

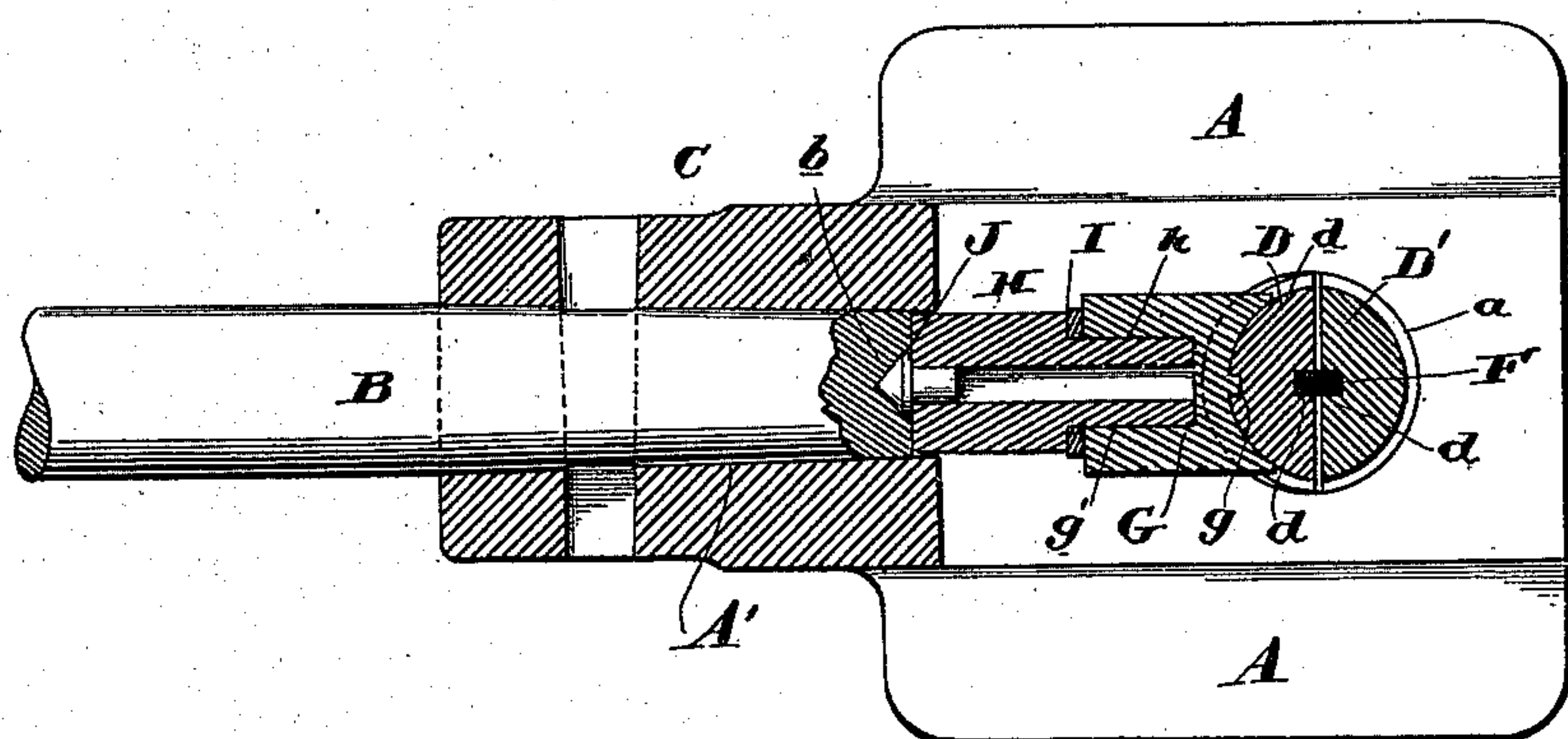
(No Model.)

