

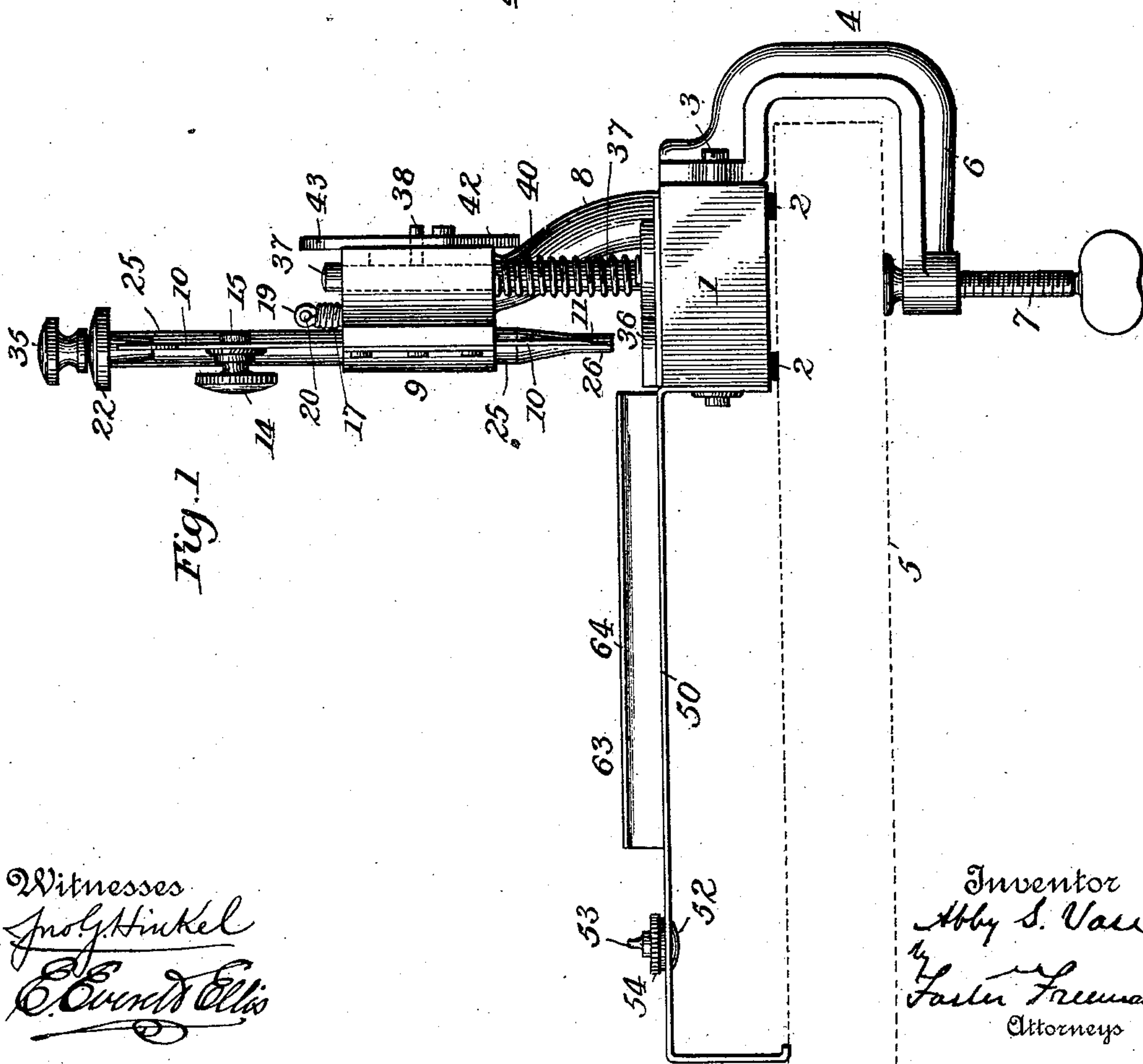
