

(No Model.)

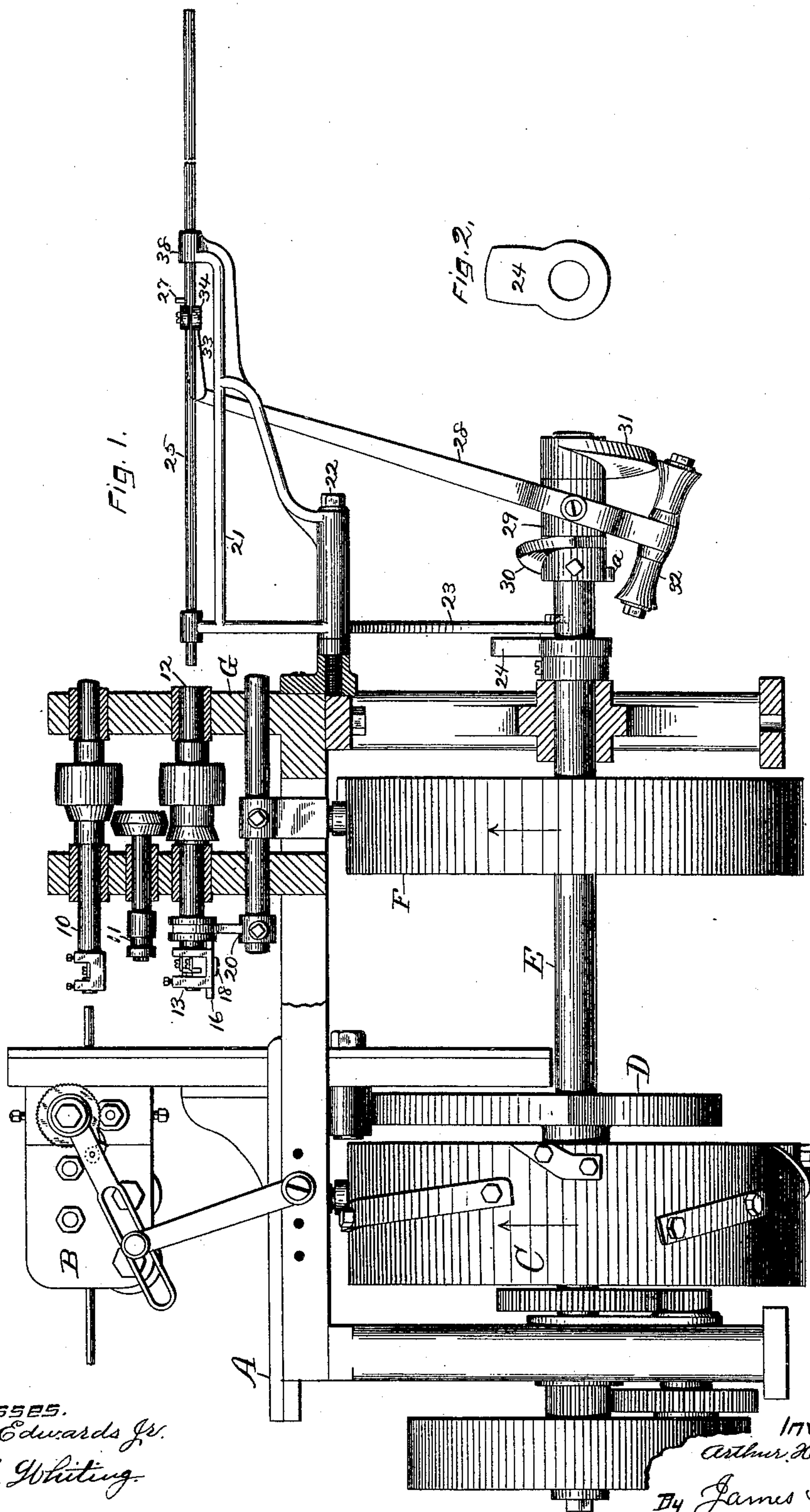
4 Sheets—Sheet 1.

A. H. EDDY.

SLOTING ATTACHMENT FOR SCREW MACHINES.

No. 447,010.

Patented Feb. 24, 1891.



Witnesses.
John Edwards Jr.
W. H. Whiting.

