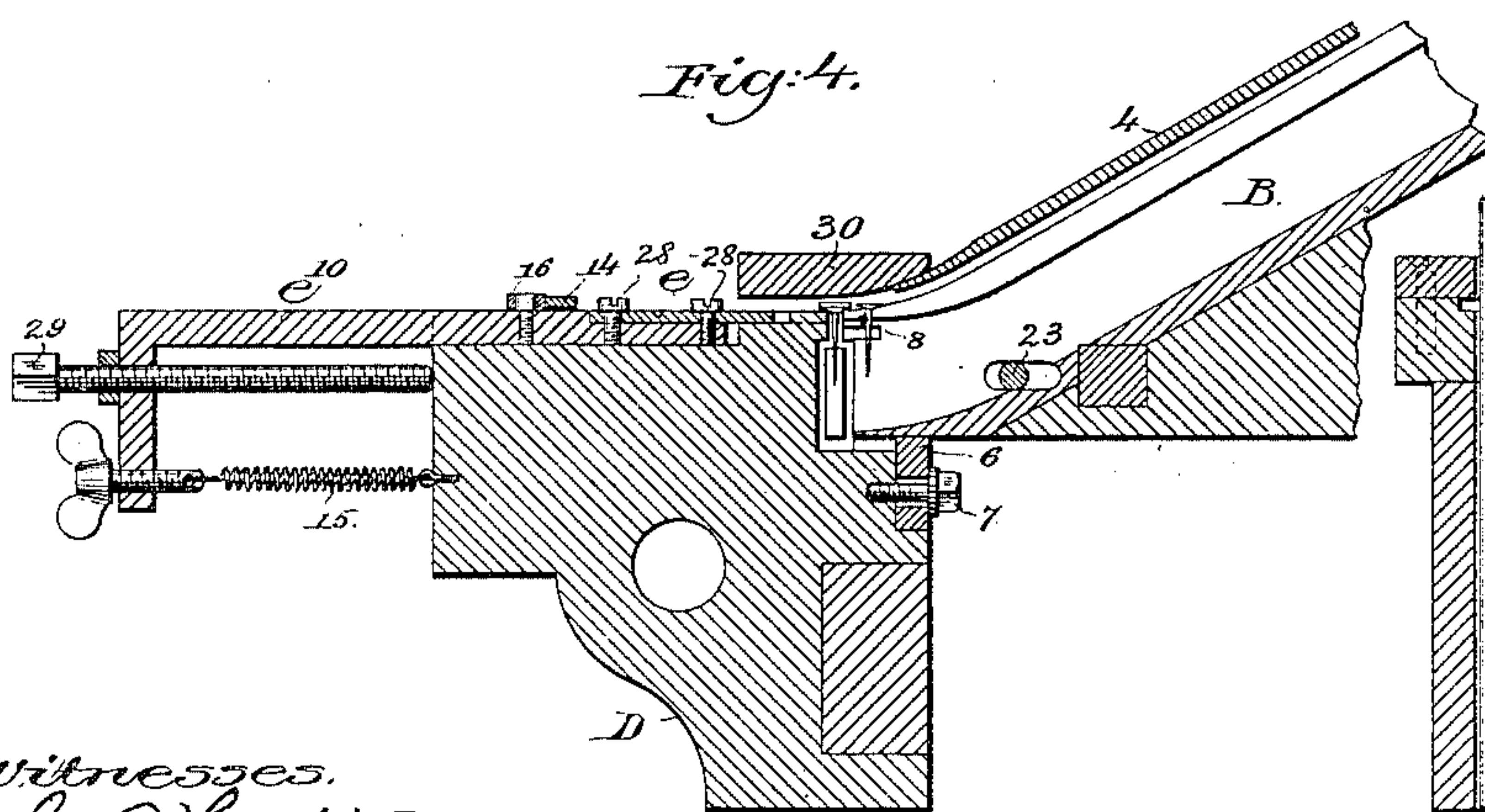


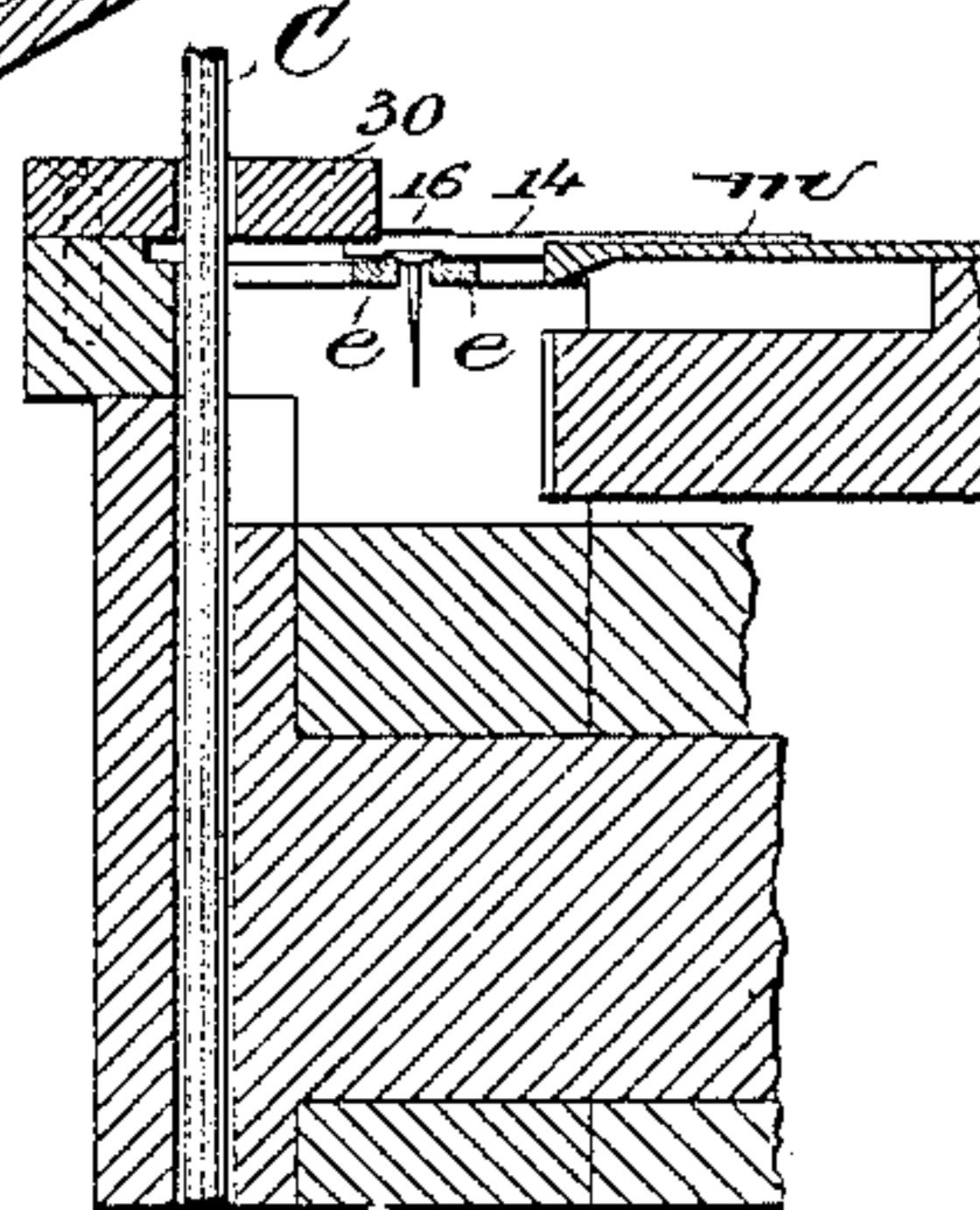


3 Sheets—Sheet 2.

Patented Dec. 9, 1890.



*Fig: 5.*



Witnesses.  
Geo. C. Huntington.  
Fred. S. Greenleaf.

