(No Model.) 2 Sheets—Sheet 1.

C. B. WITHINGTON.

BREECH LOADING GUN.

No. 467,217. Patented Jan. 19, 1892.

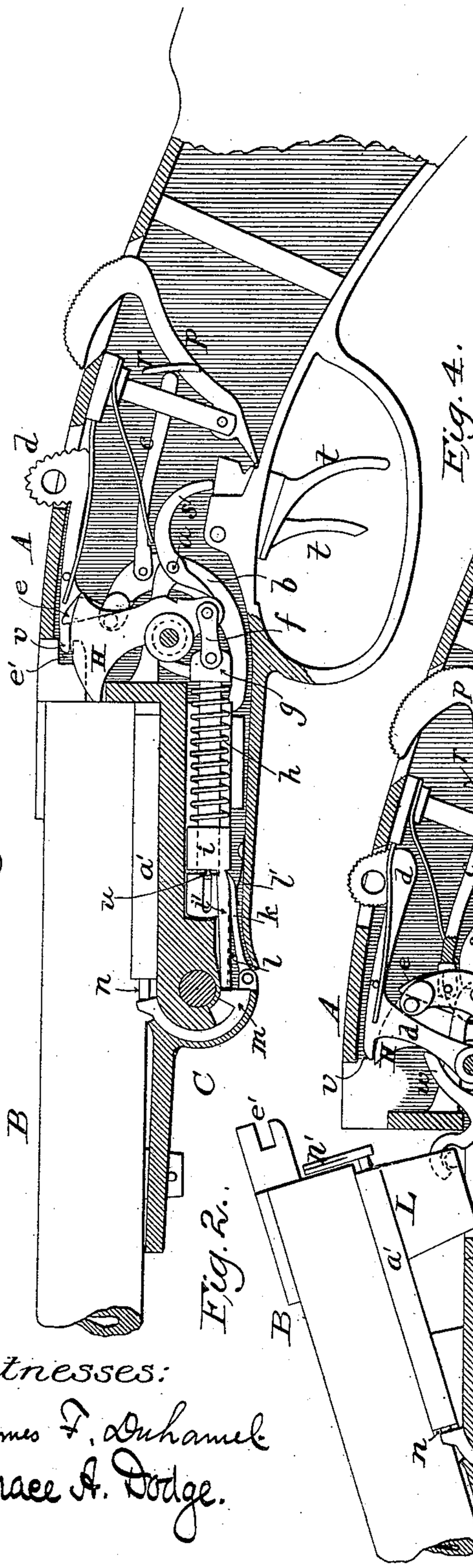

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 5.

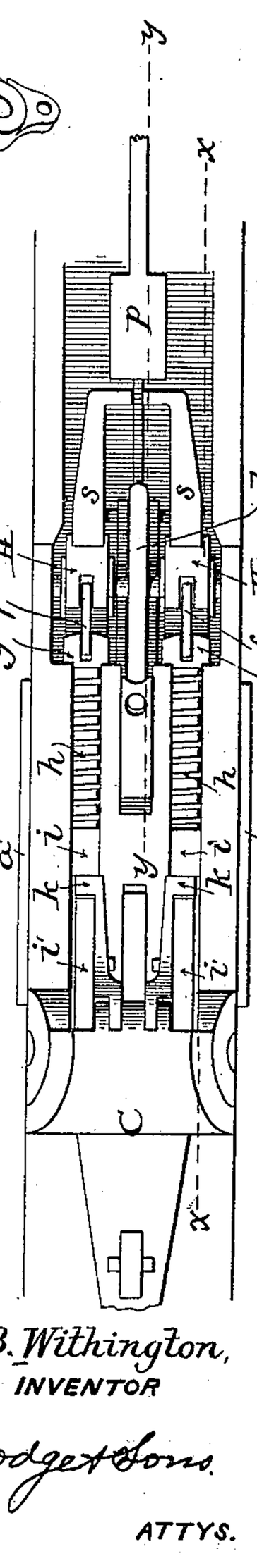

Fig. 3.

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Horace A. Dodge.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 6.

