

(No Model.)

W. H. DAVENPORT.
EXTRACTOR AND EJECTOR FOR BREAKDOWN GUNS.

No. 565,606.

Patented Aug. 11, 1896.

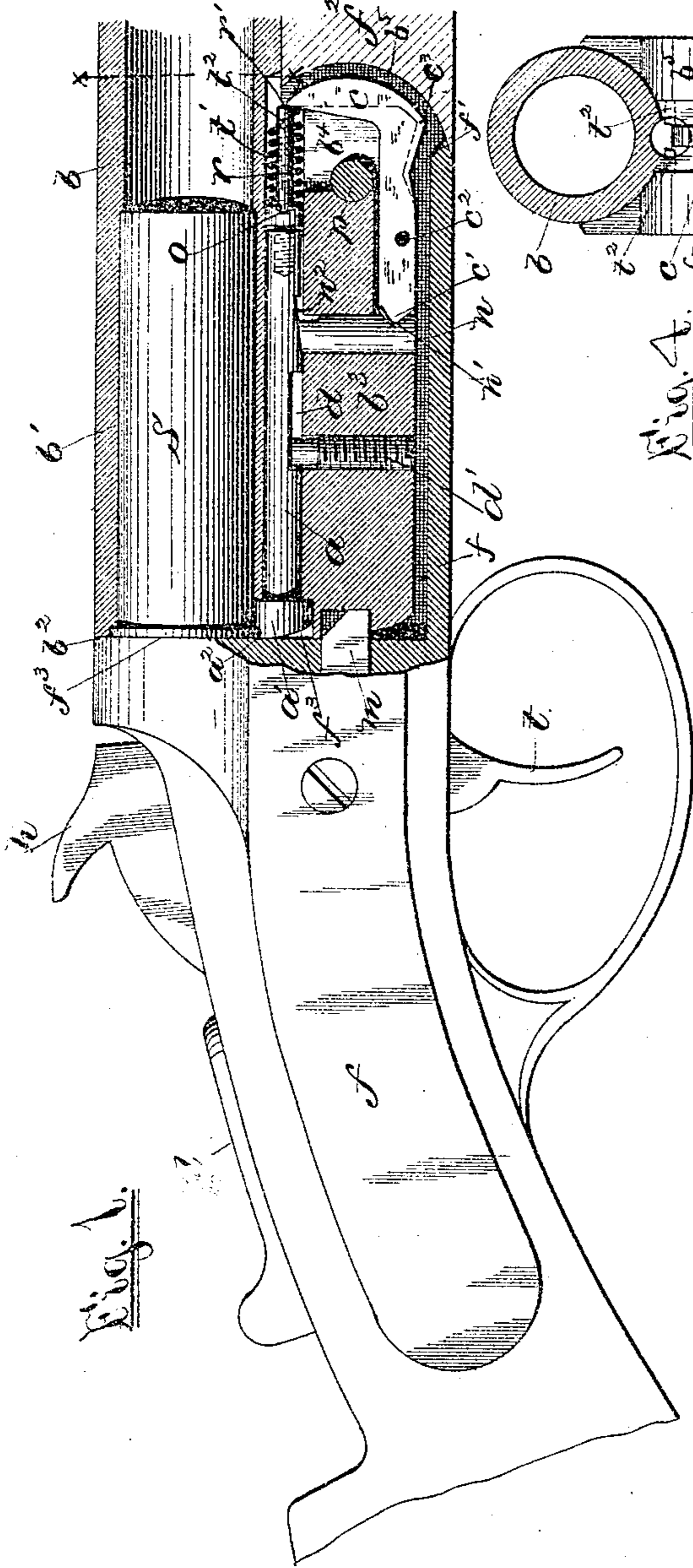


Fig. 1.

