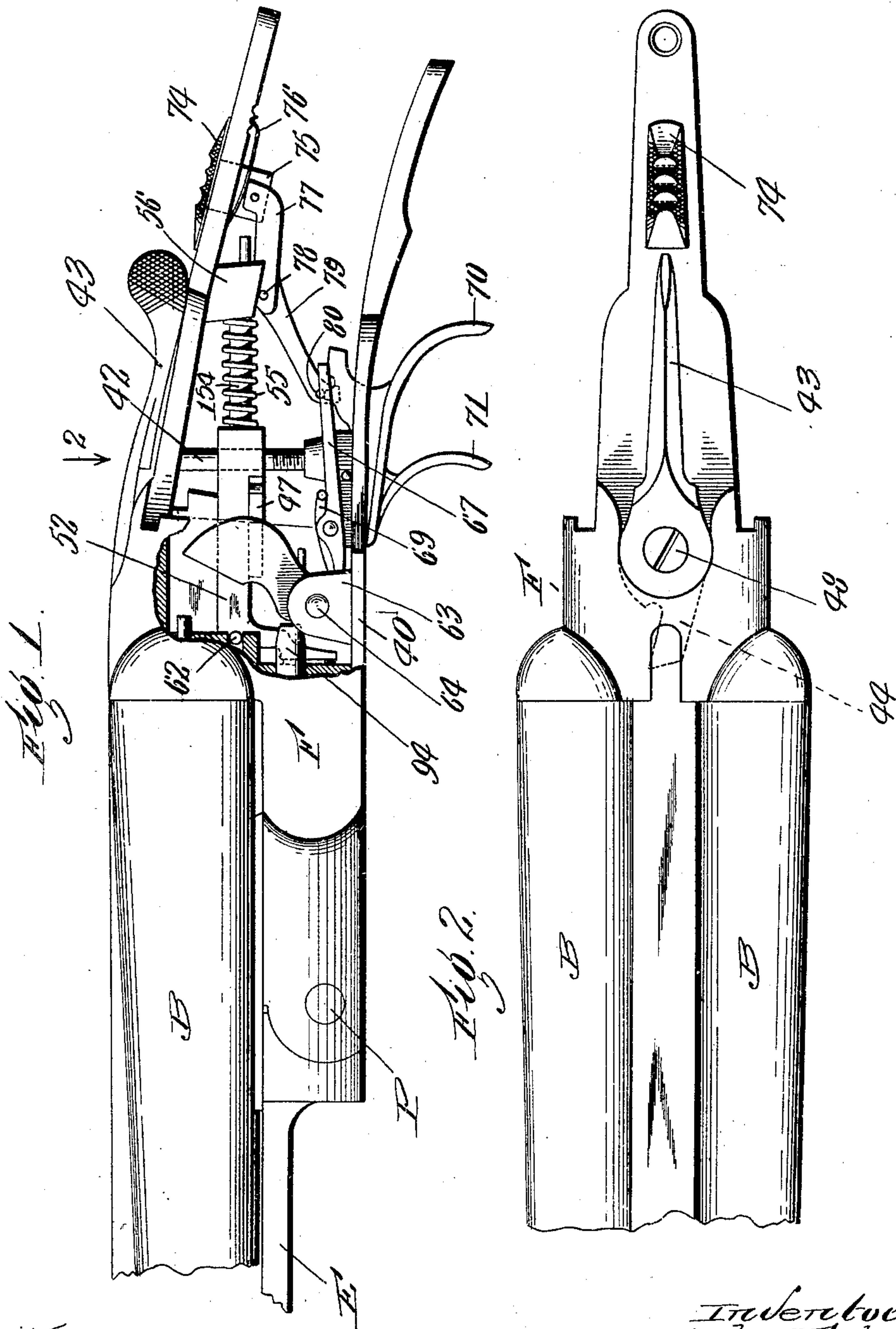


No. 869,967.

PATENTED NOV. 5, 1907.

A. FYRBERG.
BREECH LOADING GUN.
APPLICATION FILED SEPT. 11, 1906.

4 SHEETS—SHEET 1.



Witnesses:
C. H. Messon.
M. C. Regan.

