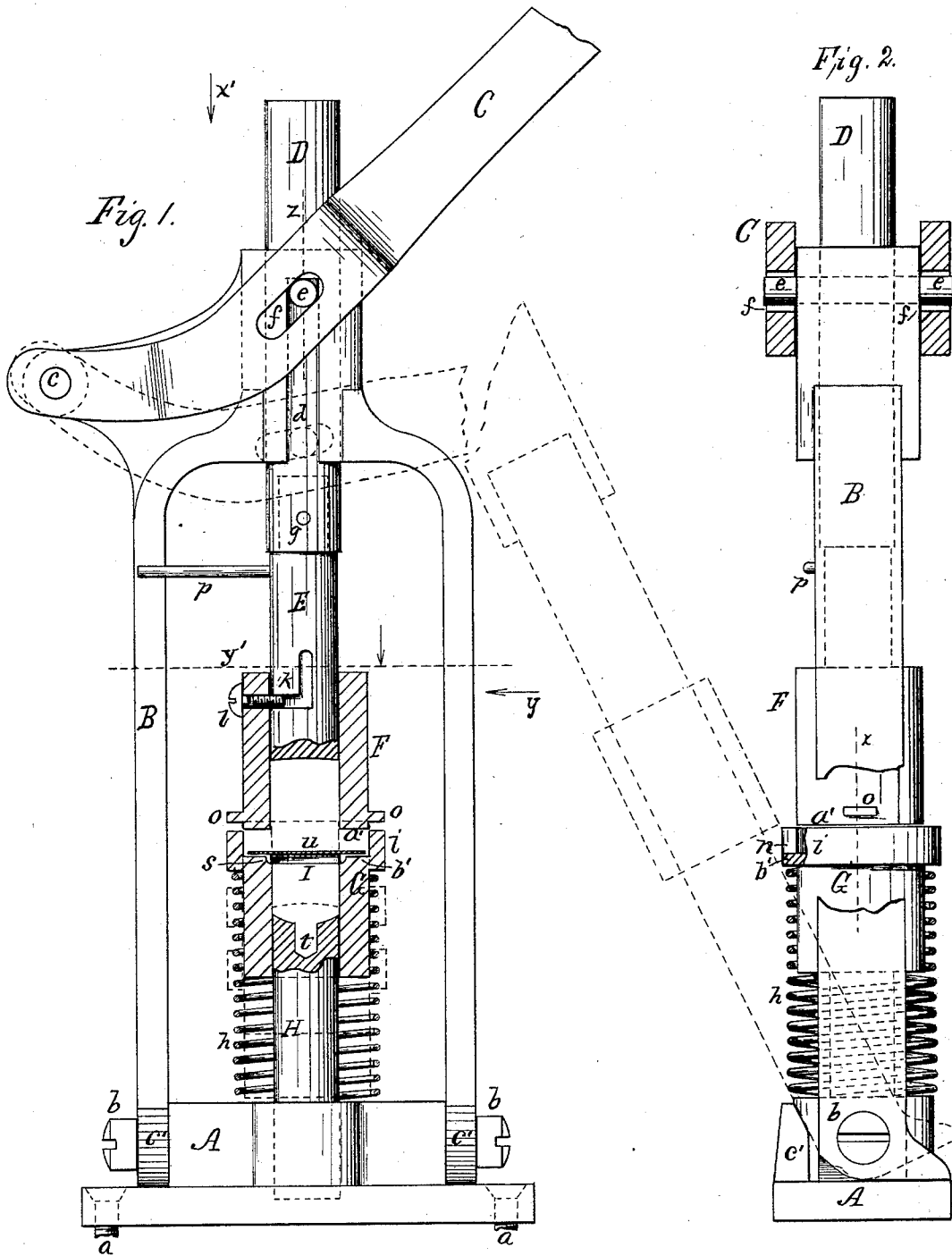


L. P. WARNER.

MACHINE FOR MAKING BUTTONS.

No. 360,367.

Patented Mar. 29, 1887.



Attest:
b. B. Stash,
W. R. Mc Dermott.

Inventor:
L. P. Warner;
 By *C. B. Whitmore,*
Att'y.

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Fig. 3.