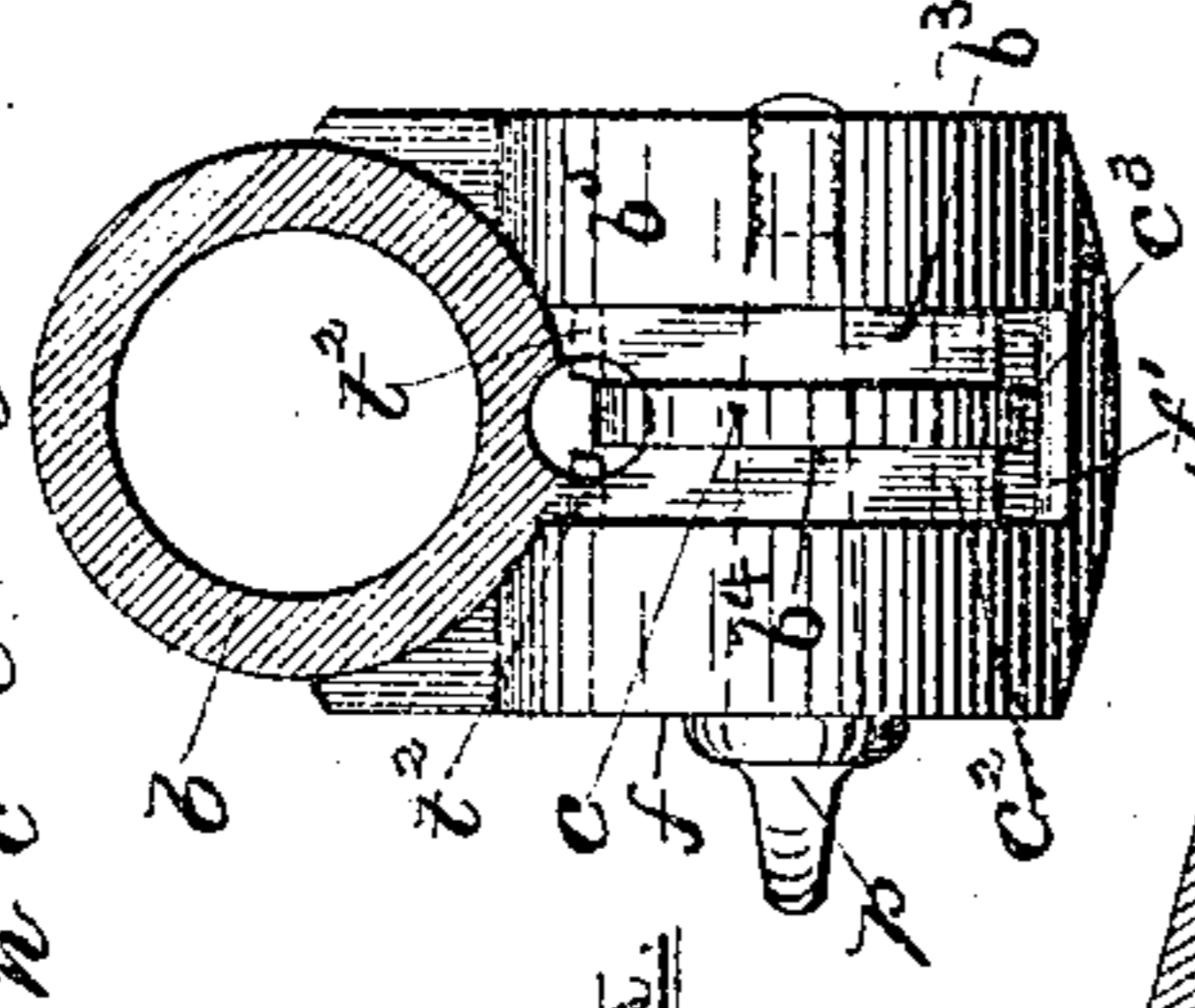


Fig. 4.

