

No. 704,898.

Patented July 15, 1902.

J. F. MEIGS & S. A. S. HAMMAR.
BREECH MECHANISM.

(Application filed July 31, 1900.)

5 Sheets—Sheet 1.

(No Model.)

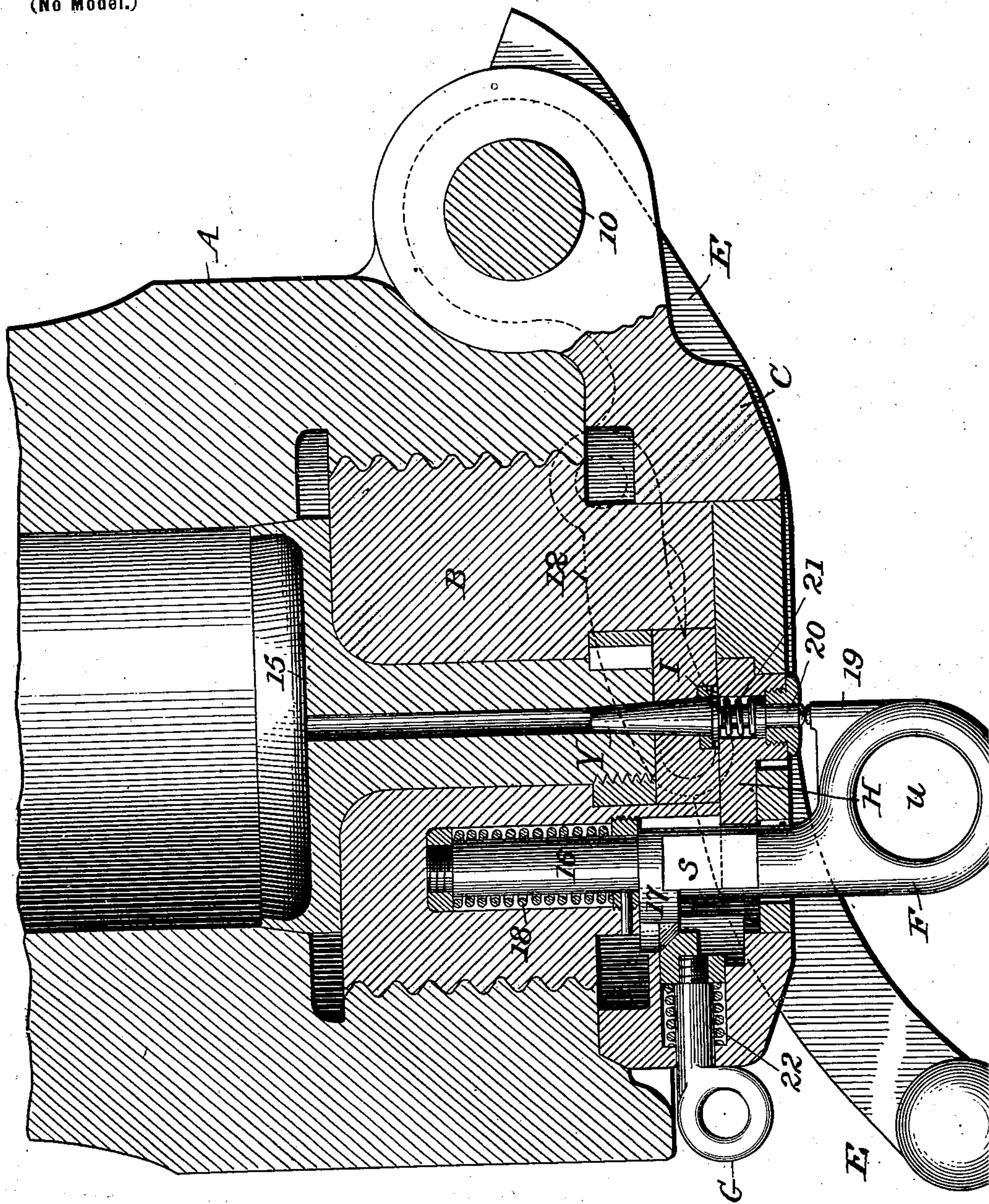


Fig. 1