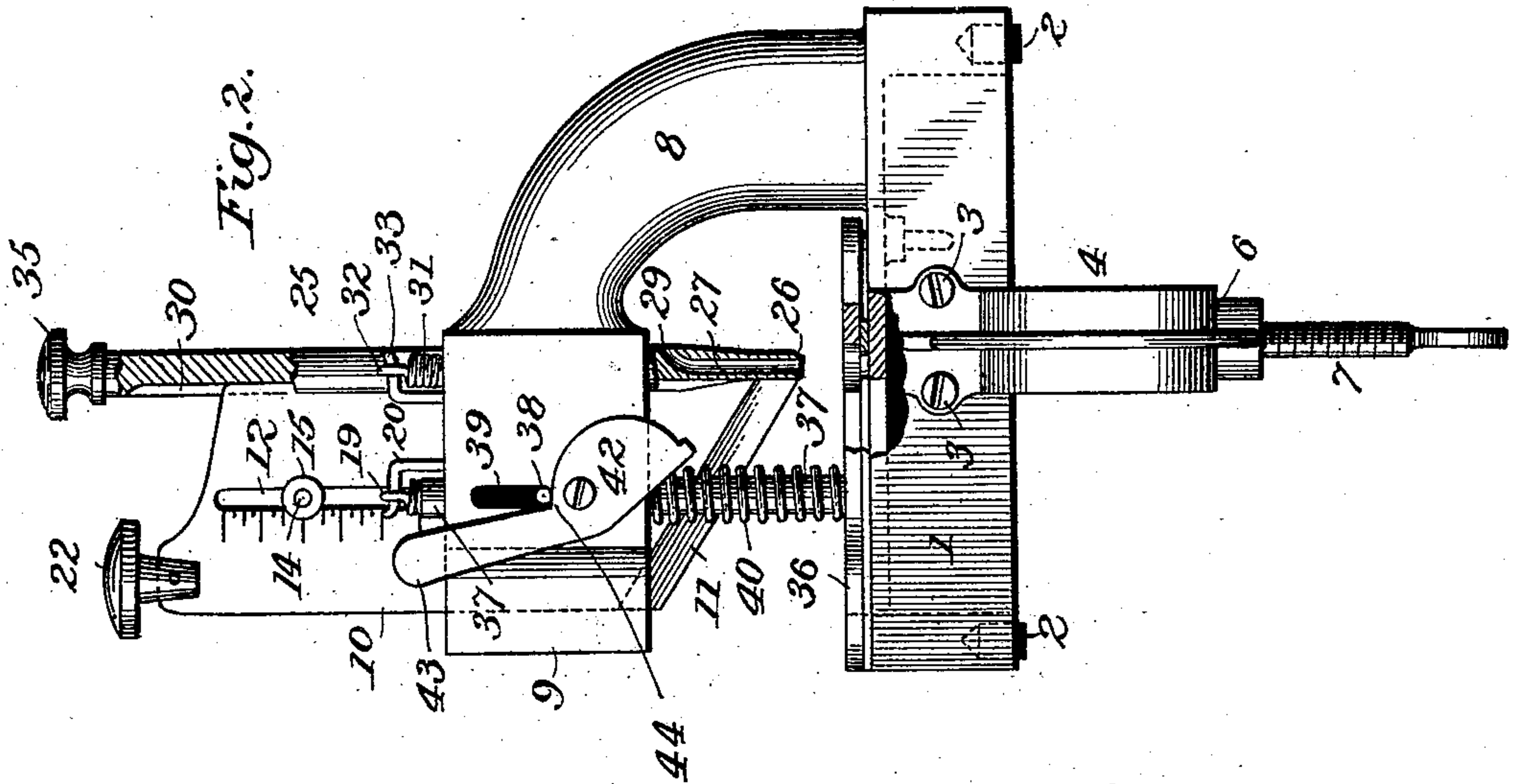
(No Model.)

