

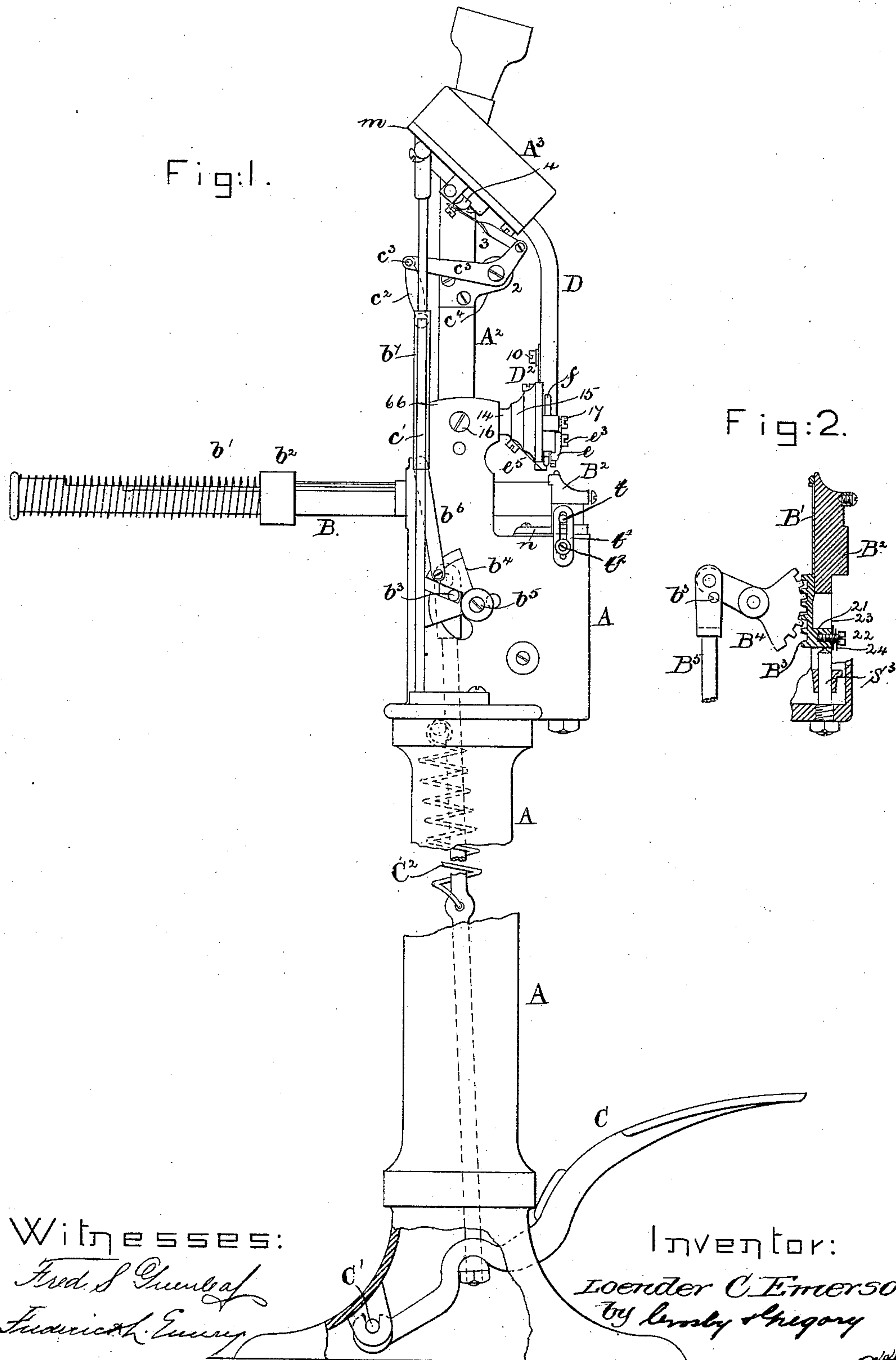
(No Model.)

2 Sheets—Sheet 1.

L. C. EMERSON.  
BUTTON SETTING MACHINE.

No. 405,664.