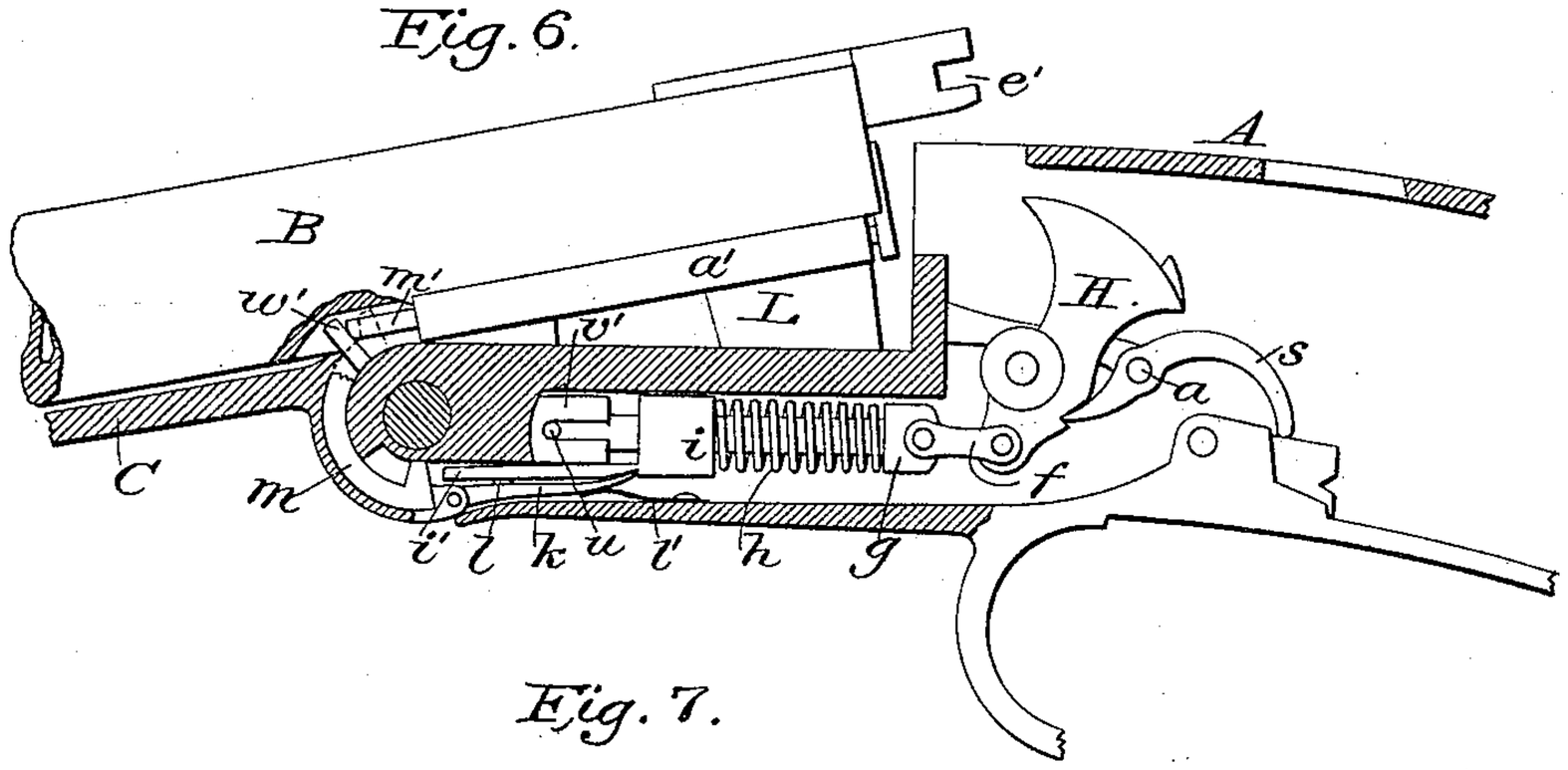


Fig. 7.