J. W. WOOD, Sr.

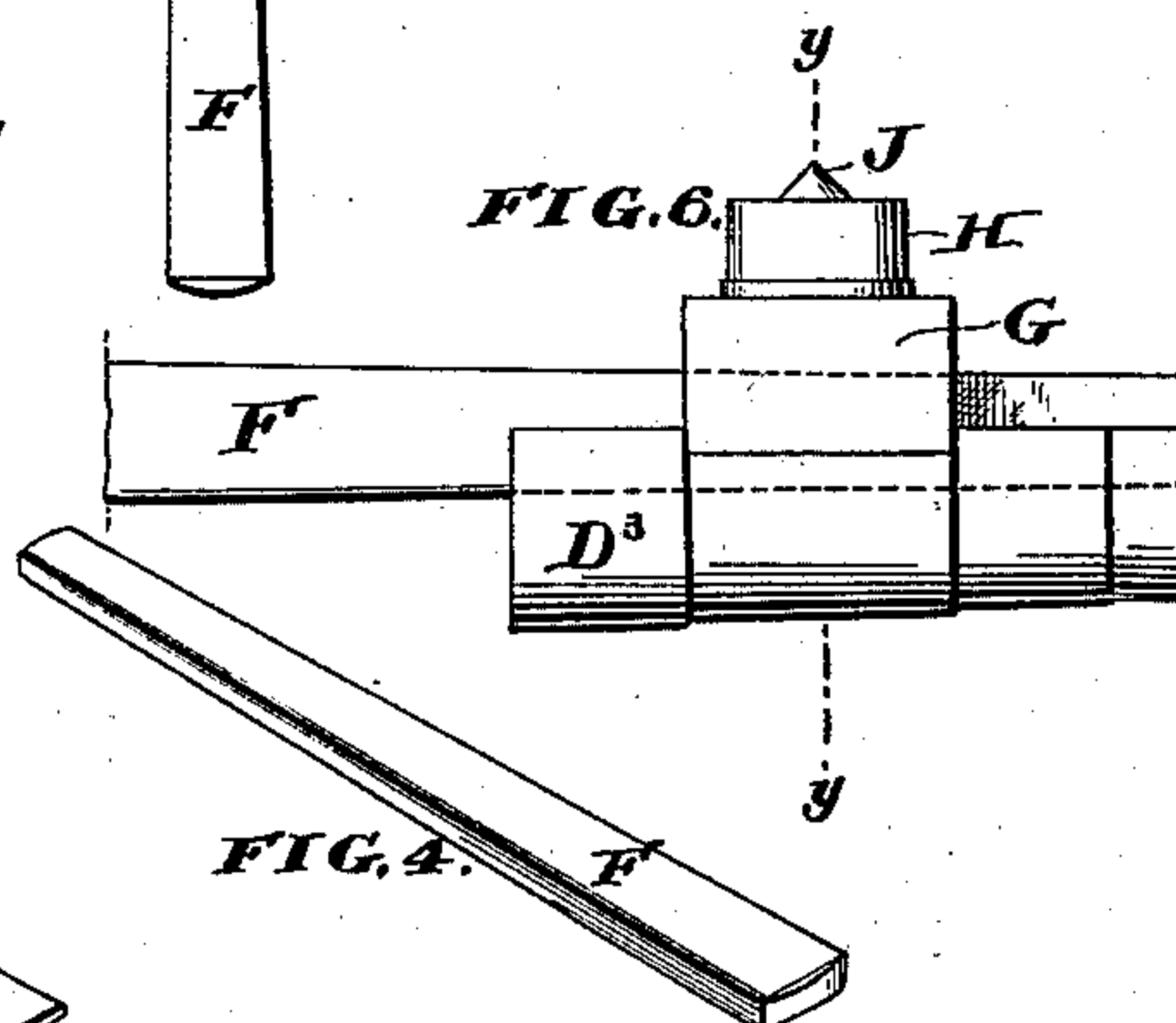
