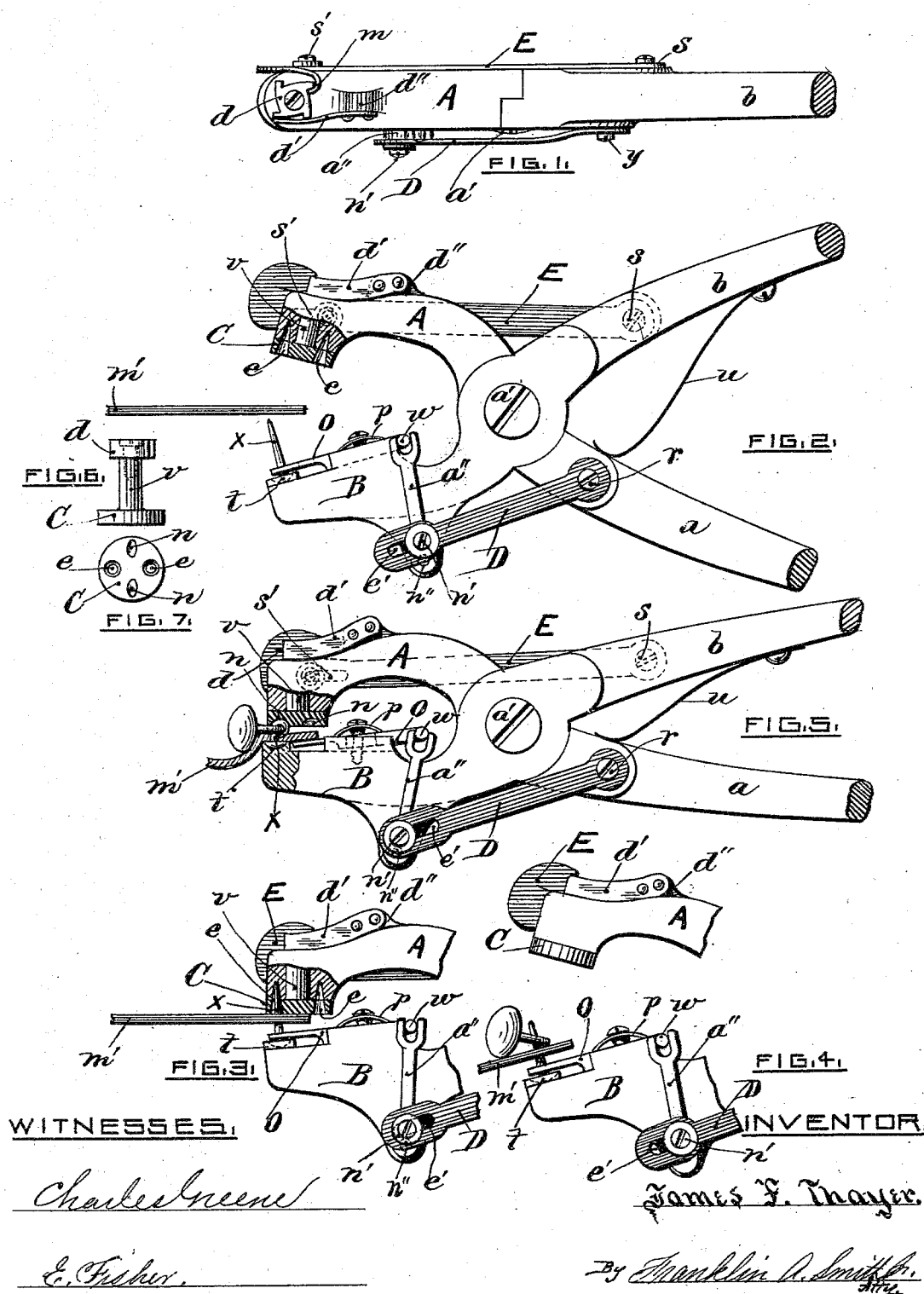


(No Model.)

J. F. THAYER.
BUTTON SETTING INSTRUMENT.

No. 296,366.

Patented Apr. 8, 1884.



UNITED STATES PATENT OFFICE.

JAMES F. THAYER, OF PROVIDENCE, RHODE ISLAND.

BUTTON-SETTING INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 296,366, dated April 8, 1884.

Application filed February 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. THAYER, 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 Button-Setting Instruments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My present invention relates to a setting-instrument for securing buttons to fabrics by means of a single-prong fastening or malleable pointed tack designed to pierce the fabric and be securely clinched around the eye of a button. The instrument employed in the present instance consists, practically, of a revolving or rotary die located on one member of the instrument, and operated by means of suitable levers and connections, whereby the tack is pressed partially through the fabric by one movement; and by a subsequent movement firmly clinched around the eye of a button, the opposite member of the instrument being provided with a series of levers and slides arranged to hold the fastener firmly throughout the clinching operation until the head thereof reaches the fabric, when the support for the fastener is removed, thereby allowing said head to be pressed closely against the under surface, all as will be more fully described hereinafter.

To illustrate my invention I refer to the drawings, in which Figure 1 is a top view of the instrument. Fig. 2 is a side view of the instrument, showing the jaws extended, the end of the upper jaw being in partial section. Fig. 3 is a partial view of the same, showing the fastener pierced through the fabric. Fig. 4 is a similar partial view, showing the jaw again open, and with the fastener pierced through the fabric and button. Fig. 5 is a side view of the instrument, showing the button completely attached, the ends of the jaws being in partial section. Fig. 6 is an elevation of the rotary die. Fig. 7 is an inverted plan view of the same.