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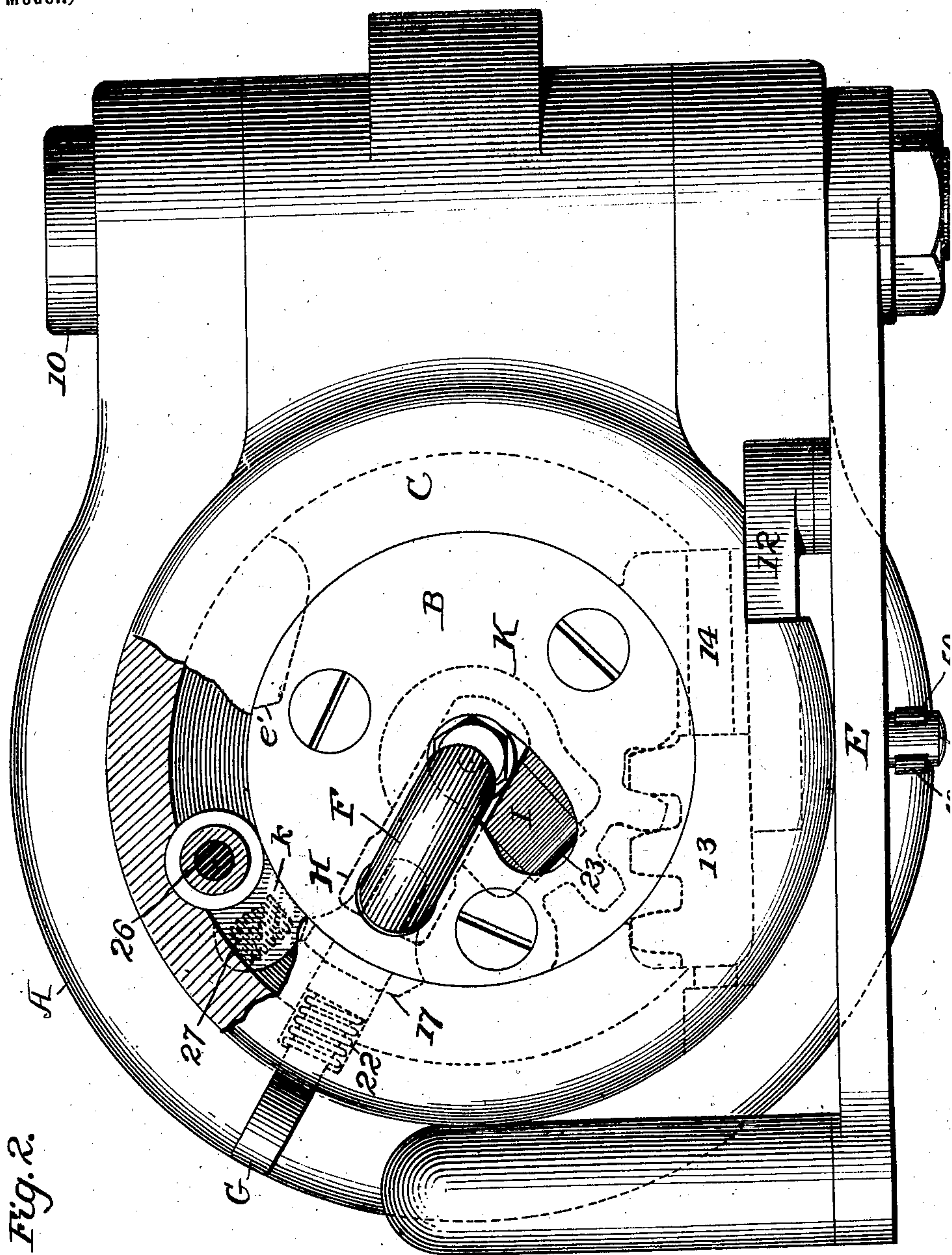


Fig. 2.

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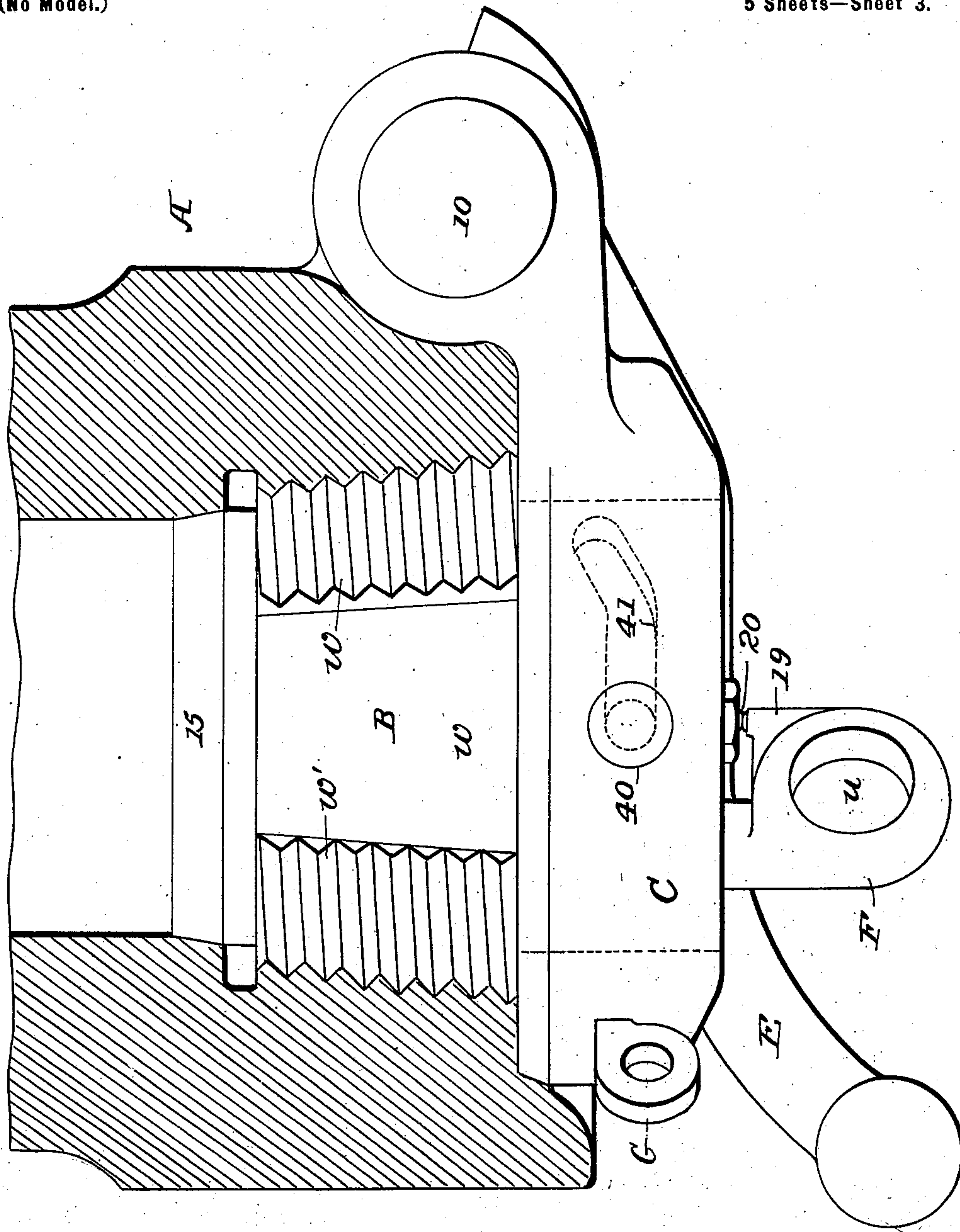
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Fig. 5.