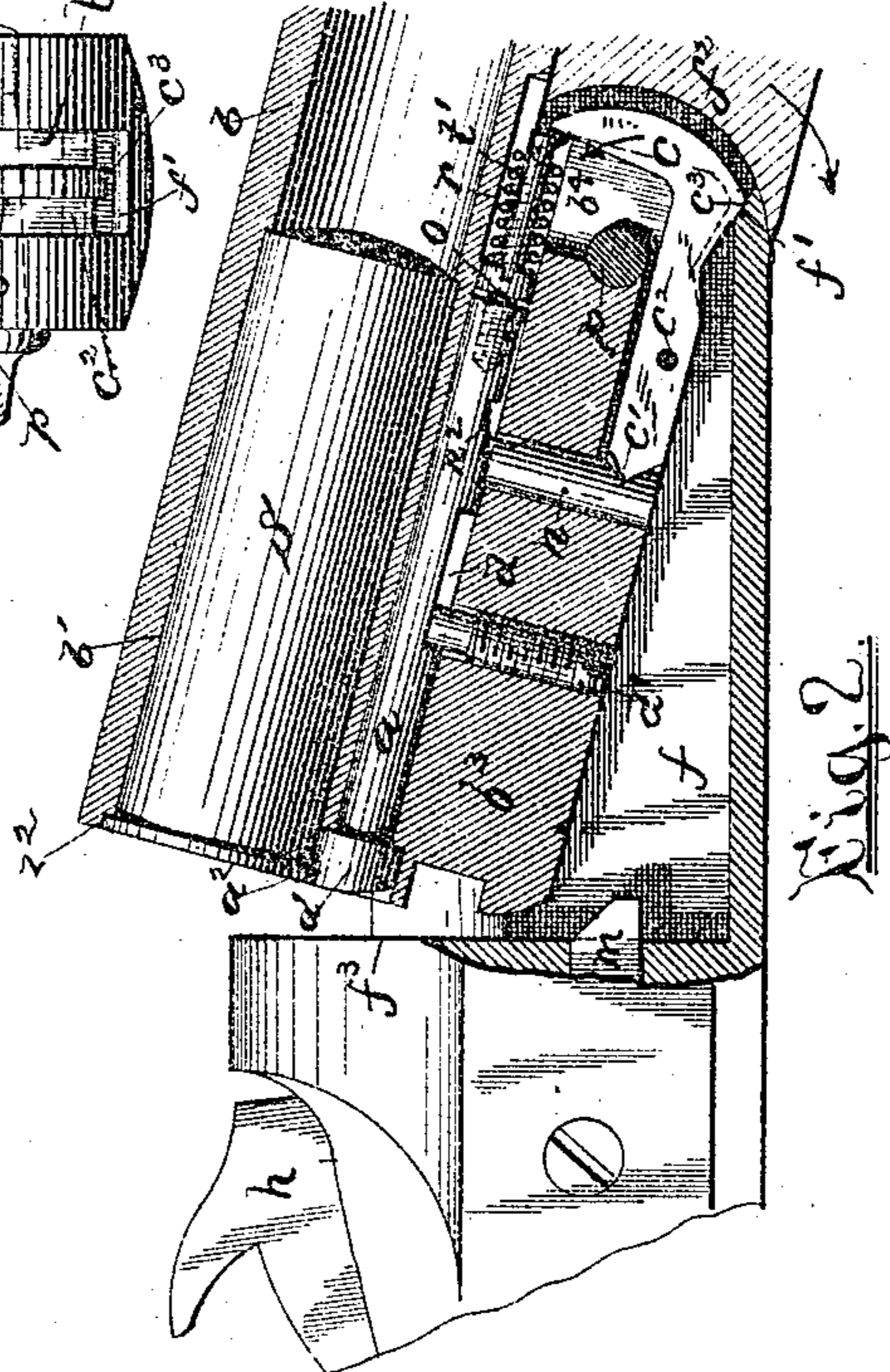


Fig. 2.