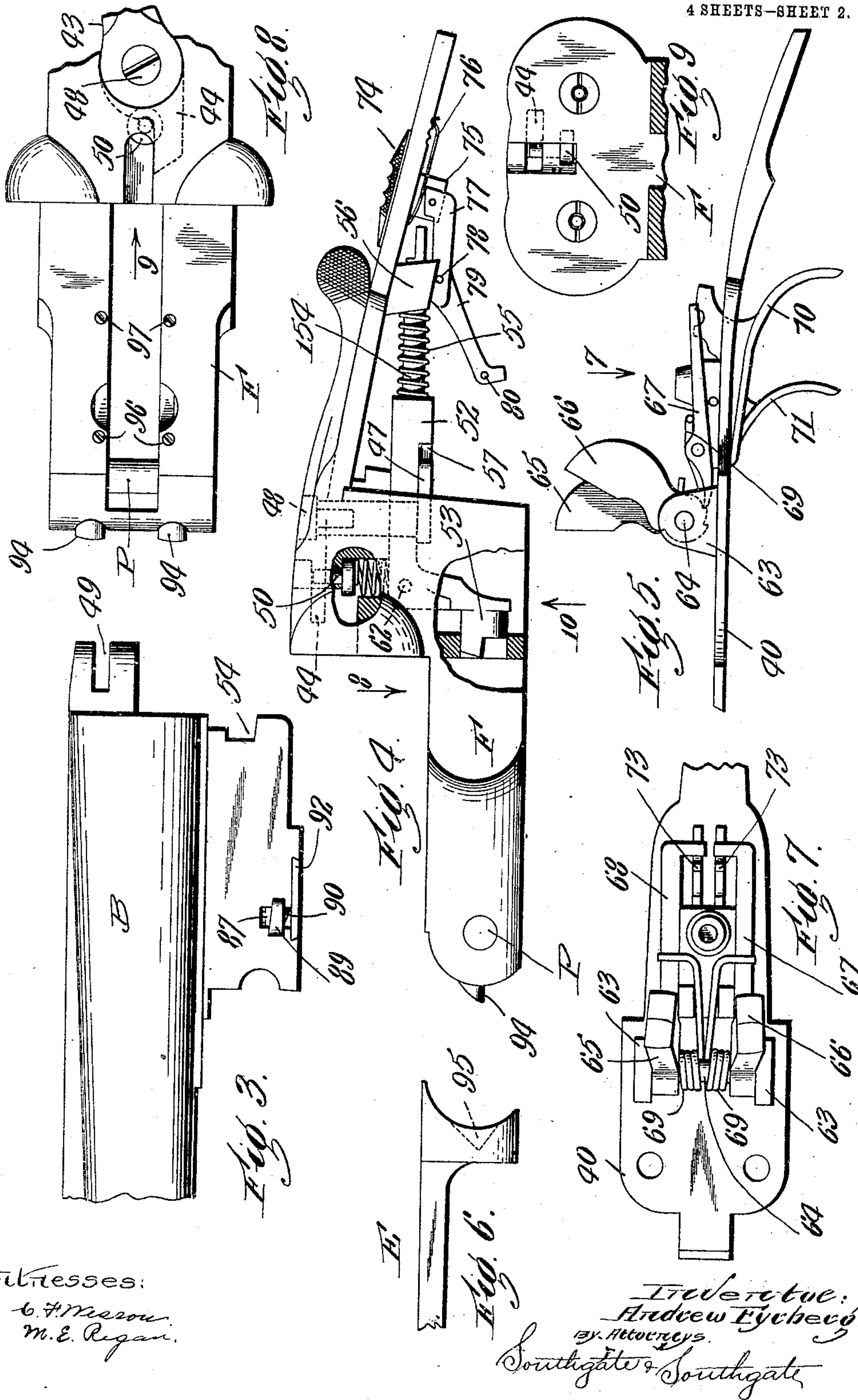
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