2 Sheets—Sheet 1.

A. S. VOSE.
BUTTONHOLE CUTTER.

No. 543,635.

Patented July 30, 1895.



Witnesses
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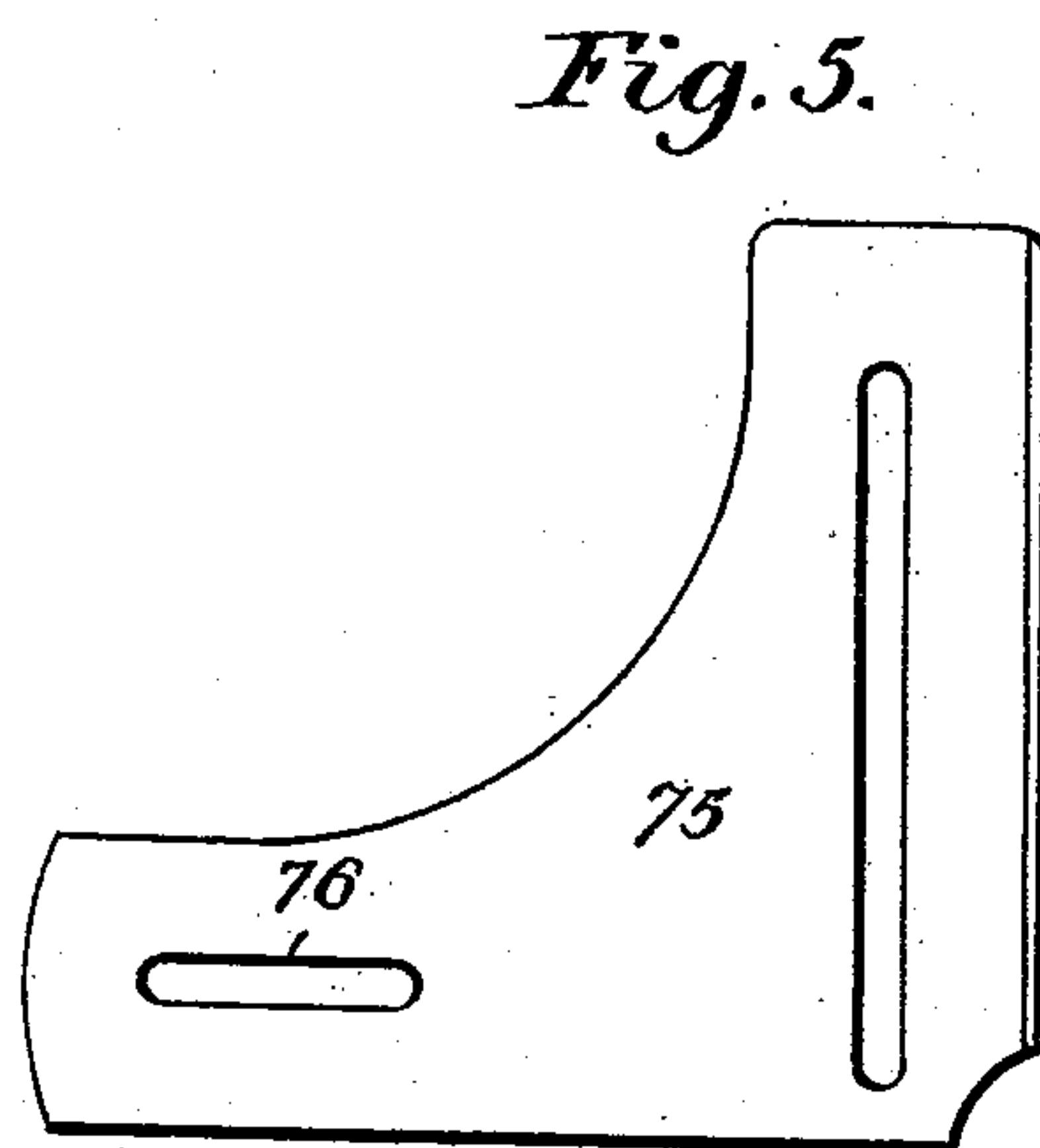
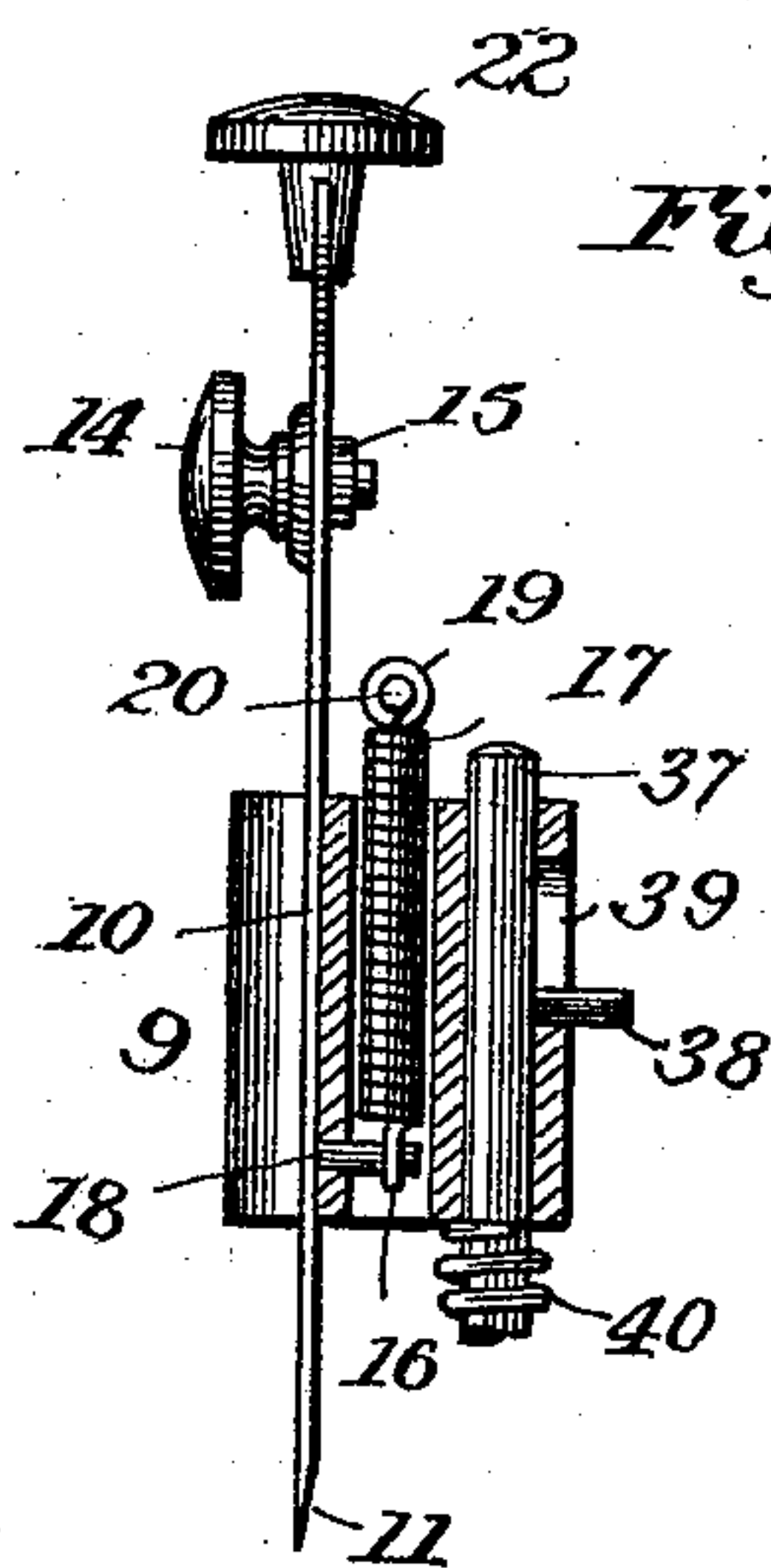
