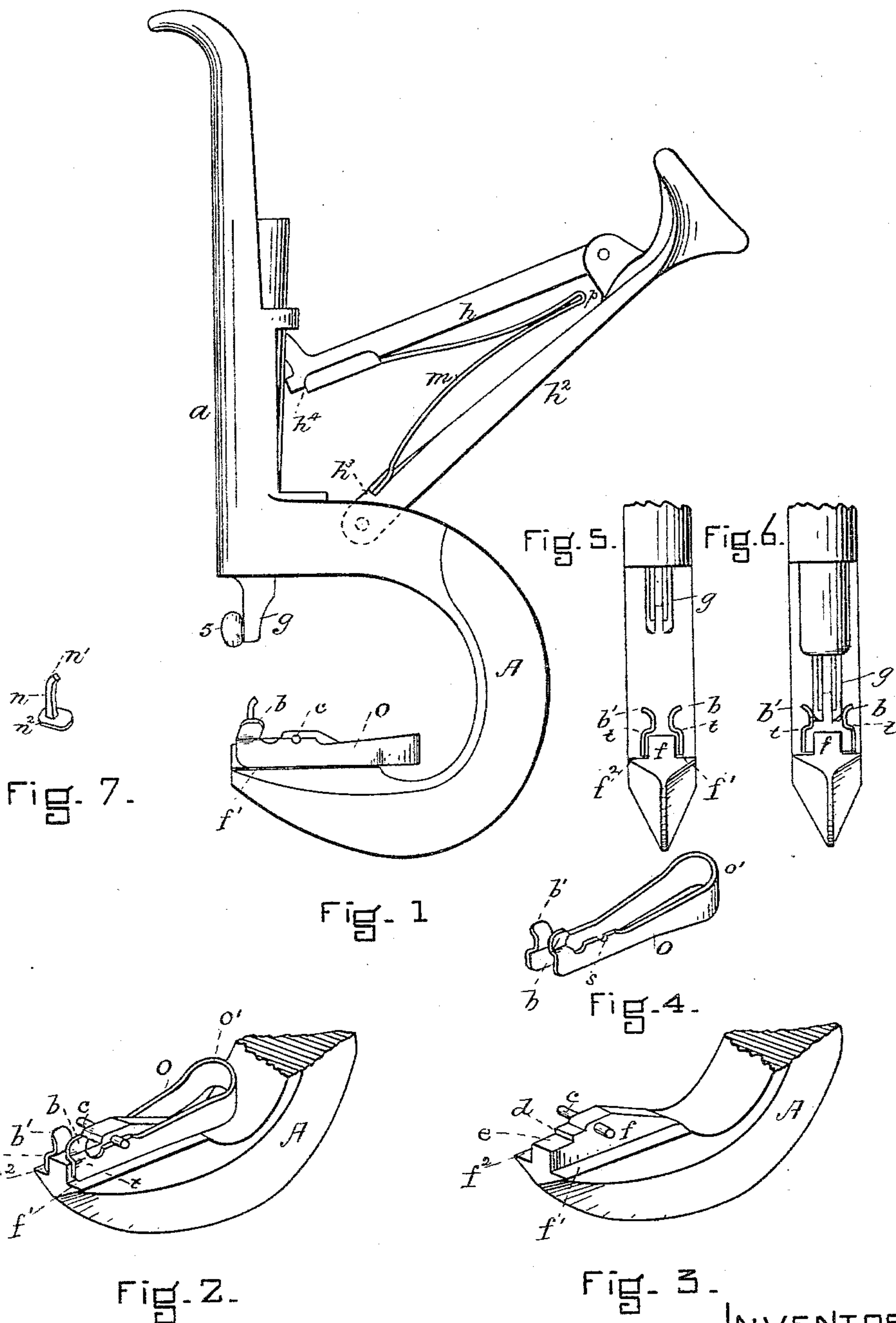


(No Model.)

A. M. ENGLISH.
BUTTON SETTING INSTRUMENT.

No. 319,213.

Patented June 2, 1885.



WITNESSES

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UNITED STATES PATENT OFFICE.