Patented June 18, 1889.



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Fig: 3.

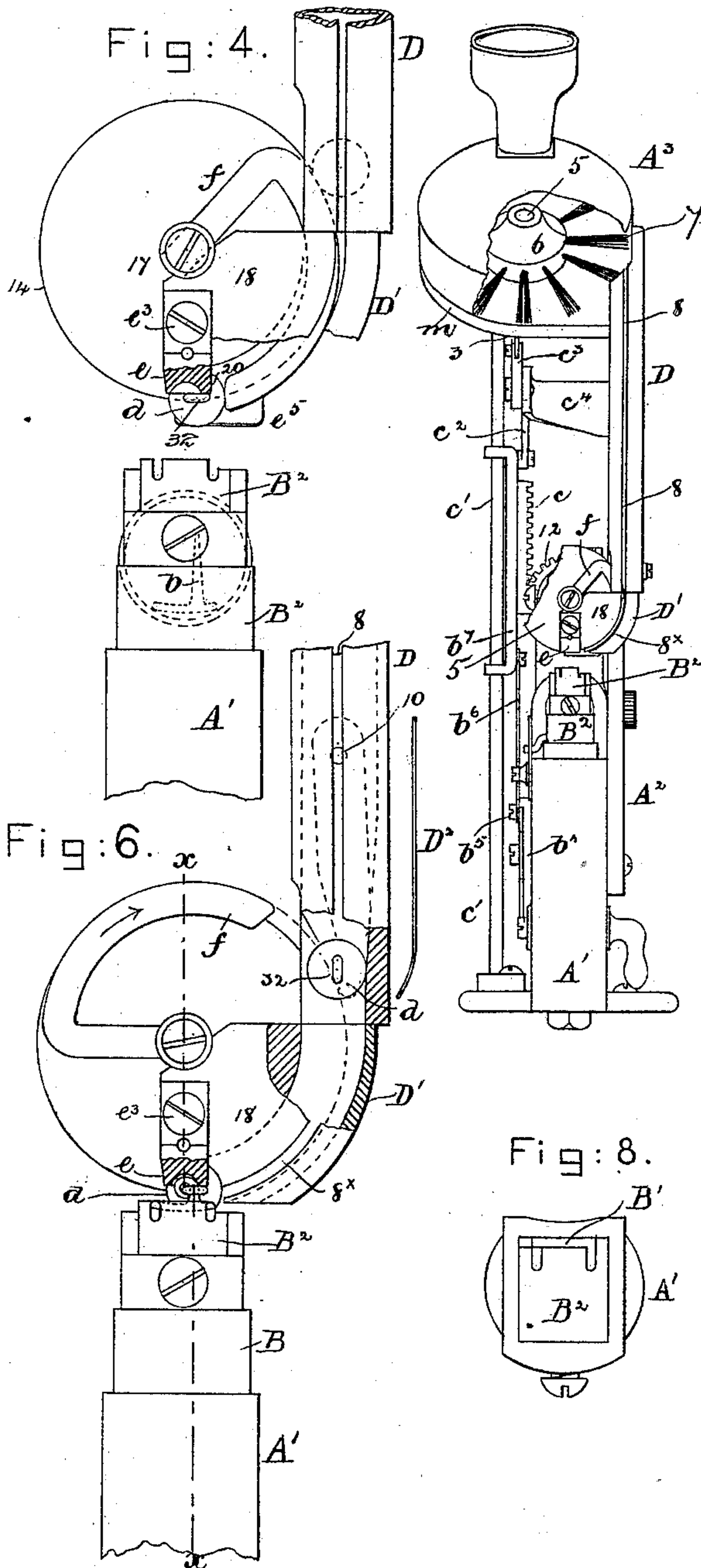


Fig: 5.