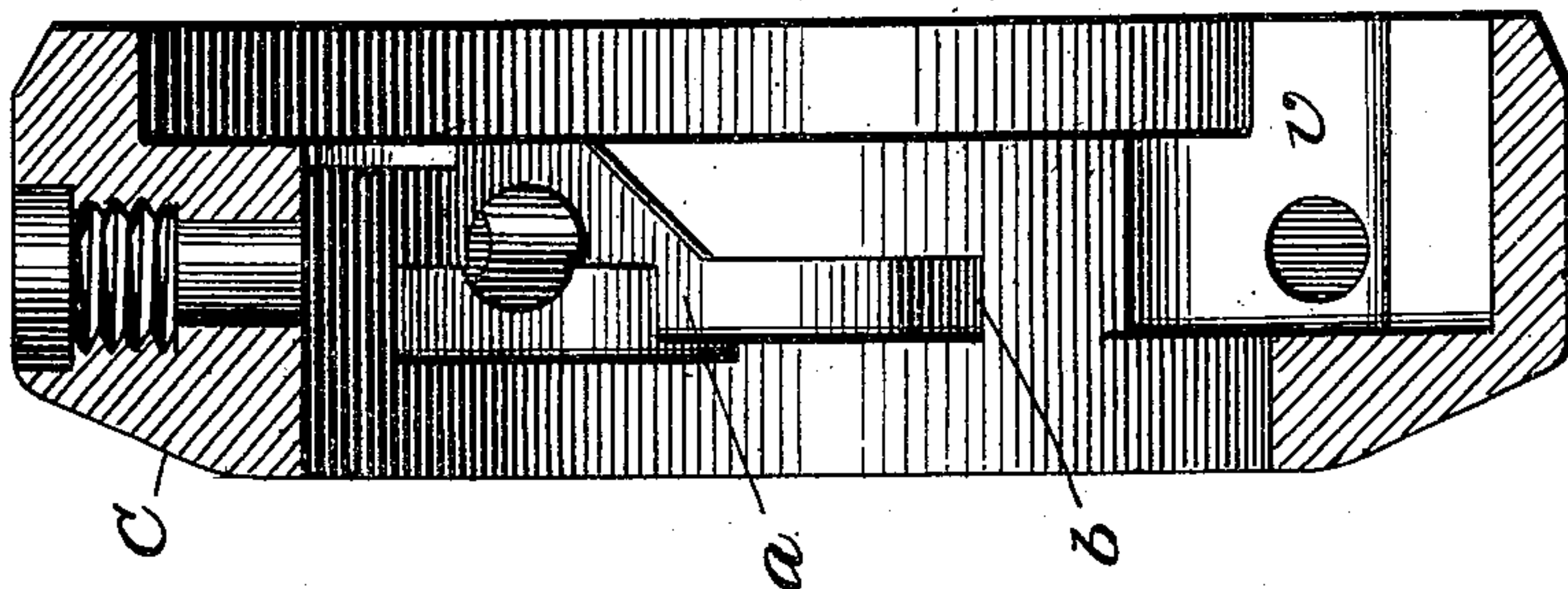
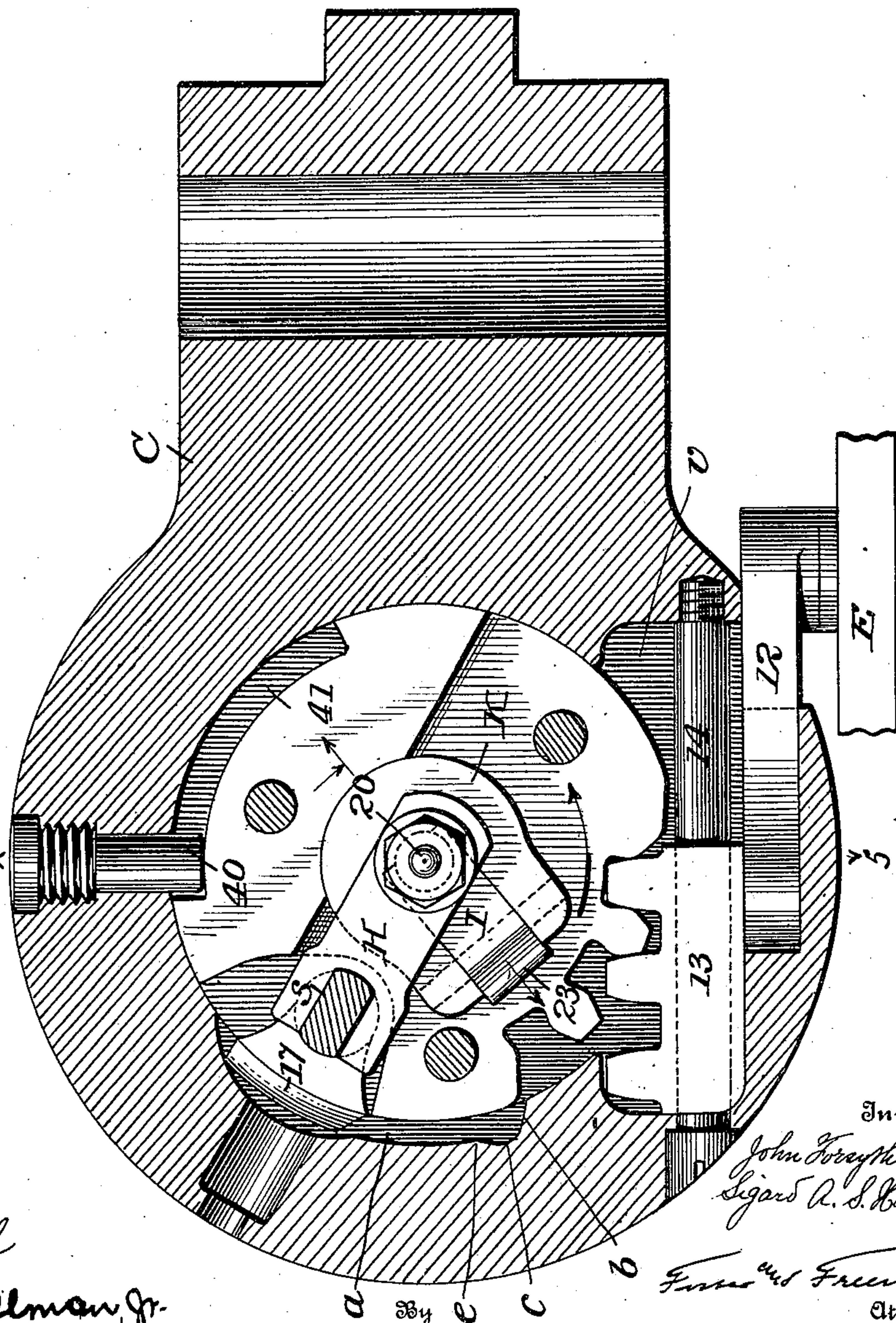