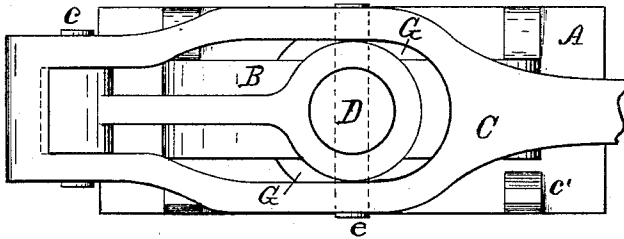


Fig. 9.

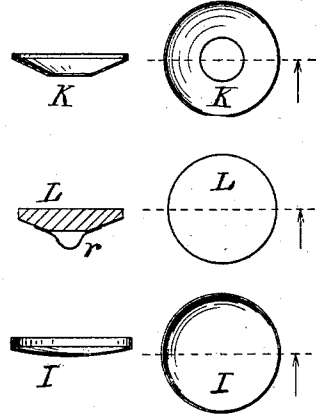


Fig. 4.

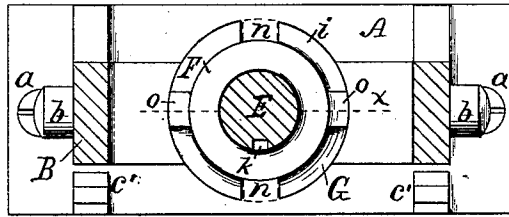


Fig. 5.

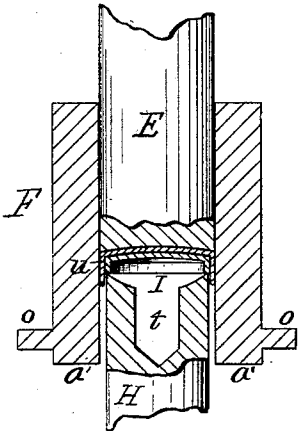
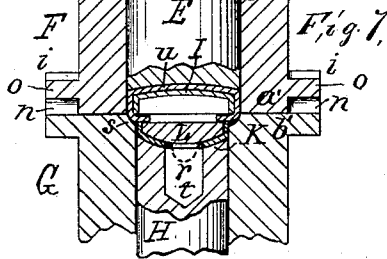
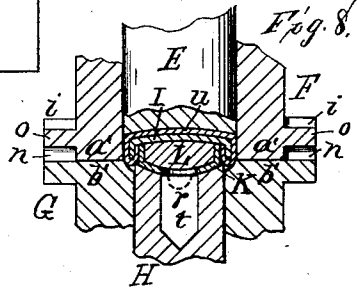
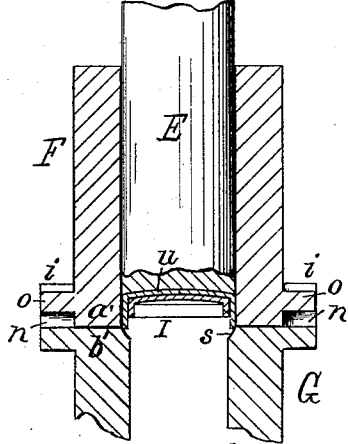


Fig. 6.



Attest:
 C. B. Wash.
 M. L. Mc Dermott.

Inventor:
 L. P. Warner.
 By C. B. Whitmore, Atty

UNITED STATES PATENT OFFICE.

LOUIS P. WARNER, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF
TO WILLIAM E. WILLIAMS, OF SAME PLACE.

MACHINE FOR MAKING BUTTONS.

SPECIFICATION forming part of Letters Patent No. 360,367, dated March 29, 1887.

Application filed January 3, 1887. Serial No. 223,253. (No model.)

To all whom it may concern:

Be it known that I, LOUIS P. WARNER, of Rochester, in the county of Monroe and State of New York, have invented a new and useful
5 Improvement in Machines for Forming Buttons, which improvement is fully set forth in the following specification, and shown in the accompanying drawings.

The object of my invention is to produce a
10 machine for forming covered buttons, the work that it performs being to put together the parts previously formed, said machine being hereinafter fully described, and more particularly pointed out in the claims.