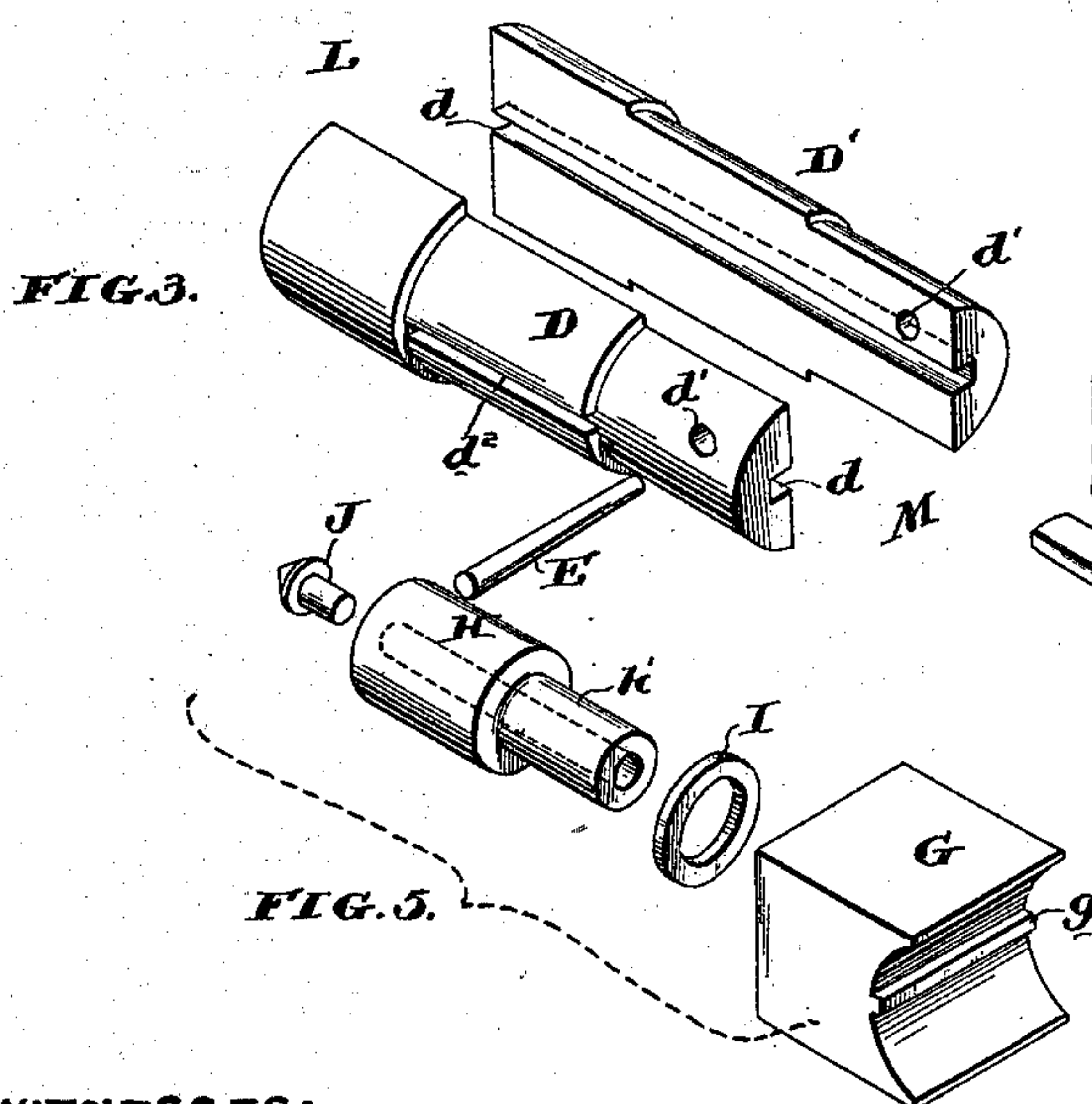
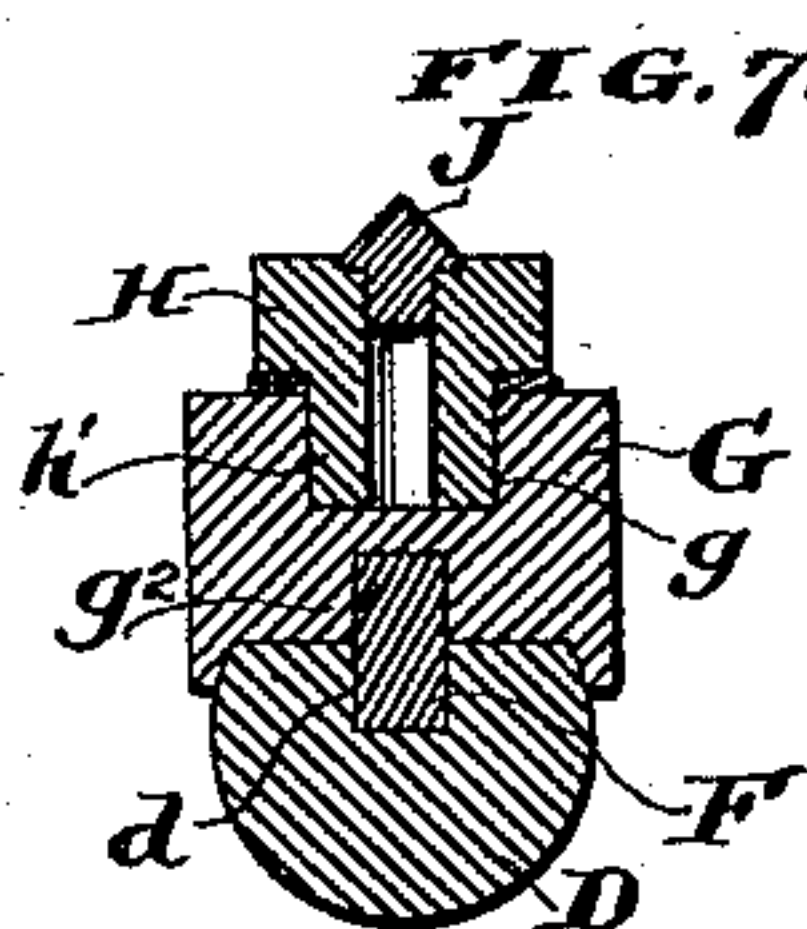