Inventor,
Arthur H. Eddy.
By James Shepard.

(No Model.)

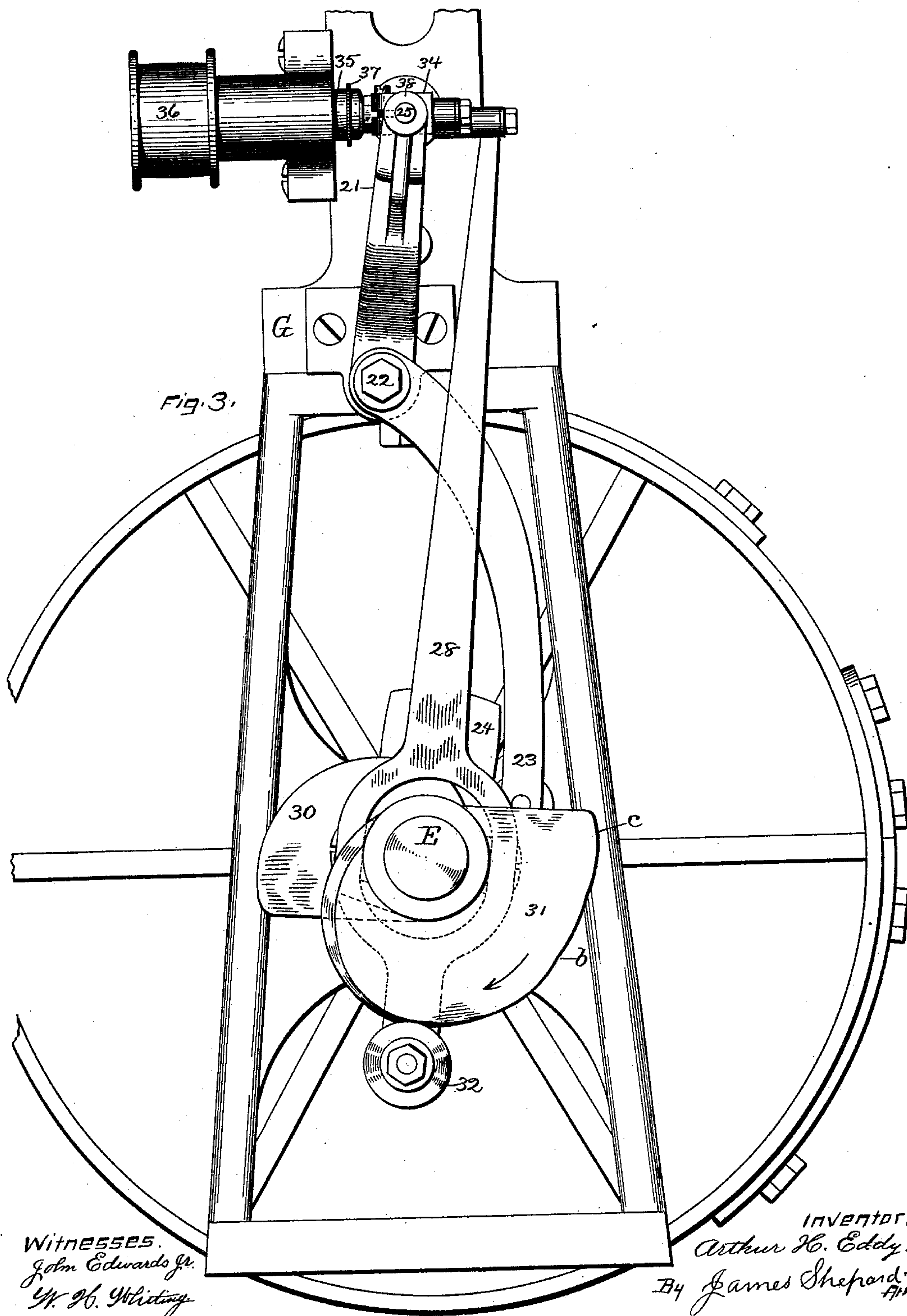