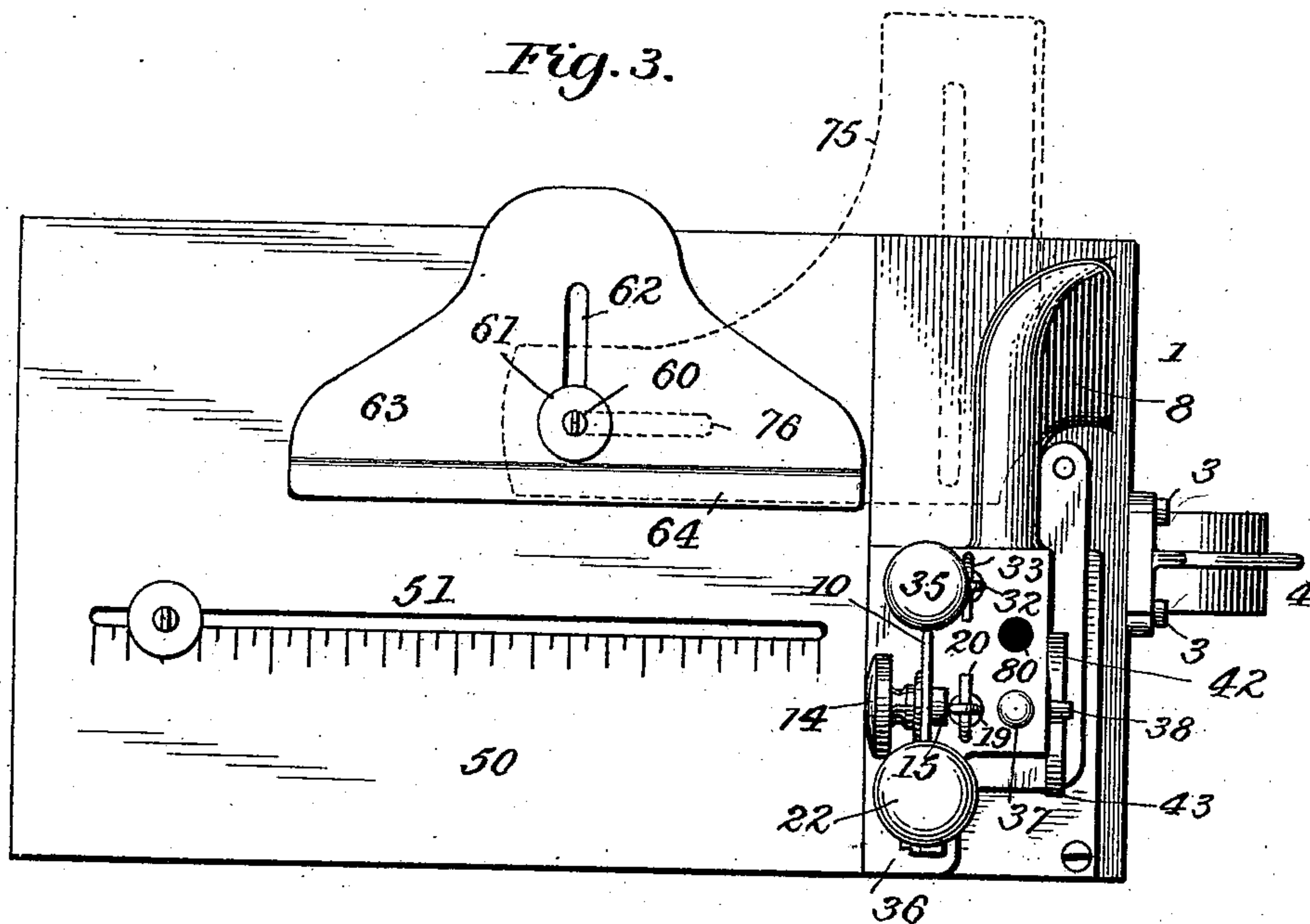
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UNITED STATES PATENT OFFICE.

