No. 679,442. Patented July 30, 1901.

J. H. VINTON.

BUTTON ATTACHING IMPLEMENT.

(Application filed Jan. 19, 1901.)

(No Model.) 2 Sheets—Sheet 1.

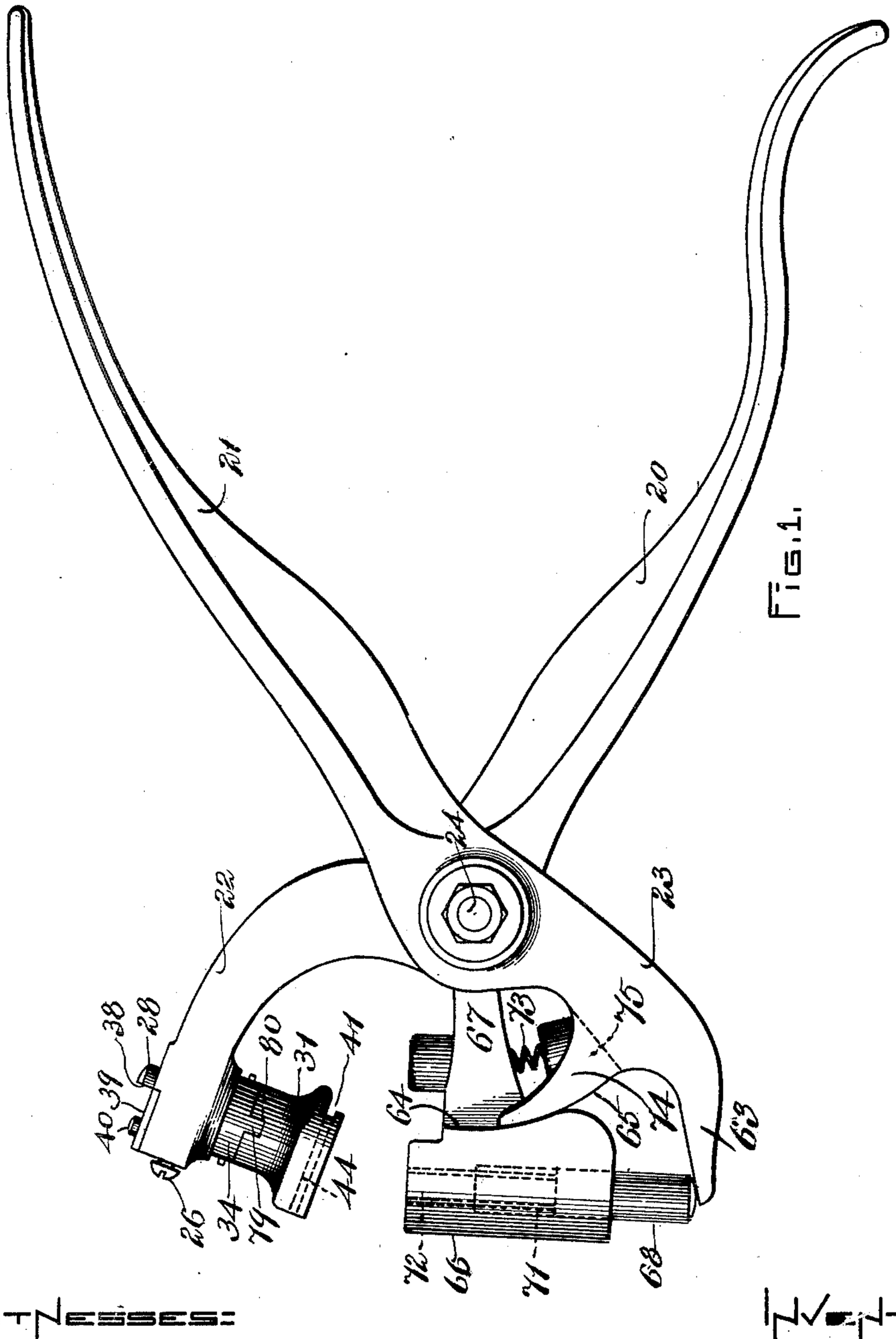

FIG. 1.

Witnesses:
Louis A. Jones.
Sydney E. Taft.

