

**No. 705,157.**

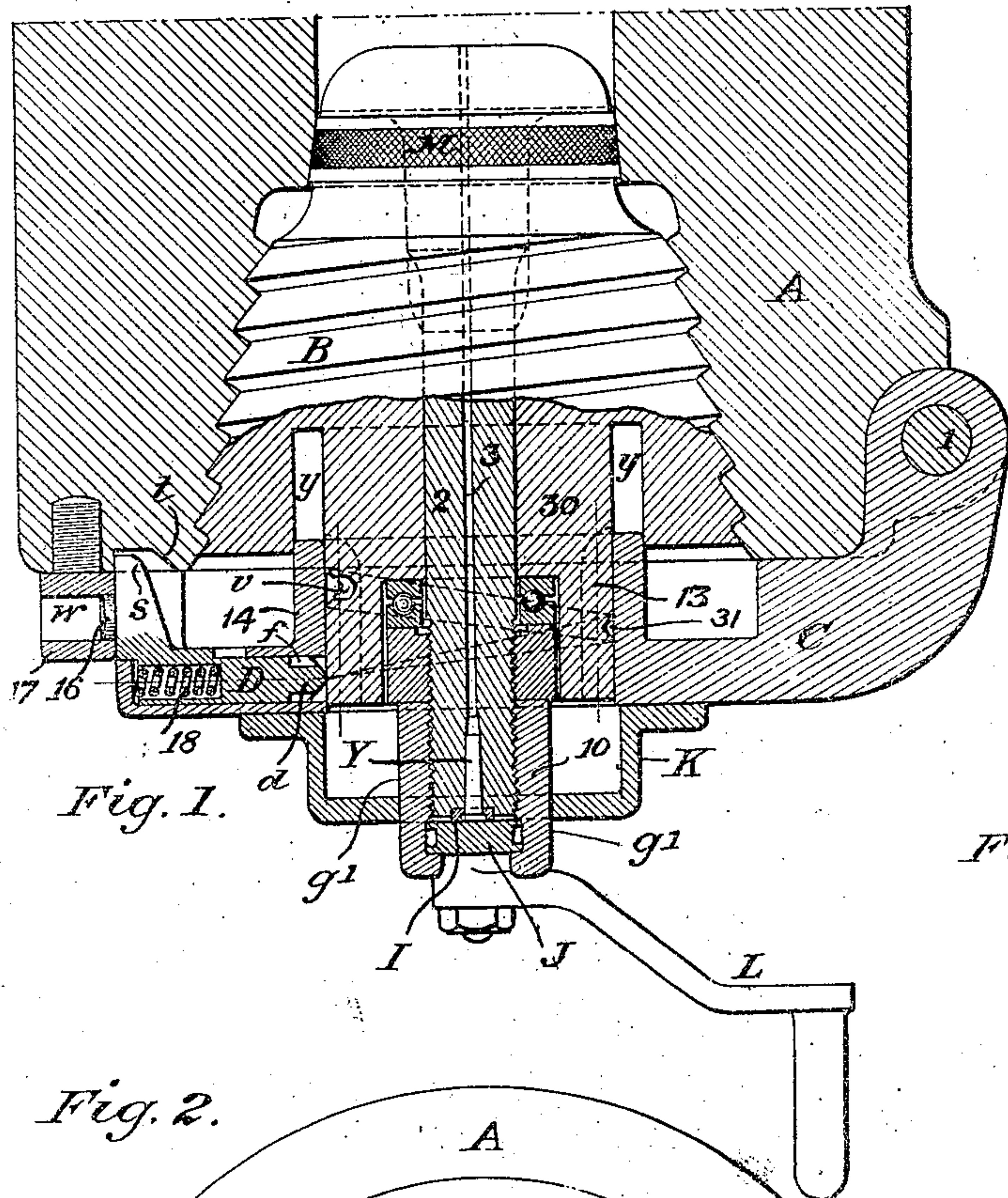
Patented July 22, 1902.

J. W. STOCKETT.  
BREECH LOADING ORDNANCE.

(Application filed Oct. 20, 1900.)

(No Model.)