The instrument consists of two members or jaws, A, B, provided with handles *a*, *b*, and

pivoted at *a'*, the members being acted upon by the spring *u*, which tends to separate the jaws. The jaw A is provided with a rotary die, C, located in the front end of the jaw, and consists of a metallic disk, on the lower surface of which are alternately arranged a series of dies, *n*, and openings *e*, at equal distances from the center, as shown in Fig. 7.

Projecting from the opposite surface of the disk is a stem, *v*, which forms the axis for the rotary die C. At the upper end of said stem is secured a ratchet-wheel, *d*.

At the rear, and on one side of the ratchet-wheel *d*, a flat spring, *d'*, is secured to the lug *d''*, this spring acting against one side of the ratchet-wheel, as shown in Fig. 1, to assist in revolving the rotary die; also to retain it in position during the clinching operations. The ratchet-wheel *d* is operated by means of the connection E, one end of which is pivoted at *s* to the handle *b* back of the pivot *a'*, and to the jaw at *s'* at the opposite end, which is also bent to form a spring-hook, *m*, to operate the ratchet-wheel *d*. As shown in Fig. 1, the end pivoted at *s'* is provided with a slot to allow the connection a movement in operating the ratchet-wheel, as shown in dotted lines in Figs. 2 and 5.

At the front and rear of the stem *v* are openings in the jaw A of a given depth, and corresponding to the openings *e* in the die C, as shown in Figs. 2 and 3. The opposite jaw or member, B, is provided on its upper surface with a depression, *t*, corresponding to the form of the head of the fastener used, and which forms the seat for the fastener-head to rest in during the clinching operations.

At the rear of the seat *t* is located a sliding plate, *o*, which is forked at one end to straddle the fastening-prong while holding it in its seat *t*. This plate *o* is loosely secured to the jaw B by means of a screw and spring, *p*, which holds it in position. This spring also acts upon the plate *o* when drawn back from the fastener-head and down to a lower plane than the surface of the seat *t*, as shown in Fig. 5, to return it to its original position. The plate *o* is also provided at its opposite end with a lug, *w*, by means of which the plate is acted upon by the lever *a''*. This lever is forked at its upper end, and is pivoted at its lower end, *n''*, to the jaw B, as shown. Near the lower

portion, at n' , it is connected to the link D, which is provided with a slot, e' , and is joined to the handle a at r , back of the pivot a' , as fully shown in the drawings.

- 5 The operation of attachment is as follows : The instrument being open, the several parts being in position, as shown in Fig. 2, a fastener is inserted in the seat t , under the plate o in the jaw B, with the opening e in the rotary die C directly in front. The jaws being now compressed, the prong of the fastener is passed through the fabric m' until the end reaches the bottom of the opening e , the jaws assuming the position shown in Fig. 3. The jaws are next opened wide, as in Fig. 4. During this operation of opening, the connection E has acted on the ratchet-wheel d by means of the spring-hook m , and caused it to turn the rotary die partially around, bringing one of the dies n opposite the point of the fastener. A button is now placed on the fastener in position, as also shown in Fig. 4. The jaws are now closed together. The point of the fastener coming in contact with the die n causes it to curve around the button-eye. Just before the head of the fastener reaches the fabric, the link D operates on the lever a'' , which moves the plate o away from the fastener-head, so that by the time the latter reaches the under surface of the fabric it is completely released, and the spring p allows the plate o to drop to a lower plane, when the fabric comes in contact with it, the whole instrument assuming the position shown in Fig. 5, thus completing the attachment of the button. The jaws are now opened and the fabric removed, the opening of the jaws bringing the rotary die in position again, with one of the openings e to the front, ready for another attachment; also the plate o in position for retaining a fastener.

It will be observed that the jaws are only closed a limited distance at the first movement; so the link D does not operate by reason of the slot e' on the lever a'' , and consequently the plate o remains stationary until the final clinching movement, when the slot in the link D, being solid against the pivot n' , operates the lever a'' with a quick movement, which releases the head of the fastener.

- 50 I have shown in this present instance a rotary die having on opposite sides of the center two openings and two dies formed quarter-

ing to each other. This number also corresponds to the number of teeth in the ratchet-wheel. I do not limit myself to this precise number, as it is evident that the number of openings and dies may be increased, if necessary; also the number of teeth in the ratchet-wheel may be varied, if desired.

Having described my invention, what I claim is—

1. A button-setting instrument composed of two members, one of said members being provided with means for holding a fastener, and the other member provided with a rotary die containing a series of openings and dies adapted to be automatically operated, the whole combined and arranged substantially as described.

2. In a button-setting instrument, the combination, with one member thereof, of a rotary die having on its surface an alternate series of openings and dies arranged to be operated by means of a ratchet-wheel and connections, substantially as described.

3. In a button-setting instrument, the herein-described rotary die C, consisting of the openings e , dies n , stem v , and ratchet-wheel d , in combination with the spring d' and connection E, attached to the opposite member of instrument back of pivot a' , arranged and adapted for use substantially as shown and described.

4. In a button-setting instrument, the herein-described fastener-holding device, consisting of the plate o and spring p , in combination with the lever a'' and link D, attached to the opposite member of instrument back of the pivot a' , arranged and adapted for use substantially as shown and described.

5. The herein-described button-setting instrument, consisting of member A, having rotary die C, spring d' , and connection E, and the member B, provided with the seat t , forked plate o , spring p , lever a'' , and link D, the whole combined and arranged substantially as shown and described.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES F. THAYER.

Witnesses:

FRANKLIN A. SMITH, Jr.,
WM. R. DUTEMPLE.