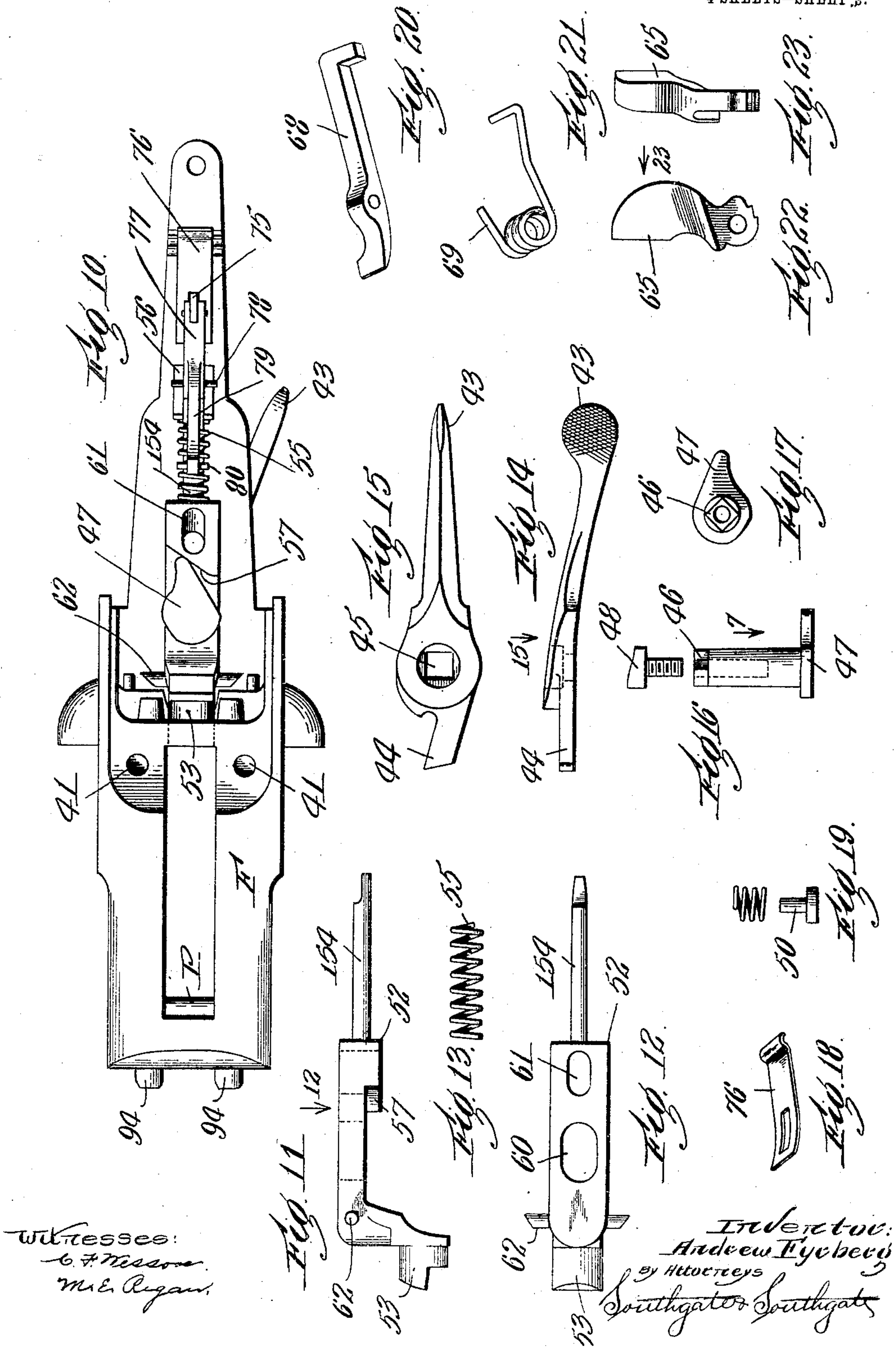