**2 Sheets—Sheet 1.**



*Fig. 1.*

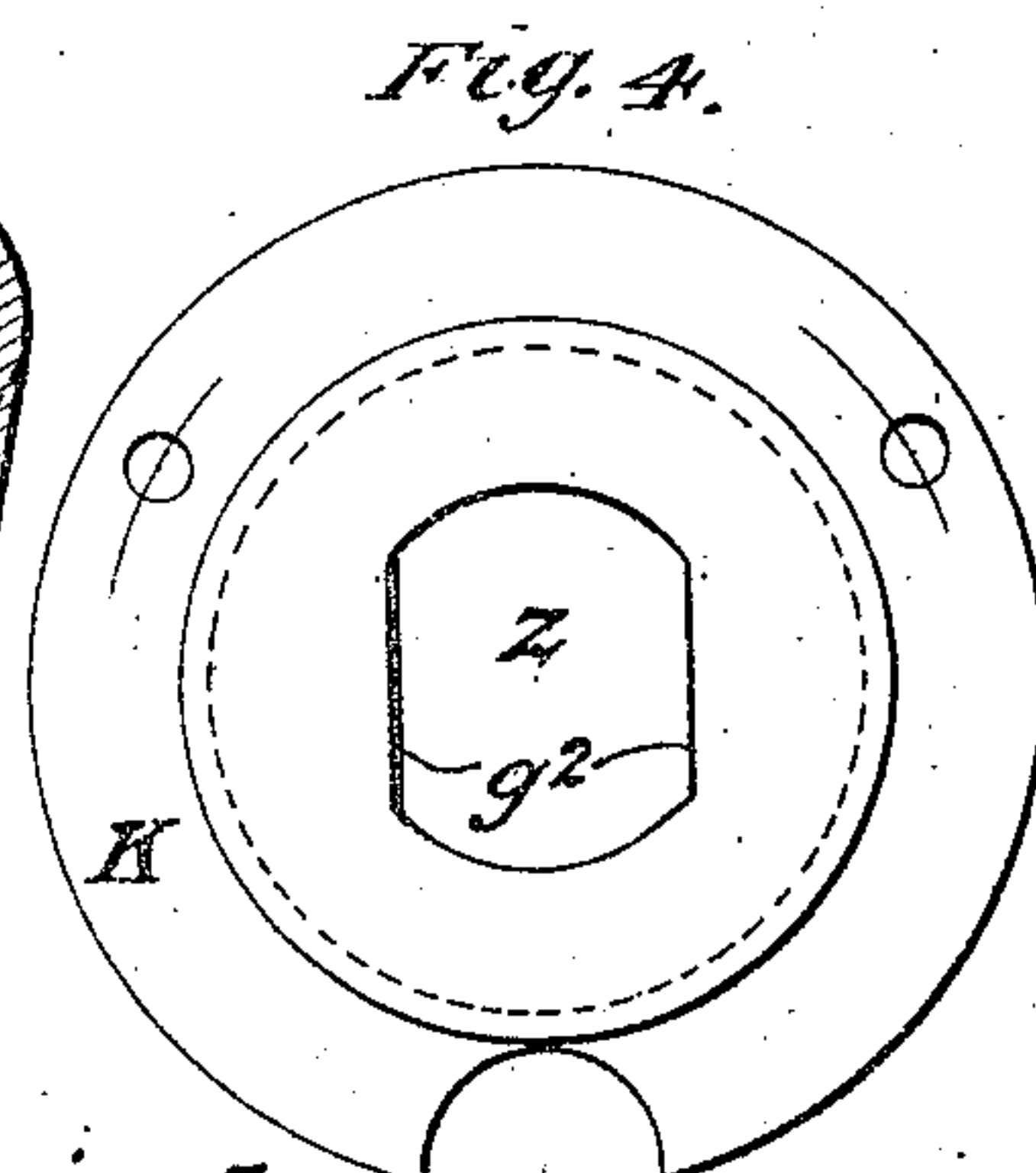
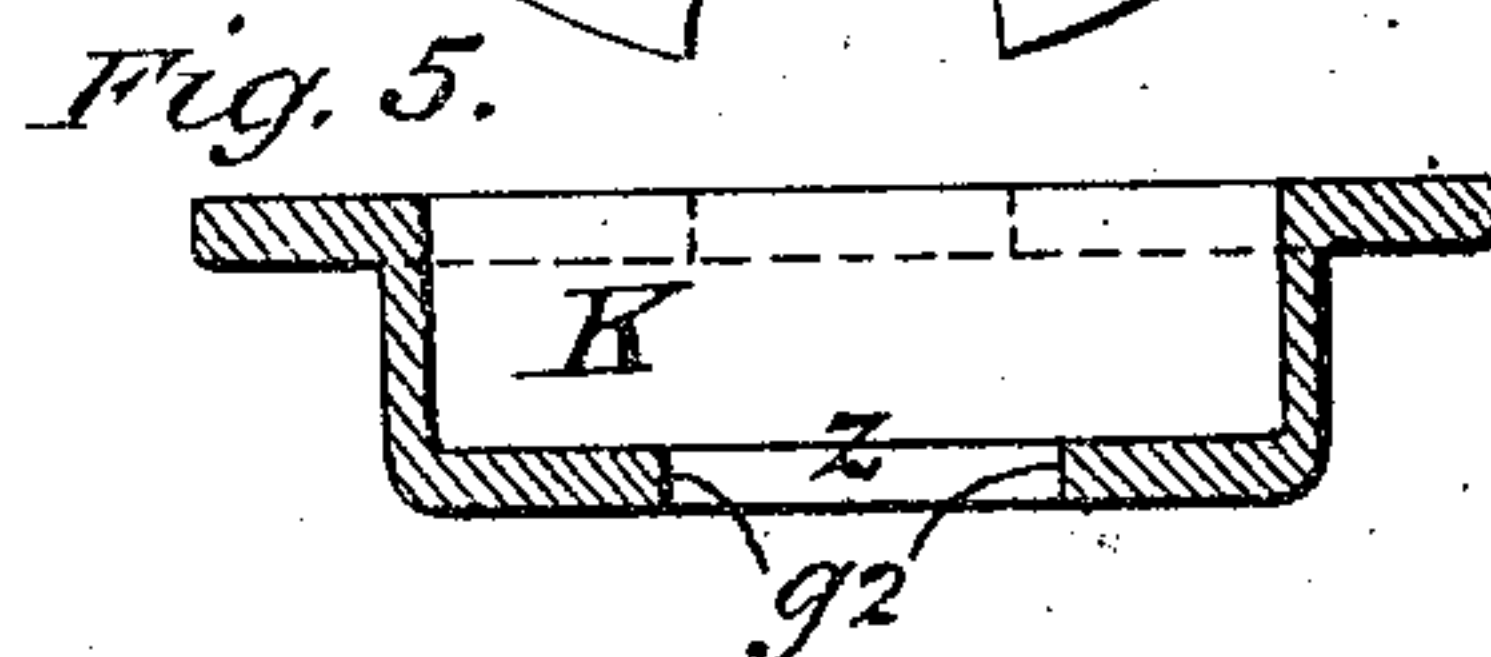
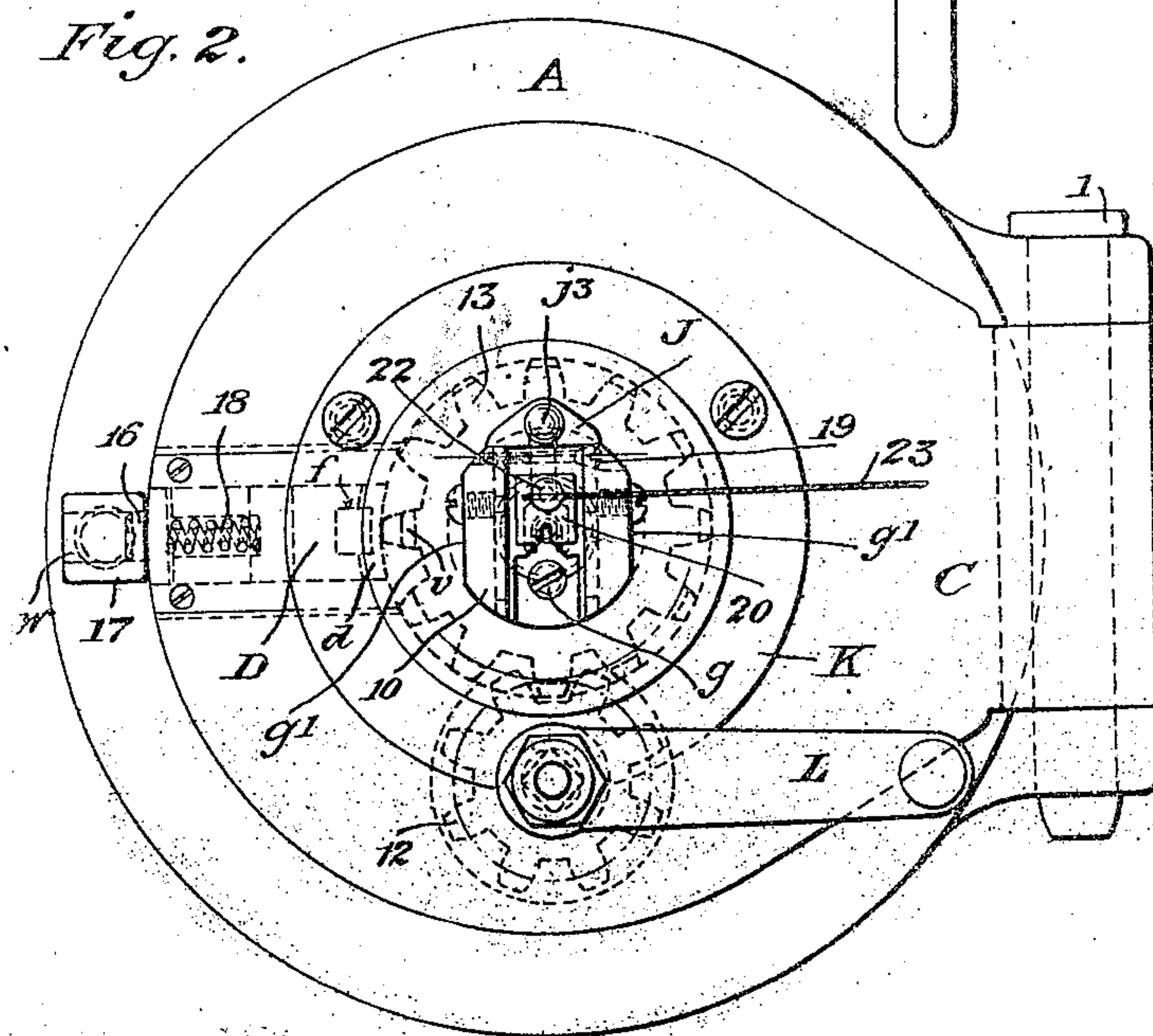


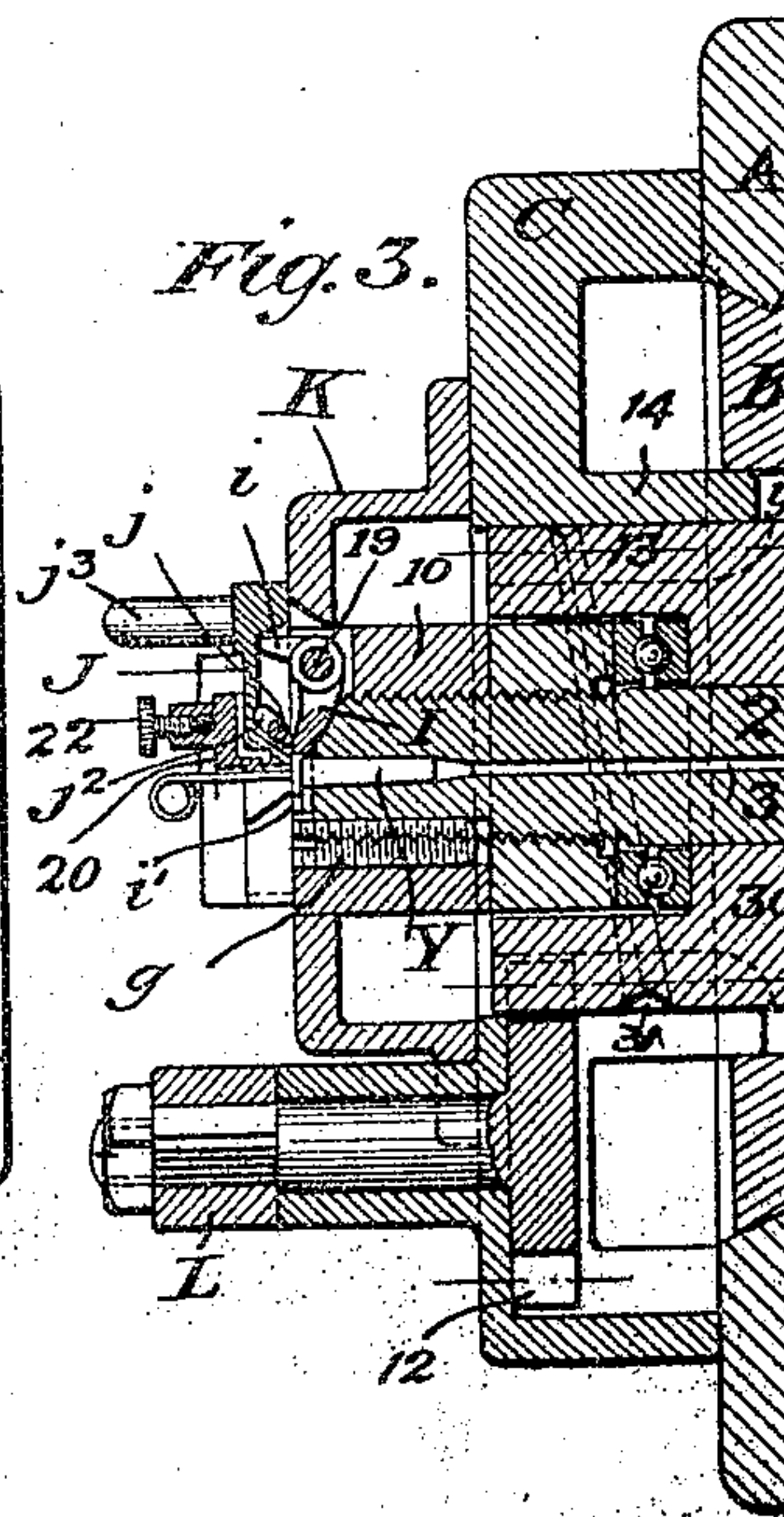
Fig. 4.