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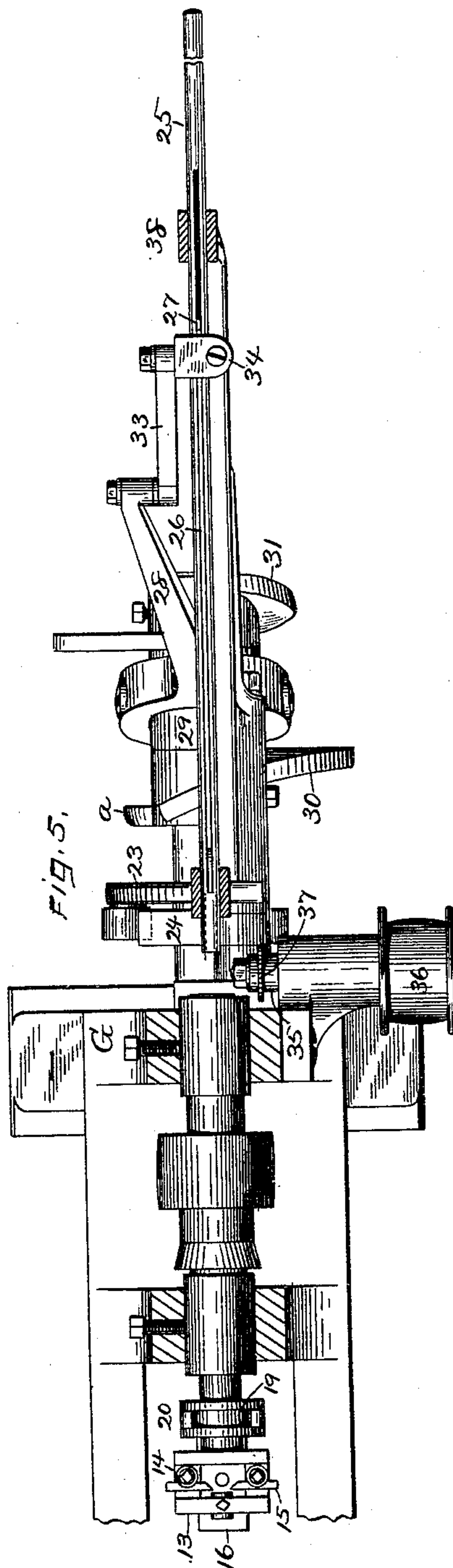
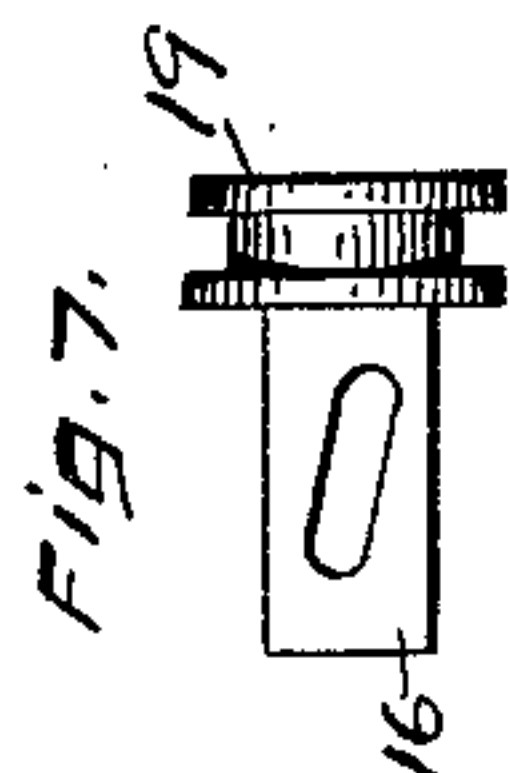