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4 SHEETS—SHEET 3.

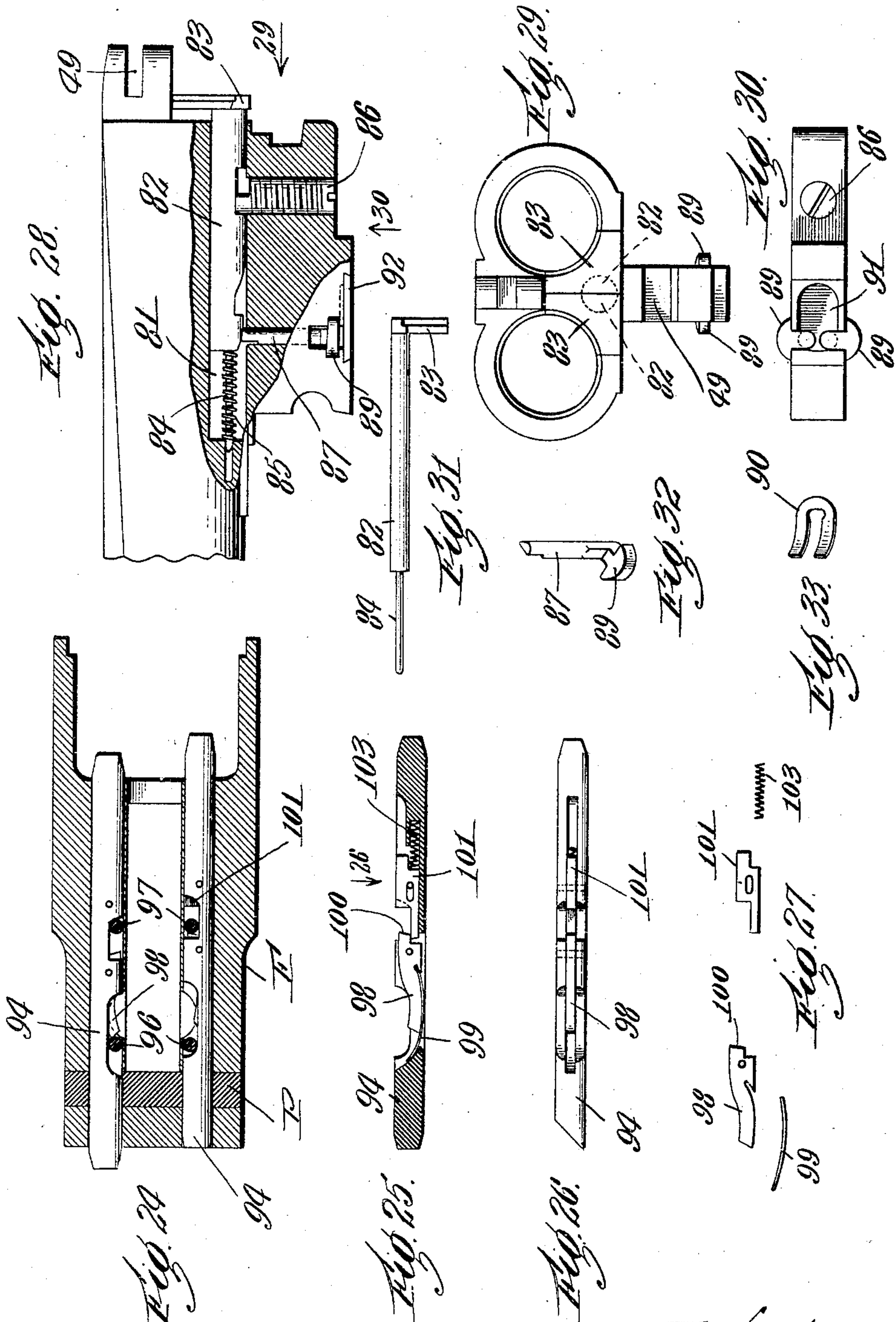


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4 SHEETS—SHEET 4.



Witnesses:
C. H. Mason.
M. E. Regan.

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UNITED STATES PATENT OFFICE.

ANDREW FYRBERG, OF HOPKINTON, MASSACHUSETTS.

BREECH-LOADING GUN.

No. 869,967.

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed September 11, 1905. Serial No. 277,856.

To all whom it may concern:

Be it known that I, ANDREW FYRBERG, a citizen of the United States, residing at Hopkinton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Breech-Loading Gun, of which the following is a specification.

