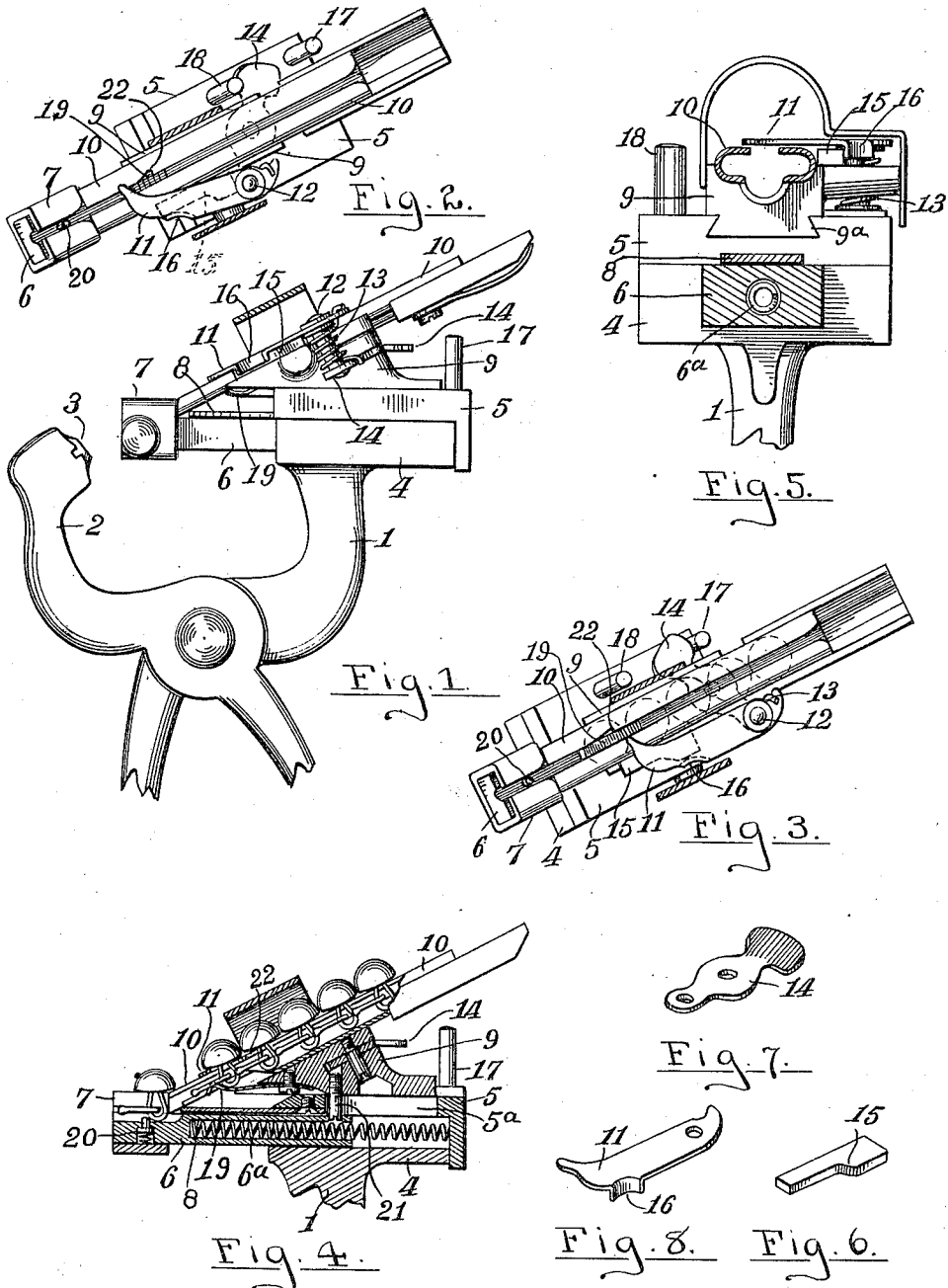


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 AUTOMATIC FEED MECHANISM FOR BUTTON SETTING TOOLS.
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To all whom it may concern:

Be it known that I, WILLIAM E. ELLIOTT, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Automatic Feed Mechanisms for Button-Setting Tools; and I do hereby 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.

My invention relates to improvements in automatic feed mechanisms for button setting tools, and its object is to provide a simple and effective device for the purpose, and to provide the same with various new and useful features hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which:—

Figure 1 is a side elevation of a device embodying my invention; Fig. 2 a plan view of the same; Fig. 3 the same with the parts in a different position; Fig. 4 a vertical section of the same; Fig. 5 an enlarged transverse sectional detail; Fig. 6 a perspective detail of the cam; Fig. 7 the same of the oscillating lever; and Fig. 8 the same of the pusher.

Like numbers refer to like parts in all of the figures.