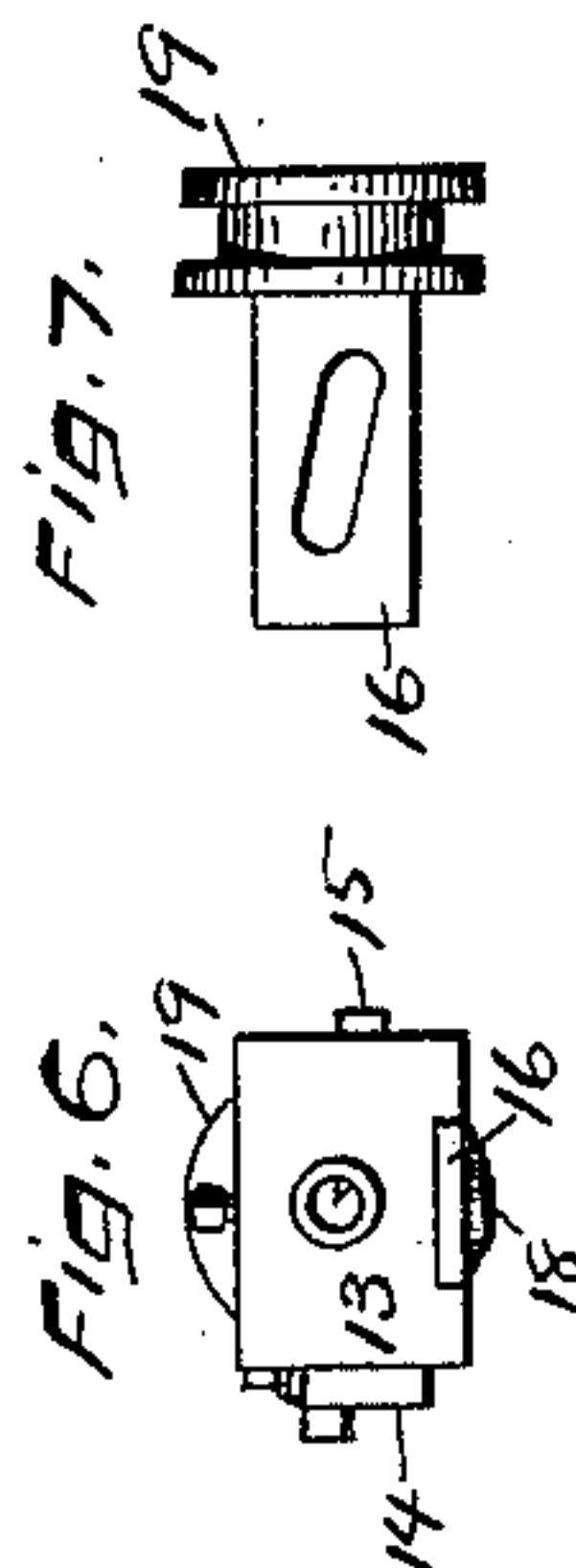
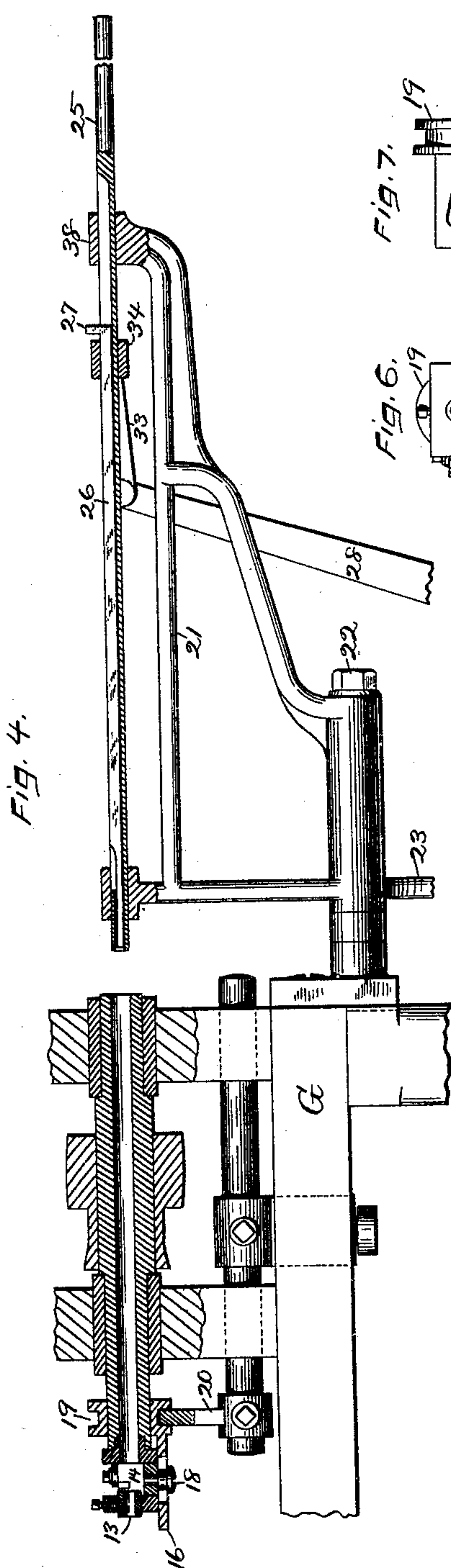
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