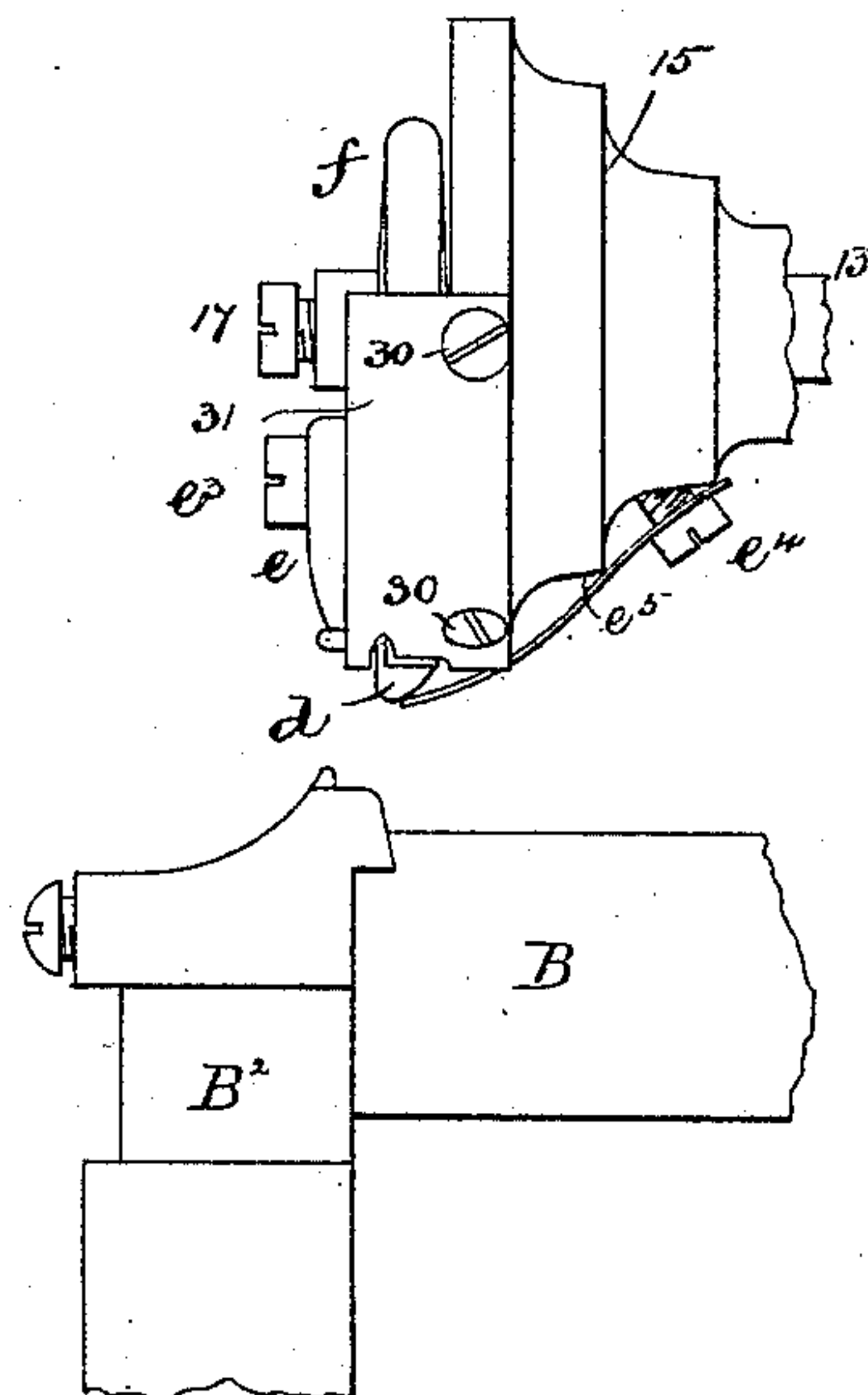


Fig: 6.

