

No. 679,445.

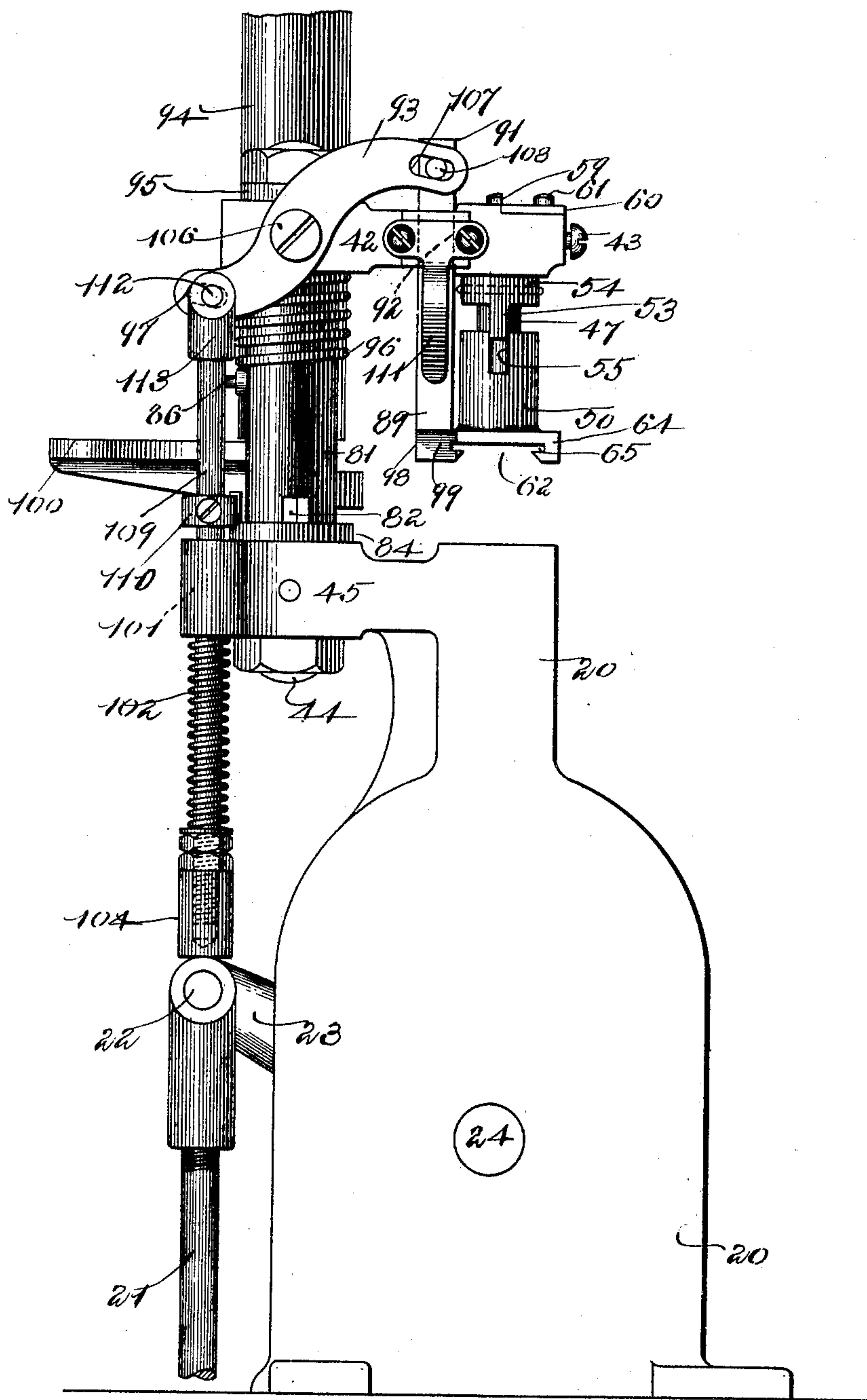
Patented July 30, 1901.

J. H. VINTON.
BUTTON ATTACHING MACHINE.

(Application filed Mar. 20, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

Louis A. Jones

Sydney C. Taft

FIG. 1.

INVENTOR:

John H. Vinton,

By his Attorney, Charles V. Gooding

No. 679,445.