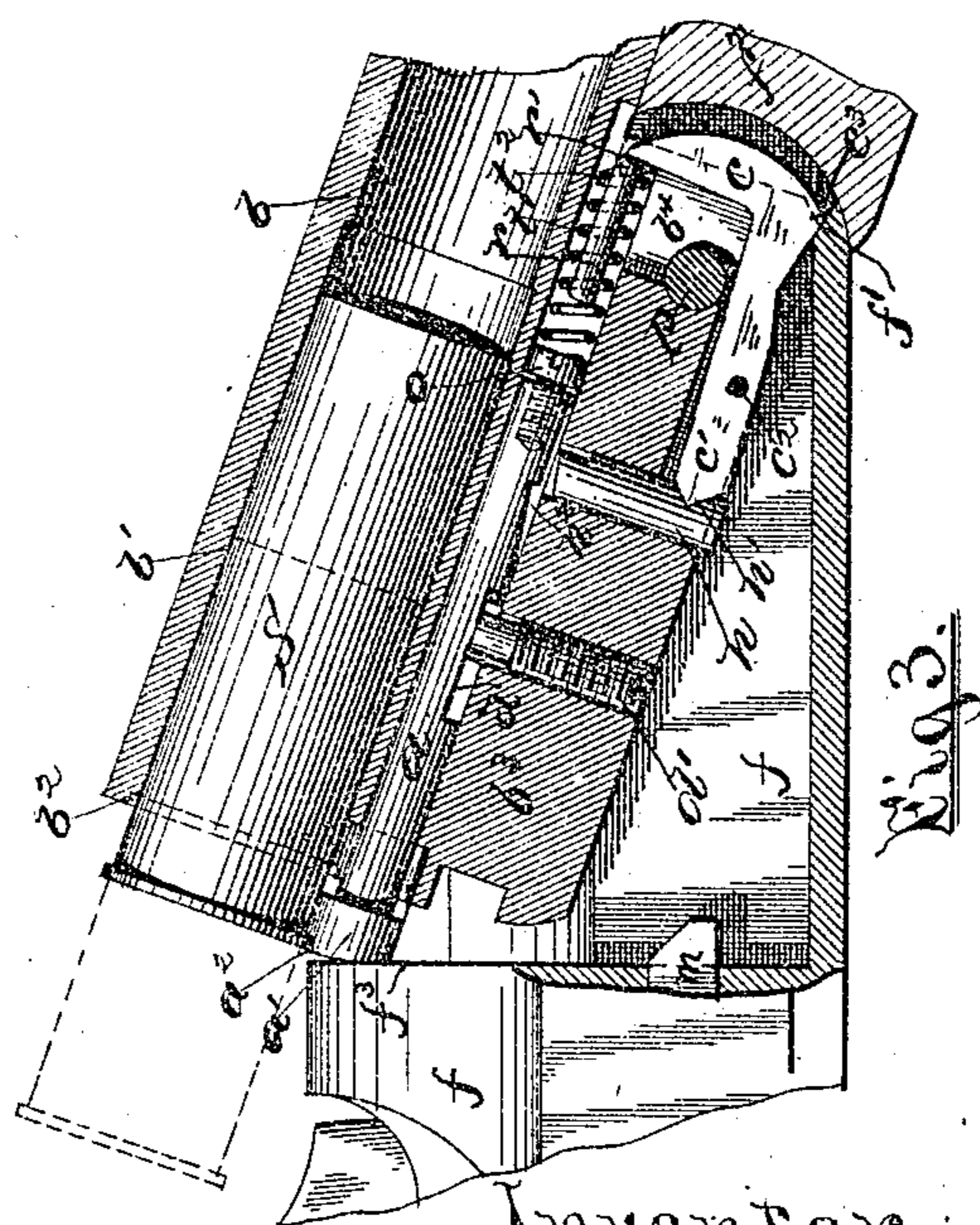


Fig. 3.

Witnesses.

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EXTRACTOR AND EJECTOR FOR BREAKDOWN GUNS.

SPECIFICATION forming part of Letters Patent No. 565,606, dated August 11, 1896.

Application filed December 7, 1895. Serial No. 571,375. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DAVENPORT, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in a Combined Shell Extractor and Ejector for Breakdown Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to "shell-ejectors," so called, for breakdown guns or firearms; and it consists, essentially, of a device combining an adjustable spring-resisted extractor-rod, a locking-pin, and a lever connected with it and said rod, whereby the first part of the movement, as in opening the gun, operates to positively force or extract the adhering shell from its seat, such movement being practically simultaneous with a complete withdrawal of the locking-pin from the rod, thereby allowing the force or resiliency of the spring to then fully eject the cartridge-shell from the barrel, all as will be more fully hereinafter set forth and claimed.

In a patent of the United States, No. 526,690, issued to me as assignee October 2, 1894, is shown and described a shell-ejector for breakdown guns. In that device, however, the construction was such that the shell was at times liable to stick or adhere snugly to the barrel, or, in other words, it was possible that the force of the spring would not in all cases extract and eject the shell. Consequently the device was not strictly positive or reliable in its action, since the spring itself was the only shell-moving means employed. In the said device a locking-pin was also employed, but all the force or power available to move the shell from the barrel-seat was that residing in the spring, as just stated. In my present invention a marked difference in the construction and arrangement over said patented device resides in the fact that the shell, in case it tightly adheres to the barrel, is positively extracted or started from its seat irrespective of the spring force, the latter in such case being

utilized simply for completing the operation, *i. e.*, ejecting the shell from the barrel, although the spring is capable of extracting the shell in case the latter does not stick in the barrel. I may state here the distinction between the terms "extractor" and "ejector" as generally used. In the former the devices employed simply force the shell rearwardly from the barrel a predetermined or fixed distance, while in the latter type of devices the shell is, or may be, thrown entirely out of the barrel.