Fig. 4.



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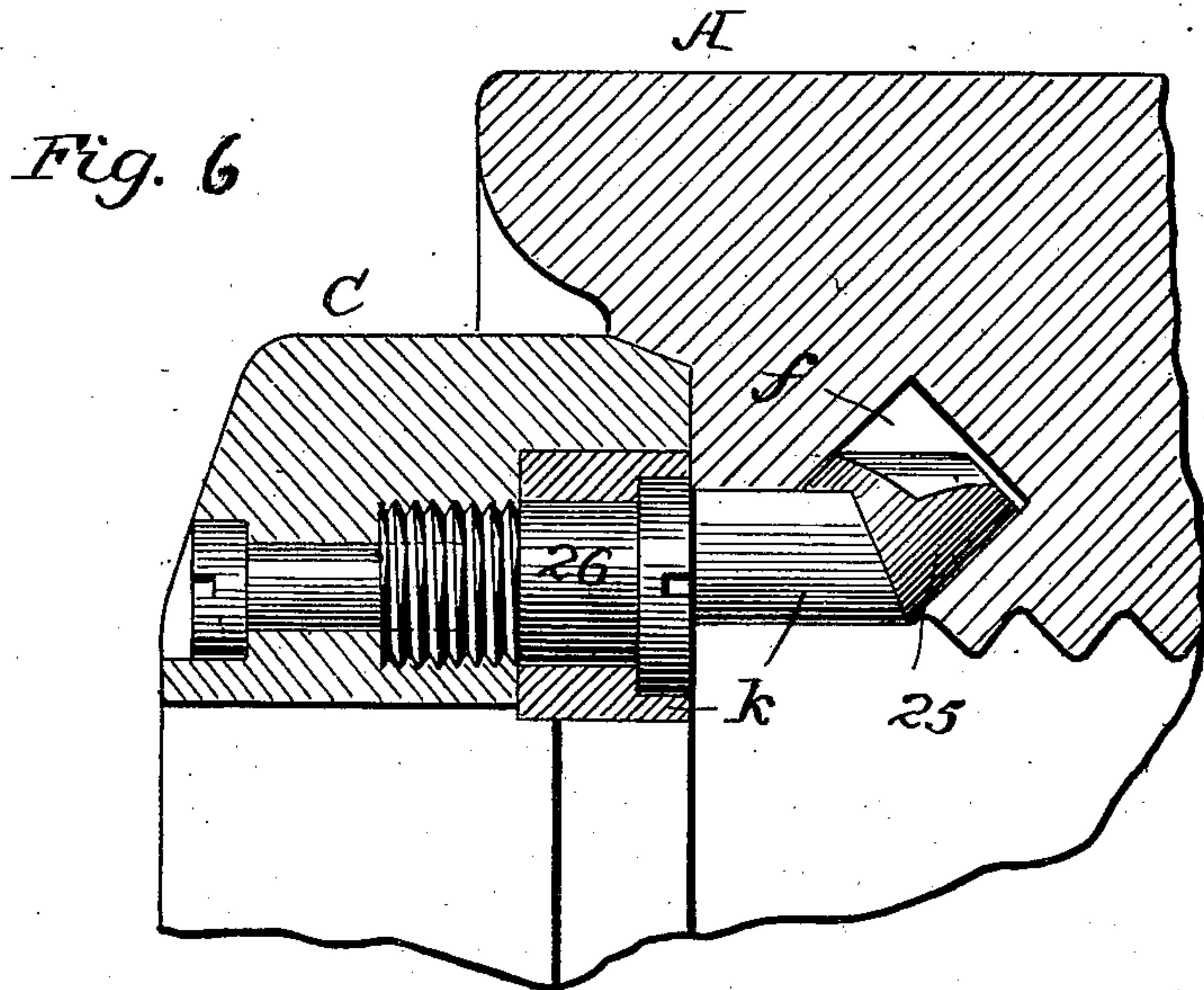


Fig. 8.