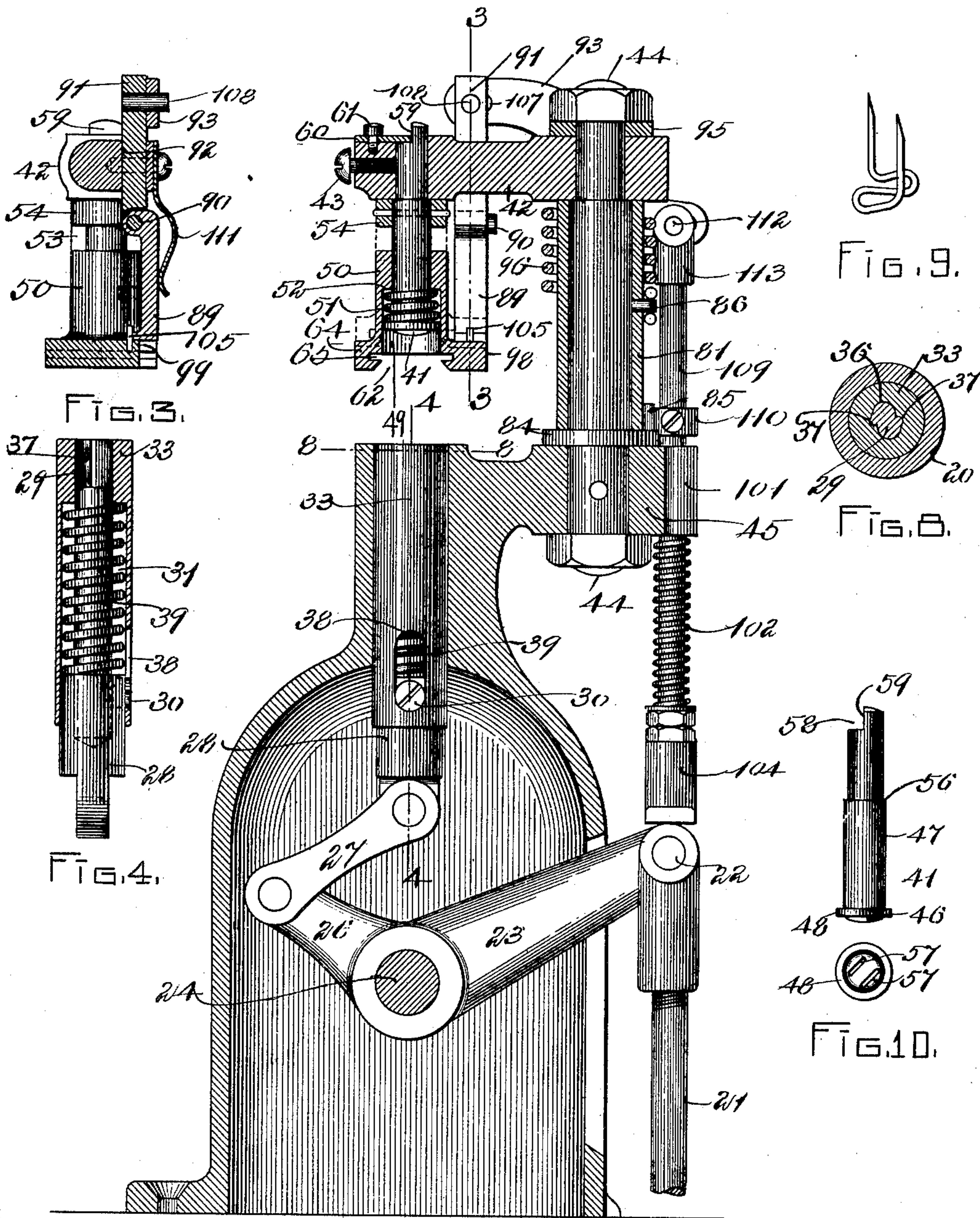
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3 Sheets—Sheet 2.