In the accompanying drawings, Figure 1 is a side elevation, in partial central section, of a breakdown gun provided with my improvement, the several parts being represented in the normal position. Fig. 2 is a similar view, the barrel being partly tilted and showing a shell snugly adhering to the barrel, the extracting-lever of the device being in the act of forcing the shell rearwardly. Fig. 3 is a similar view showing the barrel fully tilted or dropped, the locking-pin withdrawn, the shell having been extracted by means of the lever, and the force of the spring operating to eject the shell entirely from the barrel, as shown by dotted lines; and Fig. 4 is a transverse sectional view of the barrel, taken on line *x x* of Fig. 1, showing the forward end of the gun-frame and the parts mounted therein.

My improvement like many others of this class is well adapted to be used in breakdown shotguns provided with any well-known locking and firing mechanisms, and I make no claim herewith to such instrumentalities.

In the drawings, *b* indicates the usual barrel member provided on its underside with a lug *b¹*; *f*, the frame secured to the breech-stock; *h*, the hammer; *t*, the trigger; *l*, the top-snap-lever, through which the locking-bolt *m* is operated; *p*, a removable pin or screw-key passing through the forward part of the frame and barrel-lug and forming a pivot on which the barrel may be tilted, and *f²* the fore-wood secured to the barrel and fitted to the semicircular end *b⁵* of the frame.

The forward portion *b⁴* of the barrel-lug *b³* is slotted to receive the combined tripping and forcing or extracting lever *c*. Said lever is provided with two arms arranged at substantially right angles to each other. The longer of said arms extends longitudinally of

the lug and is V-shaped at its free end, as at c' , and is seated in a correspondingly-shaped notch n' , formed in the lower part of the vertically-movable locking-pin n , also mounted 5 in said lug. The other arm of lever c extends vertically and is adapted to frictionally contact with the free end of a pin or extension r of the extractor-rod a . The heel or knee portion c^3 of the lever is adapted to 10 swing below the barrel-lug, so that when the barrel is being tilted from the normal position it will engage the adjacent surface f' of the frame. The lever is mounted to swing on a pivot-pin c^2 , fixed in the lug and located 15 about midway between said knee c^3 and point c' .

The barrel at its junction with the lug b^3 is drilled longitudinally to receive the extractor-rod a . The latter, as drawn, is not 20 of uniform diameter throughout its length, the forward portion r being somewhat smaller and screwed into the rod, as shown at o , Figs. 1 and 2. If desired, said part r may be simply a loose piece of steel interposed between 25 and in contact with the screw-head o and the rear face of the upright arm of lever c . A spiral spring t' surrounds the small rod r , a fixed pin or stop t^2 , Fig. 4, serving as an abutment for the forward end of the spring. 30 Thus it will be apparent that the expansive force of the spring acts to press the extractor-rod rearwardly.

The extractor member a is round and is provided with an enlarged head a' at its rear 35 end, the latter being seated in a correspondingly-shaped recess formed in the barrel and lug. The upper side of head a' is cut away, as at a^2 , the same being a continuation of the counterbore b^2 , formed in the end of the 40 barrel for the reception of the shell's rim, as clearly shown. The under side of the extractor a is provided with an elongated notch n^2 , capable of receiving the beveled upper end of the said locking-pin n . It is also provided with a slot d , into which the upper end 45 of the screw-pin d' enters. This latter serves to prevent the extractor from turning axially as well as to arrest and limit its rearward movement.

From the foregoing description it will be 50 apparent that after withdrawing the bolt m , through the medium of the top snap-lever l , the initial part of the act of tilting or dropping the barrel, as in opening the gun, will 55 cause the heel c^3 of the lever to contact with the suitably-shaped surface f' of the frame, thereby at the same time swinging the vertical arm of the lever both upwardly and rearwardly and thus positively forcing the extractor rearwardly from its seat, or, in other 60 words, Fig. 2 shows the relation of the parts upon an adhering shell at the instant the heel of the lever contacts with the frame. The continued movement of the barrel to the position shown in Fig. 3 withdraws the locking-pin n from the notch n^2 , and at the same time 65 forces the shell from its seat, so that the ex-

tractor when thus released or freed is capable of being acted upon by the spring t' , which latter in turn operates to forcibly move the 70 extractor-rod to its limit, or until arrested by the face f^3 of the frame, and thus eject the empty shell s from the barrel of the gun. (See Fig. 3.)