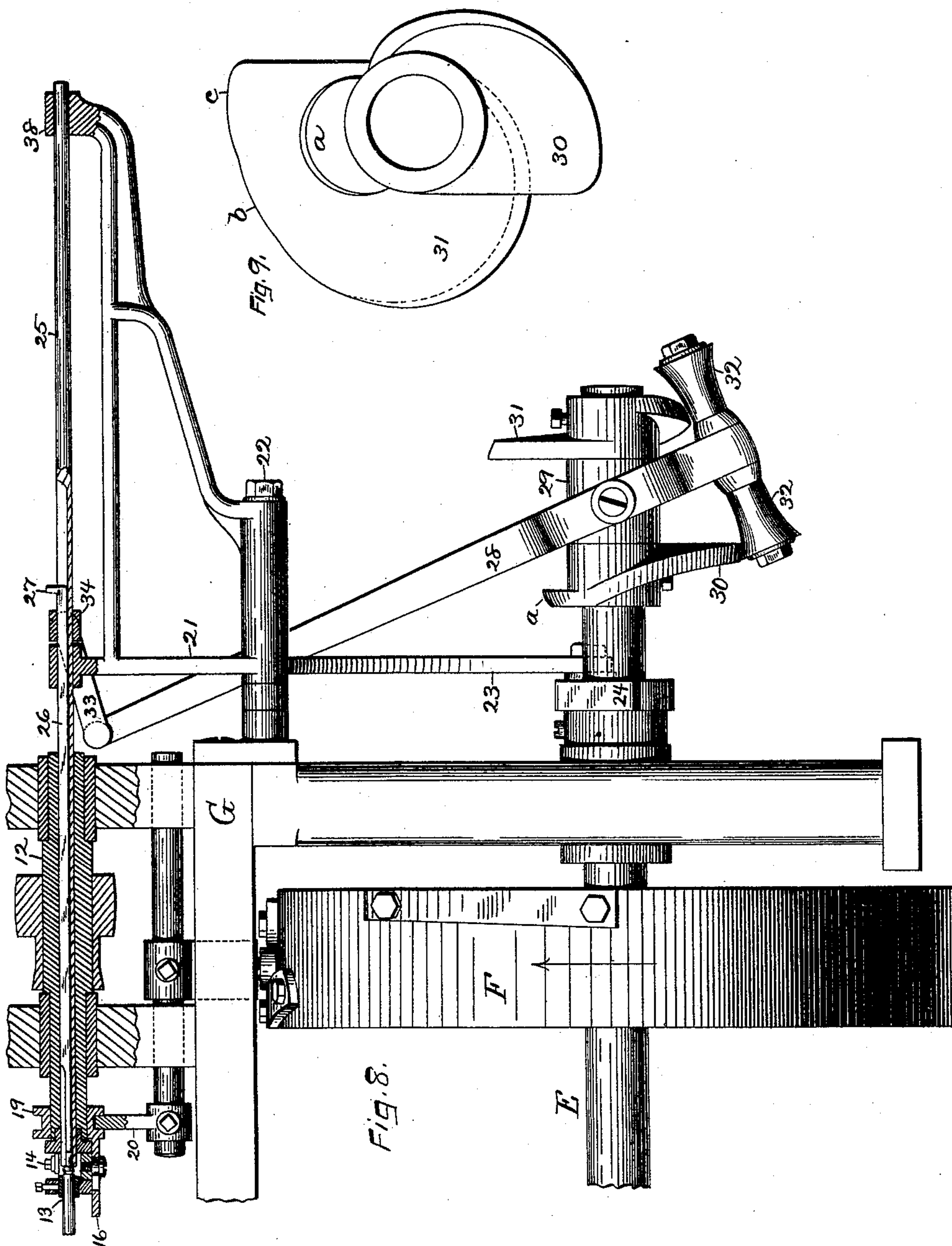
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UNITED STATES PATENT OFFICE.