*Fig. 5.*



*Fig. 2.*



*Fig. 3.*

**Witnesses:**

Wm. J. Hillman, Jr.  
J. H. Langdon

*Inventor:*

John W. Stockett  
by Foster Freeman  
attorneys



No. 705,157.

Patented July 22, 1902.

J. W. STOCKETT.  
BREECH LOADING ORDNANCE.

(Application filed Oct. 20, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 6.

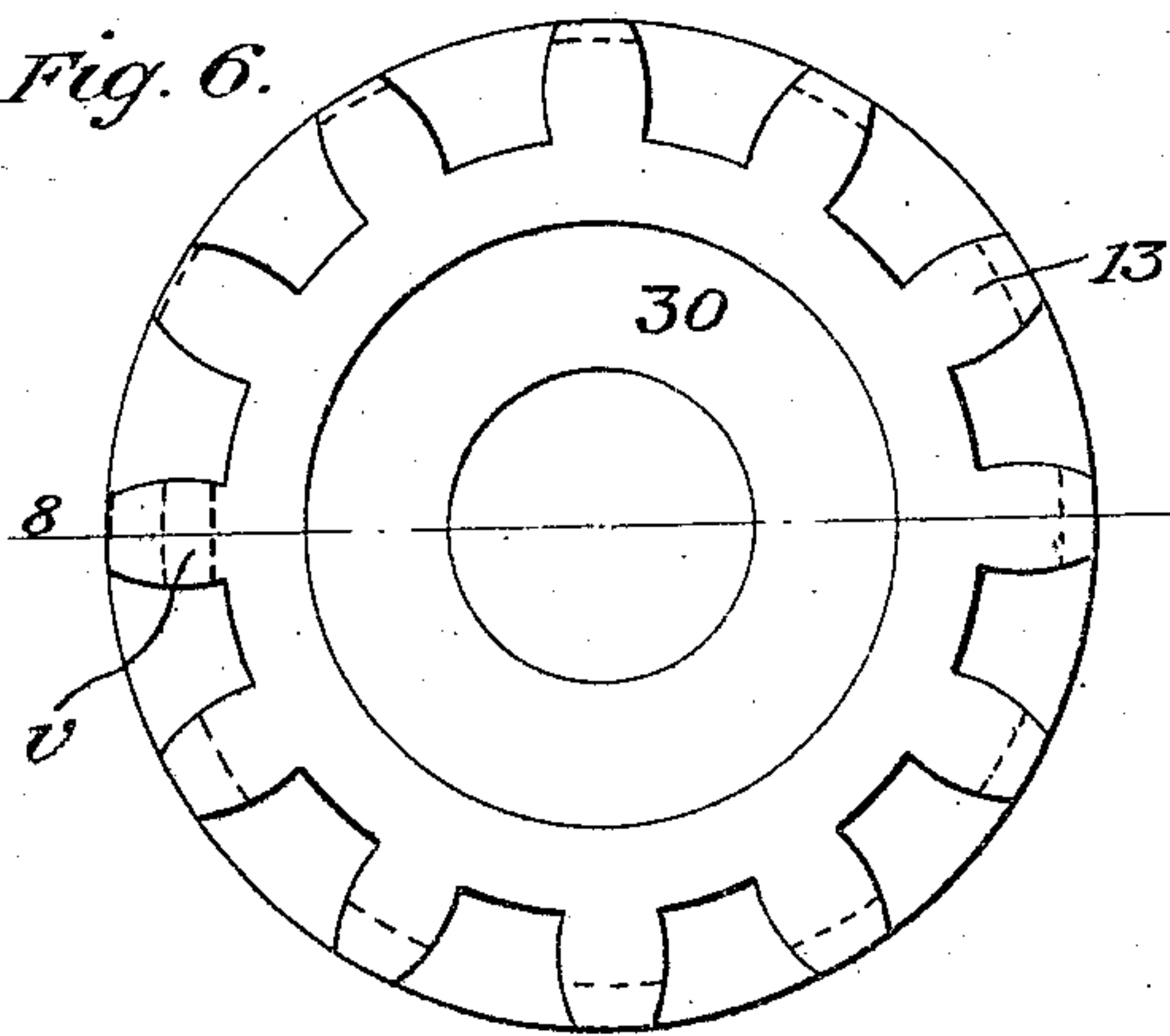


Fig. 7.

