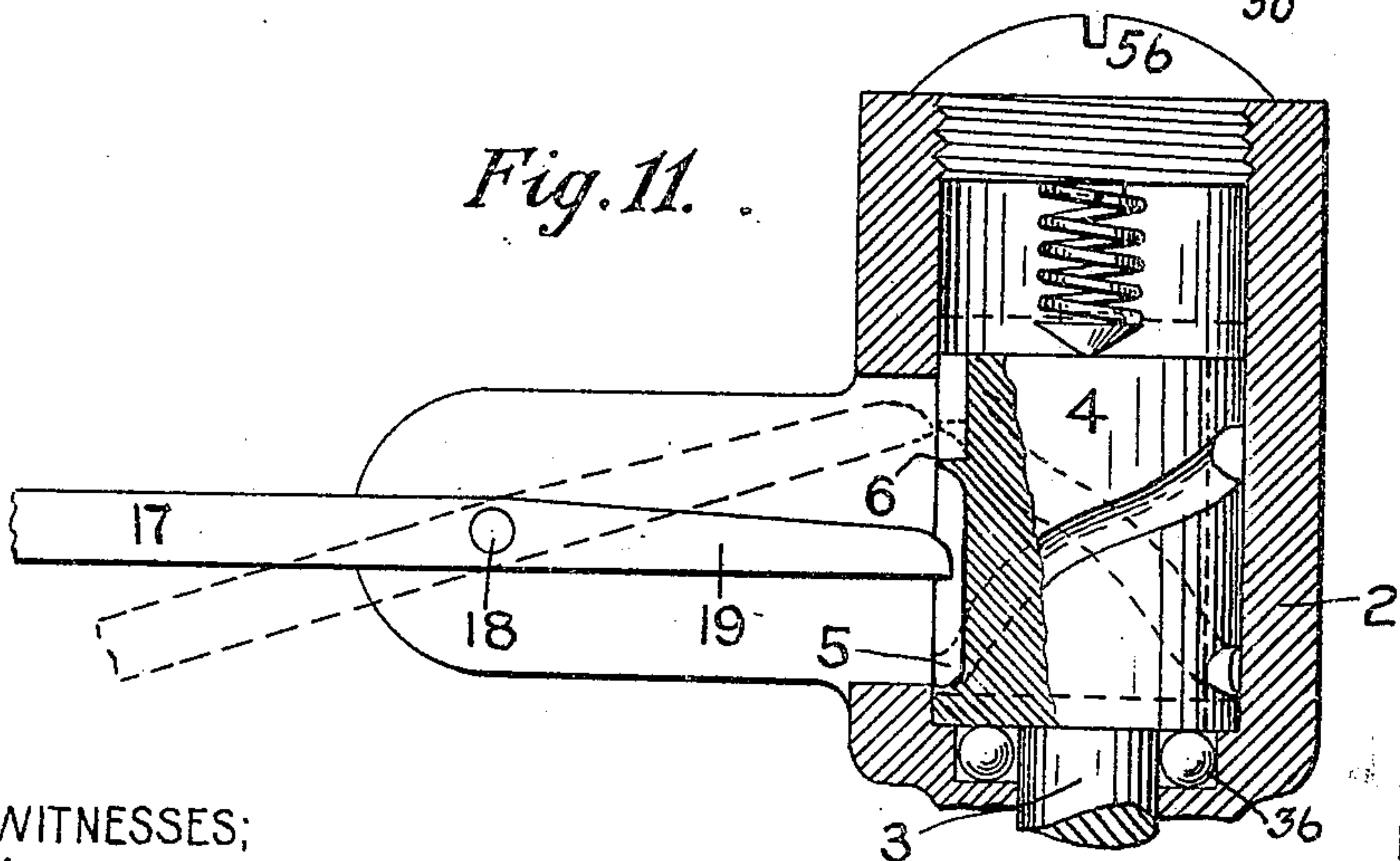
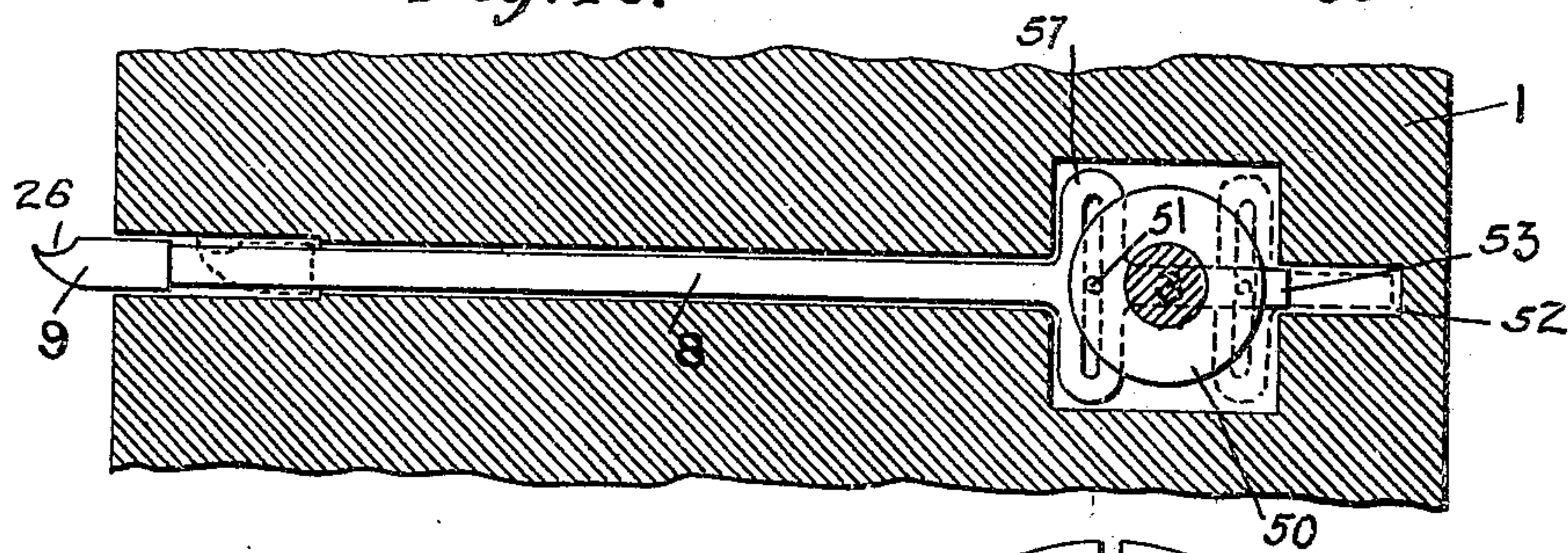