ARTHUR H. EDDY, OF HARTFORD, ASSIGNOR OF ONE-HALF TO CHRISTOPHER M. SPENCER, OF WINDSOR, CONNECTICUT.

SLOTING ATTACHMENT FOR SCREW-MACHINES.

SPECIFICATION forming part of Letters Patent No. 447,010, dated February 24, 1891.

Application filed October 2, 1890. Serial No. 366,898. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR H. EDDY, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Slotting Attachments for Screw-Machines, of which the following is a specification.

My invention relates to improvements in slotting attachments for screw-machines, and the object of my improvement is to provide an attachment to screw-machines for automatically taking the screw from the tool which severs it from the rod and presenting it to a suitable saw for slotting.

In the accompanying drawings, Figure 1 is a front elevation, partly in central vertical section, of an automatic screw-machine with my slotting attachment applied thereto. Fig. 2 is a side elevation of one of the cams. Fig. 3 is a side elevation of the main portion of said machine on an enlarged scale. Fig. 4 is a partial front elevation and partial longitudinal section of parts of said machine, the same being on a scale smaller than Fig. 3, but larger than Figs. 1 and 2. Fig. 5 is a plan view of corresponding parts of the machine with some of the parts in horizontal section. Fig. 6 is an end view of the head, which carries the cutting-off tool. Fig. 7 is a plan view of a detached portion of the head. Fig. 8 is a partial vertical section and front elevation of portions of said machine with the parts in a different position from that shown in the preceding figures; and Fig. 9 is a side elevation of certain cams, the same being on a scale corresponding with that of Fig. 3.

My invention is applicable to any automatic screw-machine in which the stock is cut off within a hollow spindle.

The machine, as shown, is provided with a horizontally-reciprocating carriage A and a vertically-reciprocating carriage B, upon which is mounted the straightening and feeding devices, the carriage A being reciprocated by means of cams on the cam-wheel C, while the vertical carriage is raised by means of the cam D on the shaft E.

The revolving spindles 10, 11, and 12 are provided with suitable tools or heads for turn-

ing down the stock, cutting the thread, turning the head of the screw, and cutting the screw from the rod or stock, the rod being held against rotation and presented to the respective tools by the reciprocation of the carriages before described. The spindle 12 is hollow and provided with a head 13, having a sliding tool-carriage 14, mounted to slide in a suitable slot transversely to said head and bearing a cutting-off tool 15. It is also provided with a longitudinal slot, in which the cam 16 slides, as most clearly shown in Fig. 6. The operative faces of this cam 16 are formed on the edges of the inclined slot, through which a screw 18 passes into the sliding carriage, so that when the sliding cam is moved longitudinally in the head the sliding tool-carriage is moved transversely thereto. This cam 16 is provided with a grooved sleeve 19 for engagement with a shipper 20, said shipper being operated by means of cams on the cam-wheel F.

This particular machine and tool-head are not of my invention; but as said tool-head forms an element of my combination I have thus described it in detail, my attachment being designed for taking the screws from said head as they are severed from the stock by the cutting-off tool in said head.

To the frame G of the machine I pivot a swinging frame 21, as at 22, said frame being provided with a downwardly-extending arm 23 for being engaged by the cam 24 on the shaft E. Within the upper part of said frame 21 I arrange the slide 25, the same being hollow at its front end, so as to receive and hold a screw, and slotted longitudinally on its upper side to receive the knockout 26, as shown. Said knockout is provided at one end with a lug 27, and it is fitted so as to slide loosely within its slot.

Near the end of the shaft E, I pivot a T-lever 28 to a loose sleeve 29, and at the ends of said sleeve I secure the cams 30 and 31 to the shaft E, so that they revolve therewith. These cams are for bearing alternately upon the respective ends of the head or cross-arm 32 of said T-lever for reciprocating said lever, the cams being shaped so as to give to said lever the respective strokes hereinafter

described. The upper end of the T-lever is connected by means of a pivoted link 33 to a block 34, which is clamped upon or secured to the slide 25.