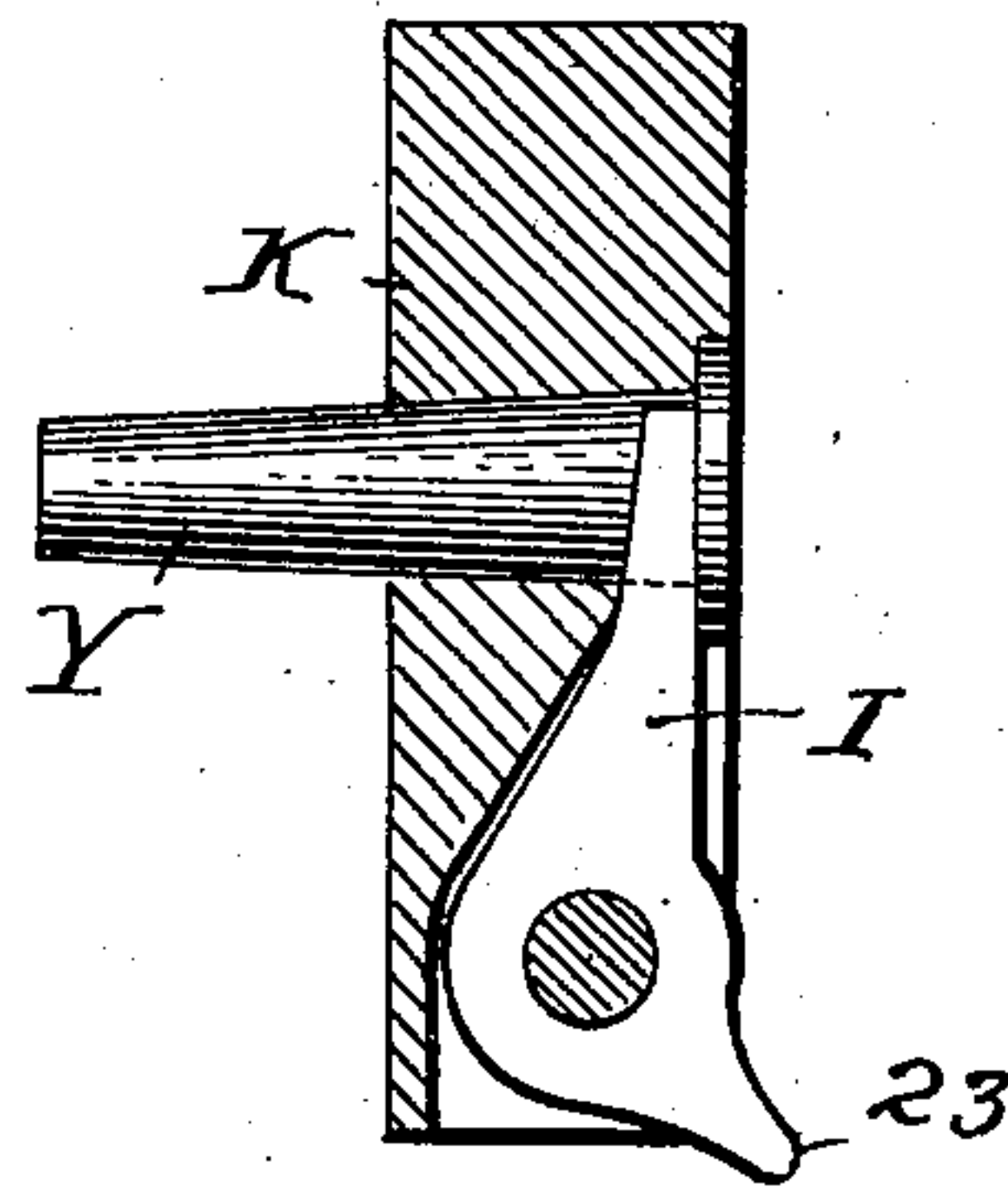
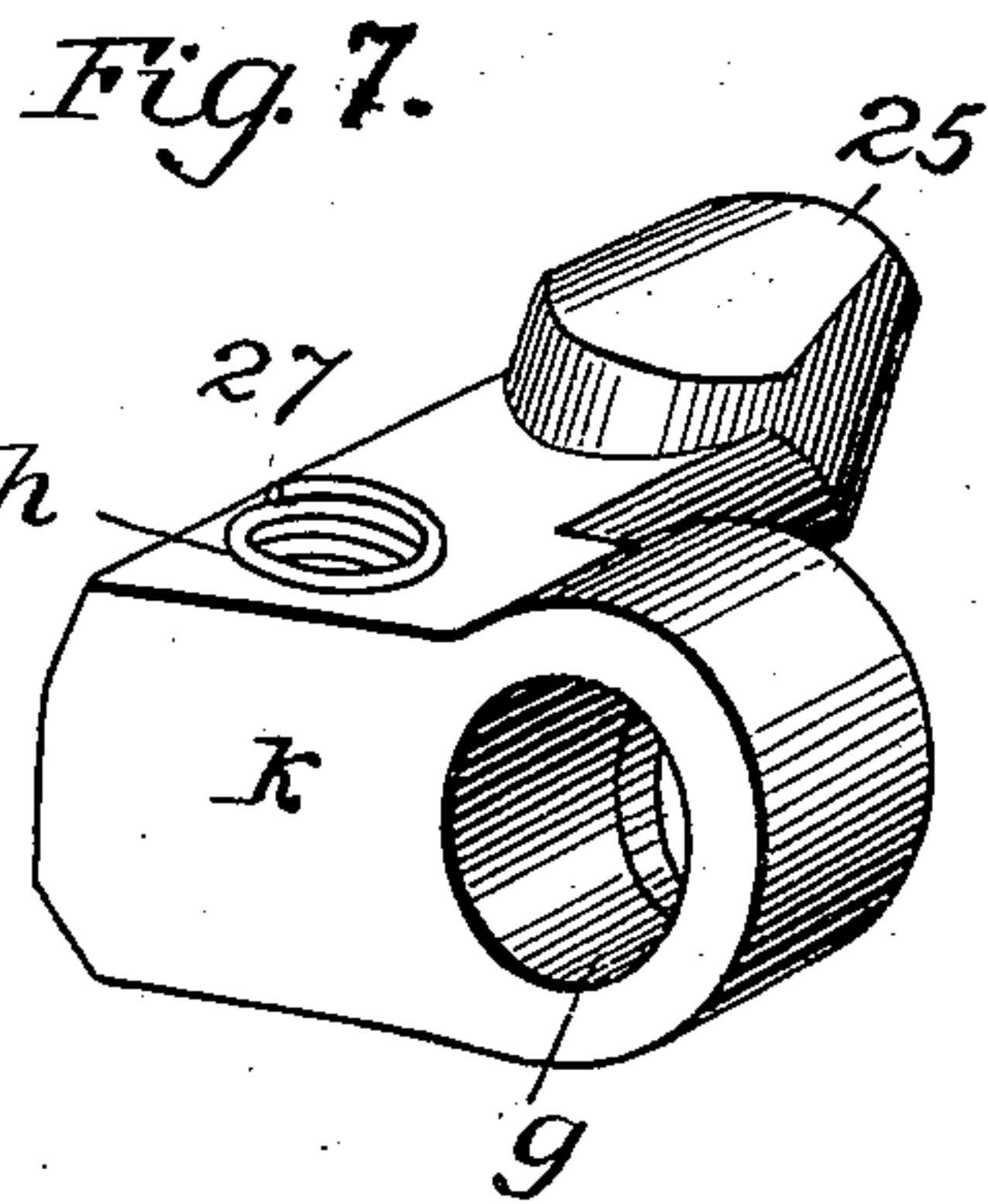