This invention relates to a breech-loading gun, and more especially to a double-barrel breech-loading gun of breakdown type.

10 The especial objects of this invention are to provide an improved independent shell-ejecting mechanism for each barrel; to efficiently combine the shell ejecting mechanisms with the firing mechanisms of the gun in such way that the shell-ejecting mechanism for either
15 barrel will not operate except after the firing mechanism of that particular barrel has been discharged; to provide a safety for the gun which during normal operations will prevent discharge except when the safety is moved to firing position, and which additionally may
20 be moved to a third position to permit the lowering of the firing hammers without the discharge of the gun; to provide a simple and convenient gun frame-work which will permit the parts of the gun to be assembled in a simple, convenient and compact arrangement; and
25 to improve various details of construction.

To these ends, this invention consists of the breech-loading firearm and of the combinations of parts therein as hereinafter described and more particularly pointed out in the claims at the end of this specification.

30 In the accompanying four sheets of drawings, Figure 1 is a side view partly broken away of sufficient parts of a breech-loading gun to illustrate the application of this invention thereto. Fig. 2 is a plan view of the parts shown in Fig. 1, looking in the direction of the arrow
35 —2— of Fig. 1. Fig. 3 is a fragmentary side view of the barrel. Fig. 4 is a side view partly broken away of the body of the gun-frame. Fig. 5 is a side view of the detachable bottom plate of the gun-frame which carries the firing mechanism. Fig. 6 is a fragmentary view of
40 part of the fore-end. Fig. 7 is a plan view of the parts shown in Fig. 5 looking in the direction of the arrow —7—. Fig. 8 is a plan view of the parts shown in Fig. 4 looking in the direction of the arrow —8—. Fig. 9 is a partial front view of the parts shown in Fig. 8 looking
45 in the direction of the arrow —9—. Fig. 10 is a bottom plan view of the parts shown in Fig. 4 looking in the direction of the arrow —10—. Fig. 11 is a side view of the barrel locking bolt. Fig. 12 is a plan view thereof looking in the direction of the arrow —12—. Fig. 13 is
50 a detail view of the barrel locking-bolt spring. Fig. 14 is a side view of the top-snap. Fig. 15 is a plan view thereof looking in the direction of the arrow —15—. Fig. 16 is a detail view of the operating stud of the top-snap and its fastening screw. Fig. 17 is a plan view of
55 the operating stud of the top-snap looking in the direction of the arrow —17—. Fig. 18 is a detail view of the

retaining spring of the safety. Fig. 19 is a detail view of the catch and spring for holding the top-snap. Fig. 20 is a detail view of one of the sears. Fig. 21 is a detail view of one of the trigger springs. Fig. 22 is a side view
60 of one of the firing hammers. Fig. 23 is a rear view thereof looking in the direction of the arrow —23—. Fig. 24 is a sectional plan view of part of the gun-frame showing the sliding-bolts which act as cocking slides and which also control the shell ejecting mechanisms. 65
Fig. 25 is a sectional plan view of one of the sliding bolts. Fig. 26 is a side view thereof looking in the direction of the arrow —26—. Fig. 27 is a detail view of an ejector controlling catch, the trigger therefor, and the springs
70 for said parts. Fig. 28 is a fragmentary side view partly broken away of the barrel. Fig. 29 is a rear view of the parts shown in Fig. 28 looking in the direction of the arrow —29—. Fig. 30 is a bottom plan view of the barrel
lug shown in Fig. 28 looking in the direction of the arrow —30—. Fig. 31 is a plan view of one of the ejectors. 75
Fig. 32 is a detail view of one of the ejector-detents, and Fig. 33 is a detail view of the U-shaped spring for the ejector-detents.

One particular object of my invention is to provide a breech-loading gun which may be opened whenever
80 desired, but in which the shell ejectors are combined with the firing devices in such way that a shell will be ejected only after its firing mechanism has been operated.

A gun constructed according to my invention is also
85 preferably provided with an improved safety device which not only occupies the usual two positions, but which can be moved to third position to permit the hammers to be lowered while the gun is being closed, whereby the tension of the hammer-springs may be re-
90 laxated when the gun is to be put away, and whereby the ejectors may be rendered operative even when the shells have not been discharged.