ABBY S. VOSE, OF PROVIDENCE, RHODE ISLAND.

BUTTONHOLE-CUTTER.

SPECIFICATION forming part of Letters Patent No. 543,635, dated July 30, 1895.

Application filed March 7, 1895. Serial No. 540,881. (No model.)

To all whom it may concern:

Be it known that I, ABBY S. VOSE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Buttonhole-Cutters, of which the following is a specification.

This invention relates to certain new and useful improvements in machines for cutting buttonholes; and it consists substantially in such features of construction, arrangement, and combinations of parts as will hereinafter be more particularly described.

The invention has for its object the cutting of buttonholes in fabrics of any desired thickness, and to form the holes of different shapes according to the nature of the garments without changing or altering the position of the knife or cutter.

The invention also has for its object the cutting of buttonholes in a direction either parallel with or at right angles to the edge of the fabric, and to vary the length of the buttonhole as well as the distance the same occupies from the edge of the fabric.

A still further object is to govern or regulate the distance the buttonholes shall occupy with respect to each other, and to enable each hole to be quickly and easily formed in the fabric.

A still further object is to provide a machine of the character referred to, which can readily be attached to an ordinary table, sewing-machine, or other suitable support, and one which is thoroughly effective in performing its several functions and which is not likely to soon get out of order.

These objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the machine embodying my improvements, the same being shown as secured in place upon a suitable support. Fig. 2 is a front elevation, partly in section, and more clearly indicating the disposition of the knife and the means for operating the presser-foot, as well also as the relative arrangement of the circular punch or cutter. Fig. 3 is a top or plan view illustrating more clearly the construction and arrangement of the gages or distance-blocks for the

buttonholes as well as the guides through the medium of which I am enabled to effect the cutting of the buttonholes in a direction either parallel with the edge of the fabric or at right angles thereto. Fig. 4 is a detail view, partly in section, representing more clearly the means by which the knife is normally maintained in an elevated position. Fig. 5 is a detail view of the gage-plate employed to guide the fabric while cutting the buttonholes parallel to the edge of the fabric.

In carrying my invention into effect I provide a suitable base or bed-plate 1, having on its under side at the corners small feet 2 of rubber, felt, or other suitable material, so as to prevent the marring of the surface of the support to which the machine is attached. Various means for preventing scratching of the support could be resorted to—such, for instance, as covering the entire under surface of the bed-plate or base with felt or rubber; but the arrangement shown is such as I have found effective, and is usually preferred in practice. Secured to the outer side of the said bed-plate or base by means of screws 3 is a clamp 4, adapted to embrace the edge of a table or other support 5, and the lower inwardly-projecting arm 6 of said clamp is provided with a screw 7, which bears on the under side of the support, and by the tightening of which the machine is firmly secured in place. Extending upwardly from the said bed-plate or base 1 is a curved arm 8, which is of a suitable height, and to the upper end of which is attached, or secured in any suitable manner, a body or guide 9 constructed to receive and permit of the vertical movement therein of the knife or cutter 10, which effects the cutting of the buttonholes in the fabric, as will be presently explained. The said knife or cutter is formed at its lower portion with an oblique or diagonal edge 11, which is ground down to a very sharp edge for the purpose of penetrating the fabric without catching or hanging. The said knife or cutter is further formed in the upper part of its body with a vertically elongated opening or slot 12, in which works a screw-button 14, which is tightened in place by means of a small nut 15, and thus by loosening the nut the said screw-button can be raised or lowered in the

slot to any position desired. In this way the descent of the knife or cutter is regulated, for when the latter is depressed the screw-button 14 comes into contact with the upper
5 part of the body or guide 9, preventing further movement.

The face of the knife or cutter is provided with a scale alongside of the slot or opening 10, and by setting the screw-button at any
10 degree of the scale the size of the buttonhole to be cut is determined. Thus I am enabled to form buttonholes ranging from the very smallest required to the very longest, and the
15 change from one size to another can be quickly effected by simply altering the position of the screw-button. Normally the position of the knife is elevated above the bed-plate or base, and the lower end 16 (see Fig. 4) of a spring
20 17 is attached to a projection 18 on the knife, the upper end of said spring being formed into an eye 19, which fits upon the hooked end of a pin 20, secured in the upper side of the body or guide 9. (See more clearly Fig. 2.) By this construction it is evident that
25 when the knife is lowered by pressure of the hand and again released the said spring 17 will tend to instantly restore the knife to its former position. To facilitate the manipulation of the knife or cutter I attach to the upper
30 end thereof a thumb-plate or button 22, which, for sake of convenience, as well as affording increased space between the cutter and punch, (hereinafter described,) is arranged or located near the outer edge of said
35 cutter, substantially as is more clearly shown in Fig. 2. The cutter can pass through the bed-plate or base 1 to the full extent required for the longest length of buttonhole and still not have the extreme point of its cutting-edge
40 penetrate or come into contact with the table or support on which the machine is secured, this being due to the fact that the said bed-plate or base is hollow, or is formed with sides which maintain it elevated for the required
45 height.