WITNESSES:
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FIG. 2.
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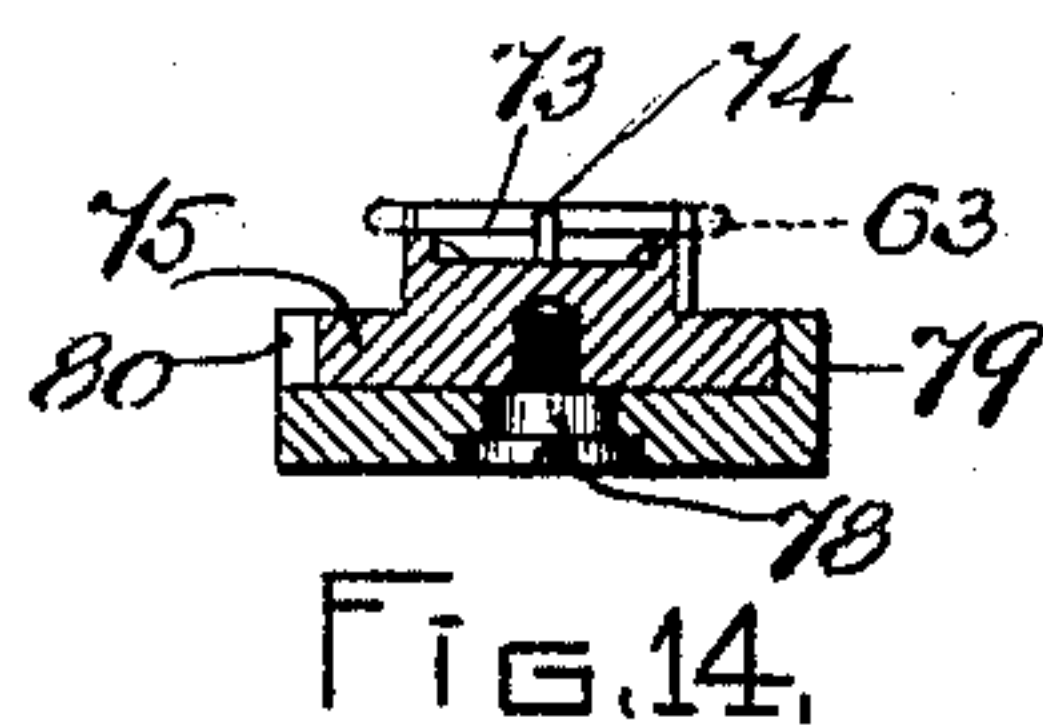