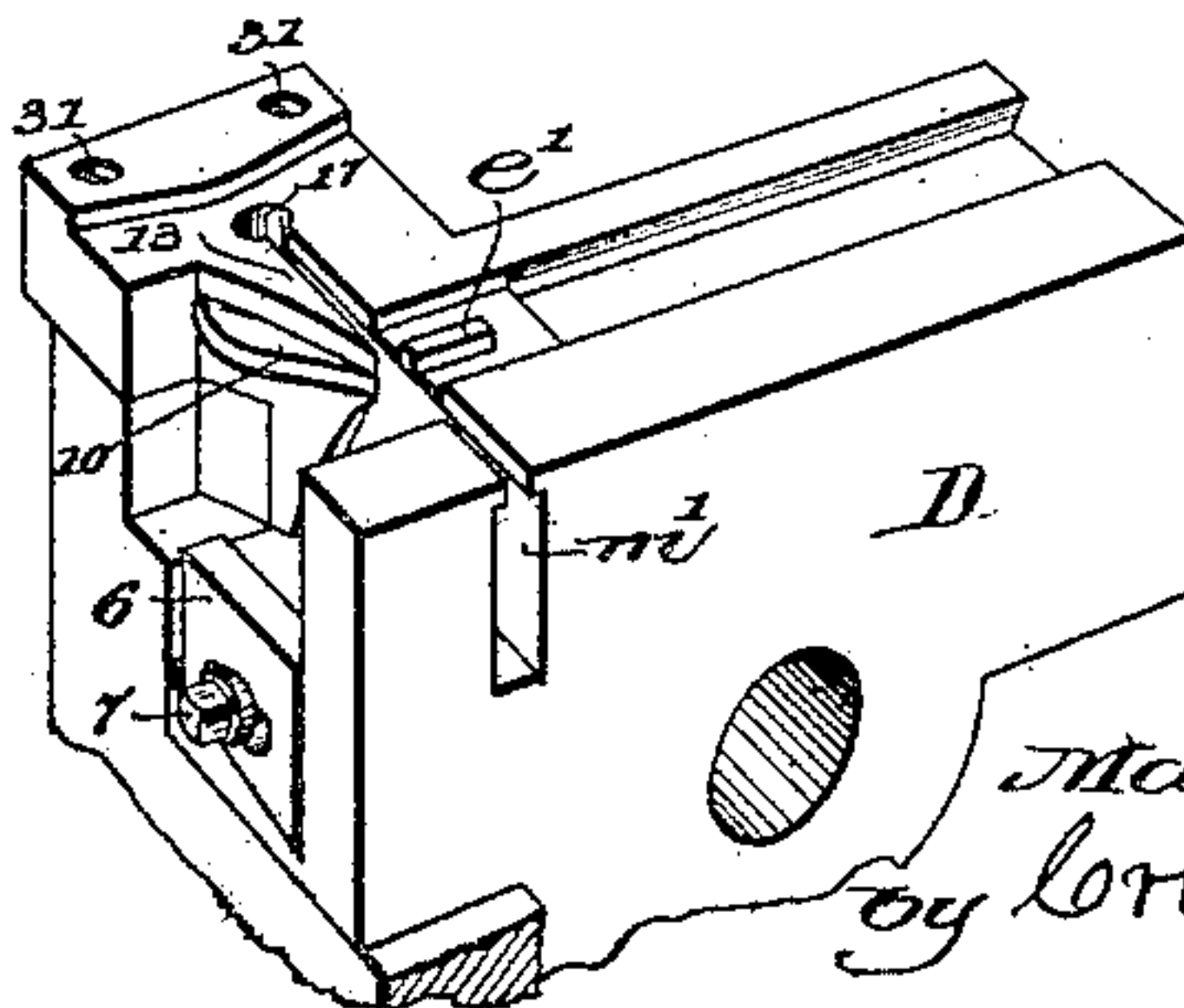
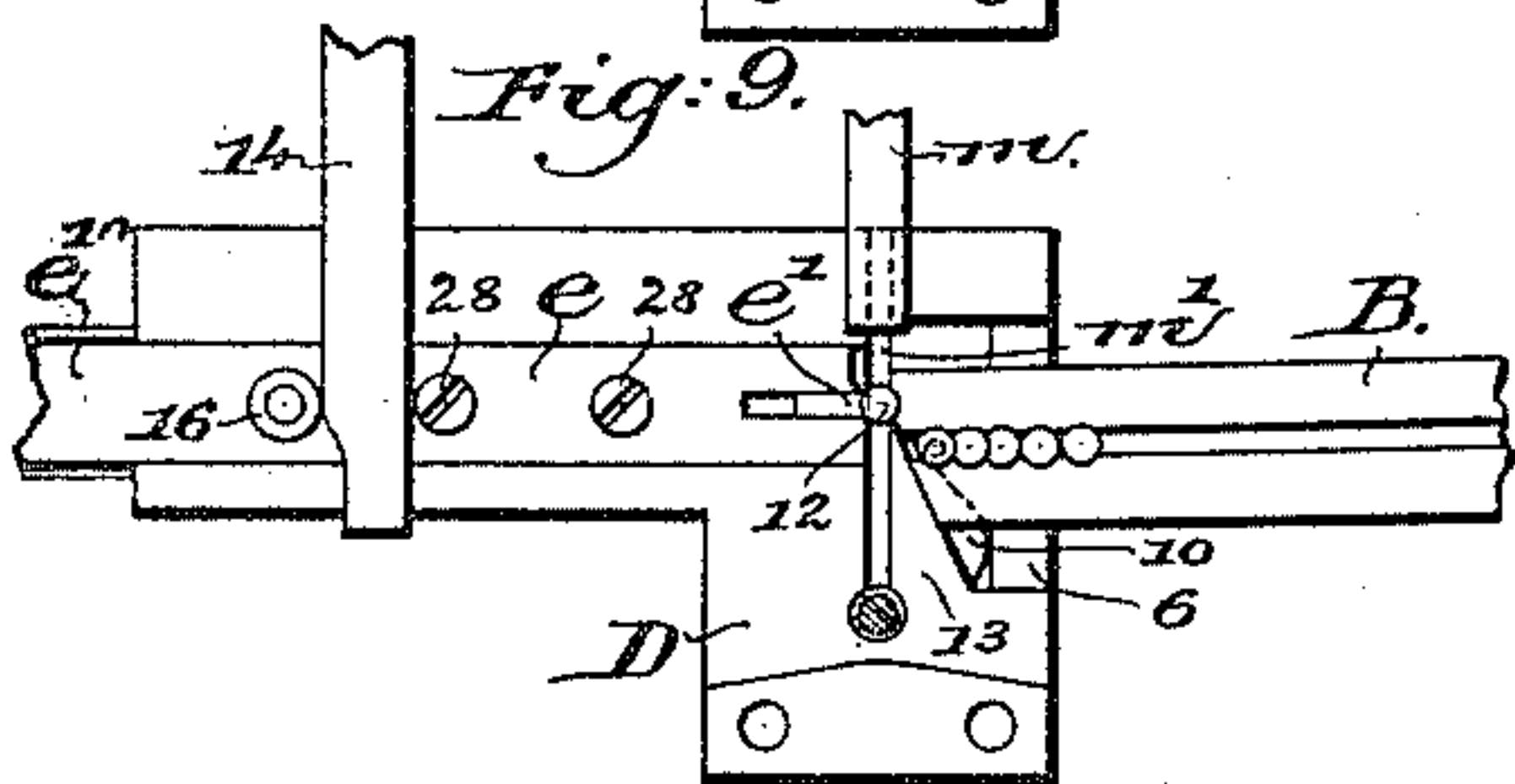