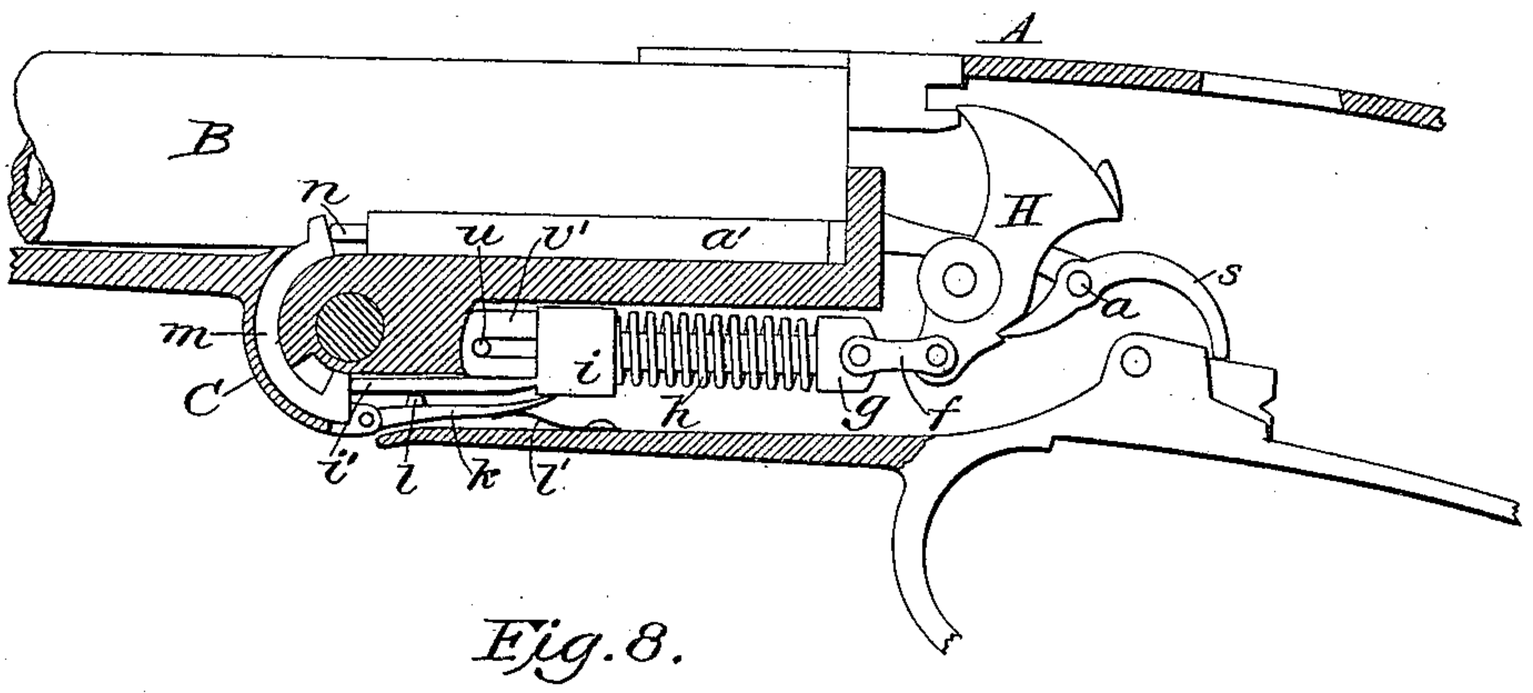