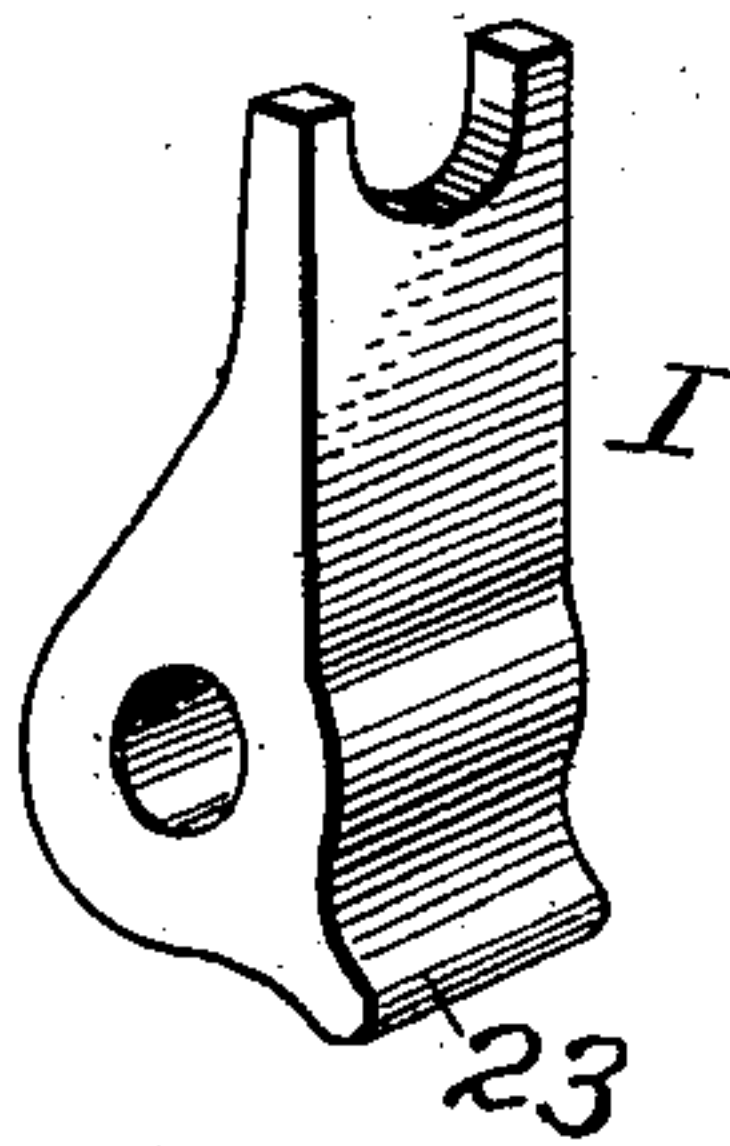


