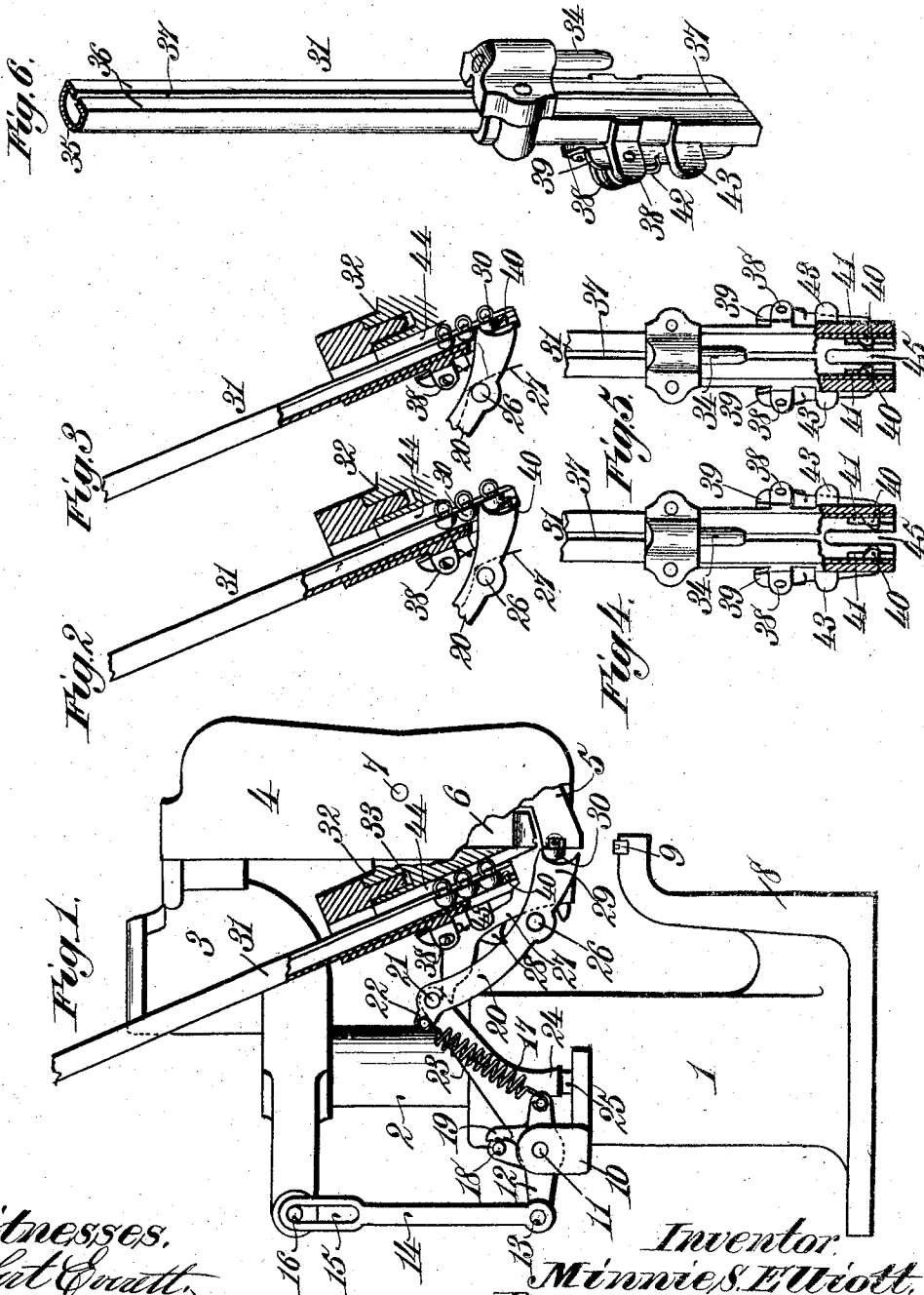


M. S. ELLIOTT.
ATTACHMENT FOR BUTTON SETTING MACHINES.
APPLICATION FILED SEPT. 19, 1896.

NO MODEL.



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Att'y.

UNITED STATES PATENT OFFICE.

MINNIE S. ELLIOTT, OF GRAND RAPIDS, MICHIGAN.

ATTACHMENT FOR BUTTON-SETTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 765,616, dated July 19, 1904.

Application filed September 19, 1896. Serial No. 606,438. (No model.)