From the construction and arrangement of parts thus far described, it will be seen or understood that the ordinary straight buttonhole, such as is usually employed by dress-
50 makers, is formed in the fabric when the latter is properly placed beneath the knife and the knife made to penetrate such fabric; but it is desirable in many instances to form buttonholes such as are employed in tailor-made
55 garments, and which is constituted of a straight slit having an eye at the end thereof adjacent to the edge of the fabric. To cut a buttonhole of this latter kind, I employ, in conjunction with my improved knife or cut-
60 ter above described, a vertically-operating punch 25, which, at its lower end, is hollowed out and sharpened to an edge 26, the opening 27 formed therein being made to pass out at the side, as shown at 29, thus the small pieces
65 which are punched from the fabric will gradually rise in the opening and pass out at the

side in the manner of an ordinary eyeletting-punch. The construction and arrangement of the cutter and punch are such that the one is partially guided in its movements by the
70 other—that is to say, in the side adjacent the inner edge of the cutter or knife. The said punch 25 is grooved out vertically at 30 and the edge of the knife or cutter fits therein, the purpose being to have the point of the
75 cutter intersect the opening made in the fabric by the punch, so that when the punch has been operated first to produce the eye of the buttonhole and the knife thereafter depressed to form the straight portion or slit
80 there will be no intervening portion of the fabric left remaining between the eye and the slit. In addition to the manner in which the punch is guided by the knife the latter is also guided by the body or guide 9 in like man-
85 ner as the knife, and also in like manner as the knife the said punch is normally maintained in an elevated position by means of a spring 31 having an eye 32 fitting upon the hooked end of a pin 33, which is secured to
90 the body 9 or any other stationary part of the machine. It will thus be seen that to make a buttonhole of the dressmaker's kind it is simply necessary to depress the knife or cutter, causing it to penetrate the fabric; but to
95 make a buttonhole of the tailor-made kind the punch is first depressed by means of its thumb-piece or button 35 and then the knife is operated.

In conjunction with the devices hereinbefore
100 described I also employ a presser-foot 36 having a stem 37 passing upwardly through the body or guide 9, which stem is provided with a pin or projection 38 passing outwardly through a slot 39 formed in the side of said
105 body or guide 9. Surrounding the stem 37 and exerting its pressure between the presser-foot and the lower side of the body or guide 9 is a spring 40, which thus normally maintains the presser-foot down upon the bed-plate or
110 base 1, and pivoted to the side or front of the guide 9 is a cam-lever 42 having a handle 43, the upper extremity 44 of the edge of the cam having the pin 38 resting thereon when the presser-foot is down. Thus to elevate the
115 presser-foot the handle of the hand-lever is grasped and the lever turned to one side, whereupon the cam causes the pin 38 to ride the same with an obvious result. When the fabric has been properly placed upon the bed-
120 plate, the cam-lever is turned in the opposite direction and the presser-foot is lowered down by the force of its spring.

For the purpose of enabling the proper guidance of the fabric while the buttonholes
125 are being cut therein at right angles to the edge, and also to permit of varying distances of the buttonholes from the edge of the fabric I employ a plate 50, (seen more clearly in Fig. 3,) which is provided with a longitudinal
130 elongated opening or slot 51 in which is located a screw or button 52 having an up-