Inventor:
John H. Vinton
by his Attorneys Charles S. Fowling

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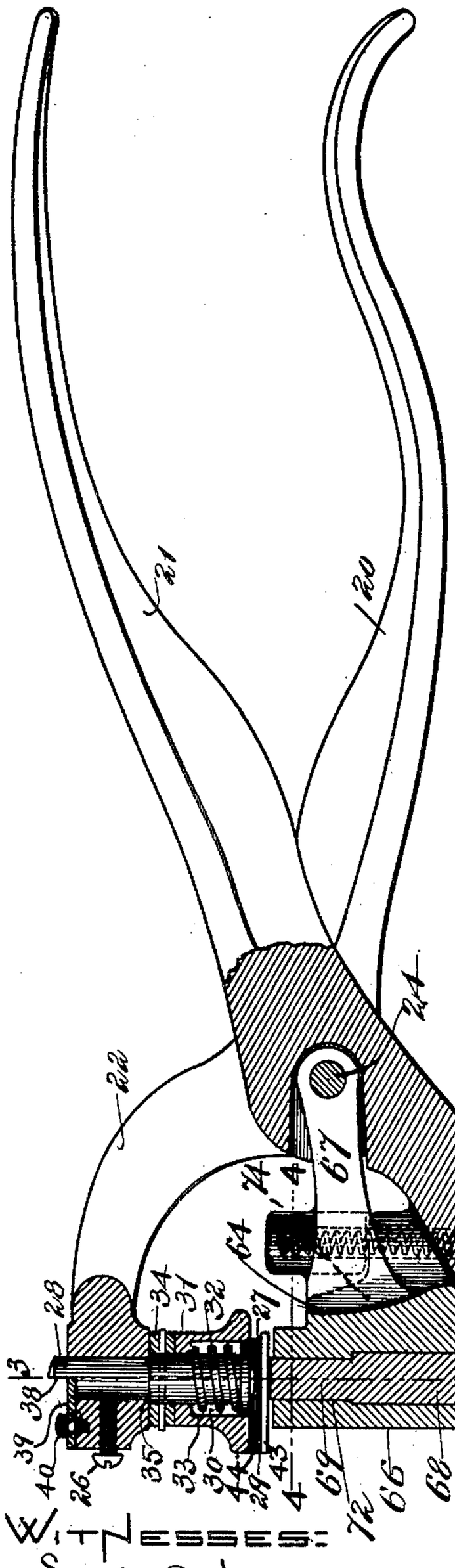

Fig. 2.

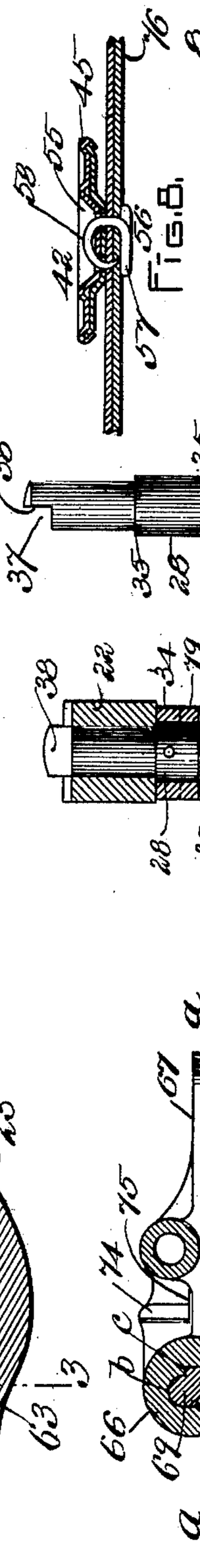

Fig. 3.

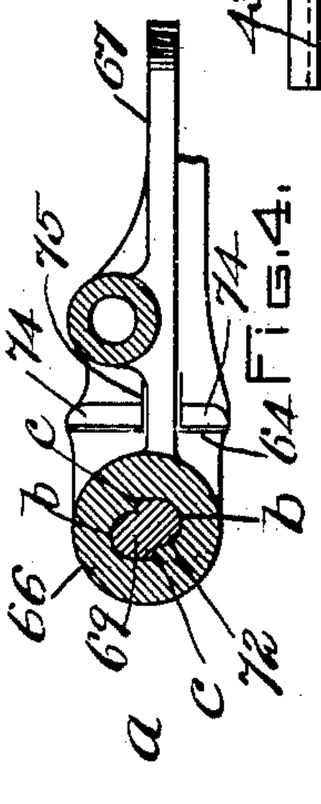

Fig. 4.