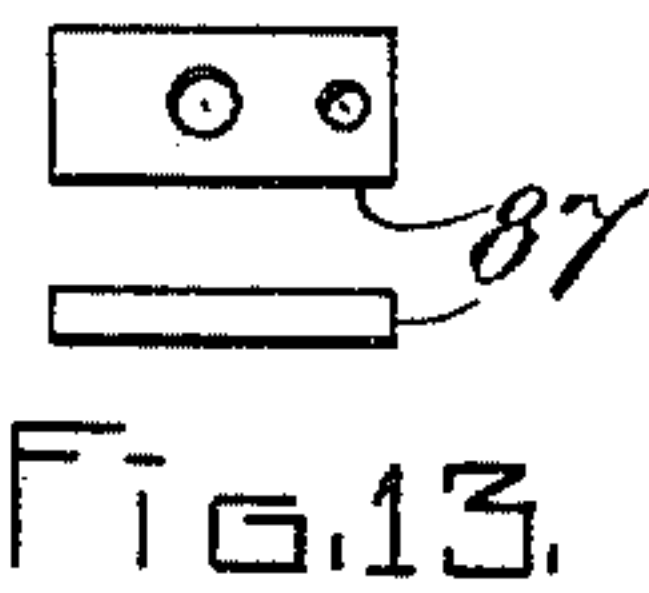
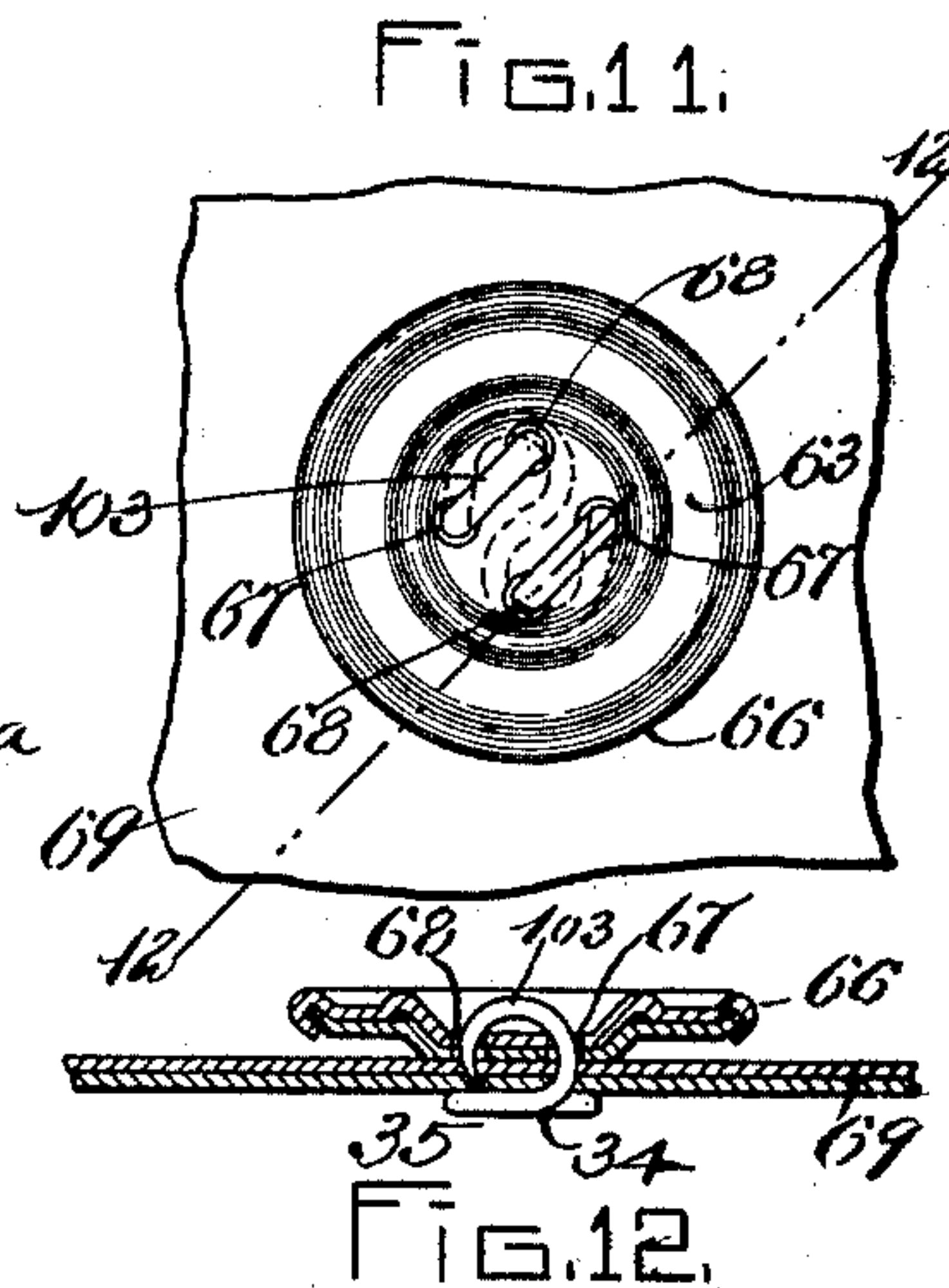
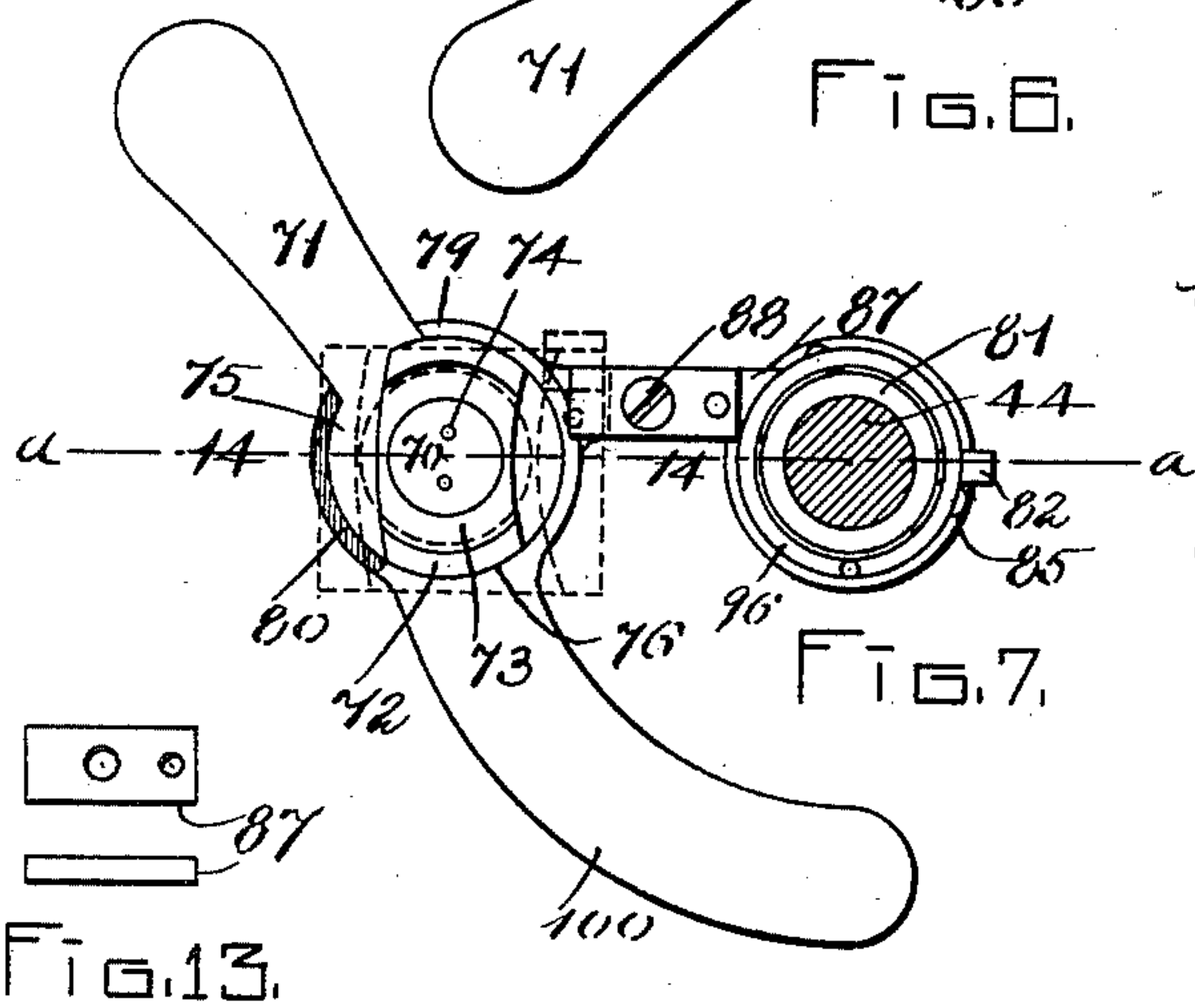