The gun is framed up in a simple and direct manner so that the same can be assembled with the least possi-
95 ble amount of machine work, and the parts combined in a very compact arrangement.

Referring to the accompanying drawings and in detail, as shown in Fig. 1, F designates the body part of the gun-frame. The frame is provided with a pivot-pin P,
100 and swinging on the pivot-pin P are barrels B carrying a fore-end E. These parts may be arranged as in an ordinary shot gun of breakdown type.

Fitting into the bottom of the frame F is a bottom-plate 40 which can be fastened in place by screws
105 threaded into the holes 41 shown in Fig. 10. The bottom-plate is also fastened in place, and connected with the upper part of the frame F by means of a long screw 42. Mounted in the bottom-plate 40 are the firing ham-
110 mers which are controlled by triggers and sears, as hereinafter described.

The top-snap 43 is located in the ordinary position,

and as shown most clearly in Figs. 14 and 15 the top-snap 43 is provided with an extension 44 forming a swinging-catch which constitutes one of the barrel locking instrumentalities. The top-snap 43 is provided
5 with a square hole 45 which fits over the square section 46 of an operating-pin carrying a cam 47 at its lower end. The pin and top-snap are fastened together by the screw 48.

As shown most clearly in Fig. 3, the mid-rib between
10 the barrels B extends rearwardly, and is provided with a notch 49 cooperating with the swinging-catch to form one of the barrel locking instrumentalities. The second barrel locking instrumentality as shown in Figs. 4, 11 and 12 consists of the sliding locking bolt 52 which
15 has a catch 53 at its forward end for engaging a notch 54 of the barrel-lug, and which is provided at its rear end with a stud 154 which is guided in a lug 56 and has a spring 55 coiled thereon. On its under side the barrel locking slide 52 is provided with an inclined face 57 co-
20 operating with the cam 47, and, as shown in Fig. 12, the locking bolt 52 has perforations 60 and 61 for receiving the operating pin of the top-snap and the frame-screw 42 respectively. Extending through the slide 52 is a pin 62 which cooperates with the firing hammers to
25 move the same to half-cocked position when the barrel locking bolt is moved back.

In order to prevent the top-snap from swinging back to normal position so that the barrel cannot be readily closed, I have provided a spring-pressed button 50 hav-
30 ing a pin which extends up into position to hold the top-snap open, as shown in Fig. 8. The edge of the spring-pressed button is located in such position that it can be forced down by the end of the barrel projection whenever the barrels are closed. By means of this construc-
35 tion it will be seen that I have provided a double lock for the barrels. That is to say, when the gun is closed, the barrels will be locked, both by the swinging catch formed by the projecting end of the top-snap, and also by the locking bolt. It will also be seen that the top-
40 snap will be held in its swung out position so long as the gun remains open, permitting the barrels to be snapped down to normal position whenever desired without interfering with the swinging end of the top-snap.

Referring to Figs. 5 and 7 for a detailed description
45 of the firing mechanism; the bottom plate 40 is provided with lugs 63, and fastened in the lugs 63 is a transverse pin 64. Pivoted on the transverse pin 64 are the firing hammers 65 and 66. Cooperating with the firing hammers 65 and 66 respectively are the
50 sears 67 and 68. Coiled on the transverse pin 64 are hammer-springs 69 which operate the firing hammers 65 and 66, and which also have their other ends extended to operate the sears 68 and 67 respectively. Also pivoted in the plate 40 are the triggers 70 and 71
55 which control the sears 67 and 68 respectively. Cooperating with the triggers 70 and 71 is a safety device normally preventing the gun from being discharged.