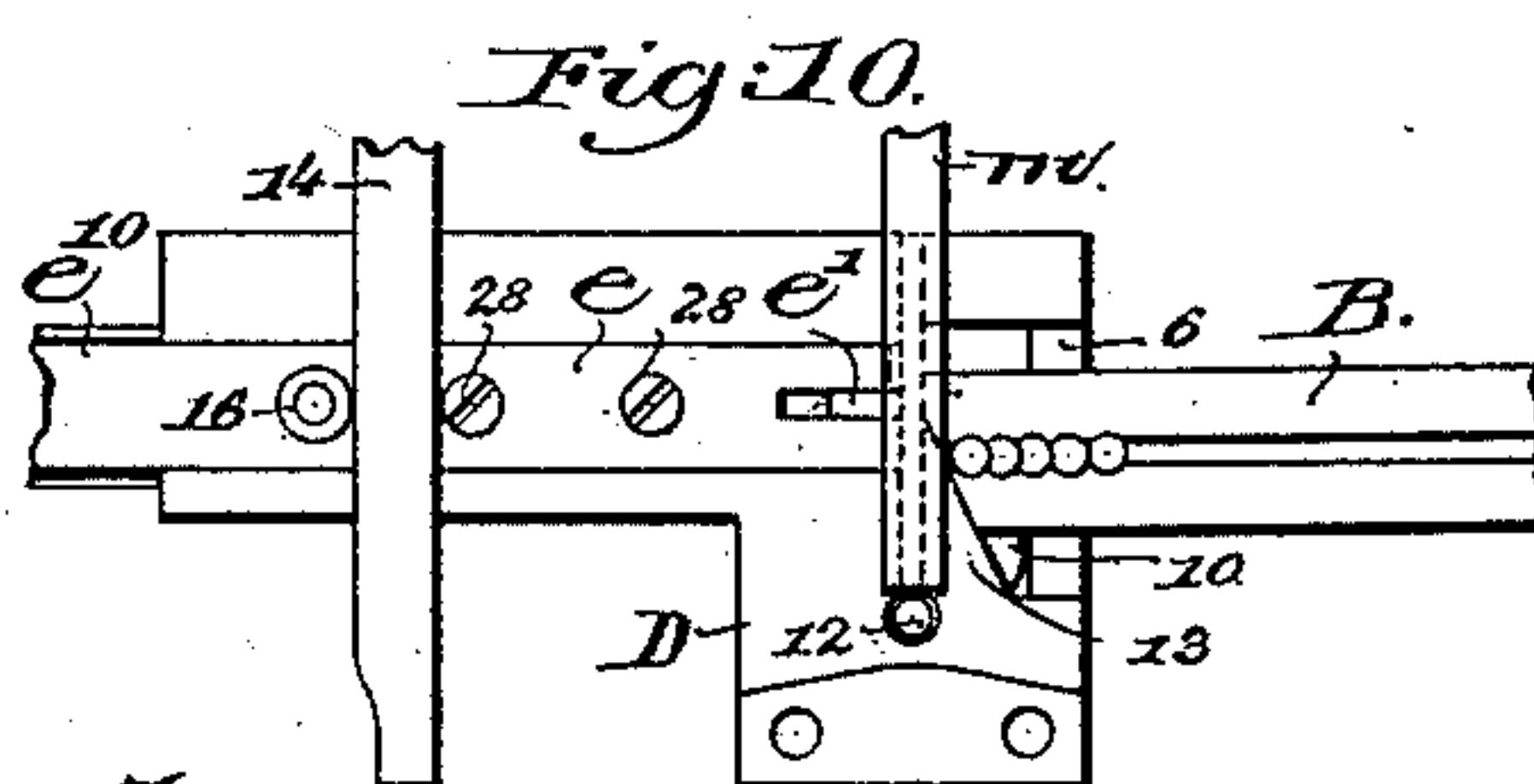