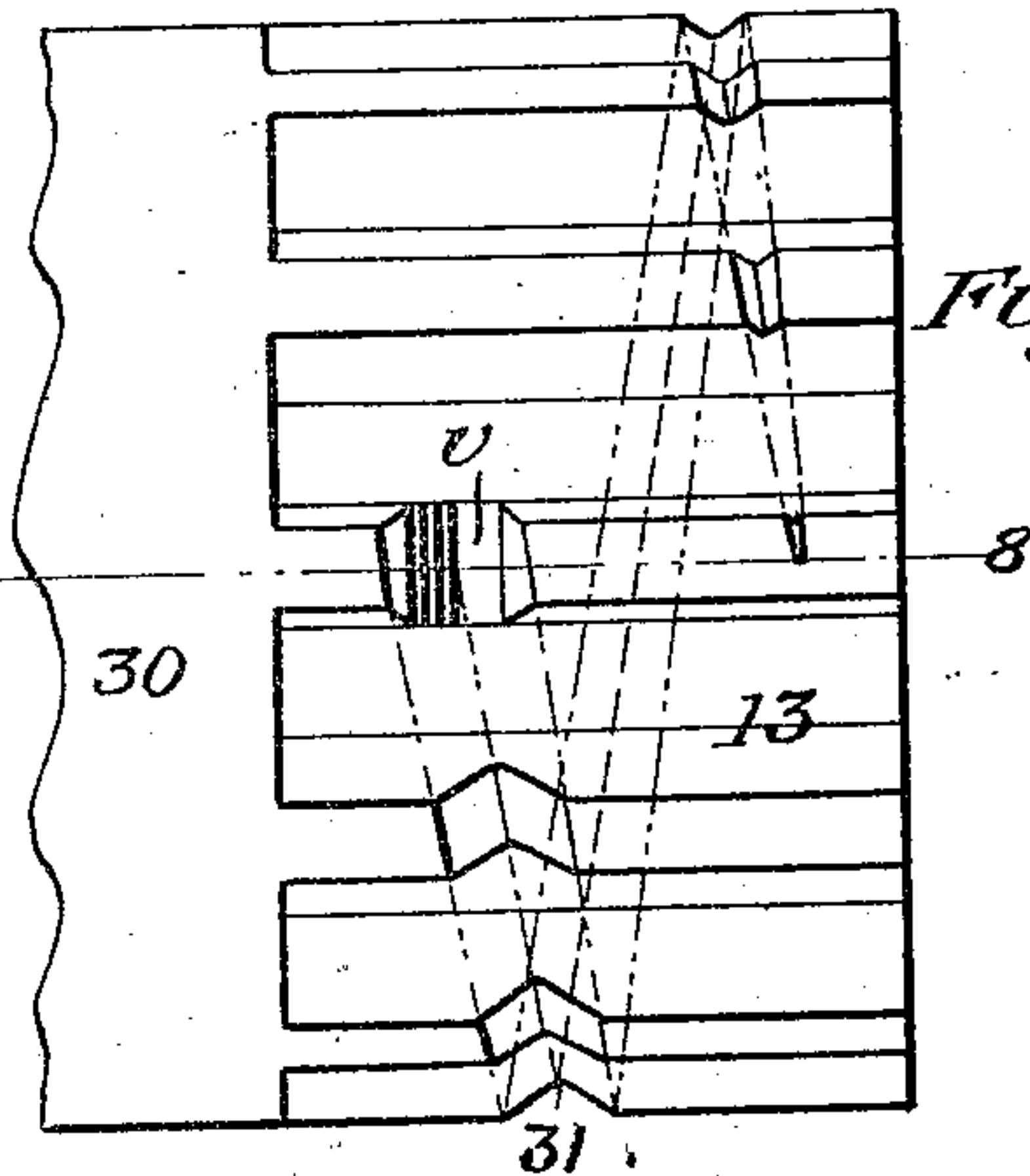


Fig. 8.

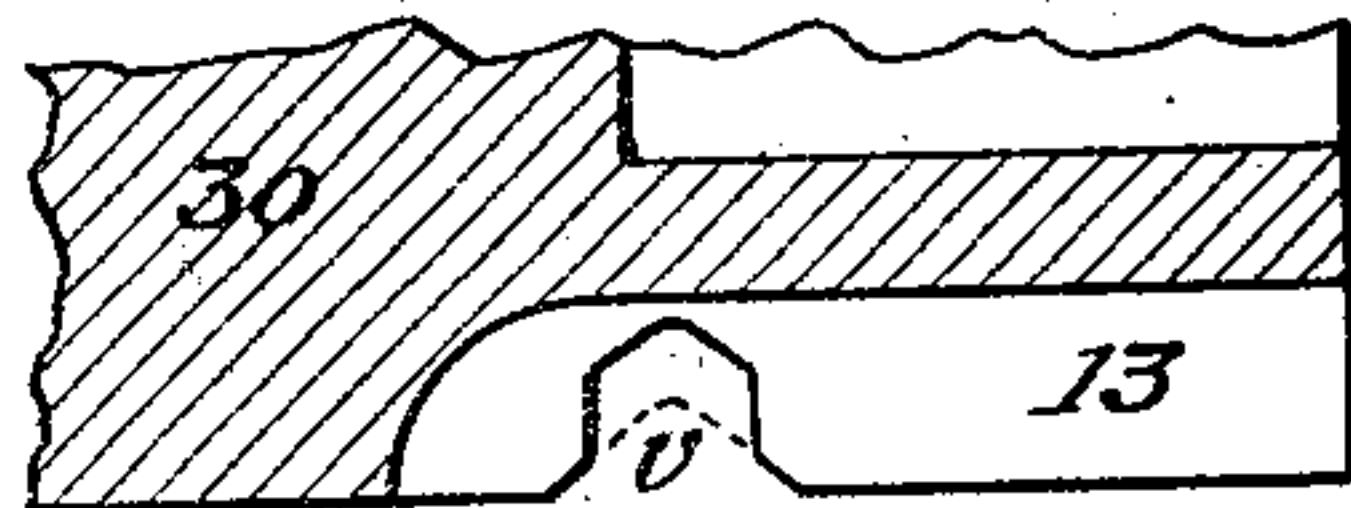


Fig. 9.

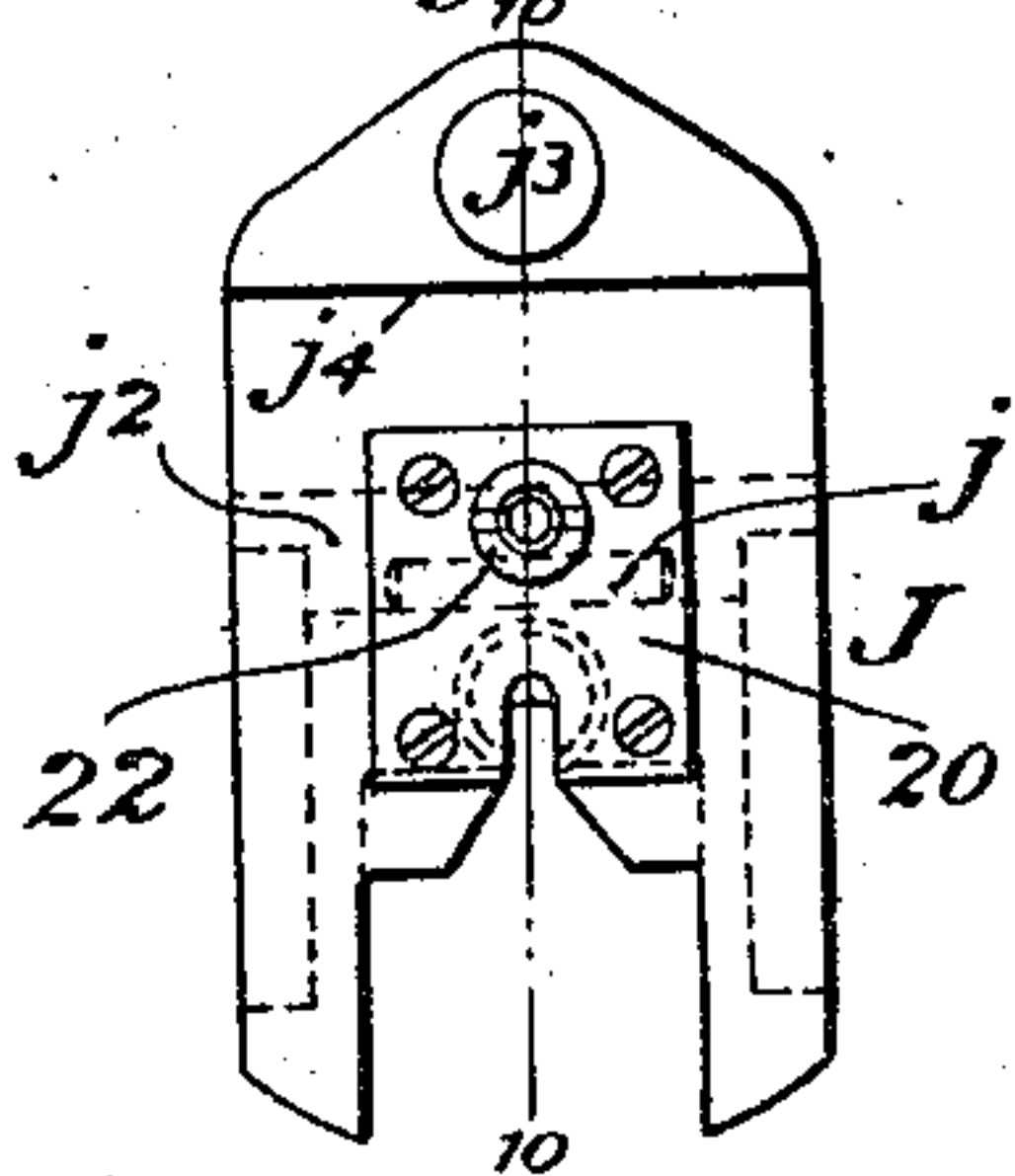


Fig. 10.