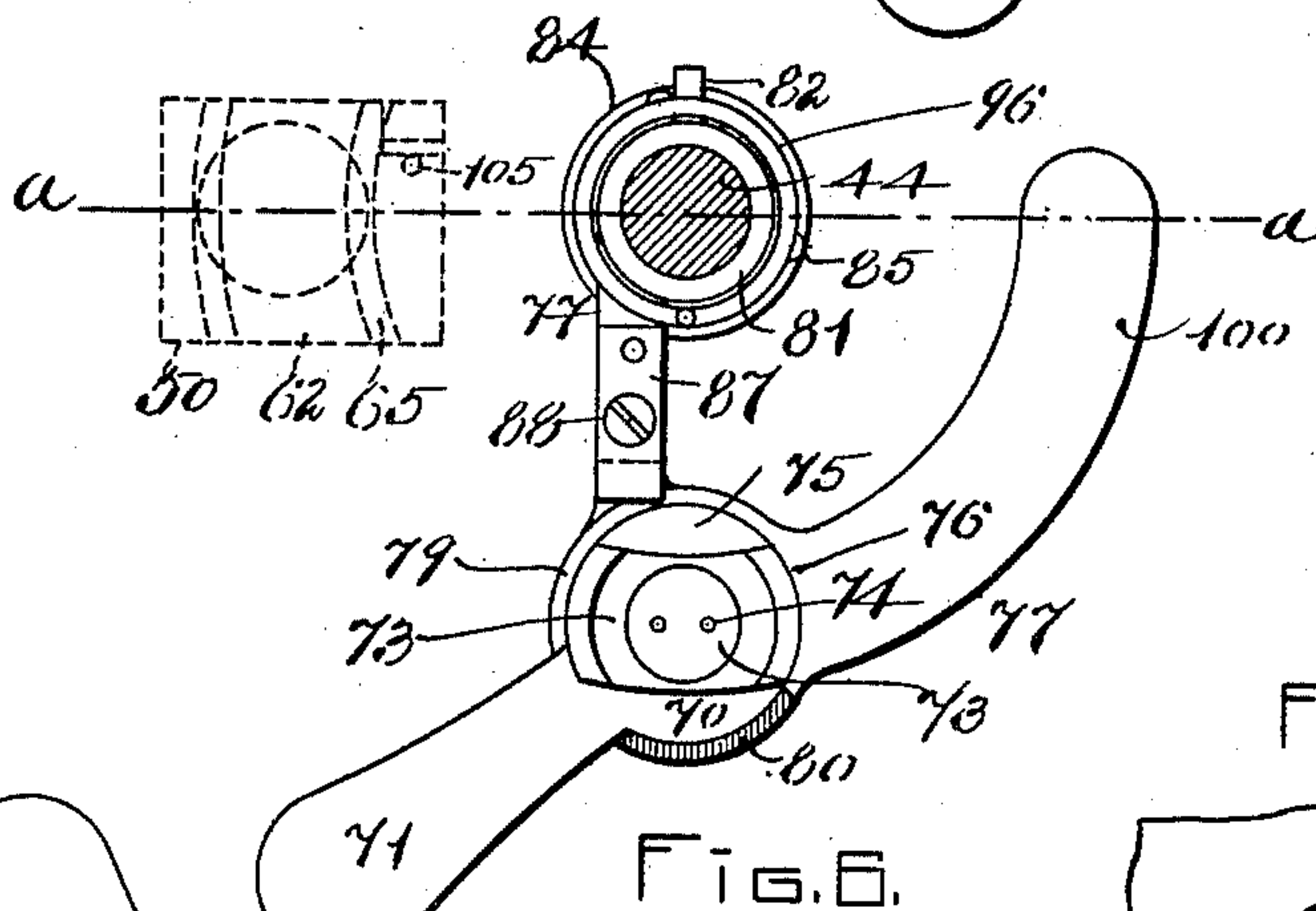
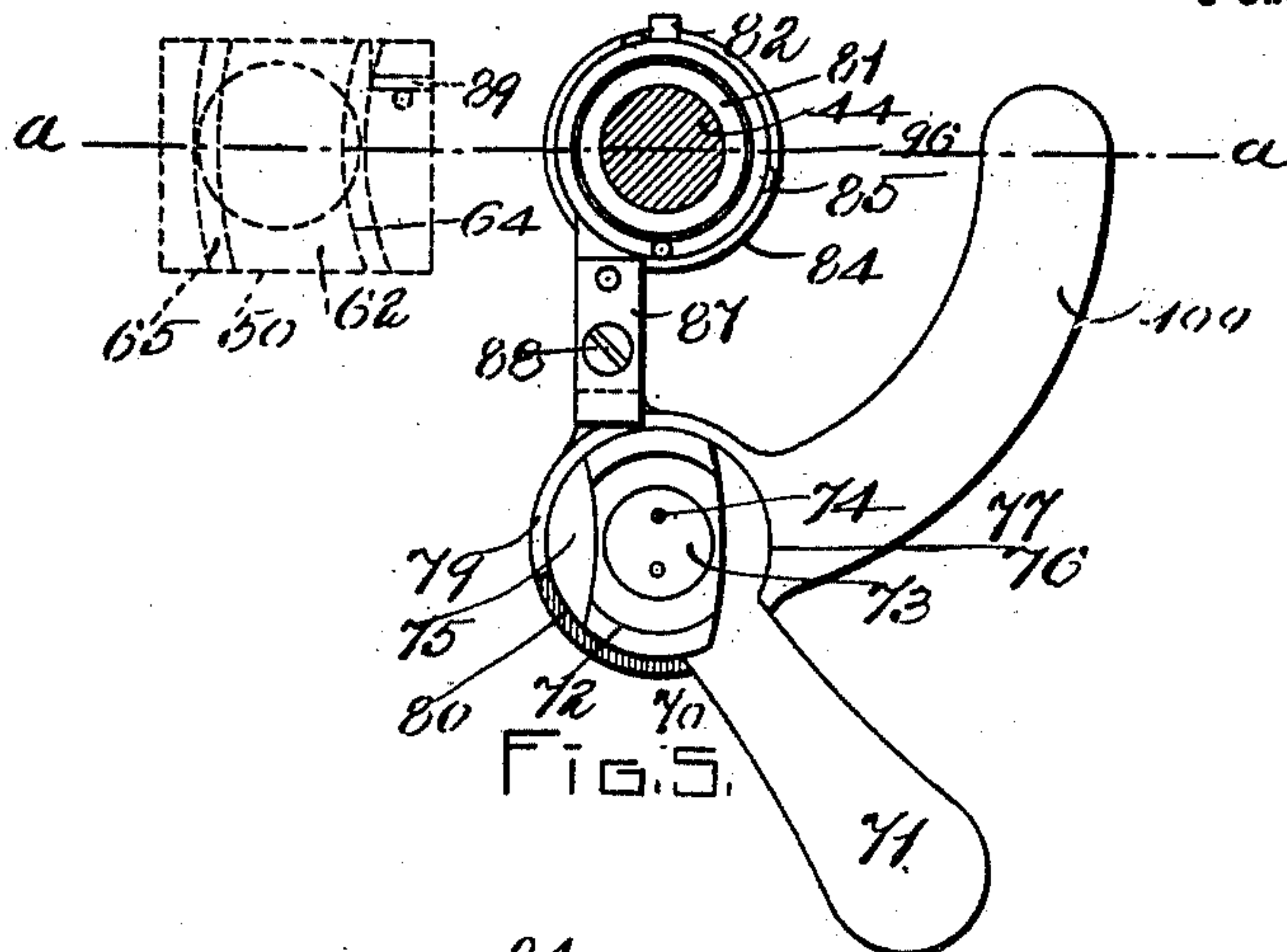
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3 Sheets—Sheet 3.