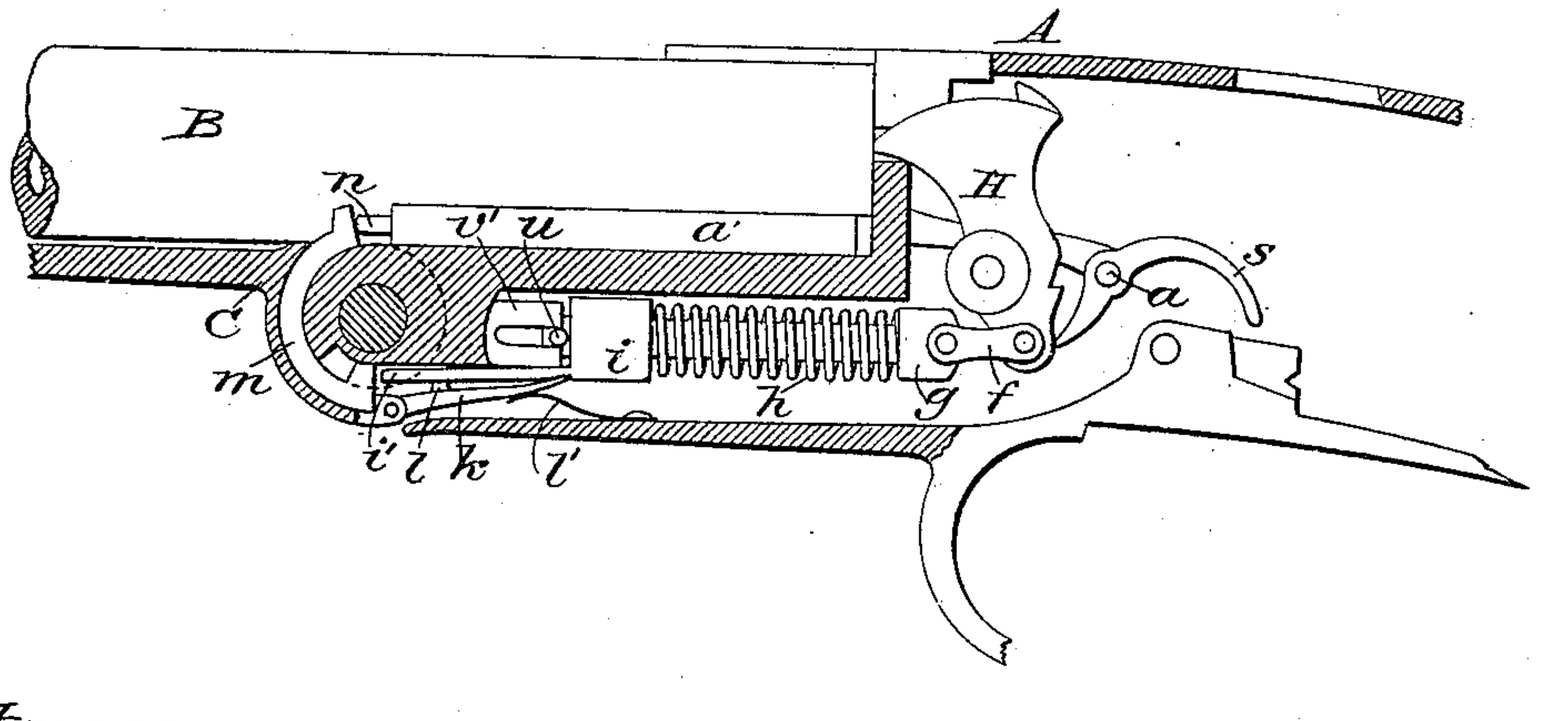


