

T. Guilford.
Button Mach.

N^o 53816.

Patented Apr. 10. 1866.

Fig:1

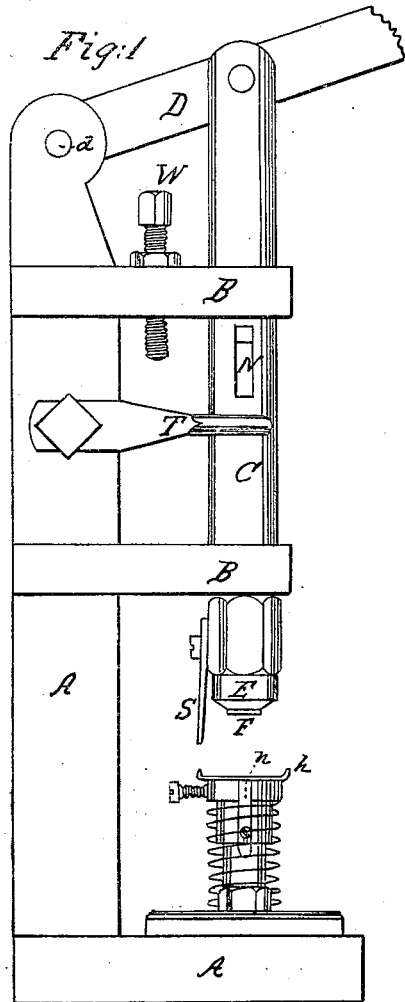
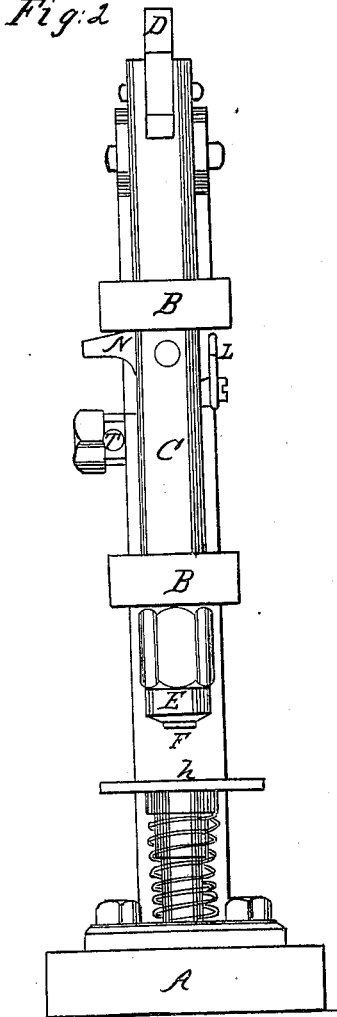


Fig:2



Witnesses

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Fig:3

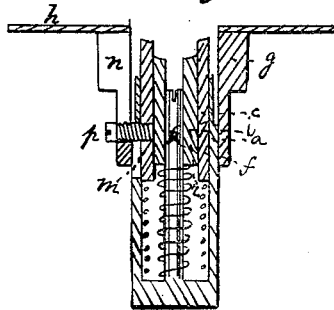


Fig:4

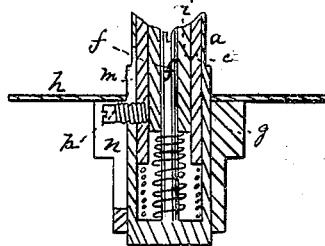


Fig:5

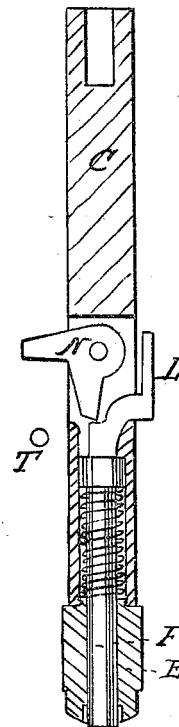


Fig:7

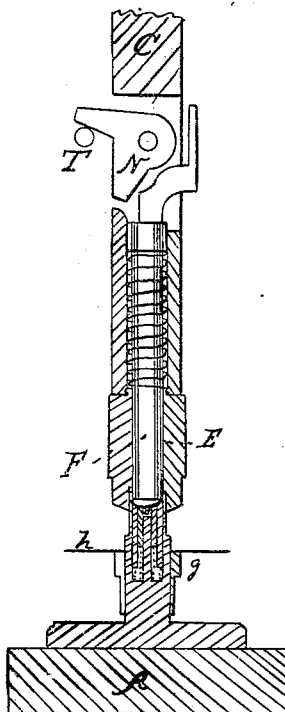
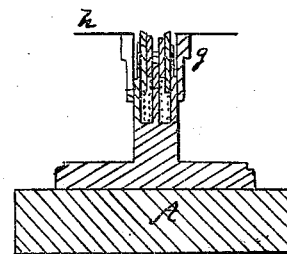
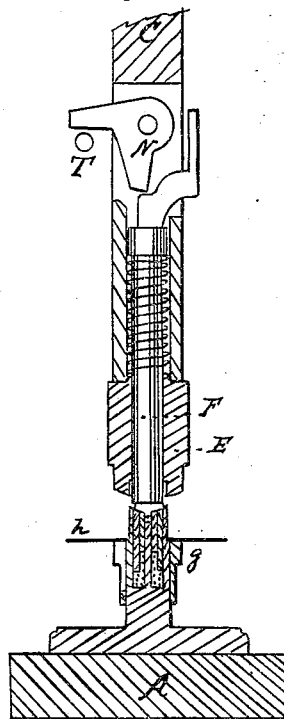


Fig:6



Witnesses

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UNITED STATES PATENT OFFICE.