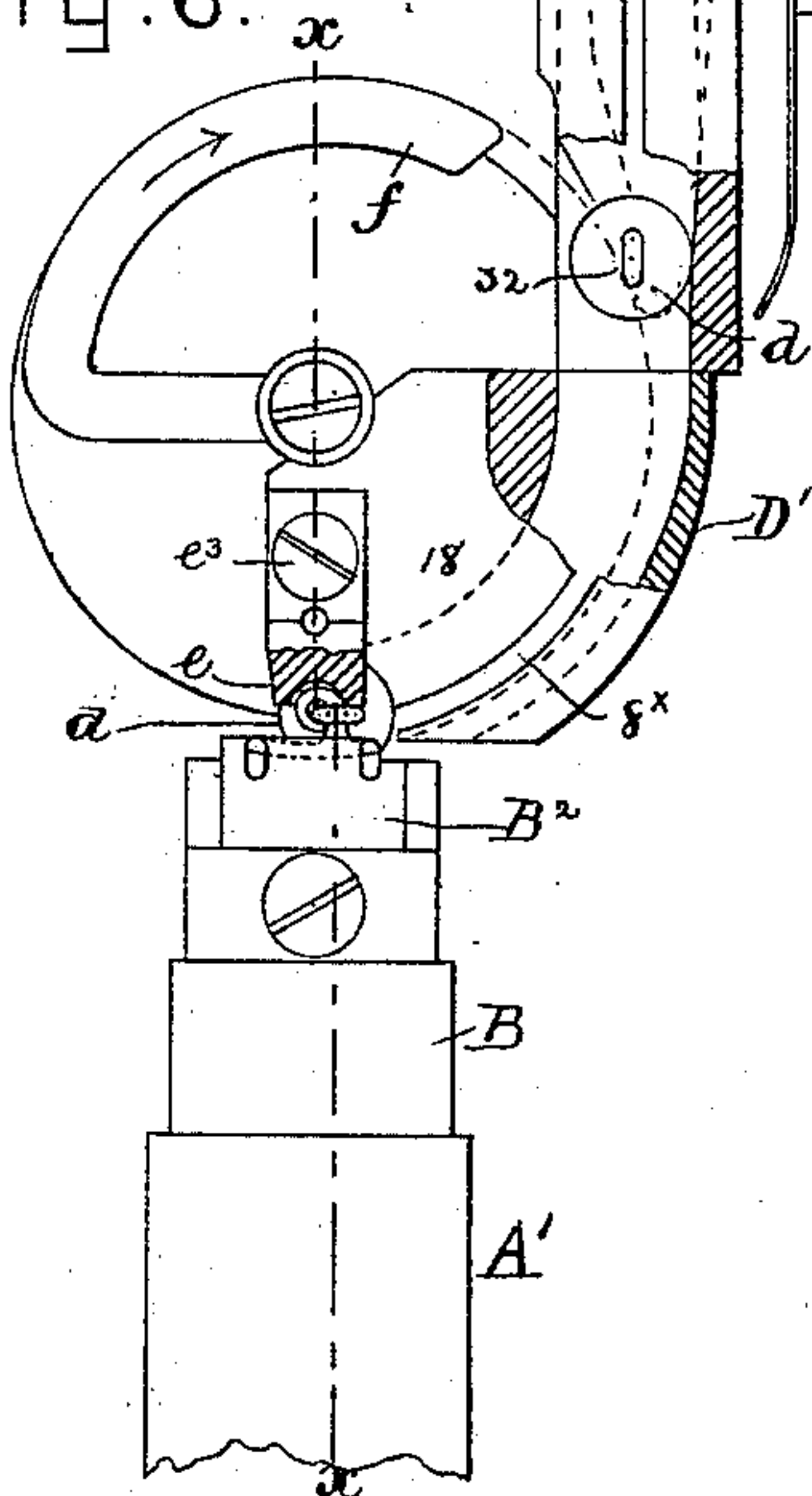


Fig: 8.