Fig. 8.



Witnesses:

James F. Duhamel.

Horace A. Dodge.

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UNITED STATES PATENT OFFICE.

CHARLES B. WITHINGTON, OF JANESVILLE, WISCONSIN.

BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 467,217, dated January 19, 1892.

Application filed May 5, 1891. Serial No. 391,661. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. WITHINGTON, a citizen of the United States, residing at Janesville, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Breech-Loading Guns, of which the following is a specification.

My invention relates to fire-arms of the class known as "hammerless guns;" and the invention consists in a novel construction and arrangement of the mechanism, whereby the gun is rendered self-cocking and the mainsprings are made to eject the cartridge-shells, and in certain other features hereinafter more fully described.

Figure 1 is a side elevation, shown partly in section on the line *x x* of Fig. 3. Fig. 2 is a similar view on the line *y y* of Fig. 3. Fig. 3 is a bottom plan view with the bottom plate removed. Figs. 4 and 5 are views of parts detached to illustrate the construction of the hammers and cocking-lever; and Figs. 6, 7, and 8 are side elevations, partly in section, to illustrate the operation of the mainsprings and ejector devices.

In the drawings, A represents the frame, B the barrels, and C the finishing-plate, secured to the rear end of the fore-arm of the stock, (not shown,) these parts not differing materially from those ordinarily used in drop-barrel or breakdown sporting-guns. The hammers H are pivoted within the frame, as shown, with their points arranged to strike the primer of the shells direct through small holes in the breech-piece, as shown in Figs. 1 and 8. Each hammer is connected by a link *f* to the rear end of a sliding bolt *g*, which plays loosely to and fro in a longitudinal hole in the front arm of the frame, as shown in Figs. 1, 6, 7, and 8. These bolts *g* are each provided with a shoulder, against which the rear end of a coiled mainspring *h* bears, the front end of the spring bearing against a sleeve *i*, mounted loosely on the bolt *g* near its opposite or front end, there being a pin *u* inserted through the bolt in front of the sleeve *i* for the purpose of moving the sleeve backward far enough to be caught by the latch *k* and subsequently permit a limited movement of the spring, as hereinafter more fully explained. In the recess in front of the sleeve *i* is permanently secured another sleeve *v'*, (shown more clearly in Figs. 6, 7, and 8,) having a slot cut in its sides, as shown, for the pin to move in as the end of the bolt plays to and fro in the sleeve *v'*. Instead of this sleeve *v'*, the hole in which the bolt plays may be reduced in diameter at this point, thus leaving a shoulder against which the movable sleeve *i* may seat itself when forced to its forward position, there being a slot for the pin to move in, as before described.

To automatically cock the hammers, I provide a bent lever *b* and pivot it on a pin *a* in rear of the hammers, the sears being pivoted on the same pin, as shown in Figs. 1 and 2. The front arm of this lever extends forward between the lower part of the hammers and at its front end has a hook which engages in a recess in the face of the lug L, secured to barrels at their rear end, as shown clearly in Fig. 2, while the rear end of the lever is curved upward and forward between the hammers and has at its extremity on each side a lateral projection *o*, which rests in front of an elongated projection *e*, formed on the inner sides of the two hammers, as shown more clearly in Figs. 4 and 5, the front end of lever *b* being bifurcated, as shown in Fig. 4, to enable it to straddle the vertical arm of the locking-lever *d*. With this construction and arrangement of the cocking-lever and hammers it will be apparent that when the barrels are dropped, as represented in Fig. 2, the front end of the cocking-lever *b* will be raised, thereby throwing its rear end backward and downward, its projections *o* pressing against and sliding along the face of the projections *e* on the hammers, which are thereby forced back to the cocked position, where they are held by the sears, as shown in Figs. 2, 6, and 7, this movement of the hammers at the same time forcing the bolts *g* forward and compressing the mainsprings *h*. On the front arm of this cocking-lever I form a vertical arm *w*, the upper end of which is curved backward so as to press against the vertical arm of the locking-lever *d*, as shown in Fig. 2, and thus hold the latter back while the gun is open.

The locking-lever *d* is made in the form shown in Fig. 2, and is pivoted at its lower

end on the same pin or screw as the hammers, and is located centrally between the latter. Its rear end is provided with a roughened thumb-piece, which projects through an opening in the top of the frame, as shown in Figs. 1 and 2, whereby it can be depressed by the thumb, thereby drawing its front end back out of the notch e' in the projection at the rear end of the barrel, into which it is forced by a spring when the barrels are closed, as shown in Fig. 1. I also provide a safety-lever p, pivoted at some distance in rear of the triggers, as shown in Figs. 1 and 2, its lower end being arranged to engage in a notch in the rear edge of the triggers and lock them fast when the gun is fully opened. This safety-lever has its upper end arranged to project through an opening in the top of the frame in rear of the locking-lever, so it can be readily thrown out of contact with the triggers when it is desired to fire the gun. It is forced into the locking position when the barrels are dropped by a push-rod c, the front end of which is pivoted to the cocking-lever b, its rear end bearing against a projection r on the lever p, as shown in Figs. 1 and 2.