TIMOTHY GUILFORD, OF CHESHIRE, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR PRESSING GLASS BUTTONS.

Specification forming part of Letters Patent No. 53,816, dated April 10, 1866.

To all whom it may concern:

Be it known that I, TIMOTHY GUILFORD, of Cheshire, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Machines for Making Glass Buttons; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of a press with my improvement attached; Fig. 2, a like front view; Figs. 3 to 7, inclusive, detached views to illustrate the operation.

My invention relates to an improvement in machinery for making glass buttons, such as are constructed with metallic eyes.

Heretofore glass buttons have been pressed between two dies, which left a thin edge or feather around them, which was broken off and the edge of the button ground smooth—an operation requiring time and skillful labor.

My invention, designed to overcome this expense in the manufacture, consists in constructing dies which form the button and finish the edge, without the necessity of grinding, complete and perfect except polishing the face.

To enable others skilled in the art to construct and use my invention, I will proceed to fully describe the same as illustrated in the accompanying drawings.

A is a frame, constructed in the ordinary form for light foot-presses, holding upon its bed the die and in its arms B B the mandrel C, which carries the punch. The said mandrel is operated through a lever, D, having its fulcrum at *d*, in the usual manner for similar presses.

The die, as seen in Figs. 3 and 4, is constructed in four parts, *a*, *c*, *i*, and *f*, the part *f* being a spindle in the center fixed to or a part of the outer cylinder, *a*. In the upper end of the spindle *f*, I form a slot or groove to receive the eye for the button to be formed.

The parts *i* and *c* are fitted so as to move freely within the cylinder *a*, and are each supported by spiral springs, as denoted in red, Figs. 3 and 4. Around the outer cylinder, *a*, I fit a sleeve, *g*, which supports a guiding-plate, *h*, and is of itself held up to the position de-

noted in Figs. 1 and 3 by means of a spiral spring, (denoted in red in Figs. 1 and 2.)

I form a slot, *n*, in the sleeve *g*, (see Fig. 1,) and also a slot, *m*, in the cylinder *a*, as seen in Figs. 3 and 4, through which two slots I pass a pin, *p*, into and fixed firmly in the part *c*, as seen in Fig. 3, so that when the plate *h* has been pressed down until the top of the slot *n* in the sleeve *g* bears upon the pin *p* the farther downward movement of the plate *h* will carry with it the part *c* to the position seen in Fig. 4, so that the part *a* will be above the other parts of the die, as seen in Fig. 4, which said part *a* forms the outside of the die upon the edges of which the superfluous glass is cut away by the follower E, which surrounds the punch F in the mandrel C. (See Fig. 5.)

The figure or form for the face of the button is cut upon the lower end of the punch F. The punch is fitted within the mandrel C, and supported therein by means of a spiral spring, as seen in Fig. 5.

When the mandrel is raised to the position denoted in Figs. 2 and 5, an arm, L, from the punch F strikes against the upper arm, B, of the frame and forces the punch down, as denoted in Figs. 1 and 5. When thus forced down a latch, N, hung in the mandrel C, falls down upon so as to catch and hold the punch in that position, as seen in said Figs. 2 and 5, and when the mandrel shall have been moved down to the position denoted in Fig. 6 an arm of the latch N will strike upon a trip, T, and the farther downward movement of the mandrel, as denoted in Fig. 7, will draw the latch away, so as to release the punch and permit it to fly up, as seen in said Fig. 7.

To the mandrel C, I adjustably attach a rod, S, as seen in Fig. 1, so that as the mandrel descends the said rod S will at the proper time strike the plate *h*, so as to force it down to carry the superfluous glass away from the punch. This I introduce as a convenience, not as a necessity. I also place a screw, W, in the upper arm of the frame to adjust the downward movement of the mandrel.

The operation of my machine is as follows: I insert the eye, formed in the usual manner, into the groove of the spindle *f*, the part *i* of the die serving as a guide to conduct the eye directly and properly into the groove of the spindle *f*. I then take a rod of glass of the

proper size, and, after heating it to the required heat to permit its being molded by the dies, place it upon the plate *h*, and then force down the mandrel, as before described. The punch *F* will impress the figure or form for the face of the button and continue down until in the position seen in Fig. 6, carrying with it the plate *h* and the several parts of the die from the position of Fig. 3 to that seen in Fig. 4, also from Fig. 5 to Fig. 6. At this point the button is fully formed within the die. The mandrel, continuing its downward movement, will trip the latch *L*, and the follower *E* will cut away the superfluous glass, as in Fig. 7. Then raise the mandrel, and the plate *h* and the parts *i* and *c* of the die will rise again to their position seen in Fig. 3. The button thus formed is retained within the follower until the mandrel has been raised up so as to force the punch *F* down, as before described, when the button will leave the follower and fall upon the die. Were the die in one piece, so as to form a surface, as in Fig. 4, the eye of the button falling

from the follower would not be certain of entering the hole in the center of the die formed for it. Thus the button would be left resting upon the eye while in its soft or plastic state, and would of its own weight become misshapen. To prevent this the die is made in the several parts, as shown, so that the eye of the button will surely fall, so that the button will bear upon the part *c* of the die entirely around it, from whence it is removed complete and perfect except its face, which requires to be polished.

Having therefore thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

A die constructed in several parts, substantially in the manner described, in combination with the punch *F* and follower *E*, as and for the purpose specified.

TIMOTHY GUILFORD.

Witnesses:

JOHN E. EARLE,
H. D. HATCH.