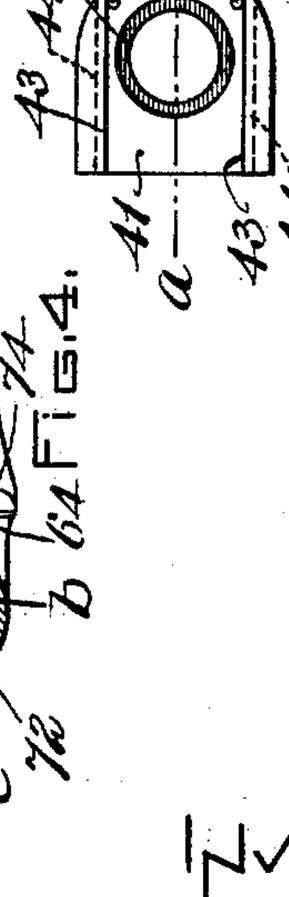

Fig. 5.

Fig. 6.

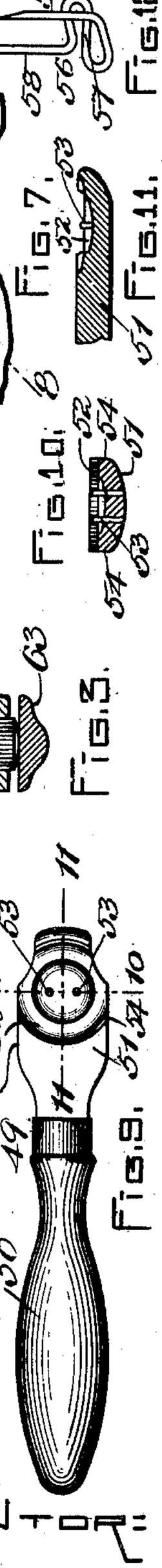

Fig. 7.

Fig. 11.

Fig. 12.

Fig. 10.

Fig. 9.

Witnesses:
Louis A. Jones.
Sydney E. Taft.

Inventor:
John H. Vinton,
by his Attorney Charles S. Fowling.

UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ROBERT AMORY, OF BAR HARBOR, MAINE.

BUTTON-ATTACHING IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 679,442, dated July 30, 1901.

Application filed January 19, 1901. Serial No. 43,924. (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 Tools for Attaching Buttons to Garments by Wire Fasteners, (Case B,) of which the following is a specification.

The object of this invention is to produce a convenient, cheap, and practical hand-tool for attaching buttons to clothing and the like by means of wire fasteners, and is in certain features, notably the clenching-die and spring-pressed button-holder, the same in construction and operation as another hand-tool for a like purpose for which I have made application for Letters Patent of the United States of even date herewith.

The invention consists in certain improved devices for holding the button, for holding the fastener, and for guiding and inserting the legs of said fastener through the fabric and through holes in a button held by a spring-pressed button-holder and then turning said legs across the front face of said button, back through holes therein and again into the material.

The invention further consists in the combination and arrangement of parts set forth in the following specification, and particularly pointed out in the claim thereof.

Referring to the drawings, Figure 1 is a side elevation of my improved hand-tool, showing the jaws open. Fig. 2 is a central longitudinal section of the same with the jaws closed, the handles in elevation. Fig. 3 is a vertical section, taken on line 3 3, Fig. 2, with a button, button-fastener, and a section of the material held therein. Fig. 4 is a horizontal section taken on line 4 4, Fig. 2. Fig. 5 is an underneath plan of the button-holder held by the upper jaw of the tool. Fig. 6 is a detail side and end elevation of the clenching-die. Fig. 7 is an enlarged plan view of the button, button-fastener, and a portion of the fabric to which said button is fastened. Fig. 8 is a section taken on line 8 8, Fig. 7. Fig. 9 is a top plan view of a button-locator. Fig. 10 is a section on line 10 10, Fig. 9. Fig. 11 is a section on line 11 11, Fig. 9. Fig. 12 is a perspective view of the wire fastener.

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

In the drawings, 20 21 are the handles, and 22 23 the jaws, of my improved hand-tool. The handle 20 and button-jaw 22 are formed in one piece and the handle 21 and fastener-jaw 23 are also formed in one piece, and said handles are joined together by a pivotal stud 24. The button-jaw 22 has a clenching-die 25, fast thereto by a set-screw 26. The clenching-die 25, Figs. 2 and 6, consists of a cylindrical block of steel having a head portion 27 and a shank portion 28. The head portion 27 of said die is convexly curved upon the under side thereof and has a flange 29 thereon, which is formed to fit in a chamber 30 in the spring-pressed button-holder 31. The shank 28 is encircled by a spiral spring 32, one end of which bears against the flange 29 and the other against the shoulder 33 in said button-holder. The button-holder 31 is adapted to slide lengthwise upon the shank of the clenching-die 25 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 79 upon the collar 34, which projects into and fits a notch 80 on the spring-pressed button-holder 31. It will be seen that the action of the spring 32 is to hold the button-holder 31 up against the collar 34, said collar being pinned to the die-shank 28 and with its upper face resting against the under side of the jaw 22. The die-shank 28 is shouldered at 35, and said shoulder rests against the under side of the jaw 22.