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN FORSYTH MEIGS, OF SOUTH BETHLEHEM, AND SIGARD AXEL STEN HAMMAR, OF BETHLEHEM, PENNSYLVANIA, ASSIGNORS TO THE BETHLEHEM STEEL COMPANY, OF SOUTH BETHLEHEM, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

BREECH MECHANISM.

SPECIFICATION forming part of Letters Patent No. 704,898, dated July 15, 1902.

Application filed July 31, 1900. Serial No. 25,459. (No model.)

To all whom it may concern:

Be it known that we, JOHN FORSYTH MEIGS, a citizen of the United States, residing at South Bethlehem, and SIGARD AXEL STEN HAMMAR, a subject of the King of Sweden and Norway, residing at Bethlehem, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Breech Mechanism, of which the following is a specification.

Our invention relates to breech mechanism for guns, and has for its object to improve and simplify the construction of such mechanism; and it consists in the various features of construction and arrangement of parts having the general mode of operation substantially as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section showing a part of the breech and the mechanism connected therewith. Fig. 2 is a rear elevation in part section; Fig. 3, a plan in section through the breech, showing a modification; Fig. 4, a vertical longitudinal section through the carrier, certain parts being removed. Fig. 5 is a section on the line 5 5, Fig. 4; Fig. 6, a section through part of the breech and breech-block carrier; Fig. 7, a detached perspective view of the latch; Fig. 8, a detached sectional view showing the extractor, its supporting-block, and primer; Fig. 9, a perspective view of the extractor.

The breech A of the gun receives the breech-block B, which is carried by the hinged carrier-frame C, the said block and its corresponding socket being shown in Fig. 1 as cylindrical, although they may be tapering, as in Fig. 3.

The block may be mounted in any suitable manner on the frame or carrier C, so as to rotate on its axis. As shown, the turning of the block is effected by the lever which swings the frame. Thus the lever E swings on the lower end of the pin 10, on which the frame C swings, and a link 12 is pivoted to a rack-bar 13, which slides on a guide-rod 14, ex-

tending along a recess *v* in the frame. The teeth of the rack-bar engage those upon a projection on the rear of the block, which projection extends into a circular recess of the frame.

The parts are so proportioned that (assuming the breech to be closed) the swinging out of the free end of the lever E will carry the rack-bar to the right, Fig. 4, and will turn the block in the direction of its arrow until the threads of the block and breech are out of contact, when the continued pull on the lever will swing out the frame, carrying the block with it. A reverse movement will swing in the frame and turn the block.