WITNESSES:
Louis A. Jones.
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INVENTOR:
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UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ROBERT AMORY, OF SAME PLACE.

BUTTON-ATTACHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 679,445, dated July 30, 1901.

Application filed March 20, 1901. Serial No. 52,053. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. VINTON, 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 Buttons to Clothing by Wire Fasteners, of which the following is a specification.

The object of this invention is to produce a convenient, cheap, and practical machine for attaching buttons to clothing and the like by means of wire fasteners, and is in certain features substantially the same in construction and operation as the machine for the same purpose for which I have made application for Letters Patent of the United States, of even date herewith, entitled "Machine for attaching buttons to clothing by wire fasteners. (Case A.)" The machine of this invention differs from said machine in the manner of operating the button-holder; and it consists in mechanism whereby said button-holder is depressed by mechanism operated from the treadle of the machine upon the release of said treadle, the button-holder thus being left when the treadle is released in position so that the fabric, with the button attached thereto, can be removed without interfering with the die and also in position so that when the button-carrying arm is swung around, as hereinafter described, with the button therein said button will enter the grooves in the button-holder.

The invention consists in mechanism for removing the lowermost button from a column of buttons and carrying said button to a button-holder in readiness to be attached to fabric and in mechanism to impart a reciprocating motion to said button-holder to remove the button from said button-carrier.

The invention further 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 machine for attaching buttons to garments, viewed from the left of said machine. Fig. 2 is a central longitudinal section of the same, viewed from the right of the machine. Fig. 3 is a vertical transverse section taken on line 3 3, Fig. 2,

looking toward the left in said figure. Fig. 4 is a detail vertical section taken on line 4 4, Fig. 2. Figs. 5, 6, and 7 are detail plan views showing the rocking locator and button-carrying arm in different positions with relation to each other, the button-holder being shown in dotted lines. Fig. 8 is a section taken on line 8 8, Fig. 2. Fig. 9 is a perspective view of the fastener, by means of which the button is attached to the fabric. Fig. 10 is a side elevation and underneath plan of the die for turning over the prongs of the fastener. Fig. 11 is an enlarged plan view of a button, showing the same attached to a portion of fabric by a fastener. Fig. 12 is a section taken on line 12 12 of Fig. 11. Fig. 13 is a detail plan and side elevation of the button-holder-releasing plate. Fig. 14 is a section taken on line 14 14, Fig. 7.

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

In the drawings, 20 is the frame of a machine adapted to be fastened by screws to the top of a table or bench and having a treadle of suitable design and construction connected to the machine by a treadle-rod 21. The treadle-rod 21 is pivotally connected by a pin 22 to a rock-lever 23. The rock-lever 23 rocks upon a stationary shaft 24, fast to the frame 20. The short arm 26 of the rock-lever 23 is connected by a link 27 to the lower end of a reciprocatory plunger 28, having an anvil 29 fast thereto by a screw 30 and extending upwardly from said plunger through a chamber 31 and guide-passage 32 in the fastener-holder 33. Said guide-passage and anvil are of the same outline in cross-section, said outline being the same as the outline of the S-head 34 of the fastener 35 and consisting of two semicircular arcs 36 36, arranged upon opposite sides of a median line and connected together by straight guide-walls 37 37, Fig. 8. The fastener-holder extends downwardly from the top of the anvil, encircles the reciprocatory plunger 28, and has a slot 38 therein to receive the head of the screw 30. A spiral spring 39 encircles the anvil 29, one end of said spiral spring bearing against the upper end of the plunger 28 and the upper end of said spiral spring bearing against a shoulder 40 in the fastener-holder 33.

The clenching-die 41 is fastened to an arm 42 by a set-screw 43. The arm 42 is fast to a stud 44, said stud being in turn fast to a boss 45 upon the frame of the machine. The clenching-die 41, Fig. 10, consists of a cylindrical block of steel having a head portion 46 and a shank portion 47. The head portion 46 of said die is convexly curved upon the under side thereof and has a flange 48 thereon, which is formed to fit in the chamber 49 in the spring-pressed button-holder 50. The shank 47 is encircled by a spiral spring 51, one end of which bears against the flange 48 and the other against the shoulder 52 in said button-holder. The button-holder 50 is adapted to slide lengthwise upon the shank of the clenching-die 41 in a direction at right angles to the face of said die and is prevented from turning upon said shank and thus changing its location with relation thereto in a plane parallel to the face thereof by a tongue 53 upon a collar 54, which projects into and fits an arch 55 on said button-holder. It will be seen that the action of the spring 51 is to hold the button-holder 50 up against the collar 54, said collar being pinned to the die-shank 47, with its upper face resting against the under side of the arm 42. The die-shank 47 is shouldered at 56, and said shoulders rest against the under side of the arm 42.