In the under face of the head portion 27 of the clenching-die 25 are two grooves 36, parallel to each other and standing at forty-five degrees to the longitudinal median line *a* of the tool, said grooves being for the purpose of turning over and clenching the legs of the fastener, as hereinafter described. In order to set the grooves 36 at forty-five degrees with the longitudinal median line *a*, the top of the shank 28 has a notch 37 cut across to the center thereof, leaving a straight face 38 thereon, which stands at an angle of forty-five degrees with the grooves 36 and at right angles to said median line *a*. A plate 39, fast to the

jaw 22 by a screw 40 and a dowel-pin, (not shown,) bears against the face 38 and lines it up, so that the grooves 36 are necessarily set correctly at forty-five degrees to the median line *a*.

The spring-pressed button-holder 31 has a slot 41 in the lower end thereof to receive a button 42. Said slot extends across the under face of said button-holder and has two parallel side walls 43, each with a groove 44 therein to receive the rim 45 of said button. Two pins 46, fast to the button-holder 31, locate the center of the button in line with the center of the die 25.

The button 42 has four holes 47 47 and 48 48 therein, forming the four corners of a square, in which 47 and 47 are diagonally opposite each other and 48 48 are also diagonally opposite each other. It is necessary that the button shall be placed in the holder 31 with the holes 47 47 exactly on the median line *a* of the tool, so that when the legs of the fastener are forced through the material to which said button is fastened said legs shall register with the holes 47 in the button and shall pass through said holes, to be turned over and back by the grooves 36 in the die 25. To accomplish this, I provide a button-locator 49, for which I have made application for Letters Patent of the United States of even date herewith.

The button-locator 49 has a handle 50 and a carrier-slide 51. Said carrier-slide 51 has a circular depression 52 therein to receive a button 42 and two pins 53 53, arranged to enter diagonally opposite holes 48 48 in said button. The carrier-slide 51 has two parallel sides 54 54 at a distance apart equal to the distance between the parallel side walls 43 in the button-holder 31 and less than the diameter of said circular depression, so that the perimeter of said depression intersects the sides 54 and is cut away by them, so as to allow the rim of a button placed in said depression to project beyond said sides.

To place the button 42 in the button-holder 31 and in the correct location therein, with the holes 47 48 located in proper relation to the die-grooves 36 and to the legs of the fastener 56, held by the yielding fastener-holder 66, said button is first placed by hand in the depression 52 in the button-locator, with the pins 53 projecting through two diagonally opposite holes 48 48 in said button. The button 42 is then carried forward by the locator 49, with the rim 45 projecting beyond the sides 54 of said carrier-plate and into the grooves 44, said parallel sides 54 of the carrier 51 sliding between and guided by the parallel side walls 43 of the button-holder 31 until the rim 45 of the button abuts against the pins 46. As the button is pushed forward in the slot 41, with the rim 45 thereof guided in the grooves 44, said rim comes in contact with the lower rounded face portion of the die 25 and forces said button-holder downwardly against the action of the spring 32. When the rim 45 has passed the head 27, the spring 32 forces the button-holder upwardly, and the lower rounded-face portion of the die enters the depression 55 in the head of the button and the spring-pressed button-holder holds said button in proper position, with the holes therein located to register with the legs of the fastener when said fastener is forced through the material and into said holes. The button-locator 49 is now withdrawn by lowering the same until the pins 53 are clear of the button 42 and the sides 54 are clear of contact with the side walls 43 of the button-holder 31.

The fastener 56, Fig. 12, by which the button is attached to the material, is formed of a single piece of wire bent in an **S** shape to form the head 57 thereof, and the two free ends of said wire are bent at right angles to the head portion 57 to form the legs 58 58 thereof and at a distance apart equal to the distance between the holes 47 47 in said button.