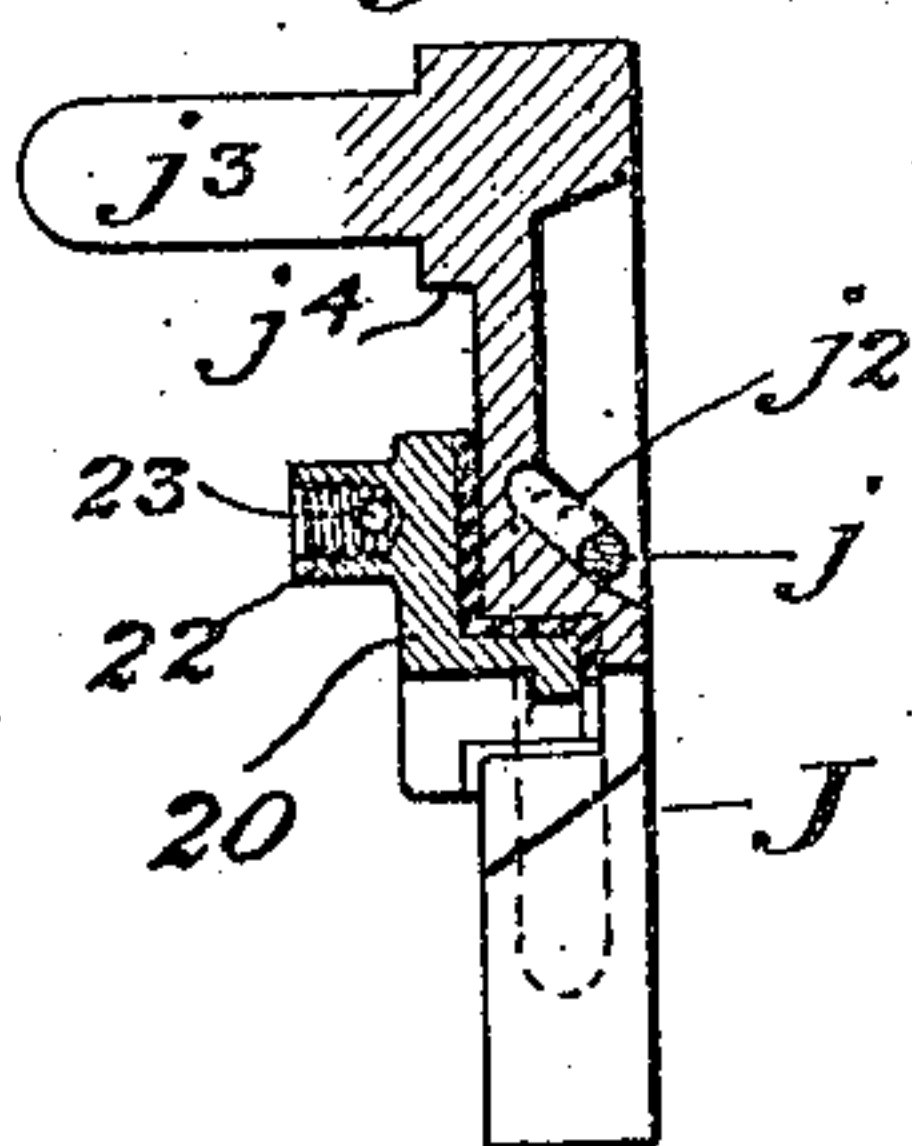


Fig. 11.

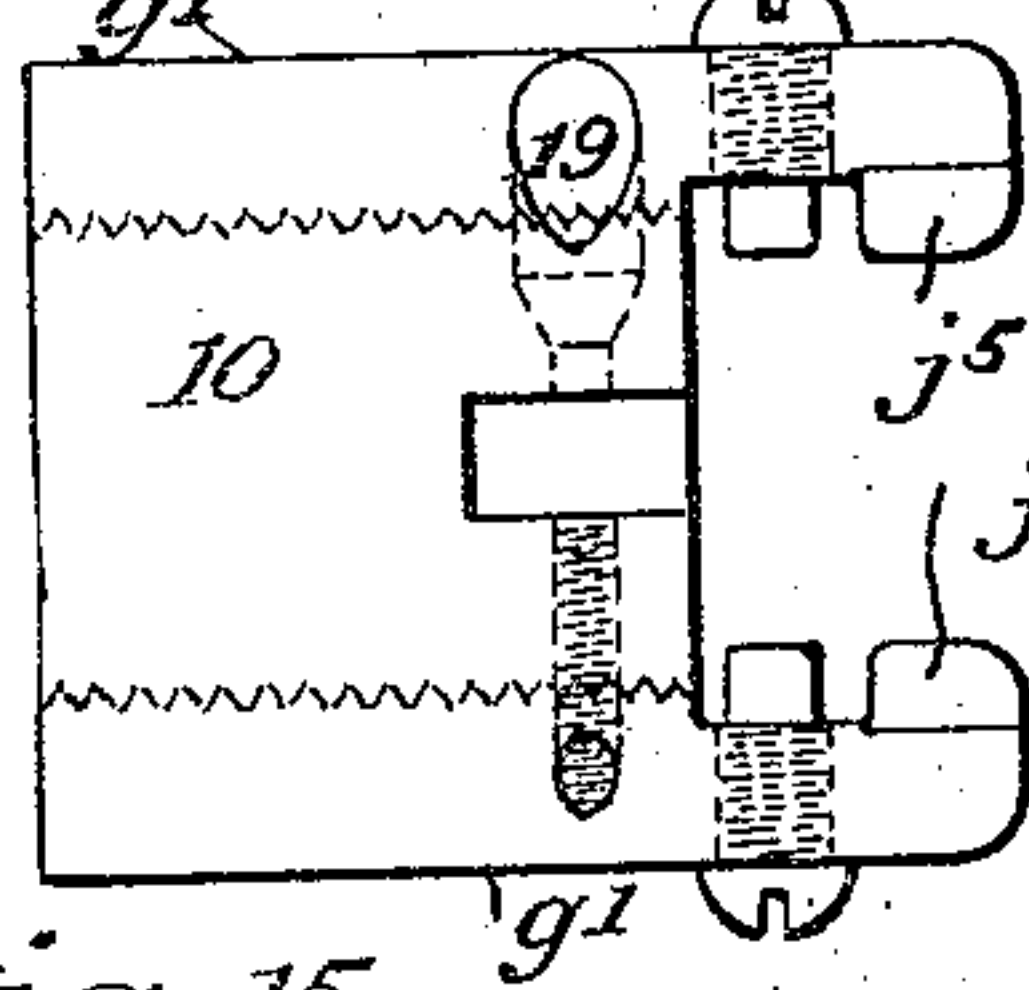


Fig. 12.

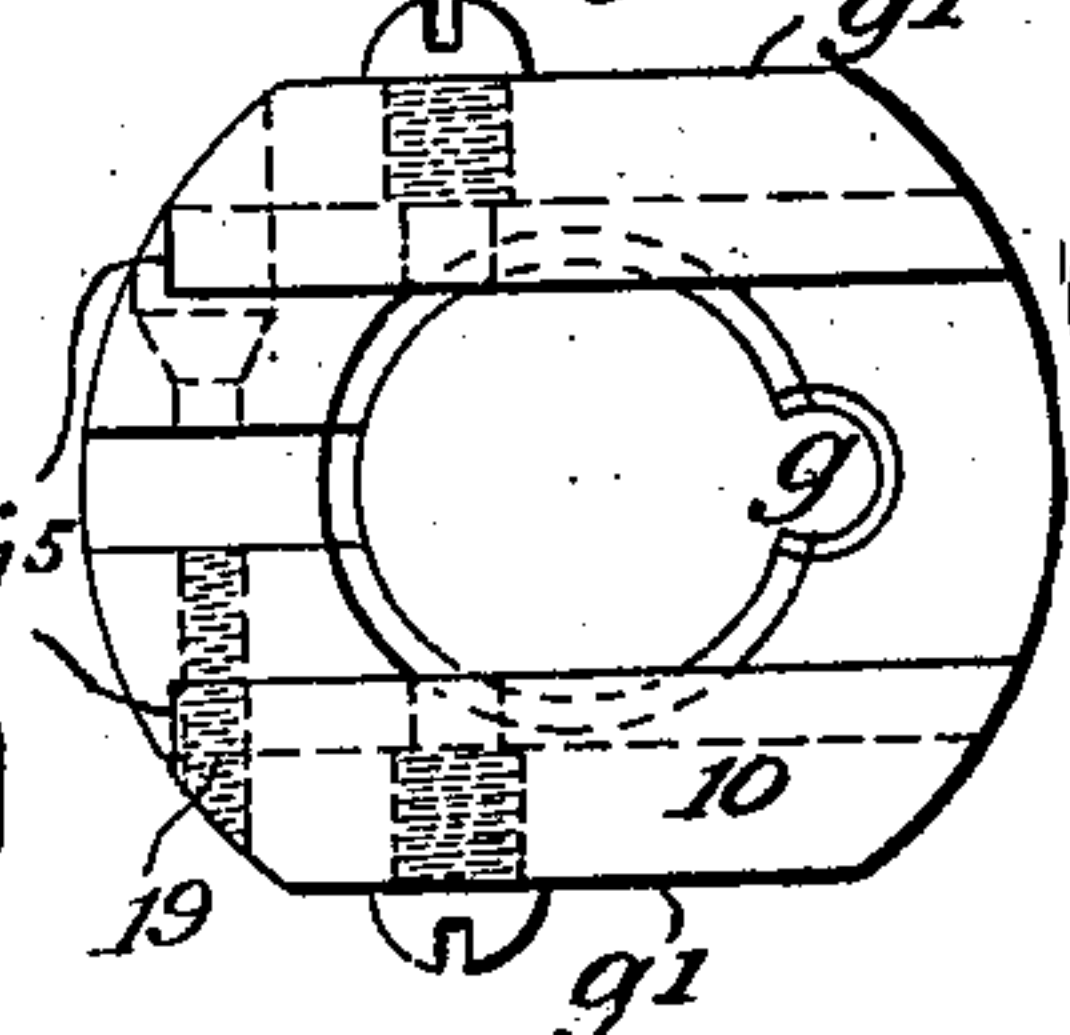


Fig. 13.