In the under face of the head portion 46 of the clenching-die 41 are two grooves 57, parallel to each other and standing at forty-five degrees to the longitudinal median line α of the machine, said grooves being for the purpose of turning over and clenching the legs of the fastener 35. In order to set the grooves 57 at forty-five degrees with the longitudinal median line α , the top of the shank portion 47 has a notch 58 cut across to the center thereof, leaving a straight face 59 thereon, which stands at an angle of forty-five degrees with the grooves 57 and at right angles to said median line α . A plate 60, fast to the arm 42 by a screw 61 and a dowel-pin, (not shown,) bears against the face 59 and lines it up, so that the grooves 57 are necessarily set correctly at forty-five degrees to the median line α .

The spring-pressed button-holder 50 has a curved slot 62 in the lower end thereof to receive a button 63. Said slot extends across the under face of said button-holder and has two side walls 64, struck on a curve described from the center of the stud 44 when said button-holder is in the position shown in Fig. 7. Each of the side walls 64 has a groove 65 therein to receive the rim 66 of the button 63, said grooves being also struck from the center of the stud 44 when the button-holder is in the position shown in Fig. 7.

The button 63 has four holes 67 67 and 68 68 therein, forming the four corners of a square, in which the holes 67 67 are diagonally opposite each other, and 68 68 are also diagonally opposite each other. It is necessary that the button shall be placed in the holder 50 with

the holes 67 67 exactly on the median-line α of the machine, so that when the legs of the fastener are forced through the fabric 69, to which the button is fastened, said legs shall register with the holes 67 in the button and pass through said holes to be turned over and back by the grooves 57 in the die 41. To accomplish this, I provide a rocking button-locator 70. The button-locator 70 has a handle 71 and a cylindrical segmental hub 72 thereon. Said segmental hub 72 has a recess 73 therein, to receive the rim of the button 63, and two vertical pins 74, fast thereto, extending upwardly from the bottom of said recess and adapted to engage two of the diagonally opposite holes in the button 63. The button-locator 70 has a cylindrical flange 75 thereon, formed to fit the corresponding recess 76 in the button carrier-arm 77 and attached to said arm by a shouldered screw 78, screwed into said locator and arranged to rock in said carrier-arm. The flange 79, surrounding the recess 76, is slotted at 80 to allow the button-locator to rock in said recess 76. The carrier-arm 77 has a hub 81 integral therewith and arranged to rock upon the stud 44. Said hub has a lug 82 thereon, which engages a stop-pin 83, fast to a flange 84 upon the stud 44, when the carrier-arm is in the position shown in Fig. 5 and engages another stop-pin 85 when the carrier-arm is in the position shown in Fig. 7. The hub 81 is surrounded by a spiral torsional spring 96, one end thereof fast to the arm 42 and the other to a pin 86, fast to said hub. A plate 87 is fastened by a screw 88 and dowel-pin to the carrier-arm 77. The button-holder 50 is normally held down against the pressure of the spring 51 by a stop-arm 89. Said stop-arm is pivoted at 90 to a vertically-reciprocatory slide 91, arranged to slide in ways 92 upon the arm 42. A reciprocating motion is imparted to the slide 91 by a lever 93, pivoted at 106 to the arm 42. Said lever is provided with a slot 107, which engages a pin 108, fast to the slide 91, and has at the opposite end thereof another slot 97, which engages a pin 112, fast to a fork 113 upon the rod 109. Said rod 109 is arranged to slide in a guide 101 upon the frame 20 of the machine. A spiral spring 102 forces said rod 109 downwardly until the collar 110, fast thereto, abuts against the frame 20. A block 104 is adjustably attached to the lower end of the rod 109. The stop-arm 89 is normally held in a vertical position, as shown in Fig. 3, against a pin 105 by a flat spring 111. When the treadle is released, the spiral spring actuating said treadle raises the treadle-rod 21 to the position shown in Fig. 2, forcing the rod 109 upwardly in its guide 101 against the action of the spring 102, tipping the lever 93 upon its pivot and forcing the slide 91 downwardly, together with the stop-arm 89, thus pushing the button-holder 50 downwardly against the action of the spring 51, as shown in Fig. 2.

The buttons used in the machine are con-

tained in a tube 94, said tube being supported in a spring-clamped bracket 95, fast by a nut to the upper end of the stud 44.

The operation of the machine as a whole is as follows: Assuming the parts to be in the position shown in Figs. 1, 2, and 5, the tube 94 containing a column of buttons and the rocking locator and carrier-arm beneath said tube, the operator first places a fastener in the guide-passage 32 of the fastener-holder 33. He then takes the button-locator 70 by the handle 71 and rocks the same, drawing it toward him from the position shown in Fig. 5 to that shown in Fig. 6. This rocking motion carries the pins 74, together with the button-locator, through a quarter rotation, from the position shown in Fig. 5 to that shown in Fig. 6, the carrier-arm being held in the same position in both of said figures by the spiral torsional spring 96. The pins 74 during this quarter rotation of the button-locator find two of the diagonally opposite holes in the lowermost button in the button-tube 94, and as soon as the handle 71 of said locator has traveled the extent of the slot 80 in the flange 79 the side of said handle will abut against the end of the slot 80, as shown in Fig. 6, and said locator and carrier-arm will then rock as one piece upon the stud 44, overcoming the tension of the spiral spring 96 and carrying the lowermost button from the tube 94 with them. As the carrier-arm and button-locator are thus rocked upon the stud 44 the plate 87 upon the arm 77 strikes the stop-arm 89 just before said carrier-arm gets into the position shown in Fig. 7, and at the last part of the rotation of said carrier-arm the button-locator pushes the stop-arm 89 to the right, Fig. 3, until the lower end of said arm comes in line with the notch 99, where the flange 98 is cut away. The spiral spring 51 then forces the button-holder upwardly, removing the button 63 from the button-locator 70, as shown in dotted lines, Fig. 2. While the carrier-arm has been rocked from the position shown in Fig. 5 to that shown in Fig. 7, the buttons in the tube 94 are prevented from falling out of said tube upon the floor by a segmental plate 100, integral with said carrier-arm and extending beneath the tube 94, formed upon an arc of a circle described from the center of the stud 44. The operator now releases the handle 71, and the spiral spring 96 carries the carrier-arm back from the position shown in Fig. 7 to that shown in Fig. 5, the button-locator still maintaining the same relation to said carrier-arm in which it is shown in Fig. 7. Previous to returning said button-locator and carrier-arm to the position shown in Fig. 7 the operator pushes the handle 71 from the position shown in Fig. 7 with relation to the carrier to the position shown in Fig. 5 and then repeats the operation hereinbefore described. The button now being in position in the button-holder and the fastener in the fastener-holder, the operator places the fabric 69 upon