The fastener 56 is held in a guide-passage 72, formed in fastener-holder 66. Said fastener-holder 66 is pivoted upon the pivotal stud 24 between the handles 20 and 21 and is supported by a spiral spring 73, one end thereof bearing against the lower jaw 23 and the other against said fastener-holder. The guide-passage 72 for the fastener 56 extends from the upper face of the fastener-holder 66 into a cylindrical chamber 71, which extends from the bottom of the guide-passage 72 to the bottom of the fastener-holder 66 and forms a bearing for the base 68 of the reciprocatory anvil 69. Said anvil 69 consists of a piece of steel having a cylindrical base 68, the upper portion fitted to slide in the guide-passage 72, and both passage and anvil are shaped in cross-section, Fig. 4, of an outline corresponding to the outside of the head 57 of said fastener. This outline is substantially formed of two semicircular curves *b b*, located upon opposite sides of the median line *a* and joined together by the straight walls *c c*. The fastener-holder 66 is normally held in the position shown in Fig. 1 by the spring 73 and is prevented from side motion by the guide-ears 74, between which the fastener-holder arm 67 plays in the slot 75. The front edges 65 of the guide-ears 74 are formed upon a curve struck from the center of the pivotal stud 24 and bear against a like curved face 64 upon the fastener-holder 66, thus firmly holding said anvil-holder as it swings upon said stud, as hereinafter described. The lower end of the anvil-base 68 rests upon the upper face of the ear 63 on the jaw 23.

The operation of the tool in securing a button to clothing by means of a wire fastener is as follows: Assuming the jaws 22 and 23 to be apart, as in Fig. 1, the button 42 is placed in the button-locator 49 and by it transferred to the button-holder 31, as hereinbefore described. The fastener 56 is then inserted in the guide-passage 72 of the yielding fastener-

holder 66, Fig. 4, with the head 57 on the anvil 69 and the legs 58 projecting upwardly therefrom and against the side walls *c c* in the guide-passage 72 of said fastener-holder 66. The goods or fabric is now placed between the yielding fastener holder or guide 66 and the spring-pressed button-holder 31 and the handles brought together, closing said jaws sufficiently to enable the operator to locate the button in the position desired on the goods. Upon a continued closing of the jaws the fastener guide and holder 66 yields and swings downwardly upon its pivot 24, overcoming the action of the spring 73 and allowing the anvil 69 to push the fastener 56 up through the guide-passage 72, and thus force the legs of the fastener through the fabric and through the holes 47 47 in the button 42 until the points of said legs come in contact with the die 25 in the grooves 36 thereof, at which time about one-half of the length of the legs of the fastener, together with the head thereof, remain in the guide-passage 72. Upon still further closing the jaws the fastener will be forced entirely out of the guide-passage 72 by the anvil 69 turning the legs 58 along said grooves across the front face of the button from the holes 47 to the holes 48, or at an angle of forty-five degrees to the median line of the tool, then turning said legs down through said holes 48, through the button again, through the material, and clenching the points of said legs against the head 57 of the fastener 56, (see Figs. 7 and 8,) said head resting at such time and throughout the operation hereinbefore described upon the anvil 69. The handles and jaws are now opened and the button disconnected from the holder 31 by pulling it forward by means of the material 76, to which it is now attached, through and out the front ends of the grooves 44 in said button-holder.

It will be seen and understood that when the fabric is held between the lower face of the button-holder 31 and the upper face of the yielding fastener-holder and guide 66 the points of the legs 58 are at that time not quite touching the under surface of said fabric, and that the legs of the fastener stand at right angles to said surface and register with the holes 47 47 in the button, and as the legs are forced through the fabric and button, as hereinbefore described, the upper face of the fastener-holder is kept parallel to the lower face of the button-holder, and consequently the fastener-legs always held at right angles to the face of the button and in line with the holes 47 therein during the process of forcing said legs into the fabric and through the button, and this result is attained through pivoting the fastener-holder 66 upon the same center as the jaw 22, to which the button-holder and clenching-die are attached, so that there is no tendency for the legs of the fastener to be forced in any direction by the anvil other than at right angles to the face of the clenching-die. As the jaws are being closed, as hereinbefore described, it will be seen that the lower end of the anvil-base 68 will slide along the upper face of the ear 63 on the jaw 23, and vice versa, the parts assuming the relative positions indicated in Fig. 2 when the jaws are closed.

It is evident that buttons of varying designs and contour and with a different number of holes therein and also that different shapes and designs of fasteners may be used and the tool varied to fit and handle said buttons and fasteners without departing from the spirit of my invention.

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

A tool for attaching buttons to garments by wire fasteners comprising a pair of jaws and a fastener-holder therebetween, each having a common pivotal center, a guide-passage in said fastener-holder to receive and guide a fastener, an anvil supported upon one of said jaws and arranged to slide in a chamber in said fastener-holder, a clenching-die fast to the other of said jaws, a button-holder, and a spring, said spring encircling said clenching-die and acting upon said button-holder in such a manner as to press a button held by said button-holder against the face of said clenching-die.

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

JOHN H. VINTON.

Witnesses:
CHARLES S. GOODING,
JOSEPH M. WIGGIN.