As shown in Fig. 4, 74 designates a safety slide hav-
60 ing a lug 75 extending through a slot in the top-plate of the frame. Carried by the lug 75 is a detent spring 76, the end of which is arranged to engage any one of three notches in the under side of the top-plate of the frame. Two of these notches correspond to the two normal positions of the safety slide, to wit, the locked
65 or central position, and the pushed forward or firing

position; while the third corresponds to an abnormal position of the safety, permitting the hammers to be lowered without discharging the gun. Pivoted in the
lug 75 is an arm 77 which slides in a notch in the lug 56 and is guided by a transverse pin 78. Extending
70 down from the part 77 and formed integrally therewith is a narrower arm 79 which has a transverse pin 80. The transverse pin 80 cooperates with the lugs 73 of the triggers 70 and 71. When the locking pin 80 is directly over the lugs 73, to which position it is
75 moved by the end of the barrel-locking slide 154 when the gun is opened, it will hold the triggers from swinging so that the gun cannot be discharged. When the safety mechanism is pushed forward for normal opera-
80 tion, the pin 80 will be moved away from over the lugs 73, so that the triggers may be pulled to fire the gun. In addition to this, the pin 80 may, if desired, be moved back from safe position to permit the ham-
85 mers to be lowered while the gun is being closed, this being done without discharging the shells. It is to be understood that the safety is to be moved to its third position only comparatively infrequently, and it
90 should not be permitted to remain in its abnormal or third position except so long as required for the lowering of the hammers.

Referring to the fourth sheet of drawings for a detailed description of the shell ejecting devices, and of the means for combining the same with the firing mechanism so that said shell ejecting devices will only
95 operate to eject the shell or shells which have been fired; as shown in Figs. 28 and 29, the mid-rib of the barrel has a single hole 81 bored therein. Mounted in the hole 81 are two separate semi-cylindrical ejector-slides 82. Each of the ejector slides 82 is provided at its rear
100 end with an ejector plate 83, one of which cooperates with a shell in the right-hand barrel, and the other of which cooperates with a shell in the left-hand barrel. Extending forward from each of the ejector slides 82 is a pin 84 carrying a coiled spring 85. Cooperating with
105 both of the ejector slides 82 is a stop-screw 86 for limiting the motion of the ejector slides. Cooperating with each of the ejector-slides 82 is a detent 87 for normally holding its ejector inoperative. Each of the detents 87 is provided with a head 89 extending through a slot
110 in the side of the barrel lug. As shown most clearly in Fig. 30, the bottom of the barrel lug is provided with a recess 91 for receiving the U-shaped spring 90, each leg of which holds up one of the detents 87. The spring 90 and the detents are held in place in the barrel lug
115 by a retaining plate 92 shown in Fig. 28. Cooperating with each of the ejector detents is a sliding bolt 94 which also serves as a cocking slide. As shown most clearly in Fig. 6, the fore-end E is provided with
120 notches 95 for receiving the front projecting ends of the sliding bolts 94, so that these sliding bolts 94 operate to force back the firing hammers to full cocked position whenever the gun is thrown wide open.

The cocking action of the sliding bolts 94 is similar to that of the ordinary guns of this type, except that a separate cocking bolt is used for each of the firing ham-
125 mers, and this construction is adopted in order that the sliding bolts may also serve to control the ejector mechanisms so that the ejector for either barrel will not be caused to operate except when the shell therein has
130 been discharged. To accomplish this purpose, each of

the sliding bolts 94 is provided with slabbed or cut away portions which are engaged by cross-pins 96 and 97 respectively.

Pivoted in each of the sliding bolts 94 is a catch-plate 98 which is normally thrown out by its spring 99 in position to stand over the projecting end of an ejector-detent 87, but which can be held back by a sliding trigger 101 which is normally held in locked position by spring 103. The rear end of the catch-piece 98 is inclined or cam-shaped so that when the bolt is moved rearwardly to cock the gun, the rear or inclined edge 100 of the plate 98 will engage a pin 97 to swing the pivoted plate back to the retracted position, in which it is locked by its sliding trigger as shown in Fig. 25. When the sliding bolt 94 is again moved forward by the discharge of the gun, the sliding trigger 101 will engage the pin 97, releasing the swinging piece 98 so that the same will swing out above the projecting head 89 of the corresponding ejector detent 87, and it results from this that when the gun is opened after either barrel has been fired, the ejector of that barrel will be released to throw the shell out of the barrel, and this operation will take place without causing the ejection of the shell which may be contained in the other barrel, unless that shell shall also have been discharged.