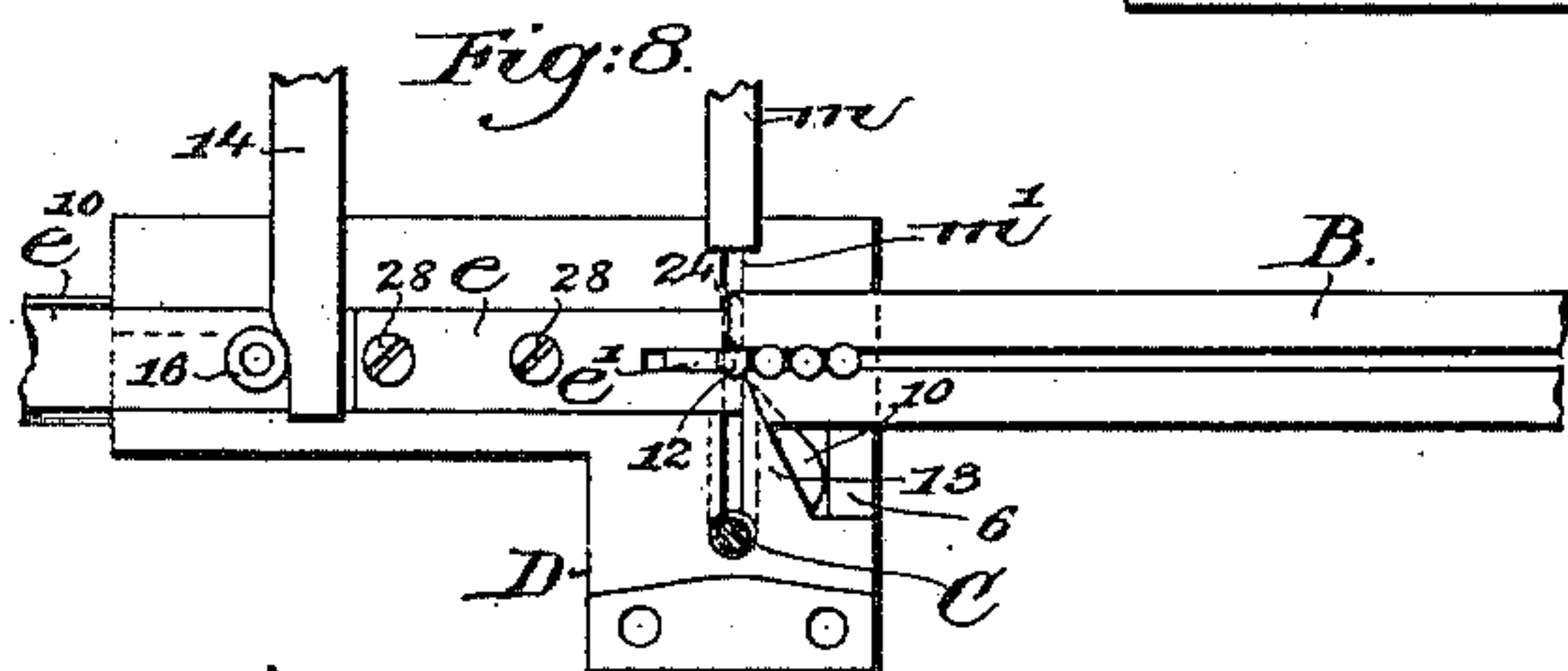
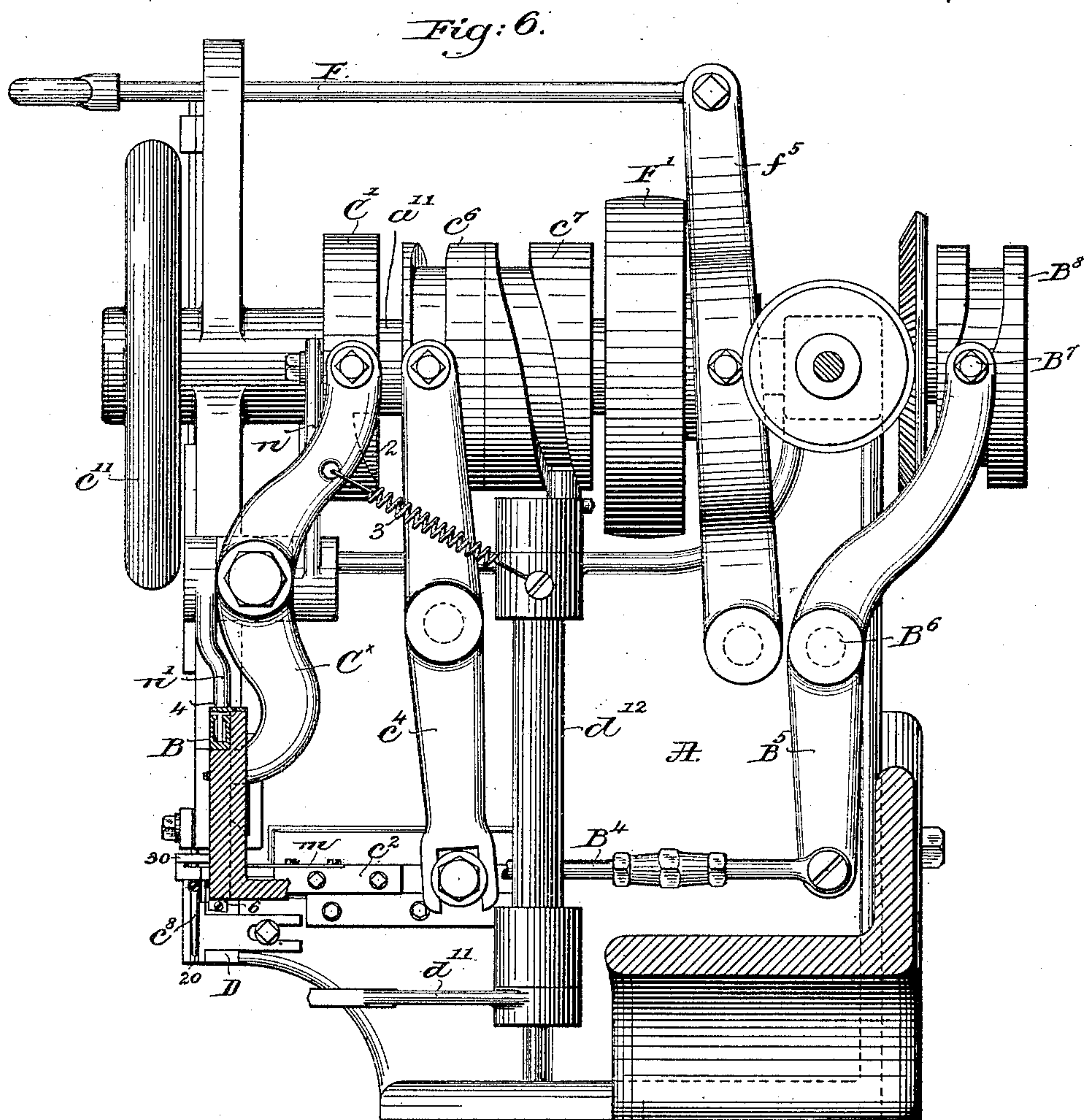
Inventor.  
Matthias Brock,  
by Crosby Gregory attys