wardly-projecting point 53, said button or screw being held to different positions within the slot or opening by means of a nut 54, which is tightened after the screw or button is moved or adjusted. Passing through this plate 50 to one side of the said slot 51 is also a screw 60 which is tightened when desired by means of a nut 61, and this screw 60 passes upwardly through a slot or elongated opening 62 formed in a gage-plate 63, having its inner edge 64 turned up at a right angle, against which the edge of the fabric is guided as the latter is passed through the machine from the front of the latter. By moving the said gage-plate 63 in or out it is obvious that the point of the knife or cutter will be made to enter the fabric nearer to or farther from the edge thereof, accordingly as the gage-plate is adjusted. The screw 52 working in the opening 51 of the plate 50 constitutes a gage by which the distance between buttonholes is regulated, and I have provided a scale along-side of said opening 51, and if the buttonholes are to be, say, an inch apart the point 53 of the screw 52 is set to one inch of the scale, and then when the first buttonhole is formed and the next is to be proceeded with the fabric is moved forward and the first buttonhole slipped over the point 53, the fabric being then carefully held down by one hand while the next buttonhole is cut, and so on is this operation repeated by placing the last buttonhole cut over the point preceding the cutting of the next succeeding buttonhole.

In addition to the gage-plate above described I also employ a similar plate or gage for the fabric, as the latter is passed through the machine from the side for the purpose of cutting the buttonholes in a direction parallel with the edge of the fabric, this additional gage-plate being indicated at 75, Fig. 3, and being shown in detail in Fig. 5. It is slotted at 76, corresponding to the slot 62 of the gage-plate 63, and if desired a similar gage for regulating the distance between buttonholes may be employed in connection therewith. Said plate 75 is guided by means of its slot 76 upon the same screw 60 which guides the gage 63, and it is evident that by adjusting the plate in the same manner as hereinbefore described the buttonholes will be formed nearer to or farther from the edge of the fabric.

It is obvious that while I have shown and described the various parts of my machine as constructed and arranged in a particular way I am not limited to the precise details as I have endeavored to particularly set forth, and hence I do not wish to be understood as limiting myself to these precise details. I have explained each part separately, as well as the conjoint operations thereof, and it is thought that the invention will be fully understood from this specification and drawings.

I desire to add that I form an opening 80 down through the body or guide 9, (see plan

view, Fig. 3,) in which a pencil, crayon, or other marking device may be inserted to mark the opposite edge of the fabric at places corresponding to the buttonholes cut, so that the buttons can afterward be sewed on or attached with perfect alignment.

What I claim is—

1. In a machine for cutting button-holes, the combination with a vertically operating knife or cutter, of a horizontally disposed plate attached to the base of the machine and having a longitudinal slot and a scale, and an adjustable device working in said slot and adapted to be projected through each button-hole as it is cut, whereby the distance between the button-holes is regulated, substantially as described.

2. In a machine for cutting button-holes, the combination of the plate formed with the longitudinal slot, the button or gage adjustable in said slot, and a gage plate adjustable at right angles to the slot, substantially as described.

3. In a machine for cutting button-holes, the combination of the plate 50 having the longitudinal slot provided with an adjustable gage, and transversely and longitudinally adjustable gage-plates working on said plate, substantially as described.

4. In a machine for cutting button-holes, the combination of a knife or cutter and a punch each operating independently of the other, the one being partly guided by the other in its movements, substantially as described.

5. In a machine for cutting button holes, the combination of a punch normally held to an elevated position and formed with a groove in its side, and a knife or cutter also normally held to an elevated position and having one of its edges entering the groove of the punch said knife and punch operating independently of each other, substantially as described.

6. In a machine for cutting button holes, the knife having the vertical slot provided with an adjustable screw-button, and formed at its lower end with an oblique cutting edge, in combination with a punch working directly adjacent one edge of the cutter and independently of the latter, substantially as described.

7. In a machine for cutting button holes, the combination of the base plate provided with a clamp for attachment to a support, the curved arm projecting from said plate and the body or guide 9, the knife working through said guide and provided with the adjusting button, the spring for retracting the knife, the punch also spring retracted and grooved to receive an edge of the knife, the presser foot and its spring, and the cam operating upon a projection from the stem of said presser foot, substantially as described.

8. In a machine for cutting button holes, the combination of a knife or cutter, the slotted plate 50 provided with the adjustable gage

or button for regulating the distance between the holes to be cut, and a gage or guide for the fabric, said gage or guide being adjustable to vary the distance of the button holes
5 from the edge of the fabric, substantially as described.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

ABBY S. VOSE.

Witnesses:

M. B. CAMPBELL,
CHAS. M. EMES.