To all whom it may concern:

Be it known that I, MINNIE S. ELLIOTT, a citizen of the United States, residing at the city of Grand Rapids, in the county of Kent and State of Michigan, (whose post-office address is Grand Rapids, Michigan,) have invented a certain new and useful Attachment for Button-Setting Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in that class of button-setting machines operated by foot-power in which the buttons are fed from a hopper or chute to a clenching anvil or die after receiving the staple through the shank or eye of the button, and is more especially adapted to that class of button-setting machines in which the wire is taken from a spool or other suitable holder, a section thereof severed after the same has been fed through the eye of the button, and a staple formed out of such section of wire, which is driven by the action of the machine so that the button is attached by means of the staple to the fabric.

The objects of the invention are to provide a novel construction of chute for carrying the buttons to be fed to the machine, which chute may be readily attached to or detached from the machine, and to render the machine capable of receiving and operating in conjunction with chutes of different sizes containing buttons of different sizes.

I have described in the specification and illustrated in the drawings so much of a machine only as will suffice to render clear the application of my invention. The features of this machine, except so far as expressly claimed herein, are the invention of William E. Elliott and form the subjects-matter of patents issued to him or of pending applications filed by him.

In the accompanying drawings, Figure 1 is a side elevation, partly broken away, of a button-setting machine having my invention applied thereto. Fig. 2 is a vertical sectional view of a button-tube containing buttons and showing in broken elevation the feed-finger in engagement with the lowermost button. Fig. 3 is a similar view of like parts, but showing a smaller size of tube containing smaller

buttons. Figs. 4 and 5 are rear elevations of the lower portions of two button-tubes of different sizes, and Fig. 6 is a perspective view of a button-tube.

1 indicates the main casting of the machine, in which is mounted a spring-pressed plunger 2, having a plunger-head 3. The plunger is caused to have a reciprocating motion by means of foot-power or any other suitable means, (not shown,) and the moving parts of the staple-bender and staple-maker of the button-setting device all receive their motion directly or indirectly from the movement of the plunger transmitted through the plunger-head.

4 indicates that portion of the main casting which incloses the staple-former 5, the staple bender and cutter 6, and other portions of the mechanism not necessary to refer to.

7 is the pivot of the staple-former 5. 8 is the support for the anvil or die 9, on which the staple is clenched. Mounted on the casting 1 is a bracket 10, on which is pivotally mounted at 11 a lever 12. Pivotaly connected to the outer end of this lever, as indicated at 13, is a connecting-rod 14, the upper end of which is provided with an elongated slot 15, in which works a stud 16, carried by the plunger-head 3. An arm 17 is also mounted on the pivot 11 and is provided with a stud 18, which is adapted to be engaged by a lug 19 on the lever 12. The feed-finger 20 is pivotally connected near its outer end to the outer end of the arm 17, as indicated at 21. A portion 22 of the feed-finger projects beyond the pivot 21, and to this projecting end is secured one end of a coil-spring 23, the opposite end of which is secured to the inner end of the lever 12. The spring 23 thus controls the movements of the arm 17 and the feed-finger 20. The arm 17 is limited in its downward movement by means of a projecting portion 24, which bears upon a lug or stop 25 on the bracket 10. The feed-finger 20 is guided in its movements by means of a pin 26, carried by said lever and projecting inward at right angles thereto. Said pin rides upon the face of a raceway-guard 27, and at the back stroke of the feed-finger said pin engages a pivoted spring-controlled cam-lever 28, which oper-

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ates to throw the feed-finger outward or away from the buttons in the button-chute, and this continues until the pin 26 snaps over said cam-lever 28. This operation is caused by the stud 16 engaging the bottom of the groove 15 in the downward movement of the plunger, thereby, through the medium of the connecting-rod 14, operating the lever 12, causing the projection 19 thereof to engage the stud 18 of the arm 17, the outer end of which, as previously stated, is pivotally connected to the feed-finger at 21. The spring 23 tends to hold the pin 26 normally against the face of the raceway-guard 27. When the plunger ascends, the spring 23 will draw the arm 17 downward, causing the pin 26 to move downward, and the cam-lever 28 in this movement of the pin will yield to allow the pin to move over the face of the raceway-guard. In this movement of the feed-finger its recessed end 29 will engage the lowermost button 30 in the button-chute 31 and carry it downward to the staple-former 5, as shown in Fig. 1, where the wire is passed through the eye of the button. The operations of the staple-former, staple-bender, staple-driver, (not shown,) and the parts cooperating therewith incased in the casing 4 and of the wire-feeding mechanism are not of moment in this case.