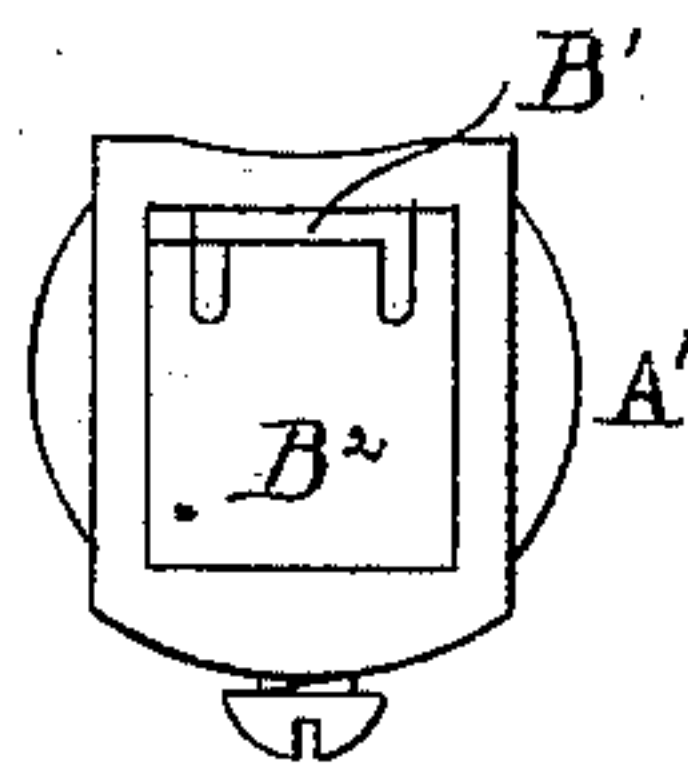
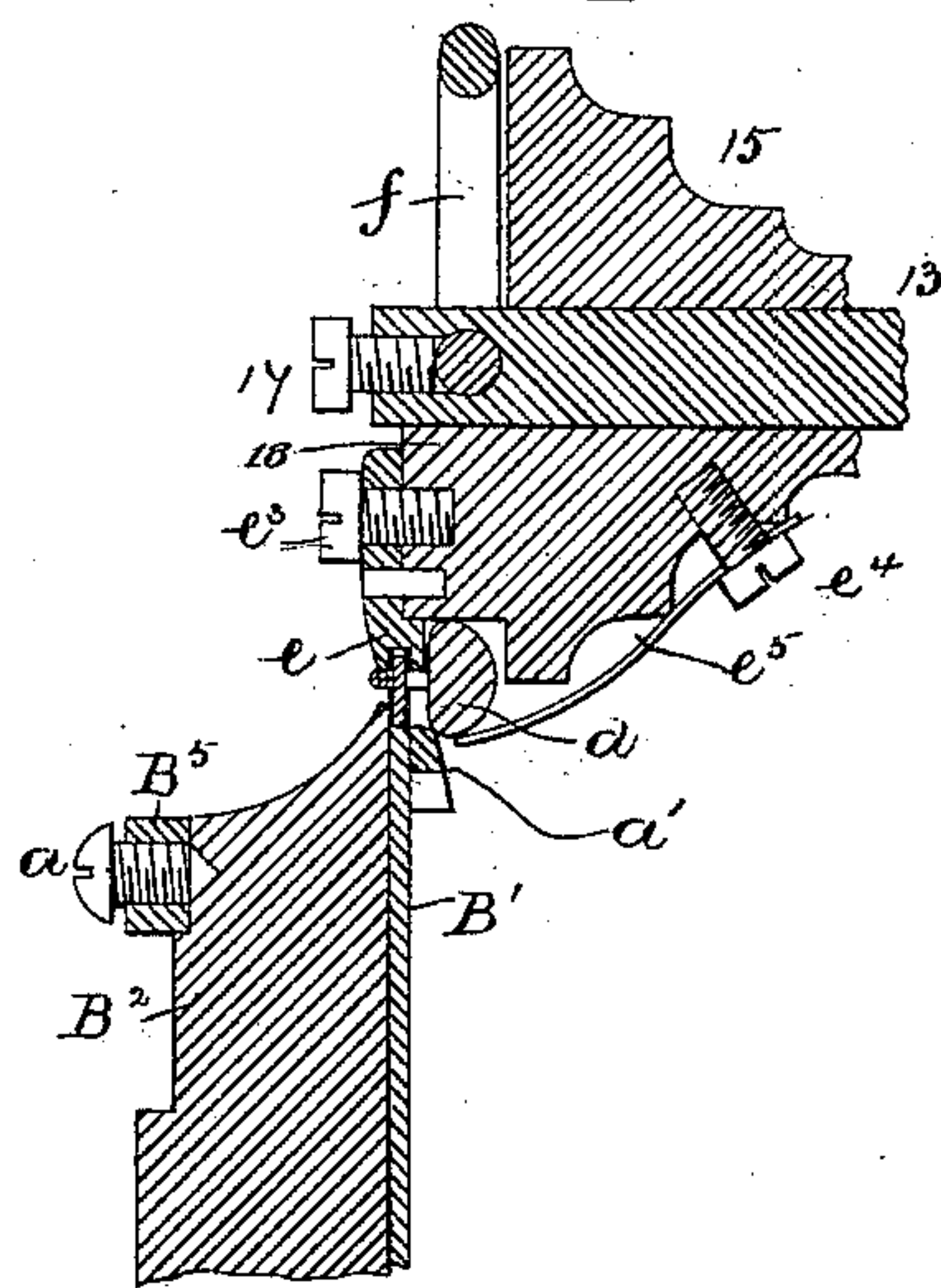