15 Referring to the drawings, Figure 1 is a side elevation of my improved device for forming buttons, some of the parts being vertically and centrally sectioned, as upon the dotted lines *x*
in Figs. 2 and 4, parts being shown in two positions by full and dotted lines and parts being
20 broken away; Fig. 2, an elevation of the same, seen as indicated by arrow *y* in Fig. 1, the lever and other parts being vertically sectioned, as upon the dotted line *z* in Fig. 1,
25 parts being broken away and other parts shown in two positions by full and dotted lines; Fig. 3, a plan of the device seen as indicated by arrow *x'* in Fig. 1, a part of the lever being broken away; Fig. 4, a horizontal section of
30 the frame and plunger, taken as upon the dotted line *y'* in Fig. 1, and viewed as indicated by the arrow pointed thereon, drawn to further show the form of the plunger and upper die,
35 said die being shown in two positions by full and dotted lines. Figs. 5, 6, 7, and 8 show vertical central sections of the parts of the device acting directly upon the button or parts thereof, drawn to show different stages of development of a complete button; and Fig. 9
40 shows plans and diametrical cross-sections of the parts of the button before they are put together by this machine to form a complete button, the sections being taken upon the various dotted lines, and viewed as indicated by the
45 arrows pointed on said lines.

Referring to the parts, A is the base-piece of the device, which is of metal, and secured to a table or bench by ordinary screws, *a*.

50 B is the frame of the device, secured to the base by horizontal pivot-screws *b*, so that it may be turned in a vertical plane.

C is an operating lever or handle, pivoted to the frame at *c* to move in a vertical plane.

D is a vertical spindle, fitted to slide in the upper cylindrical part of the frame, said part
55 of the frame being formed with vertical slots *d* on opposite sides to make way for a horizontal pin, *e*, passed diametrically through the spindle. The ends of the pin project in each direction out through said respective slots
60 into openings *f* in the lever, the latter being divided, as shown, receiving between its sides the upper part of the frame. From this construction it will be understood that the spindle may be moved upward or downward in
65 the frame by working the lever.

E is a plunger inserted in the lower end of the spindle, and made fast therein by a pin or screw, *g*, the lower end of which plunger being slightly cupped to fit the crown of the button, against which it directly presses in the
70 operation of forming the button.

F is the upper die, made cylindrical in form and fitted internally to the outer surface of the plunger.
75

G is the lower die, formed cylindrical, and similar to the upper die, co-operating with the latter and the plunger in forming the button.

H is a post held in place in the base-piece A, said post being cylindrical and of a size to
80 fit the bore of the die G.

h is a spiral spring placed upon the exterior of the die G, beneath a projecting ring or flange, *i*, and extending to the base-piece, which spring serves to hold said die up in position, as shown. The parts are so held and
85 arranged that the axes of the spindle, plunger, dies, and post form a straight line.

The die G is designed to slide longitudinally upon the post, but not to turn thereon, and the die F is designed to both slide longitudinally and turn upon the plunger. The spindle moves longitudinally within the frame; but is prevented from turning therein by the pin *e*.

The plunger has formed upon its external surface a groove, *k*, having a transverse part and a longitudinal part, as shown. The point of a pin, *l*, held in the die F, enters said groove, as shown, and when it occupies the transverse portion thereof the die is prevented from moving longitudinally upon the plunger; but when the die is turned so the pin occupies the lon-
100

gitudinal part of the groove a longitudinal motion of the die is permitted. The die G is slightly cupped or cut away at *s*, for a purpose hereinafter stated.

- 5 The flange *i* is made to project above the end of the die G, and formed with notches *n*, in which to receive lugs or parts *o*, projecting laterally outward from the sides of the upper die, F; when the latter is turned to the right position. Normally, the die F is held so the projections *o* stand over the flange at one side of the notches, as shown in Figs. 2 and 4, the screw *l* then resting in the transverse part of the groove *k* in the plunger, as shown in Fig. 1.
- 15 The groove *k* is relatively so arranged with the notches of the flange that when the upper die is turned so the pin *l* occupies the longitudinal part of the groove the projections *o* are in positions to descend into said notches.
- 20 During part of the operation of forming a button the projections *o* rest upon the flange to prevent the opposing ends *a'* and *b'* of the dies coming together. During another part of the operation the projections descend into the notches of the flange and allow said opposing ends of the dies to meet, as shown in Figs. 6, 7, and 8. The external portion of the die F is made to fit the interior of the flange *i*, so that when said dies are brought together they shall be concentric, the projections *o* being placed slightly above the lower end of the die F, so that a portion of the latter shall enter the flange and become centered before said projections rest upon the flange.
- 35 *p* is a guide-pin rigid in the plunger E, and of sufficient length to bear upon the frame, which serves to assist in placing the plunger in its proper position in the spindle. However, this pin is not essential, and may be dispensed with.