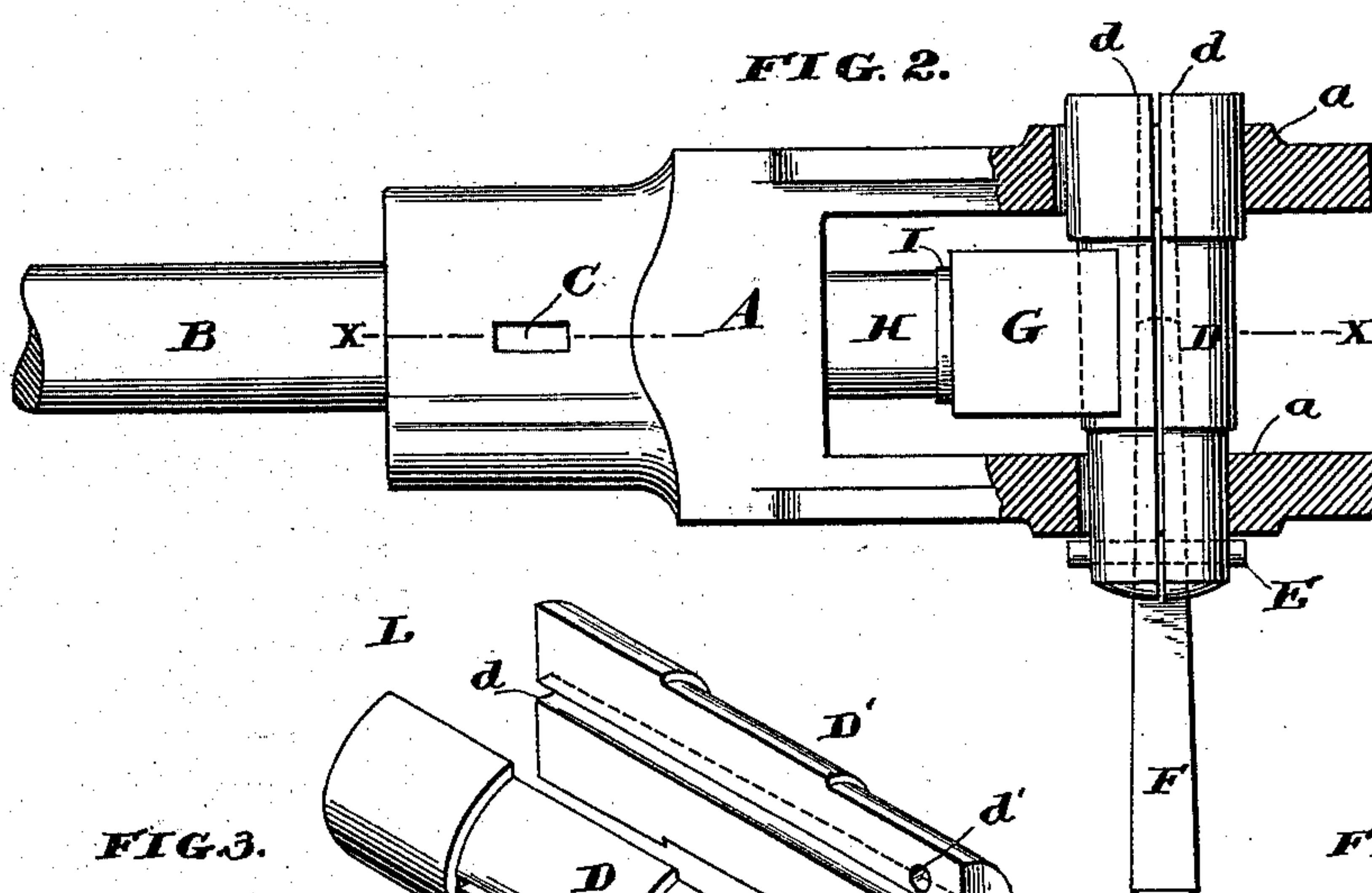
DEVICE FOR PULLING CROSS HEADS FROM PISTON RODS.