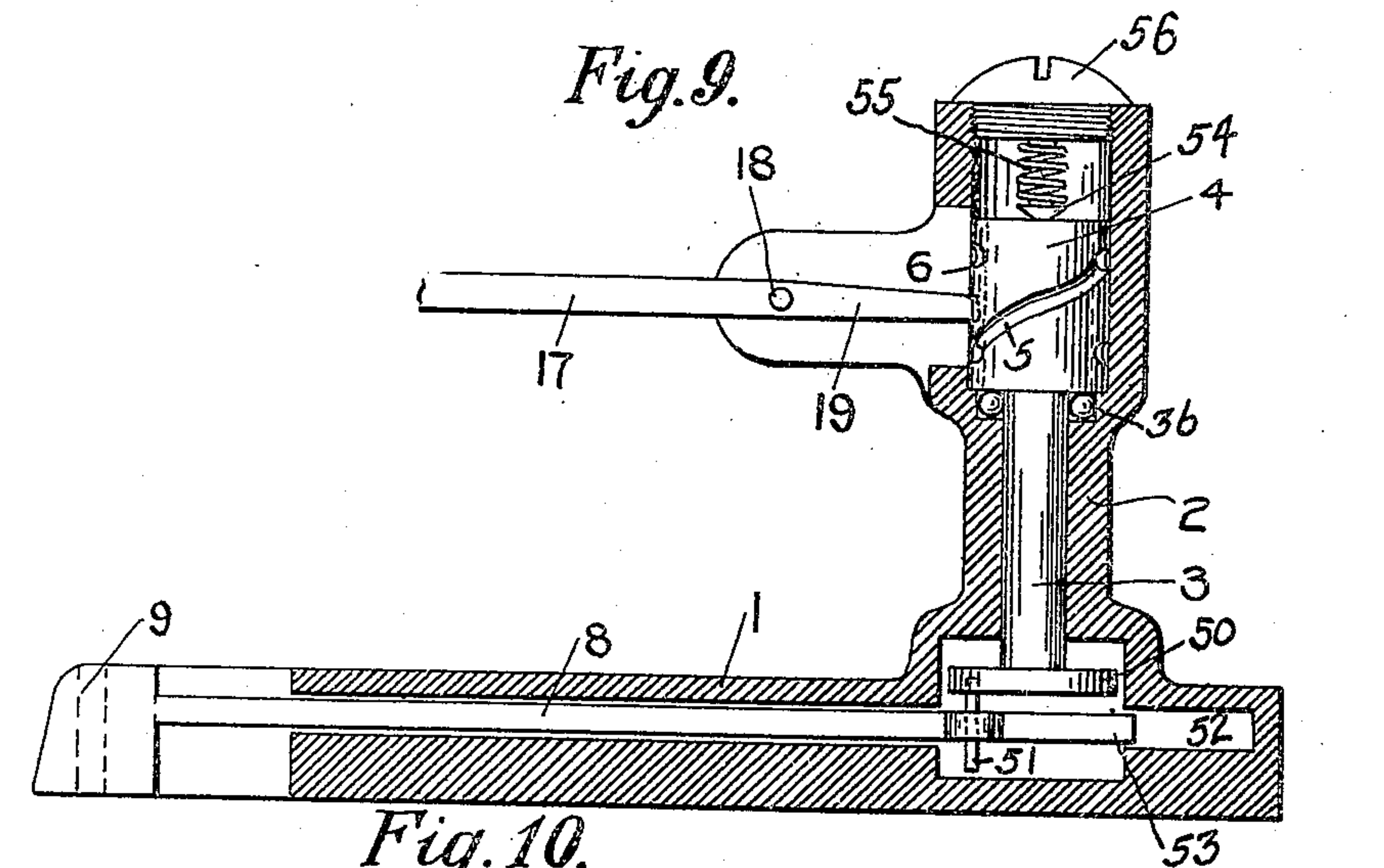
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APPLICATION FILED DEC. 19, 1904.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