40 The several parts going to make up a button are previously formed by other machines, and are substantially in the forms shown in Fig. 9, in which I represents the cap of the button in plan and cross-section, it being a metallic circular disk with a flange turned up evenly at its edge all round, said disk being made slightly crowning, as shown.

50 K shows the under plate or collar of a button in plan and cross-section, it being also a metallic disk with a flange turned at its edge, and further made saucer-shape with a concentric circular opening, out through which the eye *r* of the button projects.

55 L shows in plan and section the body or core of the button, it being made of wood, paper, or other cheap material, circular in form, and shaped to closely fit the interior of the collar.

60 In putting these parts together to form a button, a circular sheet of cloth, *u*, is put in place to cover the crown of the button.

65 The operation is as follows: The handle is raised and a cap-piece, I, of the button placed centrally upon the die G in the cup *s*, with the flange turned downward, as shown in Fig. 1, the diameter of said cap being slightly larger than the internal diameter of said die, so that said

cap will not drop therein. Upon this cap-piece is placed concentrically a circular disk of cloth, *u*, with which the button is to be covered, said die G forming a rest upon which to hold these parts. The lever is now brought down to the position shown in dotted lines, which brings the die F and plunger down upon the post, as shown in Fig. 5. The post forces the cap of the button and cloth cover into the die against the plunger, the edge of the cloth being turned down all around the cap, as shown. The internal diameter of the upper die is made slightly larger than that of the lower die and the post to receive the cap and cloth, as shown. In this operation the projections *o* rest upon the flange *i*, as the parts are carried down, to the end that the cloth shall not be pinched between the dies. The upper die forces the lower one down against the action of the spring, and as the lower die descends it leaves the cap of the button poised upon the end of the post, which latter forces said cap and cloth into the upper die, as stated. The lever is again raised, which returns the parts to the position shown in Fig. 1, the parts of the button being held in the upper die by friction. The frame is now swung to one side, as indicated, against the stops *e'*, and a collar, K, with the body L in place therein, placed upon the post in the position shown in Fig. 7, the eye *r* projecting into a cavity, *t*, in the post. The frame is again swung to a vertical position and the upper die turned by hand upon the plunger until the projections *o* stand over the notches *n*. A descent of the handle or lever now brings, in the first instance, the parts to the position shown in Fig. 6, the surfaces *a'* and *b'* of the dies being in contact and the pendent edge of the cloth about to enter the cupped part *s* of the bottom die. A slight continuous advance of the plunger causes the edge of the cloth to be crimped and turned inward from the form of the cup, as shown in Fig. 7. A continued downward movement of the lever and plunger brings the parts to the relative position with the post shown in Fig. 7, and finally to the position shown in Fig. 8, in which the body of the button with the collar is forced into the cap, the edge of the cloth being turned up in the cap between the latter and the collar, as shown, the parts of the button being firmly set together and held by friction.

This hand-machine is designed more particularly to be used in small tailoring establishments.

Plungers of different sizes are designed to be inserted in the spindle and posts in the base for forming different sizes of buttons, dies corresponding in size being used.

What I claim as my invention is—

1. In a machine for forming buttons, in combination with a plunger and handle to operate it, an upper die fitted to move upon said plunger, a rigid post, a lower die fitted to move upon said post, and a lifting-spring for said lower die, said upper die being provided with

projections, and said lower die being formed with notches to receive said projections, substantially as shown and described.

2. In a machine for forming buttons, in combination with a plunger and handle to operate it, an upper die fitted to move upon said plunger, said die being formed with lateral projections, a rigid post, a lower die fitted to move thereon, and a lifting-spring for said lower die, the latter being formed with a projecting flange or part to meet said projections of the upper die, substantially as and for the purpose set forth.

3. The combination, in a machine for forming buttons, of a cylindrical plunger formed

with a transverse and longitudinal groove or depression upon its convex surface, a handle to operate said plunger, an upper die formed with projecting parts at its sides and provided with a pin to enter said grooves in the plunger, a rigid post, a lower die fitted to slide thereon and formed with notches for receiving said projections of the upper die, and a lifting-spring for the lower die, substantially as shown and described.

LOUIS P. WARNER.

Witnesses:

E. B. WHITMORE,
M. L. McDERMOTT.