An important feature of my invention is the means provided for ejecting the empty shells when the gun has been fired, and also letting the hammers down without ejecting the shells. The ejectors n' are preferably made separate, one for each barrel, though they may be made of a single piece, if desired. They each have a stem n, which moves freely to and fro in a tubular seat a', secured to each barrel near its outer lower side, as shown in Figs. 1, 2, and 3, the end of the stem n being in line with the upper end of a curved sliding bar or dog m, which fits loosely in a corresponding recess or groove in the rear semicircular face of the plate C, as shown in Figs. 1, 2, 6, 7, and 8. The lower end of this dog m comes directly in front of a small rod i', secured to or formed as part of the sleeve i, and which rod I term the "striker." In the under side of this striker i' is a notch in which a pawl k engages at certain times, as shown in Fig. 1, this pawl k being pivoted to the lower edge of plate C, as shown in the several figures. The pawl is pressed upward by a spring l' to insure its engaging in the notch at the proper time, and it has on its upper face a projection l, which serves as a fulcrum on which the pawl is caused to rock as the barrels tip, and thus when the pawl has moved a certain distance its point is forced out of the notch, thereby releasing the striker, which is instantly forced forward by the pressure of the mainspring against the sleeve i, the striker i' being thus suddenly forced against the dog m, which in turn is forced against the front end of the stem n of the ejector n', thereby imparting to the latter a sudden impulse sufficient to eject the empty shells from the barrels.

As the shells at times, especially in damp weather, are liable to stick in the chambers of the gun, I combine with the ejectors a means for starting the shells at the first movement of the barrels and before the ejectors are operated upon by the mainspring. This starting device consists of a loose rod m', (shown in Fig. 6,) it being seated loosely in a hole centrally between the ejector-stems, its rear end bearing against the ejector-plates n', its front end being in line with a stud w' at the front end of the front arm of the frame, as shown in Fig. 6. It will therefore be seen that as the barrels begin to tip the stud w', pressing against the front end of the loose rod m', will force it back against the ejector-plates n', thus starting the shells from their chambers and while the strikers i' are held back by their pawls k. In case the ejector-plates n' be made integral of a single piece, the rear end of the rod m' may be secured thereto, if desired. So, too, it is obvious that, instead of attaching the pawls k to the fore-end iron, as shown, they may be hinged to disks pivoted on the hinge-pin at front end of the arm of the frame, suitable slots being cut in the end of the arm to receive the disks, the latter being provided with shoulders against which the fore-arm iron will strike when the barrels drop, and thus cause the disks to move the pawls the same as in the plan shown. This modification will not in any respect affect or change the operation of the ejecting devices. The position of such disk is indicated by the dotted line in Fig. 8. It will of course be understood that these ejecting devices are duplicated—that is, that there is a set for each barrel of the gun.

To relieve, whenever desired, the mainsprings, the barrels may be tipped, causing the cocking-lever to press against the hammers, when by pulling the triggers and closing the barrels the hammers will be let down gradually as the barrels close. When this is done, the shells will not be ejected when the hammers are cocked again, as in such case the pawls k will not have engaged in the notches of the strikers, and consequently there will be no movement of the sleeve i, no extra compression of the springs, and no sudden blow of the strikers.

The hammers are designed to have a slight rebound when the gun is fired, and this is effected by the pin in front of the sleeve preventing any further elongation of the spring. The momentum of the hammer is sufficient to cause it to strike the primer with the requisite force and also cause the pin u to strike the sleeve and cause it to move back far enough to permit the pawl k to enter the notch, the point of the hammer receding sufficiently to be drawn back of the face of the breech, the pin u being brought into contact with the sleeve during the latter part of the forward movement of the hammer.