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BUTTON-SETTING INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 319,213, dated June 2, 1885.

Application filed January 22, 1885. (No model.)

To all whom it may concern:

Be it known that I, ANALDO M. ENGLISH, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented
5 an Improvement in Button-Setting Instruments, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object certain improvements on the button-setting instrument for which Letters Patent of the United States No. 287,389 were granted to Samuel L. Pratt and Analdo M. English, dated October 23,
15 1883.

These improvements more especially relate to the spring clamping-jaws which hold the fastener in place while its point is being forced through the leather, turned, and set, and to
20 an improved construction of the spring, which is inserted between the link and lever which operate the plunger. This spring acts to keep the plunger raised.

My improvement in the first-mentioned or
25 fastener-holding spring consists in its improved form and the means of attaching it to the lower jaws of the instrument. I make this spring of a certain proportional length, determined by the necessary amount of play of
30 its jaws, and make its rear or inner end with a round turn where it is bent, thus increasing its elastic limit and rendering it much less liable to break in use. I also change the shape of the jaws so that they press directly
35 by means of a flat surface upon the upper surface of the head of the fastener and prevent it from being forced out of position, the whole strain coming by this new construction upon the spring edgewise, in which direction
40 it possesses great rigidity, whereas in the old form of construction the jaws of the spring were oblique and rested only against the edge of the head of the button-fastener, and held the fastener in place only by the elastic force of
45 the spring. In this old construction, if the plunger did not strike squarely on the point of the fastener, it was liable to be forced to one side obliquely. By my present invention this is avoided entirely.

50 To adapt this new form of spring to the button-setting instrument previously mentioned, I

make some modifications in the lower jaw and fastener-seat, retaining the fastener-holding spring in place by different devices which permit its free action, it being secured only by
55 the two ends of a horizontal pin on which it can move laterally.

Another improvement in this fastener-holding spring consists in so constructing the jaws with flanges bent obliquely outward that the
60 plunger in descending with the leather over it forces the jaws of the spring apart and nearly releases the fastener after the important work of forcing the point through the leather has been accomplished. The jaws of
65 the spring being forced apart allow plenty of room for the leather to be brought down squarely upon the upper surface of the head of the fastener, and thus the action of the plunger in setting the fastener is not ob-
70 structed.

The improvement in the spring used to keep the plunger raised consists in reversing its position between the link and hand-lever, securing it at one end to the lever, and attaching
75 its other end loosely to the links by means of flanges. By this construction the slip of the spring upon the link is reduced to almost nothing, and, much friction being avoided, the instrument works more smoothly.

By the improved construction of the lower jaw of the instrument no slot is made in it, and its strength is thereby much increased, the new form of fastener-holding spring permitting of any required thickness of the jaw.
80

In the drawings, Figure 1 is a side elevation of the button-setting instrument embodying my invention, the button and fastener being each held by its proper jaw ready for the insertion between them of the material upon
85 which the button is to be fastened. Fig. 2 is a perspective view showing in detail the lower end of the button-holding plunger and the fastening-clamp, looking at Fig. 1 from the right and above. Fig. 3 is a perspective view
90 showing in detail the upper side of the lower jaw of the instrument with the fastener holding-spring removed, exposing the fastener-seat and pin for securing the spring, and the shoulders upon which the spring rests in
95 place. Fig. 4 is a perspective view of my improved fastener-holding spring. Fig. 5 is an
100

end elevation of a portion of the instrument, showing the plunger raised and the jaws of the fastener-holding spring at their nearest point of approach. Fig. 6 is a similar view, the plunger being, however, nearly at the bottom of the stroke and in the act of pressing the jaws of the fastener-spring apart. Fig. 7 is a fastener such as is herein employed.

The main portions of the frame-work and levers of the instrument are the same as those shown and described in Letters Patent No. 287,389, and will not be particularly referred to here.

A is the frame; *a*, the guide; *h*, the link; *h*², the hand-lever; *m*, a spring, bent substantially as shown at *p*, its bent end occupying the space between the upper ends of the link *h* and hand-lever *h*². One lower end, *h*³, rests on a projection or shoulder of the hand-lever *h*², and the other has two flanges, *h*⁴, upon it, embracing the link *h*, and capable of rocking thereon and preventing it from being moved laterally. By this construction there is very little sliding motion and its consequent friction.