Fig: 7.



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# UNITED STATES PATENT OFFICE.

LOENDER C. EMERSON, OF NORTH GRAFTON, MASSACHUSETTS, ASSIGNOR  
OF ONE-HALF TO CHARLES H. NELSON, OF SAME PLACE.

## BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 405,664, dated June 18, 1889.

Application filed March 29, 1888. Serial No. 268,842. (No model.)

*To all whom it may concern:*

Be it known that I, LOENDER C. EMERSON, of North Grafton, county of Worcester and State of Massachusetts, have invented an Improvement in Button-Setting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve that class of button-setting machines wherein the button having a projecting shank is attached to a boot, shoe, or other article by a pronged metallic fastening, which is clinched to hold the button in place.

My present invention is an improvement on that described in United States Patent No. 368,141, granted to me August 9, 1887.

I have herein shown my improvements adapted to set what is known as the "Kempshall" fastening; but with slight modifications the machine herein described might be employed to drive other usual forms of metallic fastenings.

One feature of my invention consists in the combination, with a button-raceway and an intermediate button-guide, forming a continuation thereof, of an anvil and driver and circularly-moving reciprocating segmental transferrer to take the buttons singly from the button-guide into position to have a fastener driven through the eye of the button and clinched on the anvil.

Other features of my invention will be hereinafter pointed out in the claims at the end of this specification.

Figure 1 in side elevation represents a button-setting machine embodying my invention, the column being partially broken out to save space on the drawings; Fig. 2, a sectional detail taken through the work-support and the driver in the direction of their length, and also showing some of the devices for moving the driver. Fig. 3 is a partial front elevation, partially broken out, of the machine shown in Fig. 1. Fig. 4 is an enlarged detail showing the lower end of the button-raceway, the transferrer, and anvil, and the driver and work-support, the said figure showing a fastener by dotted lines in position to be acted upon to be

driven into the eye of the button held above it. Fig. 5 is a right-hand side elevation of Fig. 4; Fig. 6, a similar view to Fig. 4, but with the parts in a different position, the fastener being shown as having been driven and clinched. Fig. 7 is a section in the line *x*, Fig. 6; and Fig. 8, a top view of the work-support.

The frame-work to support the working parts is shown as composed, essentially, of a column A, a rigid head A', bolted to it, and an upright A<sup>2</sup>, to support the button-receiving hopper A<sup>3</sup>, which is and may be of any usual construction, the said hopper, as herein shown, containing an agitator composed, essentially, of a hub 6, which is secured to a short shaft 5, the said hub having a series of brushes 7, the shaft 5 being oscillated, as will be described.

The fastener-feeding mechanism B, its spring b' and collar b<sup>2</sup>, the work-support B<sup>2</sup>, grooved at its inner face to receive the shaped driver B', the sector-lever B<sup>4</sup>, to engage the teeth B<sup>3</sup> of the driver, the connecting-rod B<sup>5</sup>, treadle C, and spring C<sup>2</sup>, and stop S<sup>3</sup>, to arrest the work-support in its downward position, are and may be all as usual, the particular devices just referred to being common to United States Patent No. 311,033; and such parts being old and not of my invention need not be herein further specifically described.