32 is the button-tube holder, which consists of a projection from the main frame or casting 4, provided with an opening 33 to receive a projection 34 on the button-tube. Each of the button-tubes shown in the drawings comprises a rounded side 35 for receiving the heads of the buttons and a flat side 36, having a slot 37, through which the eye of the button extends. On the rounded side and at the lower end of the tube are lugs 38, pivotally mounted between which are two levers 39, each having a projection 40 at its lower end extending through a slot 41 into the tube a sufficient distance to support the column of buttons therein, as clearly shown in the first five figures of the drawings. The levers 39 are normally pressed inward by means of springs 42 and are guided between lugs 43. Each tube is provided with a pin or projection 34 for fitting into the opening 33. The outer side of the tube-holder 32 is flat, so that the flat portion of the button-tube may abut squarely against it, and is provided with a groove 44 to receive the shanks of the buttons projecting from the tube. At the lower end of each tube, on its rounded side, is a relatively wide slot 45, through which the end 29 of the feed-finger 20 may pass to engage the lowermost button. As the feed-finger always passes into the slot at a given point, it is necessary that means be provided to insure in the use of different tubes containing different sizes of buttons that in a given tube the upper edge of the lowermost button of the column shall always be in the correct position or at the proper height in the tube to be

engaged by the feed-finger. This result is accomplished by locating the stops or projections 40 a greater or less distance from the bottom of the tube, according to the size of the button to be used in the tube. Thus the tube shown in Figs. 3 and 5 is adapted for the smallest size of button, and it will be seen that the projections 40 are some distance removed from the lower end of the tube. The tube shown in Figs. 2 and 4 is adapted for a larger size of button than in the previous case, and the projections 40 are located lower in the tube, while in the tube shown in Fig. 1, adapted for a still larger size of button, the projections 40 are located still lower or nearer the lower end of the tube. In other words, the larger the button the lower the projections 40 will be located to enable the upper edge of the button to fall to the proper level to be engaged by the feed-finger. Slight variations in the size of the buttons, however, will not interfere with the proper working of the feed-finger, and, as a matter of fact, each tube is supposed to accommodate three sizes of buttons. With each machine there is of course a hopper having a chute similar to the tubes 31, detachably mounted on the machine, and means are provided for automatically feeding buttons to the machine through such chute from the hopper. This hopper and chute will also feed three different sizes of buttons. When a larger or smaller size of button is required to be used than may be properly fed in said chute, the latter, with its hopper, is removed, and one or the other of the button-tubes shown in the drawings is attached to the machine by inserting the projection 34 in the opening 33. The feed-finger 20 enters the slot 45 of any of the tubes to about the mouth of the groove 44 in the holder 32, so that it will engage the smallest button employed. If a larger button be used, said finger will simply yield to automatically accommodate itself to the size of the button owing to its pivotal connection 21 and spring connection 23. The size of the eye or shank of the button of course remains uniform, or practically so, in all cases.

Having thus fully described my invention, what I claim as new is—

1. In a button-setting machine of the class described, spring-controlled button-feed mechanism automatically adjustable to accommodate buttons of varying sizes and operating to deliver the buttons to the machine, and a button tube or chute detachably connected to the machine and mounted in direct operative relation to said button-feed mechanism.

2. In a button-setting machine of the class described, spring-controlled button-feed mechanism automatically adjustable to accommodate buttons of varying sizes and operating to deliver the buttons to the machine, and a tube or chute provided with means whereby it may be detachably connected to the machine

in direct operative relation to said button-feed mechanism.

3. In a button-setting machine, of the class described, spring - controlled button - feed mechanism automatically adjustable to accommodate buttons of varying sizes and operating to deliver the buttons to the machine, and a portable chute having at its lower end a spring button-retaining device and provided with means whereby it may be detachably connected to the machine in direct operative relation to said button-feed mechanism.

4. In a button-setting machine of the class described, a portable tube having at its lower end a spring button-retaining device and being adapted to encircle the head of the button and provided with means whereby it may be detachably connected to the machine and further provided in one side with a slot to receive the eye of the button and on the opposite side with a slot 45, in combination with a spring-controlled feed-finger upon the machine adapted to accommodate the sizes of buttons presented by the chute and to enter the slot 45, engage the lowermost button in the tube and deliver the same to the machine.

5. In a button-setting machine of the class described, an automatically-adjustable, spring-controlled feed-finger for delivering buttons

to the machine, tube-supporting means on the machine, and a tube or chute adapted to support within itself a column of buttons and provided with means whereby it may be detachably secured to said supporting means in direct operative relation with said feed-finger.

6. In a button-setting machine, in combination with mechanism for feeding buttons, a detachable tube having at its lower end means for supporting a column of buttons and above said supporting means being provided with an attaching device, whereby the tube may be removably secured in position on the machine.

7. In a button-setting machine, in combination with mechanism for feeding buttons, a detachable tube or chute having at its lower end spring-controlled stops 40 for supporting a column of buttons and above said stops being provided with a pin 34, whereby the tube or chute may be removably secured in position on the machine.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

MINNIE S. ELLIOTT. [L. s.]

Witnesses:

ARTHUR C. DENISON,
CHRISTOPHER HOUELINK.