1 represents the upper jaw of a manually operated button setting tool; 2 the lower jaw of the same carrying the clenching die 3; 4 is a transverse head on the jaw 1 opposite to the die 3; 5 is a removable cap on the head; 6 is a slide longitudinally movable in the head 4 and retained therein by the cap 5. This slide contains a spring 6^a which yieldingly holds the same projected from the head toward the jaw 2. Slidable in dove-tailed ways 9^a on the cap 5 is a carriage 9. This carriage is connected to the slide 6 by a pin 21 extending through a slot 5^a in the cap. The contact of this pin with the end of the slot limits the movement of the slide and carriage toward the jaw 2. On this carriage is mounted an inclined button chute 10 having a slot to receive the eyes of the buttons and lateral grooves to receive and guide the staples which serve as fasteners for the buttons. On the end of the slide 6 adjacent the die 3 is a head 7 adapted to receive and guide the buttons and fasteners. In this head is a yieldable

stop 20 to engage the eye of the button and retain the same in proper place therein until driven out as the fastener is forced against the clenching die 3 by a driver 8 extending parallel with the slide 6, close above the same, and adapted to project through the end of the button chute and engage the fastener in the head 7 and drive the same through the fabric and against the die 3. A spring stop 19 projects at one end through an opening in the bottom of the button chute and engages the last button in the series and holds it in proper position to be engaged by the pusher which latter consists of a lever 11 having a laterally projecting end adapted to slide along the surface of the button chute and engage the eye of each succeeding button close to the head of the same. This pusher is pivotally mounted on a post or stud 12 carried in one end of an intermediately pivoted lever 14 pivotally mounted in a transverse slot in the carriage 9 and oppositely projecting therefrom. One end of this lever carries the stud 12 and the other end as the carriage oscillates alternately engages posts 17 and 18 fixed in the cap 5. A spring 13 coiled about the stud 12 engages the lever 14 at one end and the pusher 11 at the other end whereby the pusher is yieldably swung toward the chute at the lower end. Near the lower end of the pusher 11 is a downwardly projecting lug 16 on its outer edge. As the pusher oscillates this lug engages and traverses the edge of the cam 15 which is so formed that as the pusher moves up along the surface of the button chute its lower end is swung laterally to pass clear of the eye of the button and allow the same to slide down again to the stop 19. As the pusher descends it will now engage the eye of the button and force it downward depressing the stop 19 and permitting the eye and fastener to escape into the head 7. This oscillation is produced by contact of the lever 14 with the pin 17 to move the pusher upward along the button chute and by contact of said lever with the pin 18 to move the same downward.

To prevent moving the buttons upward as the pusher moves up the button chute a lateral recess 22 having a shoulder at its upper end is cut in the edge forming the wall of the slot of the chute whereby the pusher moves the eye of the button laterally into this recess on its up stroke and into

engagement with this shoulder. The spring 13 will then yield and allow the pusher to pass the eye of the button. By the use of this recess the cam 15 and lug 16 can be dispensed with and the device will operate.

What I claim is:—

1. A button setting tool, comprising a pair of jaws movable toward and from each other, button setting mechanism mounted on said jaws, a carriage slidable on one of the jaws connected to said mechanism and reciprocated thereby, a button chute mounted on the carriage, a spring stop projecting into the chute to yieldably engage the eye of a button, an intermediately pivoted lever mounted on the carriage, a pusher pivotally supported at one end on one end of the lever and adapted to engage the eye of said button at the other end, a spring to yieldably move said lever toward the chute, and fixed stops engaged by the lever to oppositely shift the same.

2. A button setting tool, comprising a pair of jaws movable toward and away from each other, button setting mechanism carried by said jaws, a carriage slidably mounted on one of said jaws and reciprocated by said mechanism, a button chute having a slot in its upper side adapted to receive the eyes of buttons and side channels to receive button fasteners, an intermediately pivoted lever mounted on the carriage, a pusher pivoted at one end to the lever and traversing the top of the chute at the other end, a spring to engage the end of the pusher with the eye of a button, and stops fixed on the said jaw to oppositely engage the lever and shift the same.

3. A button setting tool, comprising a pair of jaws movable toward and from each other, a die in one jaw, a reciprocable slide in the other jaw having a guide on its end adjacent the die, a reciprocable carriage mounted on the last named jaw and connected to the slide to move therewith, a button chute mounted on the carriage and adapted to discharge buttons and fasteners into said guide, a yieldable stop in said chute to engage the eye of a button, a second yieldable stop in the guide, a pusher reciprocable upon the upper side of the chute, and stops fixed in said jaw and adapted to reciprocate the pusher as the carriage is reciprocated.

4. A button setting tool, comprising a pair of jaws movable toward and from each

other, a die carried by one jaw, a transverse head on the other jaw, a slide movable in the head, a guide on the end of the slide adjacent the die, a carriage mounted on the head and connected to the slide, a button chute mounted on the carriage and having a slot in its upper side, a yieldable stop in the under side of the chute, a second yieldable stop in the guide, an intermediately pivoted lever mounted in the carriage, a pusher pivoted at one end on a post carried by one end of the lever and traversing the top of the chute at the other end, a spring to move the pusher toward the chute and between the head of the button and the chute, and stops fixed in the head to oppositely and alternately engage the opposite end of the lever to shift the same and operate the pusher.

5. A button setting tool, comprising a pair of jaws movable toward and from each other, button setting mechanism carried by said jaws, a carriage on one of said jaws and reciprocated by said mechanism, a button chute mounted on the carriage and having a slot in the top to receive the eye of a button, a pusher adapted to engage said eye and move it longitudinally of the slot and then pass the said eye, means for preventing the pusher from moving the eye when it passes the same, and means for reciprocating the pusher.

6. A button setting tool, comprising a pair of jaws, movable toward and away from each other, button setting mechanism carried by said jaws, a carriage reciprocable on one of said jaws, a button chute mounted on said carriage and having a slot to receive the eye of a button and side channels to receive a button fastener, a yieldable stop in the bottom of the chute, a pivoted lever on the carriage, a pusher pivoted at one end on one end of the lever and traversing the slot in the chute at the other end to engage the button eye, a spring to move said pusher toward the chute, and a cam traversed by a projection on the pusher to move the pusher out of engagement with said eye when passing the same.

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

WILLIAM E. ELLIOTT.

Witnesses:

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