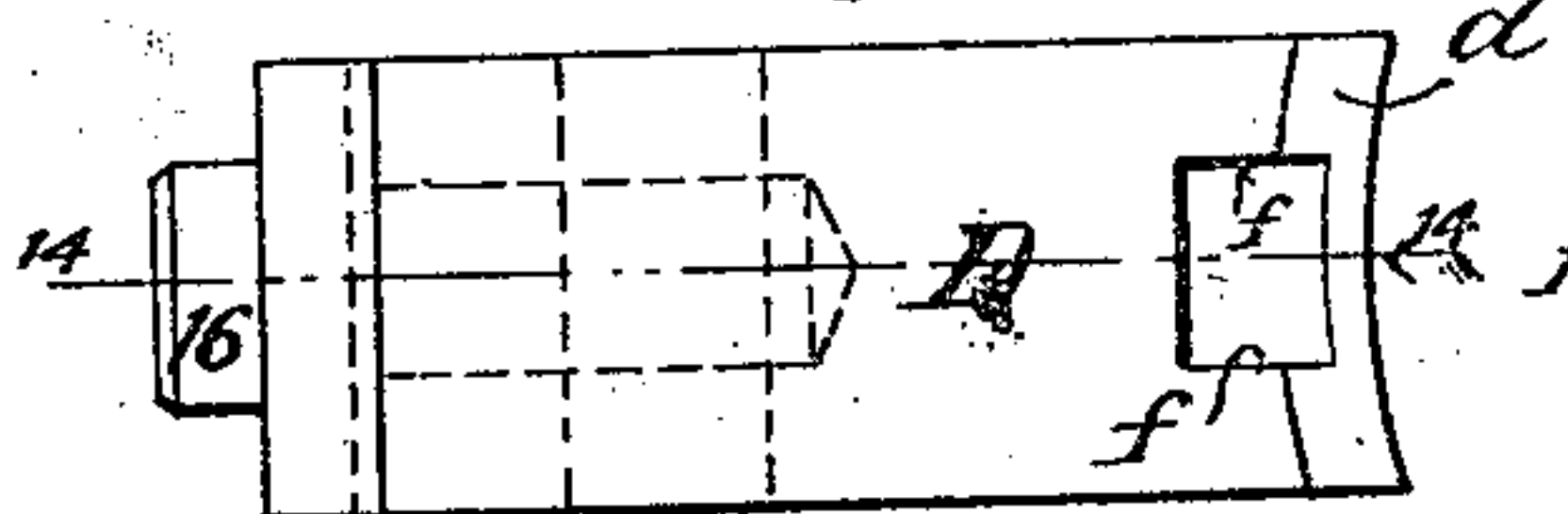


Fig. 15.

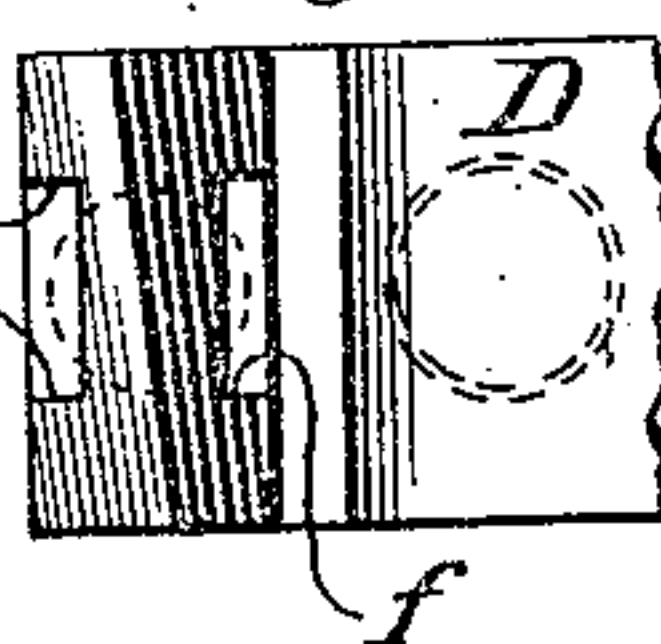


Fig. 16.

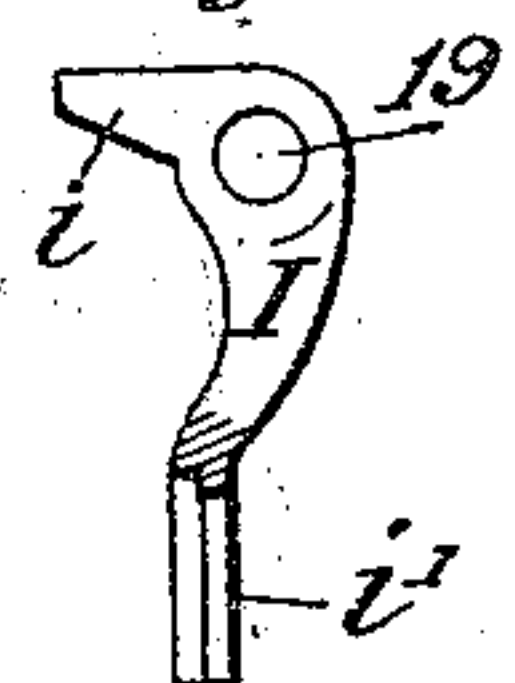


Fig. 17.

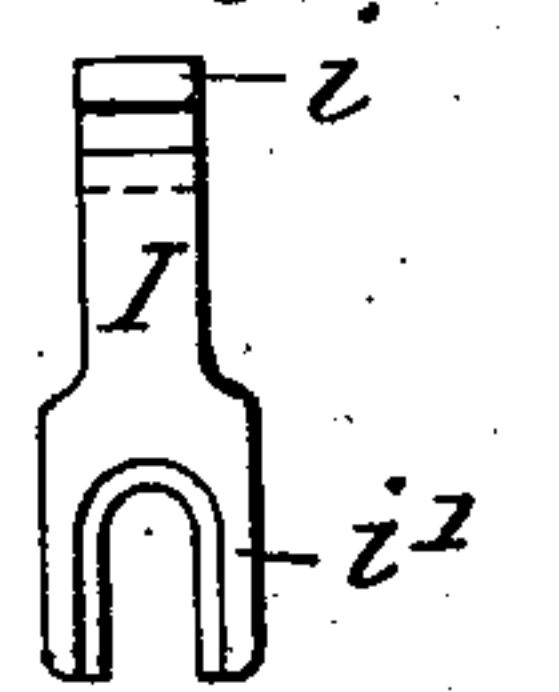
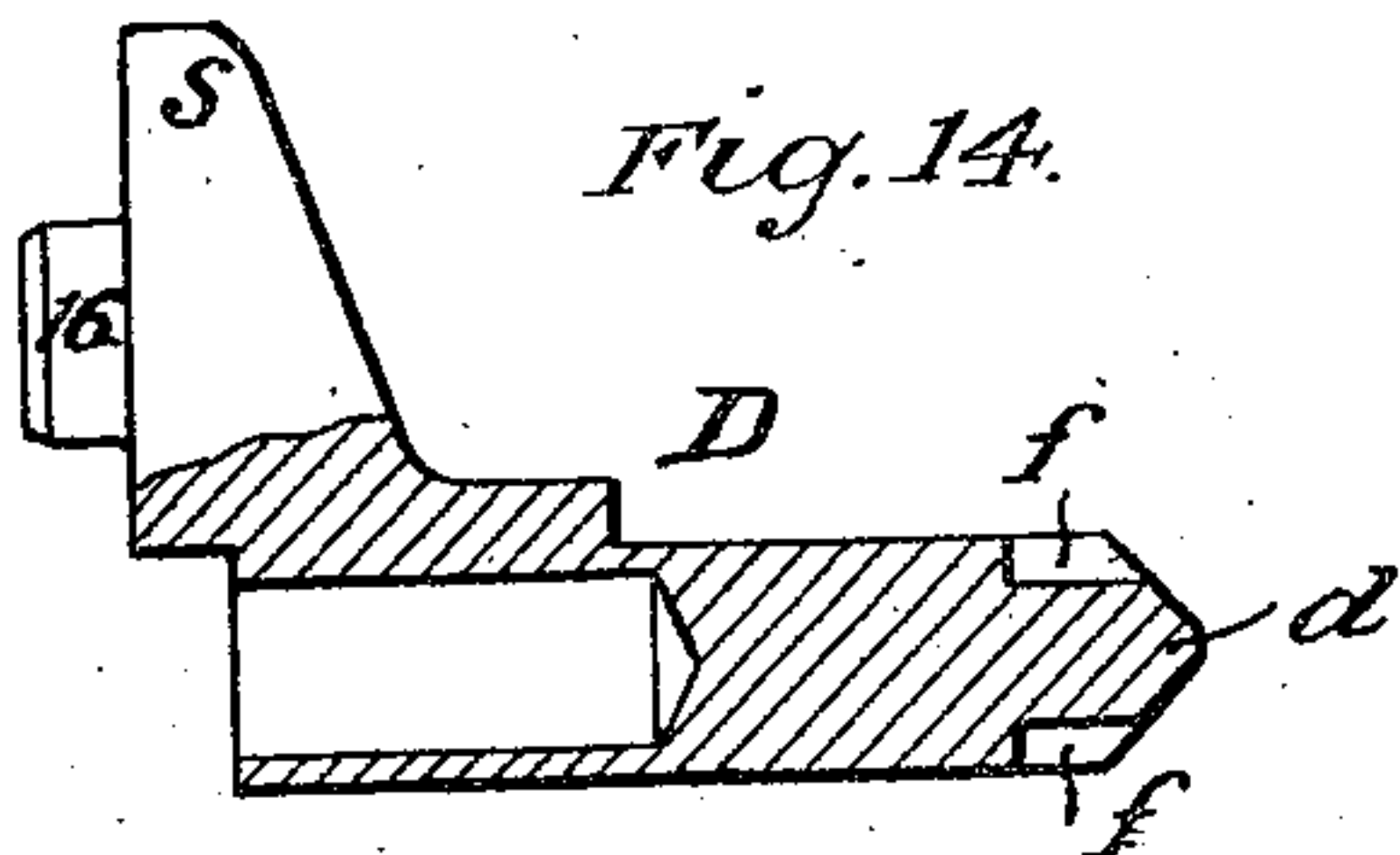