In order that the block may be properly directed in its course in withdrawing the threads from engagement with those of the breech, a pin 40 extends from the frame into a groove 41 in the block, which groove is of such angle as secures the desired result, and the termination of the groove is at an angle to the main part (see dotted line, Fig. 3) to draw back the plug quickly after its threads escape from the threads of the breech. The groove or cam edges and pin may be variously arranged to secure this result.

The block carries a suitable gas-check and firing and locking mechanism of any suitable character may be employed.

In the construction shown the hammer F has a round shank 16, extending into a recess of the block and carrying a spring 18, which bears on a shoulder of the shank and also on a bearing on the block, so as to carry the hammer inward. A lug 19 on the head of the hammer may by turning the hammer be carried to a position to strike a central sliding firing-pin 20, thrown outward by a spring 21, or this hammer may be turned on its stem to carry the head to one side for the insertion of the primer.

The head of the hammer has a hole *u* for the insertion of the finger to draw out the hammer, which is then caught and retained by a suitable detent or sear. Thus a sliding bolt G with a hole for the attachment of a

anyard is carried in by a spring 22 beneath a lug 17 on the shank of the hammer and holds it in its outer position. The ends of the lug 17 and bolt G are beveled so that in drawing out the hammer the bolt is forced back. It is of course necessary to remove the firing-pin when the primer has to be inserted or extracted. Said pin is therefore carried by a vent-cover H, movable in a segmental recess of the breech-block and forked at the outer end to receive an angular portion s of the hammer-shank, so that it will be swung with the shank, which, however, can slide between the forks of the vent-cover.

The shell of the primer is thrown out by an extractor consisting of a lever I, Figs. 8 and 9, pivoted to a block K, and with a forked end through which the primer Y passes, and with a toe 23, with which a shoulder on the vent-cover H makes contact when the cover H is swung downward, to thereby elevate the forked end of the lever I and expel the shell of the primer.

To mechanically swing the hammer to its proper positions, the lug 17 extends into a recess a in the frame C, Fig. 4, which terminates in an inclined shoulder b and enlargement c. When the breech-block is turned to open the breech, the end of the lug 17 makes contact with the shoulder b, and the hammer is then swung around on its shank as a center to carry it and the firing-pin away from the primer-hole. The reverse movement of the block brings the edge of the lug to bear on the point e of the enlargement c and swings the hammer back to its firing position. When the breech-block is turned to withdraw it from the breech, it is locked in place to the carrier-frame by a latch k, Figs. 2, 6, 7, the end of which drops into a notch e', Fig. 2, and when the frame is swung to the breech the frame is locked thereto by a finger 25 of the latch, which enters a recess f in the breech.

The peculiar form of the latch is best shown in Figs. 6 and 7, from which it will be seen that it is an L-shaped block pivoted at one end in a recess in the frame C by a pin 26, passing parallel to the axis of the breech-block through an opening g in the block, the finger 25 extending from the inner face of the latch-block at the free end and being bent to enter the inclined recess f of the breech. When in the position shown in Fig. 6, the bent end of the finger acts as a hook to hold the frame against the breech and to prevent it from swinging.

When the breech-block is turned to open the breech and the free end of the latch falls into the notch e', it carries the finger 25 to a position to slip out of the recess f as the frame is swung out, and it tends to take this position by the action of a spring 27, fitting in a socket h in the latch-block and bearing against

the face of the recess in the frame in which the latch-block is placed.

When the gun is set at a high elevation there is a tendency of the operating-lever to swing back and loosen the carriage and breech-block. To prevent this, we use a spring-de- 70 tent, which will frictionally engage a stud on the operating-lever and hold it in place until sufficient power is applied by hand to remove it. Thus the spring-fingers 50, Fig. 2, secured to a stud on the breech, receive between them 75 a lug 51 on the lever when the latter is pushed in and thereby hold it in place.

Without limiting ourselves to the precise construction and arrangement of parts shown, we claim as our invention— 80

1. The combination with the breech and breech-block provided with sectional threads or collars, of a frame carrying the breech-block and having a recess, a guide-rod extending along the recess, a rack-bar mounted 85 to slide on the guide-rod, and a lever connected to operate the rack-bar, substantially as set forth.

2. The combination with the breech-block and the primer-opening, of a hammer pro- 90 vided with a stem sliding in the breech-block and with a head, and swinging on its stem to and from said opening, substantially as set forth.

3. The combination with the breech-block 95 and primer-opening, of a hammer provided with a stem sliding in the breech-block and with a head, and swinging on its stem to and from said opening, and a vent-cover and firing-pin carried thereby connected to swing 100 with the hammer over and from the opening, substantially as set forth.

4. The combination with the breech-block and primer-opening, of a hammer provided with a stem sliding in the breech-block and 105 with a head, and swinging to and from said opening, a vent-cover and firing-pin carried thereby connected to swing over and from the opening, an extractor, and means for operating the same on the movement of the 110 vent-cover, substantially as set forth.

5. The combination with the breech-block and primer-opening, of a hammer provided with a stem sliding in the breech-block and 115 with a head, and swinging to and from said opening, and means for mechanically swinging the hammer on its stem into and out of position on the turning of the breech-block, substantially as set forth.

In testimony whereof we have signed our 120 names to this specification in the presence of two subscribing witnesses.

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