The work-support B<sup>2</sup>, as herein shown, is adapted to be raised and lowered by the friction against it of the driver and a friction device carried by the driver, the said friction device consisting, essentially, of a washer, a spring, as 24, and a screw 22, screwed into a lug 21 of the driver, the said lug being extended through a slot in the work-support, as shown in Fig. 2.

In the machine described in the Patent No. 311,033, referred to, the upward movement of the work-support is stopped as soon as the latter arrives in contact with the material resting against the anvil above it.

When the upward movement of the work-support, it carrying upward with it the stock, is arrested by the anvil, the material is oftentimes marred or injured; but to prevent this I have provided the shank of the work-support with a pin or projection *t*, which enters



a slot in a stop  $t'$ , connected, preferably in an adjustable manner, with the head  $A'$ , the said stop being herein shown as slotted and as held in adjusted position by a clamping-screw  $t^2$ . The head of the connecting-rod  $B^5$  is provided with a pin  $b^3$ , which enters a slot in an arm or lever  $b^4$ , pivoted to the head  $A'$  by a screw, as  $b^5$ . This arm  $b^4$  has jointed to it a connecting-rod  $b^6$ , attached at its upper end to a slide-bar  $b^7$ , adapted to slide on a guide-rod  $c'$ , the said slide-bar having attached to or forming part of it a rack  $c$ , which engages the teeth of a pinion 12, fast on the rear end of a short shaft 13, having its bearings in a sleeve 14 of a face-plate 15, the said sleeve being held in place by a set-screw 16 in a stand-like portion 66 of the head  $A'$ . The shaft 13, at its front end, beyond the said face-plate, has attached to it by a screw, as 17, the segmental transferrer  $f$ , it, as herein shown, being made as a finger, the outer portion of which is circular or arc shape.

This transferrer moves closely to the front of the face-plate 15, and in its movement surrounds, as it were, a projection 18 of the said face-plate, the said projection (see Figs. 6 and 7) having attached to its outer side by a screw, as  $e^3$ , the anvil  $e$ , shaped as common to the said Patent No. 311,033. The projection 18 (see Fig. 3) has its outer or right-hand edge concaved to receive in it one edge of the button. The projection 18 has attached to it by suitable screws, as 30, (see Fig. 5,) a curved plate  $D'$ , concaved at its inner side to fit the head of the button, the groove in the projection 18 and the concavity in the plate  $D'$  substantially fitting the head of the button, there being left between the said block and the said plate a groove, as 8\*, through which travels the shank 32 of the button  $d$  as it is being acted upon by the segmental transferrer, the said projection 18 and the plate  $D'$  constituting the guideway for the button in continuation of the button-raceway  $D$ .

The shaft 5 of the agitator below the bottom plate  $m$  of the button-receiving hopper has an arm 4, which is connected by link 3 to an elbow-lever  $c^3$ , pivoted at 2 upon an ear  $c^4$ , extended from the upright  $A^2$ , the opposite end of the said lever  $c^3$  having jointed to it a link  $c^2$ , which is in turn attached to the slide  $b^7$ , the reciprocation of the said slide causing the oscillation of the shaft 5 and its attached agitator.

The plate  $m$  has connected to it the upper end of the raceway  $D$ , made, preferably, of sheet metal, and having a groove, as 8, to receive the shanks of the buttons, the said groove being preferably at the face of the raceway. This button-raceway  $D$ , near its lower end, has connected to it by screw 10 a detent  $D^2$ , made as a spring, the lower end of which is curved toward and so as to act upon the head of the button and stop the endmost button of the column of buttons at the lower end of the raceway.

The groove in the raceway is substantially

straight, and the transferrer herein shown is so shaped and actuated as to act upon the endmost button of the column and transfer it from the end of the raceway into the position between the anvil and driver to receive through its eye the fastener.

Figs. 4 and 5 show the eye of the button turned toward the operator and in position to be entered by the prong of the fastener represented by dotted lines at  $b$ , Fig. 4.