Fig. 14.



Witnesses:

*A. M. Gillman, Jr.*  
*L. A. Higgins*

Inventor:

*John W. Stockett*  
*Lawrence Higgins*  
Attorneys.



# UNITED STATES PATENT OFFICE.

JOHN W. STOCKETT, OF WASHINGTON, DISTRICT OF COLUMBIA.

## BREECH-LOADING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 705,157, dated July 22, 1902.

Application filed October 20, 1900. Serial No. 33,761. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. STOCKETT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Breech-Loading Ordnance, of which the following is a specification.

My invention relates to that class of breech mechanism of breech-loading ordnance in which is employed a continuously-threaded tapered breech-plug, the object being to provide improved means whereby the breech-plug is positively locked to its hinged carrier when the plug is to be withdrawn from the breech, whereby the carrier is locked to the breech when the plug is in place, and whereby to insure the proper relations of the parts before the carrier can be locked to the breech, and to provide means for retaining and ejecting the primer, as well as means for locking the spindle to prevent its rotation, while permitting it to have longitudinal motion through the plug; and to these ends my invention consists in the various features of construction and arrangement of parts having the mode of operation substantially as hereinafter set forth.

In the accompanying drawings a preferred embodiment of my invention is shown, in which—

Figure 1 is a sectional plan of the breech of a gun with my improved breech mechanism. Fig. 2 is a rear view of the breech, showing said mechanism. Fig. 3 is a longitudinal vertical section. Fig. 4 is rear view of a cap-plate. Fig. 5 is a transverse section of the said plate. Fig. 6 is an enlarged rear view of the toothed projection of the breech-plug. Fig. 7 is a side view of the same. Fig. 8 is a section on the line 8-8 of Figs. 6 and 7. Fig. 9 is an enlarged rear view of the slide for retaining the primer and operating the ejector. Fig. 10 is a vertical section on the line 10 of Fig. 9. Fig. 11 is a plan of the head constituting a slide-holder. Fig. 12 is an end view of Fig. 11. Fig. 13 is an enlarged face view of the latch-bolt. Fig. 14 is a section on the line 14, Fig. 13. Fig. 15 is an end view of Fig. 13 looking in the direction of the arrow. Fig. 16 is a side view of the ejector, and Fig. 17 is a face view of the ejector.

The breech A of the gun is provided with a tapering socket flaring toward the rear and communicating with the bore and is screw-threaded, and to this socket is adapted a continuously-threaded breech-plug B, which is supported by a hinged carrier C, pivoted to the breech by a pin 1. In order to reduce the time required for withdrawing the screw-plug by rotation, I provide it with a plurality of threads. It will be seen that the breech-plug B and operating-handle L are provided with a pinion 12 and gear 13, permitting the breech-plug to be rotated more than a complete turn, so that it is practicable to make the breech-plug with a less taper than is required when it must be disengaged by a partial turn, and thus a better thread bearing is secured, and the pinion may be proportioned to reduce the labor of disengaging the plug. As the plug must travel longitudinally, the gear 13 on the same is elongated. The screw-plug has a central longitudinal opening, in which is placed a spindle 2, carrying a gas-check M on its inner end and having a firing-opening 3, and it is provided with means for locking it to the carrier, so as to prevent its rotating. The particular means for locking it to the carrier will be hereinafter described, and, as shown in the present instance, it embodies the cap-plate K and co-operating parts. The plug is also so constructed and arranged that it is mounted on the carrier, and the carrier practically supports the plug in such a way that it may rotate and move longitudinally with relation to the carrier, and at the same time it rotates around or about the spindle 2, although it is not supported by the spindle. The advantage of this construction is apparent to those skilled in the art, as it is well known that the gas-check is apt to stick in the breech after the gun is fired and that it requires relatively great power to start the gas-check from its firing position. In my construction the breech-block can rotate about or around the spindle, and as it is being rotated for unlocking it tends to draw the gas-check directly and longitudinally out of its seat in the breech without rotating the gas-check, and thus there is exerted a direct longitudinal pull on the gas-check sufficient to free the gas-check from its seat, due to the lead of the thread.



At the rear of the screw-plug B is a projection 30, channeled at the periphery to form a toothed wheel or gear 13, which extends into an opening in the carrier C, which opening is surrounded by an annular flange 14, extending into an annular recess  $\gamma$  in the rear of the plug. The plug thus turns on and is guided by the said flange 14 and is maintained in its axial position while it is permitted to slide back and forth within the opening in the carrier, and the toothed wheel 13 engages the pinion 12 upon a driving-shaft to which is connected the operating-handle L. The carrier is provided with a locking-bolt D, so supported as to move radially, the end 16 thereof entering a recess  $w$  in a part of the breech. This part may be integral with the breech or, as shown, may be a stud 17, secured to the breech. A spring 18 tends to carry the bolt inward, to cause its inner end to bear upon the face of the teeth of the gear 13, which are cut on the projecting portion 30 of the screw-plug, and also to cause the inner end of the lock-bolt to enter its locking recess  $v$  in the breech-plug. This projecting portion 30 of the plug is provided with a spiral cam-face 31, which when the plug is turned bears on the bolt D. This spiral cam-face may be in any suitable position upon the periphery of the plug, but, as shown, is formed by cutting a spiral groove, preferably of gradually-increasing depth toward the forward end, across the faces of the teeth of the wheel 13, the end  $d$  of the bolt being of such width that it cannot enter between the teeth during the rotation of the plug. When the parts are in the positions shown in Fig. 1, the locking-bolt D will bear against that part of the cam-surface which is farthest from the axis of the screw-plug, and when the plug is turned to withdraw it from its socket in the breech, carrying the toothed wheel 13 outward into the recess in the carrier C, the end of the bolt will gradually traverse the face of the cam as it spirally approaches the axis of the screw-plug, and the outer end 16 of the bolt will gradually be drawn out from the recess  $w$  by the action of its spring 18, and when in this position the inner end of the bolt is opposite a deep socket or locking-recess  $v$  at the inner end of the spiral cam 31. As the carrier is swung clear of the breech the inner end of the bolt will pass into the socket  $v$  as the faces  $s$   $t$  pass from contact. The plug is thus locked to the carrier. The socket  $v$ , Figs. 7 and 8, is cut into one of the cog-teeth of the toothed wheel 13 deeper than the groove, and the bolt is reduced in thickness at the central portion of its inner end, so as to form lateral faces  $f$   $f$ , which straddle or fit over the working curved faces of the teeth of the wheel 13, thus preventing any further rotation of the breech-plug. As the breech-plug is carried toward the breech in closing a bevel  $s$  on the bolt D makes contact with a beveled face  $t$  on the breech, and the bolt D is thereby carried out

of the socket  $v$ , and the outer end enters the recess  $w$  and locks the carrier to the breech. The plug can now be turned; but the inner end of the bolt remains in the groove, so that the latter by its screw-like action serves by engaging with the bolt to feed the plug forward in such time and movement that its threads will engage properly with those of the breech. As shown, when the groove is of gradually-decreasing depth the bolt is gradually forced out of the grooves, and its position in the recess  $w$  is insured; but this is not absolutely essential.