5 At another point on the frame G in suitable bearings I secure a spindle 35, bearing a driving-pulley 36 and saw 37, the same being arranged so as to bring the saw a little to one side of the spindle 12 at the end opposite its
10 head. The motion of the cams 30 and 31 on the head 32 of the T-lever 28 has a tendency to throw the upper end of said lever to the right, as shown in Fig. 3, thereby swinging the frame 21 in such a direction as to keep
15 its arm 23 in contact with the cam 24. The cam 30 operates the T-lever in the direction to carry the slide 25 forward, and the cam 31 operates it to carry the slide in the reverse direction. About the time that the cams on
20 the cam-wheel F move the shipper 20 in the direction for bringing the cutting-off tool of the tool-carriage 14 of the head 13 into action the cam 30 will have carried the slide 25 forward, so that its hollow end receives the end
25 of the screw, as shown in Fig. 8. When the slide is being thus presented to the screw, its end engages the end of the knockout and forces the knockout into the slide, so as to admit the screw, as shown in said
30 Fig. 8. After the cutting-off tool has severed the screw from the stock the cam 31 acts to withdraw the slide and carry it back far enough so that the head of the screw is drawn back beyond the plane in which the
35 rear edge of the cutter 37 lies. The cam 24 now acts upon the arm 23 to swing the frame 21, so as to bring the slide 25 in alignment with the saw. The tail *a* of the cam 30 now acts to move the T-lever 28 in a direction to
40 bring the slide forward again and present the screw-head to the saw, the depression *b* in the edge of the cam 31 (see Figs. 3 and 9) permitting the head or cross-arm 32 of the T-lever to thus move. The saw is driven by means
45 of a suitable belt running over the pulley 36. The projection *c* on the cam 31, which follows the depression *b* then acts to move the T-lever 28 and slide 25 back away from the saw and to bring the lug or projection 27 of the
50 knockout against the rear bearing 38 of the frame 21 and force the forward end of the knockout near enough to the end of the slide to discharge the screw, this position of the knockout within the slide being shown in
55 Fig. 4. When the cam 24 passes the end of the arm 23, the frame 21 swings back again into its former position to bring the slide into alignment with the hollow spindle 12.

I claim as my invention—

1. The combination of the slide 25, the T-lever 28, and the cams 30 and 31, arranged to act alternately on the head or cross-arm of the T-lever for reciprocating said slide, substantially as described, and for the purpose specified. 60

2. The combination of the swinging frame 21, the slide 25, mounted in said frame, the T-lever 28, the cams 30 and 31 for acting thereon, and the cam 24 for moving said frame, substantially as described, and for the purpose specified. 65

3. The combination of the swinging frame 21, the cam 24, the slide 25, mounted in said frame, the T-lever 28, the cams 30 and 31 for acting thereon, the hollow spindle 12 of a screw-machine, and the saw 37, arranged by the side of said spindle, substantially as described, and for the purpose specified. 70

4. The combination of the hollow spindle 12, its reciprocating cutting-off tool, the reciprocating slide 25, and mechanism for operating said slide for presenting it to the screw within said spindle, substantially as described, and for the purpose specified. 75

5. The combination of the slide 25, the T-lever 28, connected to said slide, the cam 30, having the tail *a*, and the cam 31, having the depression *b* and following rise or projection *c*, substantially as described, and for the purpose specified. 80

6. The combination of the swinging frame 21, the slide 25, mounted therein, and mechanism for reciprocating said slide and for rocking said swing-frame, substantially as described, and for the purpose specified. 85

7. The combination of the spindle 12 of a screw-machine, within which the screw is cut from the stock, the revolving cutter 37, set to one side of said spindle, the swinging frame 21, the slide 25, mounted therein, and mechanism for reciprocating said slide and rocking said frame to present the slide first to the spindle and then to the saw, substantially as described, and for the purpose specified. 90

8. The combination of the spindle of a screw-machine, within which the screw is cut from the stock, the slide 25, mounted in a suitable frame, the knockout 26, provided with a lug 27 for engaging said frame, and mechanism for reciprocating said slide, substantially as described, and for the purpose specified. 95

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Witnesses:

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JOHN EDWARDS, Jr.