The fastener-holding spring O is best shown in Fig. 4. It is bent with a semicircular curve at its inner end, O', and terminates at its outer free ends in two jaws. To produce the jaws *t t*, the ends of the spring are bent inward onto the fastener-rest almost at right angles, and then outward at an oblique angle to form the lips or flanges *b b'*. A little back of the jaws and the lips or flanges *b b'* on one side is the notch *s*, in which rests the pin *e*, and which retains the spring in place, it being free to move laterally along the ends of this pin.

The lower part of the frame-work or head and spring seat consists of the following parts: The flat surface or shoulder *f' f*², upon which the spring rests, having a vertical tongue, *f*, in its center, against which the inner faces of the jaws of the spring O press. The upper surface of the tongue *f* is cut into steps, one of which, *e*—the one nearest the outer end—acts as the fastener-seat, and the other, *d*, by its vertical edge, acts as a guide for the edge of the fastener-head. A pin, *e*, for retaining the spring O in place, passes through the tongue *f* about midway its length. *g* is the lower end of the plunger, for holding the button. 5 is the button, *n* the fastener having the head *n*² and curved point or hook *n'*.

The operation is as follows: A button-shank having been inserted between the jaws connected with the plunger *g*, as in Fig. 1, and a fastener having been placed between the jaws *t t*, with the shank of the fastener in line with the opening in the eye of the button-shank, as shown in Fig. 1, (this position of the jaw is indicated in Fig. 5,) the levers are then pressed together, causing the plunger *d* to descend, carrying with it the button 5, until they strike the material and force it over the point of the fastener, and consequently the latter through the material and through the button-eye, and the point of the fastener, as it meets the anvil of the plunger, is bent downward, securing

the button. In the meantime, as the plunger descends it forces the leather or other material down and between the lips *b b'* of the spring-jaws *t t* and force them apart, allowing the leather or other material to come down and lie flat against the fastener-head resting on the seat of the tongue *f*. This is illustrated without material in Fig. 6.

Some of the advantages of this improved construction in making button-setting instruments are, that the spring, when formed as described, is subjected to the minimum of tension when not in use, and thus its life is much prolonged; and the jaws being forced apart in setting the button, the fastener is nearly released, so that the material and fastener-head are closely pressed together, and can also be easily removed from the instrument when the work of fastening is completed; also, that the head of the fastener need not be so true and perfect, as the fastener-holding spring has a tendency to position the fastener and hold it firmly in position, thus allowing it to slip into the material without difficulty.

What I claim is—

1. In apparatus for setting buttons, consisting of a frame, A, provided with a guide, *a*, and a button-carrying plunger, the combination, with a lever and link, of the spring *m*, having one end resting on a shoulder at the lower end of the said lever, and the other embracing the said link, substantially as described.

2. In an apparatus for setting buttons, the lower frame-work or head provided with spring-rests, a fastener rest or support, and a spring-retaining pin, in combination, with a fastener-holding spring, O, provided with jaws *t t* and lips *b b'*, all arranged as and for the purpose set forth, substantially as described.

3. In an apparatus for setting buttons, a fastener rest or support, in combination with a spring provided with jaws *t t* and lips *b b'*, whereby the fastener is firmly held in position by the jaws and automatically released by the action of the plunger or button-holding device, substantially as described.

4. In an apparatus for setting buttons, a U-shaped fastener-holding spring provided with jaws, in combination with a fastener rest or support provided with shoulders, and a pin or lug adapted to carry and position said spring, whereby the free lateral movement of said spring allows the fastener to center and position itself, substantially as described.

5. In an apparatus for setting buttons, the combination, with a fastener rest or support, of a spring, O, provided with jaws *t t* and lips *b b'*, substantially as described.

In witness whereof I have hereunto set my hand.

ANALDO M. ENGLISH.

Witnesses:

WM. B. H. DOWSE,
M. E. PARKER.