When the parts are in their locked position, the handle L is in the relative position shown in Figs. 1 and 2—that is, extending laterally toward the hinge  $l$  of the carrier. By the peculiar construction and arrangement of the teeth on the plug and the pinion turning on a bearing in the carrier engaging the teeth on the plug and having the parts so arranged that the pinion or handle will rotate more than a complete rotation, preferably a turn and a half to completely lock or disengage the breech-plug, then the handle will be in a position practically diametrically opposite the position shown in Fig. 2, and thus be in a position to get the greatest leverage to turn the carrier C on its hinge  $l$ . To aid in retaining the parts while the carrier is being swung upon its hinge, I provide means for locking the handle in this position, the means in the present instance being the latch-bolt D, engaging a recess  $v$  at the end of the spiral cam 31 on the projecting end of the breech-plug, and it will be seen that by the construction above described when the breech-plug is withdrawn to its utmost limit in the carrier C the pin D will enter the recess and positively lock the breech-plug, the pinion, operating-handle, and block-carrier in the position above indicated and retains them there while the carrier swings outward or inward to open or close the breech mechanism.

The rear end of the firing-opening 3 in the spindle 2 is enlarged to receive a primer Y, and about the enlarged end of this opening is fitted the forked end  $i'$  of an ejector-lever I, pivoted at 19 to the head 10, the spindle and head being prevented from turning, as set forth hereinafter. A slide J is movably fitted in guides at the outer end of the head 10 and is provided with a loose pin or ball  $j$ , fitted into an inclined slot or recess  $j^2$ , which is so arranged that when the slide is lifted by its handle  $j^3$  this loose pin or ball will strike the projecting end  $i$  of the ejector-lever and swing the latter upon its pivot and throw out the primer. By continuing the upward motion of the slide until the loose pin or ball has passed beyond the end  $i$  of the ejector-lever the latter will then drop back to its original position and permit of the insertion of a new primer without having to lower the slide J, which would interfere with the ready insertion of a new primer. Then after the



new primer has been inserted, the slide being in its raised position, the loose pin or ball will be over the top of the projection *i* of the ejector-lever. Then by forcing the slide down to cover the primer and hold the same in place for firing the loose pin or ball will be forced upward and outward in the oblique slot until it has passed beyond the end *i* of the ejector-lever. Then continuing the downward movement the loose pin or ball will pass by the end *i* of the ejector-lever and naturally fall to its lower position in the oblique slot in the slide, ready for another ejection. When the slide is depressed, a shoulder *j*<sup>4</sup> rests on the flattened surfaces *j*<sup>3</sup> of the head 10, which acts as a stop to hold it in place and in such a position as to securely hold the primer in place and prevent the dislodgment of the latter until the firing is effected. This firing may be effected by pulling the friction-wire of the primer or by means of an electric current, and to facilitate the use of the latter the slide is provided with a properly-insulated plate 20, having a binding-post 22 to receive the end of the electrical conductor 23, it being understood that some other part of the gun is connected to another conductor leading to the electric generator.

The spindle 2 of the breech-plug and gas-check, with the head 10, may be prevented from turning by providing said head 10 with a spline-screw *g* and with flat side faces *g'* *g'*, bearing against flat bearings supported by the carrier C. Such bearings are best afforded by the inner edges *g*<sup>2</sup> *g*<sup>2</sup> of an opening *z* in a cap-plate K, bolted to the rear face of the carrier C, the head 10 projecting through the opening *z*, as shown, and the cap-plate being cut away at the lower edge to receive the boss, through which extends the shaft of the pinion 12, connected with the operating-handle L. This cap-plate not only serves to prevent the head and parts connected therewith from turning, but serves as a cap to exclude dirt or other substances from getting into the gear-teeth or other parts of the mechanism.

What I claim is—

1. The combination with a threaded breech, of a plug-carrier, a breech-plug having a continuous thread and supported to rotate and move longitudinally on the carrier and having a peripheral spiral cam of varying depth, a radially-moving bolt on the carrier to lock the carrier to the breech and to engage said cam whereby the bolt is gradually released as the plug is rotated to withdraw it from the breech and in closing the plug is fed forward by the bolt engaging the cam before the plug-threads engage those of the breech, and means for rotating the plug on the carrier, substantially as described.

2. The combination with a threaded breech, of a plug-carrier, a threaded breech-plug supported to rotate and move longitudinally on the carrier and having a spiral cam of varying depth and a locking-recess in said cam,

a bolt on the carrier to engage said cam and locking-recess, and means for moving the plug on the carrier, substantially as described. 70

3. The combination with a threaded breech having a bolt-tripping recess provided with a bevel *t*, of a plug-carrier, a threaded breech-plug supported to rotate and move longitudinally on the carrier and having a spiral cam and a locking-recess, a bolt on the carrier, one end of which is provided with a bevel, adapted to engage the recess in the breech, and the inner end of the bolt adapted to engage said spiral cam and recess on the plug, and means for moving the plug on the carrier, substantially as described. 75

4. The combination with a threaded breech, of a plug-carrier, a threaded breech-plug supported to rotate and move longitudinally on the carrier and provided with teeth and having a spiral cam formed on the said teeth, a bolt on the carrier to engage said spiral cam, and a pinion mounted on the carrier engaging the teeth on the plug and provided with an operating-handle, substantially as described. 80

5. The combination with a threaded breech having a bolt-recess, of a swinging plug-carrier having an opening to receive the plug, a threaded breech-plug having a spiral cam terminating in a socket and supported to rotate and move longitudinally in the opening of the carrier, a movable bolt on the carrier, a spring on the bolt to cause one end to engage the cam and socket of the plug, an inclined face on the breech to release the bolt from the socket in the plug, and means for turning the plug, substantially as described. 85

6. The combination with a threaded breech, of a swinging breech-plug carrier, a threaded breech-plug mounted to rotate and move longitudinally on the carrier, teeth on the plug, a pinion turning on a bearing on the carrier and engaging the teeth on the plug, a handle swinging with the carrier for operating the pinion, means for locking the breech-plug and the carrier when the plug has completed its longitudinal movement in the carrier after the plug has been disengaged from the threads of the breech and for locking the handle in a position to exert the greatest leverage to turn the carrier on its hinge, substantially as described. 90

7. The combination with a threaded breech, of a threaded breech-plug, a plug-carrier, means for rotating and moving the plug longitudinally in the carrier, a spindle extending through the plug about which the plug can rotate, means for preventing the spindle from rotating, and a gas-check mounted on the inner end of the spindle, substantially as described. 95

8. The combination with a threaded breech, of a plug-carrier, a threaded breech-plug carried thereby and provided with a cylindrical toothed projection at its rear and having a spiral cam-groove of gradually-increasing depth in the teeth of said projection, and a locking-bolt mounted on the carrier and en- 100



gaging said cam-groove, substantially as described.

9. The combination with a threaded breech, of a plug-carrier, a threaded breech-plug, a spindle about which the breech-plug revolves, having a firing-opening and provided with a head having flattened sides, a slide mounted on said head, and a cap-piece mounted on the carrier and provided with an opening engaging the flattened sides of the head whereby the spindle is prevented from turning when the plug is turned, substantially as described.

10. The combination with a threaded breech, of a plug-carrier, a threaded breech-plug, a spindle about which the breech-plug

revolves having a head, a slide radially movable in said head, an ejector mounted on said head, a loose pin carried by said slide and engaging said ejector, and a cap-piece mounted on the carrier and adapted to prevent the spindle and attachments from turning while the plug is turned, substantially as described.

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

JOHN W. STOCKETT.

Witnesses:

F. L. FREEMAN,

W. CLARENCE DUVALL.