3 Sheets—Sheet 3.

# MACHINE FOR DRIVING HEADED FASTENINGS.

Patented Dec. 9, 1890.



Witnesses.

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Matthias Brock,  
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# UNITED STATES PATENT OFFICE.

MATTHIAS BROCK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE MCKAY & COPELAND LASTING MACHINE COMPANY, OF PORTLAND, MAINE.

## MACHINE FOR DRIVING HEADED FASTENINGS.

SPECIFICATION forming part of Letters Patent No. 442,418, dated December 9, 1890.

Application filed August 28, 1890. Serial No. 363,280. (No model.)

*To all whom it may concern:*

Be it known that I, MATTHIAS BROCK, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Machines for Driving Headed Fastenings, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to improve and simplify that class of machines adapted to drive headed tacks, my invention being more especially adapted to drive tacks into tack-strips.

15 In accordance with my invention the tacks are fed automatically into a raceway, down which they travel to a supporting-plate, and thereafter the raceway has imparted to it a slight lateral vibration to thus cut off or detach from it the endmost tack, and a pusher then acts on the tack so cut off and pushes it laterally into position to be struck by the driver, the supporting-plate being drawn out from under the head of the tack just before the pusher engages the tack and after the raceway has been swung aside, as stated.

25 The particular features in which my invention consists will be described in the following specification, and designated in the claims at the end thereof.