The operation of the ejector devices is illustrated in Figs. 6, 7, and 8. In Fig. 7 the parts

are shown in the position they will occupy when the gun is ready to be fired. When in this condition, with the hammers cocked, it will be observed that the loose sleeve *i* is shoved forward and rests against the end of the stationary tube *v'*, thus furnishing a solid abutment for the front end of the mainspring *h*. It will also be noticed that when in that position the point of the pawl *k* is in rear of the notch in the striker *i'* and simply rests against the under side of the sleeve *i*. Now when the hammer is released the spring, acting against the shoulder on rod *g*, forces the latter back and throws the hammer forward; but as the spring ceases its action just before the hammer hits the primer it ceases to press against the sleeve, while the bolt, moving backward, brings its pin *u* up against the sleeve, which is thus carried along with the bolt during the last part of its movement and brought back far enough to permit the point of the pawl to engage in the notch and thus hold the sleeve fast, as shown in Fig. 8. Then as the barrels are dropped, as shown in Fig. 6, the pawl being shoved back shoves the sleeve also, thus giving to the spring a compression in addition to that which it receives from the action of the cocking-lever in forcing back the hammer, which secondary or additional compression is increased until the pawls are thrown out of the notches, (by their rocking movement, as before described,) when the sleeve, with its striker, is driven forward by this extra compression of the spring, thus causing the striker to operate on the ejector with a force greater than that used to operate the hammer. The movement of the sleeve is but little, and after thus exerting the extra force of the spring on the ejector it rests solidly against the stationary sleeve *v'*, as represented in Fig. 7, there still remaining sufficient compression of the spring to operate the hammer.

By these several improvements I am enabled to produce a gun that accomplishes all desired purposes in a very efficient manner, and which is safe against accidents.

Having thus described my invention, what I claim is—

1. In combination with the tipping barrels, the cocking-lever *b*, having its front end arranged to engage with the lug L of the barrels and having its rear end provided with lateral projections arranged to engage against the front face of projections *e* on the inner sides of the hammers, substantially as shown and described.

2. The combination, in a tip-barrel gun, of the hammers H, connected by a link *f* to a sliding bolt *g*, having a spiral spring coiled thereon, and the curved cocking-lever *b*, having its front end connected to the lug at rear end of the barrels, with its rear end provided with lateral projections arranged to engage with and slide on the front face of the lateral projections on the inner sides of the hammers, all constructed and arranged to operate substantially as shown and described.

3. In combination with the locking-lever *d*, arranged to lock the barrels when closed, as shown, the cocking-lever *b*, provided with the arm *w*, arranged to hold the cocking-lever back against the pressure of its spring while the barrels are tipped.

4. In combination with the tipping barrels and frame of a breech-loading gun, the locking-lever *d*, pivoted at or below the center of the frame and provided with a tongue *b*, arranged to engage in a notch *e'* in the rear end of the projecting lug of the barrels and having its rear end provided with a thumb-piece arranged to project through an opening in the top of the frame, substantially as shown and described.

5. The combination, in a tip-barrel gun, of the safety-lever *p*, having its lower end arranged to engage with and lock the triggers, with its upper end projecting through an opening in the top of the frame, the cocking-lever *b*, arranged to be operated by the dropping of the barrels, and the push-rod *c*, having its front end pivoted to the cocking-lever and its rear end disconnected from but arranged to bear against the safety-lever *p*, substantially as shown, whereby the safety-lever is caused to lock the triggers whenever the barrels are dropped and the hammers cocked.

6. In combination with the sliding bolt *g* and coiled mainspring *h*, the sleeve *i*, mounted loosely on the bolt and provided with striker or rod *i'*, arranged to strike against a movable dog or piece *m*, located intermediate between said striker and the stem of the extractor *n*, and the latch *k*, pivoted to the plate C, said latch being arranged to engage with the striker *i'* and shove back the sleeve and compress the spring and lug *l* to disengage the latch *k* as the barrels complete their tipping movement, whereby the compressed mainspring is caused to exert its greatest force upon the ejector to eject the cartridge-shells.

7. The combination of a pivoted hammer, a striker arranged to operate the shell-ejector, and a coiled spring arranged intermediate between the hammer and the striker, the said parts being arranged to operate substantially as herein described, whereby a single coiled spring is made to operate both the shell-ejector and the hammer.

In witness whereof I hereunto set my hand in the presence of two witnesses.

CHARLES B. WITHINGTON.

Witnesses:
HORACE MCELROY,
GEO. L. CARRINGTON.