This transferrer, the outer end of which moves in the arc of a circle, also serves as a stop for the endmost button of the column of buttons during the time that the transferrer takes a button from the column of buttons and carries it in position to be driven, the said transferrer supporting the endmost button of the column of buttons until the transferrer returns nearly to its normal position. (Shown in Figs. 6 and 7.) The button next to be attached by the transferrer is brought into the position shown in Figs. 4 and 5, and is left between a spring-support, as  $e^5$ , and the projection 18, with one side of the shank of the button against one edge of the anvil  $e$ , herein represented as fixed in position but located above the material, the open portion of the eye of the button being in line with the concavity of the said anvil, the said spring  $e^5$  sustaining the button in the position left by the transferrer while the usual driver actuated in usual manner is operated to drive the point of the fastener being used through the material and through the eye of the button and against the anvil, as in Figs. 6 and 7, Fig. 6 showing the point of the fastener as clinched through the eye of the button.

I have not herein shown the stock or material through which the fastener is driven preparatory to entering the shank of the button. Herein the button is shown as taken from the button-raceway  $D$ , with its shank extended toward the operator, and the shank is kept in that position by the transferrer while the button is being transferred from the end of the raceway to the anvil, thereby enabling the open eye of the button to be kept toward the operator, who can thus readily see whether or not the point of the fastener is rising properly through the material to correctly enter the eye of the button. Such arrangement of parts whereby the shank of the button is kept toward the operator greatly facilitates the operation of the machine and enables the operator to run it at faster speed, and at the same time do better work.

When the eye of the button is turned toward the operator, the latter may readily look through the eye of the button and see whether or not the spot or mark applied to the upper to designate the point at which the prong of the fastener is to penetrate the stock is directly in line with the opening in the said eye.

The plate  $n$  keeps the driver pressed toward the under side of the work-support.

I claim—



1. In a button-setting machine, the combination of the following instrumentalities, viz: a raceway for the buttons, a raceway to guide fasteners, an anvil, a driver, a detent for the buttons in the button-raceway, a button-guideway in extension of the raceway and located between the latter and the anvil, as described, and an independent reciprocating segmental transferrer to take the said buttons singly from the raceway to the anvil and driver into position to have a fastener driven through the button-eye, substantially as described.

2. In a button-setting machine, the combination, with a raceway, anvil, and driver, of a circularly-moving reciprocating segmental transferrer and intermediate button-guide, the said transferrer transferring the button from the end of the raceway to the driver, substantially as described.

3. The slotted raceway, the anvil, the driver, the button-supporting spring located near the said driver, and the guideway interposed between the button-raceway and the anvil, combined with a circularly-moving reciprocating segmental transferrer adapted to transfer the button from the raceway to the anvil, and to also act as a stop for the endmost button of the column of buttons in the button-raceway, substantially as described.

4. In a button-setting machine, an anvil and a driver, combined with a vertically-movable work-support actuated by the said driver and with a stop to limit the upward movement of the work-support toward the anvil, substantially as described.

5. In a button-setting machine, a button-receiving hopper, a slotted raceway in connection therewith, an anvil, a slotted button-

guideway interposed between the said anvil and raceway, and a work-support and driver, combined with a segmental transferrer to transfer the button from the end of the raceway to the driver, the slots in the raceway and in the guideway being constructed, substantially as described, to enable the eye of the button to be presented toward the operator, in order that the latter may unerringly see whether or not the material and the eye of the button are in proper position to be entered by the prong of the fastener, substantially as described.

6. In a button-setting machine, the hopper, the button-raceway slotted at its front side, and the button-guideway, also slotted at its front side, for the extension through the said slots of the shanks of the buttons, combined with the anvil and driver and with a segmental transferrer to take the buttons from the button guideway with their shanks toward the operator, in which condition the open eye of the button is readily visible, substantially as described.

7. The button-raceway, the button-guide, the transferrer, its shaft 13, and the driver, combined with the connecting devices between the said rod and driver and between the rod and shaft 13, to actuate the transferer, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOENDER C. EMERSON.

Witnesses:

G. W. GREGORY,  
C. M. CONE.