I would add that in order to provide means 75 whereby the tension of the ejector-spring t' may be adjusted or regulated I prefer to tap the forward part of the extractor-rod, into which part is fitted a screw-threaded tip o . The said steel extension r may be integral 80 with o or not, as desired, and having its front end enlarged, so as to provide a better bearing-surface for the lever c . The form and arrangement of the parts c^3 , f' , and the head 85 a' of the extractor are such as to fully withdraw the locking-pin from the extractor at or about the same time that the lower side of the bore of the barrel, as the latter is tilted, passes above the top edge of the frame.

In closing the gun the rear face of the extractor-head slides downward against the vertical 90 face f^3 of the frame, thereby forcing the spring-resisted extractor ahead to its seat. Fig. 1 shows the relation of the parts when the gun is fully closed. Thus it will be ap- 95 parent that the initial action of the device is positive with respect to extracting or forcing the shell from its seat in the barrel and is supplemented by the reaction of the spring t' , which operates to completely eject the shell 100 from the barrel.

I would further state that in use the spring itself nominally operates to both extract and eject the shells from the barrel, and it is only 105 in exceptional cases that a shell may stick in its seat to an extent exceeding the tension of the spring, and it is the object of my present device to overcome such contingency. In any event, however, the construction and arrangement of the parts are such that the locking- 110 pin is not fully withdrawn from the extractor-rod until the rear part of the barrel is elevated sufficiently to permit the shell to pass the upper part of the frame, and such complete withdrawal of the pin occurs nearly 115 concurrently with the final movement of the barrel.

I prefer to so proportion the parts and time their movements that the head end a' of the extractor-rod will practically be in engage- 120 ment with the vertical face f^3 of the frame during the major part of the barrel's movement.

I claim as my invention—

1. In a breakdown gun, the combined shell 125 extracting and ejecting device hereinbefore described, the same consisting of the endwise-movable notched rod member a mounted in the lower portion of the barrel, a vertically- 130 arranged locking-pin in normal engagement with the notched portion of said rod, a movable extension member r located at the forward end of the rod a , a spring adapted to keep said parts a and r normally separated,

and the combined tripping and forcing lever *c* pivotally mounted in the barrel-lug and in practically continuous engagement with said locking-pin and extension member, constructed and arranged whereby the act of tilting the barrel, as in opening the gun, causes the said lever *c* to forcibly engage the gun-frame, thereby at the same time positively withdrawing the locking-pin from the notch and forcing the extractor-rod rearwardly and permitting the spring to simultaneously eject the latter outwardly to its limit, for the purpose set forth.

2. In a breakdown gun, provided with the usual adjunctive devices, the combination with the recessed frame and the barrel member pivoted thereto having a lug, *b*³, on its under side, of a spring-actuated notched extractor-rod movably mounted in the lower portion of the barrel, means for maintaining the rod in position axially, a vertically-movable locking-pin, *n*, mounted in the barrel-lug adapted to engage the notched portion of said rod, and an L-shaped lever, *c*, pivoted to the lug having an arm in engagement with said locking-pin, the other arm normally con-

tacting with the front end of the rod or of its extension, and having the knee portion of said lever arranged to frictionally engage the forward part of said frame upon tilting the barrel, substantially as hereinbefore described and for the purpose set forth.

3. In a combined shell extracting and ejecting device for breakdown guns, the combination with the extractor-rod member *a* and the L-shaped lever *c* pivoted in the barrel-lug below the usual barrel pivot-pin *p*, of an adjusting-screw *o* screwed into the forward end of said rod member, the extension or short rod member *r* located in front of said screw, the ejector-spring *t'* in engagement with and normally separating the screw and the extension member, and having the vertical arm of said lever *c* in substantially continuous engagement with the front end of the short rod *r*, substantially as hereinbefore described.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM H. DAVENPORT.

Witnesses:

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REMINGTON SHERMAN.