30 Figure 1 is a front elevation of a tack-driving machine embodying my invention; Fig. 2, a detail showing the raceway in plan view together with the supporting-plate and pusher; Fig. 3, a plan view of the machine shown in Fig. 1; Fig. 4, an enlarged partial longitudinal section of the machine in the line of the center of the raceway; Fig. 5, an enlarged section in the line  $x$ , Fig. 2. Fig. 6 is a section to the left of the line  $x'$ , Fig. 3. Fig. 7 is an enlarged detail showing the stationary throat located at the lower end of the raceway and on which the supporting-plate slides and in which the pusher slides; and Figs. 8, 9, and 45 10 are details showing the end of the raceway and the supporting plate and pusher in different positions.

50 The frame-work A of the machine is and may be of suitable shape to sustain the supporting parts. The main shaft  $a^{11}$  has loose

on it the clutch-pulley F' under the control of a lever  $f^5$ , having connected to it a slide-rod F. The said shaft has fast on it a grooved hub  $c^7$ , the end of which next the loose pulley F' (see Fig. 6) is notched to be engaged by 55 projections of corresponding shape on the hub of the said loose pulley when the shaft  $a^{11}$  is to be rotated. The hub  $c^7$  actuates a rock-shaft  $d^{12}$ , having at its lower end an arm  $d^{11}$ , which in practice will actuate the feeding 60 devices, as in United States Patent No. 247,143. The shaft  $a^{11}$  also carries a grooved hub  $c^6$ , which actuates a lever  $c^4$ , which reciprocates a pusher-slide  $c^3$ . The drive-rod C is attached to a drive-bar  $c^{12}$ , which is actuated by the disk  $c^{11}$ . The tack-receiving hopper is marked  $a$ , it containing a tack-lifting wheel and a wiper or clearing device  $a^9$  to dislodge from the raceway any tacks improperly lodged thereon. 65 70

All the parts thus far specifically referred to and designated by letters are substantially the same as in the Patent No. 247,143.

The wiper  $a^9$  is fast on the end of a short shaft, (not shown,) supported in bearings in 75 the hopper, the other end of the said shaft having fast on it a pinion  $a^2$ , which derives its motion from a pinion  $a^3$  and intermediate gears  $a^4$   $a^5$ , the pinion  $a^3$  being fast on a shaft  $a^6$ , having a bevel-gear  $a^7$ , which is engaged 80 and rotated by a bevel-gear  $a^8$ , fast on the main shaft  $a^{11}$ .

The raceway B has at its upper end deflecting-aprons B', on which the wheel B<sup>2</sup> in the hopper drops the tacks lifted by it. This 85 raceway, as best shown in Figs. 2 and 3, is pivoted at  $b^3$ , (see dotted lines, Fig. 3,) and is vibrated at proper times by a link B<sup>4</sup>, preferably made adjustable as to its length, which is joined to the upright lever B<sup>5</sup>, pivoted at 90 B<sup>6</sup>, and having a roller or other stud B<sup>7</sup>, which enters a cam-groove in the cam-hub B<sup>8</sup>, fast on shaft  $a^{11}$ . The raceway is "tapped" or jarred by the lever C<sup>x</sup>, acted upon by a lug 2 of the disk or hub C' on shaft  $a^{11}$ , a spring 95 3 operating the lever in opposition to the said lug. The raceway has a cap 4, which prevents the tacks properly suspended in the raceway from escaping. The lower end of the raceway rests upon a stand 6, made ad- 100



justable on a throat-block D by a screw 7. The delivery end of the raceway has a horizontal notch 8, which is entered by the crowding-back finger 10, attached to the throat-block 5 when the raceway is moved laterally from the position in Fig. 8 to that in Figs. 9 and 10, the said finger at such time acting against the tack next to the endmost one and pushing back in the raceway all the tacks except 10 the one marked 12, (see Figs. 8 and 9;) which tack during the lateral movement of the raceway is picked off from the raceway by a picker 13, (shown as a stationary prong forming part of the throat-block.) The tack 15 12, picked off by the picker 13, enters a notch in a supporting-plate *e*, which is reciprocated for a short distance on the throat-block toward and from the end of the raceway by a cam-finger 14 and a spring 15, the said cam-finger being connected to the pusher-slide *c*<sup>2</sup> 20 and acting on a roller-stud 16 on the plate *e*. The pusher-slide *c*<sup>2</sup> has attached to it the pusher *m*, which moves in the slot *m'* (see Fig. 7) of the throat-block at right angles to 25 the supporting-plate and raceway, the said slot leading toward and being in communication with the passage-way 17, in which descends or moves the drive-rod C. (Shown in section, Figs. 8 and 9.)