WILLIAM MICHAEL MURPHY, OF NEW YORK, N. Y., ASSIGNOR TO THE
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BLINDSTITCHING AND SERGING ATTACHMENT FOR SEWING-MACHINES.

No. 801,331.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed December 19, 1904. Serial No. 237,539.

To all whom it may concern:

Be it known that I, WILLIAM MICHAEL MURPHY, a citizen of the United States of America, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Blind-stitching and Serging Attachments for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to attachments for sewing-machines; and its object is to produce a simple and durable device which may be attached to any sewing-machine head, so that by its means any operator may "blindstitch," "serge," or "overseam," at will.

The attachment is fastened on the cloth-plate of the machine-head, as shown in Figure 1, and consists of a chain of mechanism attached to the reciprocating needle-bar to regulate the stitching, so that only every other stitch pierces the cloth. It will be readily seen that there will be considerable stretch to this stitch which is a valuable feature, because it does not in any way interfere with the pressing of the goods thus stitched. In blindstitching, serging, or overseaming the mechanism and stitch remains the same and different results are accomplished by the method of folding the goods before stitching.

The foregoing and other features of my invention will now be described in connection with the accompanying drawings, forming part of this specification, in which I have represented mechanism embodying my improvements in their preferred form, after which I shall point out more particularly in the claims those features which I believe to be new and of my own invention.

In the drawings, Fig. 1 is a perspective view of my attachment fastened in place on the cloth-plate of a standard-type machine-head. Fig. 2 is a plan view of my attachment. Fig. 3 is a sectional elevation along the line A' B', showing the relation between the attachment and the presser-foot and the needle-bar of the machine-head. Fig. 4 is a section along line A B. Fig. 5 is a detail of spring-head on lever 17. Fig. 6 is a plan view of detent 19. Fig. 7 is a plan and elevation of cam-

head 4. Fig. 8 are two views of the push-bar head 9. Fig. 9 is an elevation of attachment in part section showing modification which I employ. Fig. 10 is a plan view thereof. Fig. 11 is an enlarged detail of cam-head 4.

1 is the base or standard of the attachment, provided at one end with casing 2, in which is journaled a vertical shaft 3, on one end of which is an enlarged head 4, in which are cut the curved cam-grooves 5. On the other end of the shaft 3 is a cam 7. The cam 7 actuates the push-bar 8, provided at one end with an enlarged head 9, adapted to push the cloth out of the path of the needle 10 every other stroke and is provided with a recess so arranged to give clearance for the needle when pushing the cloth out of its path, as shown in Fig. 2. The push-bar 8 is held in contact with cam 7 by the spring 11. The function of the spring 11 is to keep the push-bar 8 in contact with the cam 7. Fig. 8 shows two views of the push-bar head 9, showing its relation to the needle 10 of the sewing-machine.

The attachment is fastened to the cloth-plate of the sewing-machine by means of a thumb-screw passing through the slot 12 in the base 1 of the attachment. In the needle-bar 13 of the sewing-machine there is a thumb-screw 14, which holds the needle 10 in position. This thumb-screw 14 is provided with a capsular opening or seat 15 in its head, into which the head 16 of the lever 17 is seated. The head 16 is yieldingly connected to the lever 17. The function of the spring-head is to vary the length of the lever 17 while the reciprocating needle-bar is in motion. Fig. 5 shows the detail of the spring-head 16, which consists of a ferrule 40, yieldingly connected to the end of the lever 17 by the spring 41, one end of which may be fastened to the lever. The other end may be fastened to the inside of ferrule. The tension of the spring 41 keeps the ball-head of the ferrule 40 seated in the socket 15 of the thumb-screw 14 in the needle-bar 13 while making its stroke in stitching. On the other end of the lever 17 is a detent 19, hinged at 22 and kept in position by spring 21. The function of the spring 21 is to return the detent 19 to its normal position after it has crossed from one cam-groove over the wall

separating it from the next preceding cam-groove. The detent 19 engages the curved cam-grooves 5. The cam-grooves 5 in the head 4 may be either four or two in number, referring particularly to Fig. 7, which shows four cam-grooves separated from each other by the wall 6. Into these cam-grooves the detent 19 travels. Upon the downward stroke of the needle-bar the detent 19 travels up the vertical path of the cam-groove 5 and springs over the wall 6 into the next preceding cam-groove. On the upward stroke of the needle-bar the detent follows the cam-groove 5, disposed around head 4 and rotates the shaft. The wall 6 prevents the detent from returning in its path and the vertical shaft from turning in the wrong direction. This cam-groove is to transmit motion to the vertical shaft only when the needle-bar of the machine is on the upward stroke.

Referring to Figs. 1, 2, 3, and 4, I show four vertical cam-grooves, and with that construction I employ two lips on the cam 7, secured to the lower end of the vertical shaft 3. As the shaft 3 rotates the cam 7 will reciprocate the push-bar 8 every other time the needle-bar 13 is on its upward stroke. Consequently the head 9 of the push-bar 8 pushes the cloth out of the path of the needle every other downward stroke of the detent 19.