No. 413,700.

Patented Oct. 29, 1889.



**FIG. 1.**



**WITNESSES:**

David S. Williams  
Henry Drury

**INVENTOR:**

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# UNITED STATES PATENT OFFICE.

JOHN WILLIAM WOOD, SR., OF ALTOONA, PENNSYLVANIA.

## DEVICE FOR PULLING CROSS-HEADS FROM PISTON-RODS.

SPECIFICATION forming part of Letters Patent No. 413,700, dated October 29, 1889.

Application filed July 23, 1889. Serial No. 318,396. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WILLIAM WOOD, Sr., of Altoona, county of Blair, State of Pennsylvania, have invented a new and useful  
5 Device for Pulling Cross-Heads from Piston-Rods, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

10 My invention relates to mechanism for pulling cross-heads from piston-rods, and has for its object to enable this work to be done rapidly and without injury to the end of the piston-rod. My new device will be best understood after a description of the drawings, in which it is illustrated, and its novel features will be hereinafter pointed out in the claims.

20 Reference is to be had to the drawings, in which—

Figure 1 is a cross-section through the cross-head on the line  $x x$  of Fig. 2, showing in section my device for pulling it from the piston-rod in the form in which I prefer to  
25 construct it. Fig. 2 is a plan view of my device adjusted in the cross-head. Fig. 3 is a perspective view of the two tapered segments which constitute one important feature of my preferred form of construction; Fig. 4, a perspective view of the wedge which coacts with the segments; Fig. 5, a perspective view of the strut constructed in my preferred manner, showing all of its parts. Fig. 6 is a side  
30 view of a modified form of my device, and Fig. 7 a cross-section on the line  $y y$  of Fig. 6.

Referring first to the construction shown in Figs. 1 to 5, A is the cross-head, having its shank A' perforated for the reception of the piston-rod, and a pin-hole C formed in the  
40 shank so as to register with a perforation in the piston-rod end.

$a a$  are the connecting pin-holes.

B is the piston-rod, having, as is usual, a center  $b$  formed in its end.

45 D D' are two tapered segments such as would be cut by diverging planes from a cylinder a little less in diameter than that of the pin-holes  $a a$ . Their inner flat faces are slotted, as shown at  $d d$ , said slots being made to  
50 register with each other, and the upper segment D is preferably formed with a slot or groove  $d^2$ , to afford a resting-place for the

strut, hereinafter described, and keyways  $d' d'$  should be formed in the smaller ends of the segments, to permit of their being locked together and in place in the perforations  $a a$  by  
55 a key E.

I have described the segments D D' as tapering, because, as will be evident on examining their mode of operation, they can be  
60 made better and stronger in this way and have more freedom of motion; but the upper segment D may alone have a tapered form, or it may be made smaller and not tapered, or even, as will be shown, dispensed with en-  
65 tirely.