In case it is desired to eject a shell from the gun without firing the same, it can be done by moving the safety to its third position, and then lowering the corresponding hammer. When this has been done and the gun opened, the desired shell will be ejected the same as if it had been discharged.

The operation of the several parts of my gun have been so fully described in connection with the detailed description of the parts, that it is not thought necessary to describe the operation of the gun as a whole.

I am aware that certain features of my gun may be used in guns of different types from that of the breakdown double barrel shot gun which I have herein illustrated. I do not wish, therefore, to be limited to this particular application of my invention, but

What I do claim and desire to secure by Letters Patent of the United States is:—

1. In a gun, the combination with the frame and barrel firing mechanism, of a shell ejector, an ejector detent, a movable member having a releasing piece for the detent, and a trigger on said movable member for holding said detent in retracted position, said releasing piece being movable into the position to engage the detent.

2. In a gun, the combination with the frame and barrel firing mechanism, of a spring-pressed shell ejector, an ejector detent, a sliding bolt having a spring-pressed releasing piece for the detent, and a sliding trigger in the bolt for holding said detent in retracted position, said releasing piece being movable into position to engage the detent.

3. In a gun, the combination with the frame and barrel firing mechanism, of a shell ejector, an ejector detent, a bolt, a releasing piece movably mounted on the bolt for engaging the detent to hold it away from the ejector, a trigger mounted on the bolt for holding the releasing piece in retracted position, and stationary pins projecting into the bolt to engage the releasing piece and trigger for operating them as the bolt is reciprocated.

4. In a gun, the combination of the frame, a barrel firing mechanism, a spring-pressed shell ejector, an ejector detent, and a sliding bolt having a spring-pressed releasing piece for the ejector detent which is moved into position to be engaged when the gun is fired.

5. In a double barrel breech-loading gun, the combination of the frame, the barrels pivoted thereto, a spring-pressed shell ejector for each barrel, a detent for each shell ejector, a firing hammer for each barrel, and a sliding-bolt for each hammer, each of said sliding bolts having a catch piece and a trigger which holds the catch-piece out of the way, and which is released so that the catch-piece may be engaged by the ejector detent after the slide has been moved forward by the firing hammer.

6. In a double barrel breech-loading gun, the combination of the frame, the barrels pivoted thereto, a spring-pressed shell ejector for each barrel, a detent for each shell ejector, a firing hammer for each barrel, two sliding bolts, each of said sliding bolts having a catch-plate to be engaged by an ejector-detent, and a trigger for holding said catch-plate back out of the way, and transverse pins in the frame serving to set and release the catch-plates, whereby the shell-ejectors are controlled by the firing of the gun.

7. In a gun, the combination with the frame and barrel, of a spring-pressed shell ejector, a detent for the ejector, a firing hammer, a bolt having a catch-piece and a trigger for holding the catch-piece out of the way, and means for releasing the trigger so that the catch-piece may be engaged by the ejector detent after the bolt has been moved forward by the firing hammer.

8. In a gun, the combination with the frame and barrel, of a shell ejector, a detent therefor, a firing-hammer, a bolt having a catch-plate adapted to be engaged by the ejector detent, a trigger for holding said catch-plate back out of the way, and transverse pins in the frame adapted to set and release the catch-plate, whereby the shell ejector is controlled by the firing of the gun.

9. In a gun, the combination of an ejector, means for controlling the ejector, a hammer adapted to move said means when operated to firing position to set the ejector, a safety adapted to be moved and held in three different positions, and means connected with the ejector for holding the trigger from moving so that the gun cannot be discharged when the safety is in one position; for permitting the trigger to be pulled to fire the gun and set the ejector when the safety is in the second position; and to permit the hammer to be lowered while the gun is being closed without discharging the shell and to set the ejector, when the safety is in the third position, whereby the opening of the gun after the hammer is lowered will eject the shell as if it had been discharged.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

ANDREW FYRBERG.

Witnesses:

PHILIP W. SOUTHGATE,
ARTHUR E. NYE.