Referring to Figs. 9, 10, and 11, I employ two vertical cam-grooves, and with that construction a disk or crank 50 is secured to the lower end of the vertical shaft 5, carrying a pin 51, which engages the cam-yoke 57 on the end of the push-bar 8. The yoke is provided with a projection 53, which has a bearing 52. The lever 17 with this construction is not provided with a detent as in the other construction. The vertical shaft is capable of moving upward against the tension of the spring 55. When the needle-bar is making the downward stroke, the end 19 of the lever 17 is traveling up the vertical path of the cam-groove 5 and when it comes in contact with wall 6 raises the vertical shaft 3 sufficient to allow the end 19 of the lever 17 to clear the cam-head 4. The cam-head 4, which had been raised against the tension of spring 55, now returns to its original position and the lever engages the next cam-groove, and upon the upward stroke of the needle-bar the end 19 of the lever 17 travels along the cam-groove 5, disposed around the cam-head 4 and rotates the shaft 3. The function of spring 55 is to return the cam-head 4 to its normal position after it has been lifted by the end 19 of lever 17, gravity assisting. Rotating the shaft 3 reciprocates the push-bar 8 by the slotted yoke-crank motion. (Shown in Fig. 10.)

To guide the operator in making different widths of stitches, I provide a guide-bar 30, held in adjusted position by the guide-screws

31. The guide-bar 30 is provided at one end with two converging guiding-surfaces, so arranged that they form a pocket which guides the cloth while being stitched and may be adjusted by means of the lever 32, which is pivotally connected to the other end of guide-bar 30 and pivoted at 33 to the base of the attachment. The width of stitch may be regulated by the vernier 34.

As the rotary motion is imparted to the vertical shaft 3 upon the downward stroke of the detent 19, and consequently the upward stroke of the needle-bar to overcome any unnecessary resistance I provide ball-bearing 36 under the shoulder made by the cam-head 4 and the shaft 3.

Having described my invention, what I claim herein as new, and desire to secure by Letters Patent, is—

1. In a machine of the character described the combination of a reciprocating push-bar work-shifting device provided at one end with a head having a recess for the needle; a vertical shaft provided at the top with an enlarged head having a series of cam-grooves separated from each other by a small wall and disposed around said head, at the lower end a cam to transmit motion to the work-shifting device; and a lever carrying a spring-detent adapted to engage said cam-groove and thereby imparting intermittent rotary motion in one direction to said vertical shaft, the said lever being yieldingly connected to the needle-bar of the sewing-machine, all substantially as described.

2. In a machine of the character described the combination of a reciprocating push-bar work-shifting device provided at one end with a head having a recess for the needle, and at the other end a straight cam-yoke; a vertical shaft provided at the top with a head having a series of cam-grooves separated from each other by a wall and disposed around said head, at the lower end a crank adapted to engage the straight cam-yoke of the work-shifting device, a lever one end of which is adapted to engage said cam-grooves and thereby impart intermittent rotary motion in one direction to said vertical shaft the said lever being yieldingly connected to the needle-bar of the sewing-machine, all substantially as described.

3. In an attachment for sewing-machines the combination with a work-shifting device with means for imparting the necessary reciprocating intermittent motion to the work-shifting device comprising a vertical shaft having an enlarged head provided with a series of cam-grooves separated from each other by a small wall and disposed around said head; and having at its lower end means connected with the shifting device for converting the rotary motion of the shaft to the reciprocating motion of the work-shifting device, a lever

one end of which engages the cam-grooves
and thereby imparts intermittent rotary mo-
tion in one direction to said vertical shaft and
means by which the end of said lever engag-
5 ing the cam-grooves may spring over the wall
separating the grooves from the one next pre-
ceding, all substantially as described.

This specification signed and witnessed this
15th day of December, A. D. 1904.

WILLIAM MICHAEL MURPHY.

In presence of—

CHAS. R. PRATT,
M. A. MAGUIRE.