the top of the fastener-holder 33 and operates the treadle to depress the treadle-rod 21, rocking the lever 23 upon the stationary shaft 24 and through the short arm 26 of said lever and the link 27 raising the plunger 28 and fastener-holder 33, together with the fabric resting on top of said fastener-holder, until said fabric is brought against the back face of the button held in said button-holder, whereupon the fastener-holder rests in the anvil 29, is carried upwardly, forcing the fastener out of the guide-passage 32, driving the legs 103 through the fabric 69, through the holes 67 in the button, and into the grooves 57 upon the die 41, thence along said grooves and back through the holes 68 in said button, finally clenching the points of said legs against the S-head of said fastener, as shown in Figs. 11 and 12.

When the treadle-rod 21 is depressed, as hereinbefore described, the spring 102 forces the rod 109 downwardly until the collar 110 abuts against the frame, thus raising the slide 91 until the lower end of the stop-arm 89 passes out of the notch 99 and is forced by the spring 111 against the pin 112. When the treadle is released, the rock-lever 23 abuts against the lower face of the block 104 and overcoming the pressure of the spring 102 forces the rod 109 upwardly and through the lever 93 forces the slide 91 and stop-arm 89 downwardly, together with the button-holder 50, to the relative positions of the parts shown in Fig. 3. It will be seen that when the treadle has been released the parts are left in the position shown in the drawings, Figs. 1, 2, and 3, and the legs of the fastener are drawn out of the grooves 57 and the button-clenching die, and the button, with the fabric attached thereto, is free to be moved sidewise from the button-holder, detaching the rim of said button from the button-holder.

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

1. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting on said button-holder to press a button held thereby against the face of said clenching-die, a button-carrier, a treadle mechanism, and mechanism actuated by said treadle mechanism to depress said button-holder against the action of said spring into position to receive a button carried by said button-carrier.

2. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting on said button-holder to press a button held thereby against the face of said clenching-die, a button-carrier, a treadle mechanism, mechanism actuated by said treadle mechanism to depress said button-holder against the action of said spring into position to receive a button carried by said button-carrier, and mechanism actuated by said button-carrier to re-

lease said button-holder, whereby the button carried by said button-carrier is removed therefrom by said button-holder.

3. In a machine for attaching buttons to garments by wire fasteners, a clenching-die having a cylindrical shank and a flange adjacent to the working face thereof, a button-holder encircling said shank and flange and adapted to move lengthwise thereof, a chamber in said holder, a spring in said chamber one end bearing against said flange and the other against said holder and acting to press a button held by said holder against the face of said die, a button-carrier, a treadle mechanism, and mechanism actuated by said treadle mechanism to depress said button-holder against the action of said spring into position to receive a button carried by said button-carrier.

4. In a machine for attaching buttons to garments by wire fasteners, a clenching-die having a cylindrical shank and a flange adjacent to the working face thereof, a button-holder encircling said shank and flange and adapted to move lengthwise thereof, a chamber in said holder, a spring in said chamber one end bearing against said flange and the other against said holder and acting to press a button held by said holder against the face of said die, a button-carrier, a treadle mechanism, mechanism actuated by said treadle mechanism to depress said button-holder against the action of said spring into position to receive a button carried by said button-carrier, and mechanism actuated by said button-carrier to release said button-holder, whereby the button carried by said button-

carrier is removed therefrom by said button-holder.

5. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting on said button-holder to press a button held thereby against the face of said clenching-die, a reciprocatory slide, and mechanism to impart a vertically-reciprocating motion to said slide to depress said button-holder against the action of said spring.

6. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting on said button-holder to press a button held thereby against the face of said clenching-die, a reciprocatory slide, an arm pivoted to said slide, mechanism to impart a reciprocating motion to said slide to depress said button-holder against the action of said spring, and mechanism to rock said arm upon its pivot and release said button-holder.

7. A spring-supported button-holder, a reciprocatory slide, an arm pivoted to said slide, mechanism to impart a reciprocating motion to said slide to depress said button-holder against the action of said spring, and mechanism to rock said arm upon its pivot and release said button-holder.

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

JOHN H. VINTON.

Witnesses:

CHARLES S. GOODING,
GEORGE A. TARBELL.