G, H, and I constitute a strut resting at one end on the segment D and at the other end against the end of the piston-rod, a point J  
70 being formed on that end to enter the center  $b$  of the piston-rod. This strut is conveniently constructed, as shown, of a block G, adapted to rest on segment D and having a feather  $g$  to engage groove  $d^2$ , and a perforation  $g'$  in its upper end to receive the cylin-  
75 drical projection  $h'$  of a bar H, which extends upward and rests against the piston-rod end, the point J being formed on or attached to this bar.

To enable nice adjustments to be made, I  
80 use washers, such as I, which fit on the projection  $h'$ , and by which the length of the strut can be modified to suit different sizes of cross-heads.

F is a wedge formed to fit in the grooves  
85  $d d$ .

In using this device the parts composing the strut and the segments are fitted together and in the cross-head, as shown in Fig. 1, and the wedge F is then inserted, with  
90 its small end in the grooves at the small ends of the segments D D' and forced in by the blows of a mallet or copper hammer. The wedge of course forces the segments apart and the strut up against the end of the piston-rod, which is soon loosened and without  
95 injury to its end or to the cross-head.

Referring now to the construction shown in Figs. 6 and 7, it will be seen that, instead of the two segments D D', I here employ a  
100 single segment D<sup>3</sup>, corresponding to segment D' in the first construction and having a groove  $d$ . The strut rests directly on the flattened face of this segment D<sup>3</sup>, and is



grooved at  $d^2$  to receive wedge F, which fits in this groove and the groove  $d$  of the segment. In other respects this construction is like that already described, and in operation it does not differ from it, save in that the strut is raised by the direct contact with the entering wedge instead of through the upper segment D, which in my preferred construction is raised by the wedge.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As a device for pulling cross-heads from piston-rods, a segment adapted to rest in the connecting pin-hole and having a groove in its upper face to receive a wedge, in combination with a wedge adapted to rest in the groove of the segment, and a strut adapted to rest against the end of the piston-rod and directly or indirectly against the wedge, all substantially as and for the purpose specified.

2. As a device for pulling cross-heads from piston-rods, the tapered and internally-grooved segments D D', in combination with a strut adapted to rest on one of said segments and against the piston-rod, and a wedge adapted to enter the grooves in segments D D' and force them apart, all substantially as and for the purpose specified.

3. As a device for pulling cross-heads from piston-rods, the tapered and internally-grooved segments D D', having keyways  $d' d'$  at their smaller ends, in combination with a key E, a strut adapted to rest on one of said segments and against the piston-rod, and a wedge adapted to enter the groove in segments D D' and force them apart, all substantially as and for the purpose specified.

4. As a device for pulling cross-heads from piston-rods, the tapered and internally-grooved segments D D', in combination with

a strut adapted to rest on one of said segments and against the piston-rod, said strut having a point J, adapted to enter the center on said rod, and a wedge adapted to enter the grooves in segments D D' and force them apart, all substantially as and for the purpose specified.

5. As a device for pulling cross-heads from piston-rods, the tapered and internally-grooved segments D D', having on one face a groove  $d^2$ , in combination with a strut having a face grooved to fit on groove  $d^3$  and adapted to rest on the segment and against the end of the piston-rod, and a wedge adapted to enter the grooves in segments D D' and force them apart, all substantially as and for the purpose specified.

6. As a device for pulling cross-heads from piston-rods, the tapered and internally-grooved segments D D', having on one face a groove  $d^2$ , in combination with a strut consisting of a block G, adapted to rest on the segments, and a bar H, having a point J, adapted to fit onto the block G and rest against the end of the piston-rod, all substantially as and for the purpose specified.

7. As a device for pulling cross-heads from piston-rods, the tapered and internally-grooved segments D D', having on one face a groove  $d^2$ , in combination with a strut consisting of a block G, adapted to rest on the segments, a bar H, having a point J, adapted to fit onto the block G and rest against the end of the piston-rod, and a washer adapted to fit between the block G and bar H, all substantially as and for the purpose specified.

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Witnesses:

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JAS. C. BARGER.