30 The slotted end of the plate *e* embraces loosely a lug *e'*, (see Figs. 7 and 8,) against which the tack to be detached or picked off from the raceway abuts as a stop, the prongs of the supporting-plate at such time, as in 35 Fig. 8, extending beyond the face of said lug, but as the raceway is moved from the position Fig. 8 into the position Fig. 9 the said plate is retracted and its prongs are drawn back of the face of the lug, so that as the 40 pusher *m* meets the tack 12 it may push it from between the said lug, past the left-hand side of the prong 13, and along the slot *m'* toward the end of the said slot and next the drive-rod C, which is then down, as in Fig. 45 9, the raceway at such time being swung about its pivot into the position, Fig. 9, it remaining in such position until the drive-bar descends on the tack 12, (see Fig. 10,) and drives it, the drive-bar being lifted out as the 50 tack 12 is brought to the passage-way 17.

The tack 12 is put into the passage-way 17 directly under the drive-rod as the latter is elevated above the passage 17. The passage-way 17 has slots at each side to receive 55 jaws 20, acted upon by springs *c*<sup>8</sup>, (See Fig. 1,) the said jaws and springs being common to the patent referred to and acting to keep the tack in vertical position while being driven by the drive-rod.

60 The raceway proper is carried by an arm B<sup>x</sup>, having an upright web 22 inclined at its top, as best shown in Fig. 2, to which web the raceway is bolted by bolts 23, extended through slots in the raceway, so that the latter may be adjusted longitudinally to always 65 keep its end in proper relation to the pick-off 13. It will be noticed that the finger or prong

24 at the delivery end of the raceway is longer than the other prong alongside of it, said prong being at the level of the prongs of 70 the supporting-plate, as in Fig. 4, so that the tack detached from the raceway will rest on the said plate. Viewing Fig. 8, it will be seen that the head of the tack 12 next to be carried away by the pusher rests on the stop *e'* 75 and on both prongs of the plate *e*, the tack-head being thus supported on three sides. Now as the raceway is swung aside into the position Fig. 9 and the plate *e* is withdrawn 80 the prong 24 of the raceway comes under the head of the tack and supports it at its side opposite the stop *e'*, the head of the tack yet remaining on the said stop. This is shown in Fig. 9. The raceway-prong 24 remains in the position Fig. 9 until after the pusher *m* 85 strikes the rear side of the tack 12, and when the pusher places the tack in the passage 17 and retires the raceway is turned back into its normal position. The plate *e* is shown as attached by screws 28 to a plate-carrier slide 90 *e*<sup>10</sup>, in which is an adjusting-screw by which to control the forward position of the plate *e*.

The throat-block D has a cap-piece 30, attached to it by suitable screws in the threaded 95 holes 31.

The term "tack" is considered to comprehend any headed nail or fastening.

It will be noticed in my improved machine that the raceway is vibrated laterally and that the pick-off is stationary, which so far as I 100 am aware is novel.

Prior to my invention it has been common to employ a movable pick-off at the end of a stationary roadway.

The plan invented and adopted by me is 105 simpler and more durable than older forms known to me.

This invention is not limited to the exact form of means for moving it laterally back and forth with relation to the plate *e*. 110

I do not claim a longitudinally-reciprocating raceway.

Referring to Figs. 1 and 6, *n* and *n'* represent arms attached to a rock-shaft. The arm *n'* is slotted to embrace a pin *n*<sup>2</sup> on a slide *n*<sup>3</sup>. 115 This slide is adapted to co-operate with certain feelers described in a former patent granted to me, and need not be herein specifically described.

I claim— 120

1. In a machine for driving headed fastenings, the following instrumentalities, viz: a laterally-movable raceway, a stop located at the end of the raceway to control the flow of tacks, means to move the raceway back and 125 forth laterally, and an independent pick-off, to operate substantially as described.

2. In a machine for driving headed fastenings, the following instrumentalities, viz: a laterally-movable raceway, a stop located at the end of the raceway to control the flow of tacks, means to move the said raceway back and forth laterally, and a crowding-back 130 device, to operate substantially as described.



3. In a machine for driving headed fastenings, the following instrumentalities, viz: a raceway, means to move it back and forth laterally, a stop  $e'$ , a pick-off, and a movable supporting-plate having prongs to co-operate with the said stop, substantially as described.

4. The laterally-movable raceway having one of its prongs 24 longer than the other, the stop  $e'$ , and the movable supporting-plate notched at its forward end to straddle the said stop, combined with a pusher and a throat-plate having a driver-passage, and a crowding-back device, to operate substantially as described.

5. The laterally-movable raceway, the throat-block having the pick-off, the stop  $e'$ , and the movable supporting-plate notched to

embrace the said stop, combined with a pusher-slide, the pusher, and the cam-finger 14, to operate substantially as described.

6. The laterally-movable raceway, the throat-block having the pick-off, the stop  $e'$ , and the movable supporting-plate notched to embrace the said stop, combined with the pusher and with the slide  $e^{10}$ , and means to adjust and control the forward position of the same, substantially as described.

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

MATTHIAS BROCK.

Witnesses:

GEO. W. GREGORY,  
EMMA J. BENNETT.