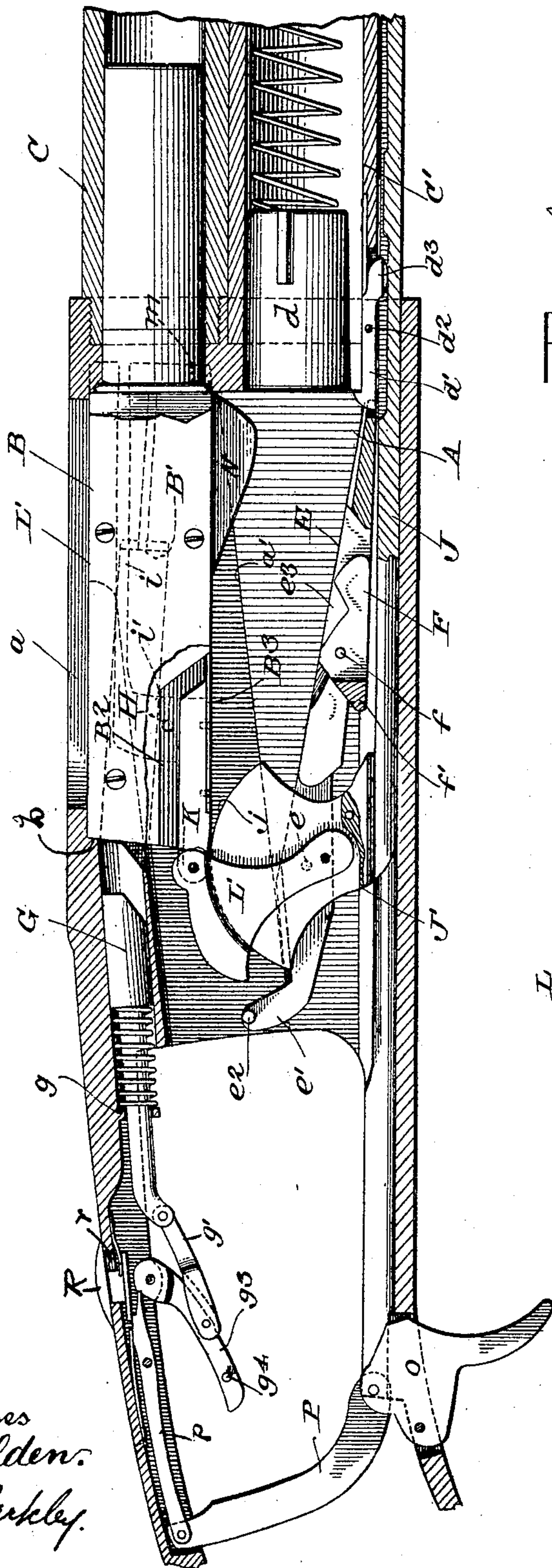


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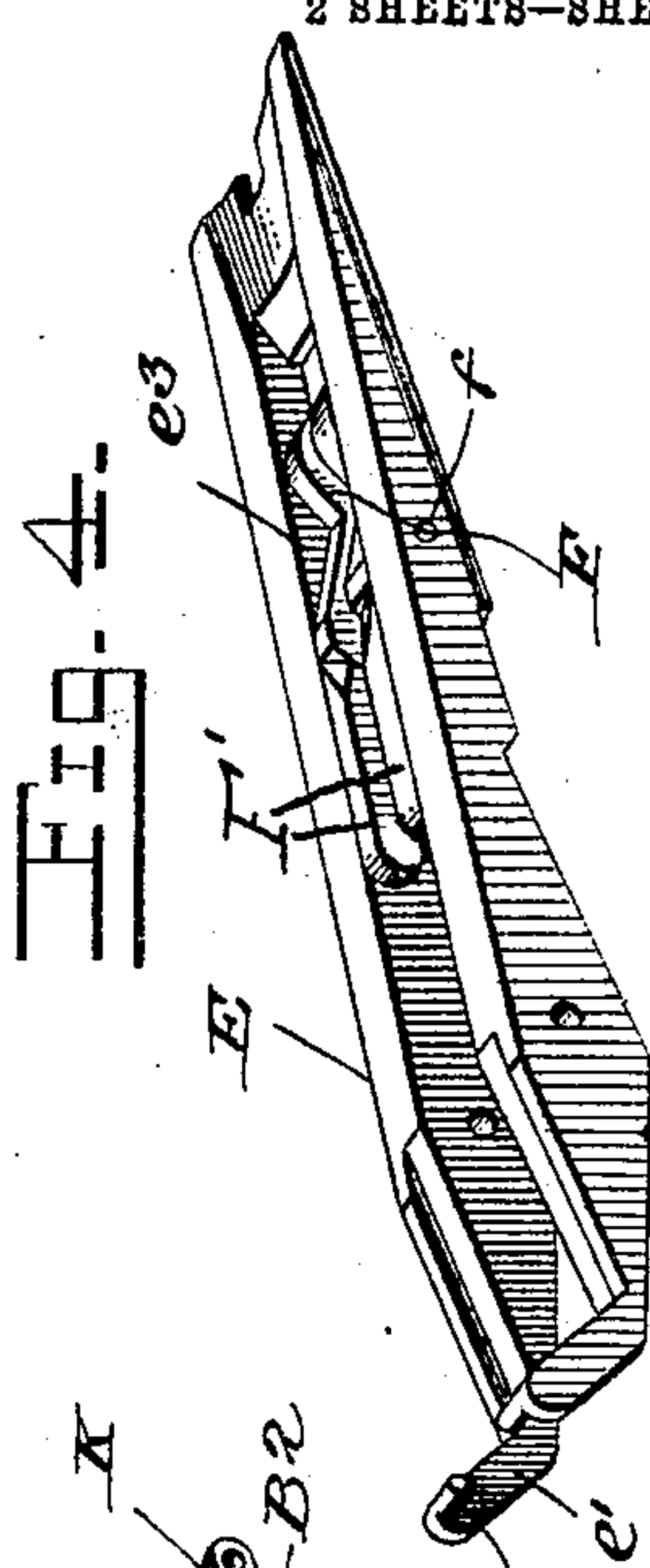
PATENTED OCT. 31, 1905.

H. D. BERNARD.
BREECH LOADING GUN.
APPLICATION FILED AUG. 3, 1904.

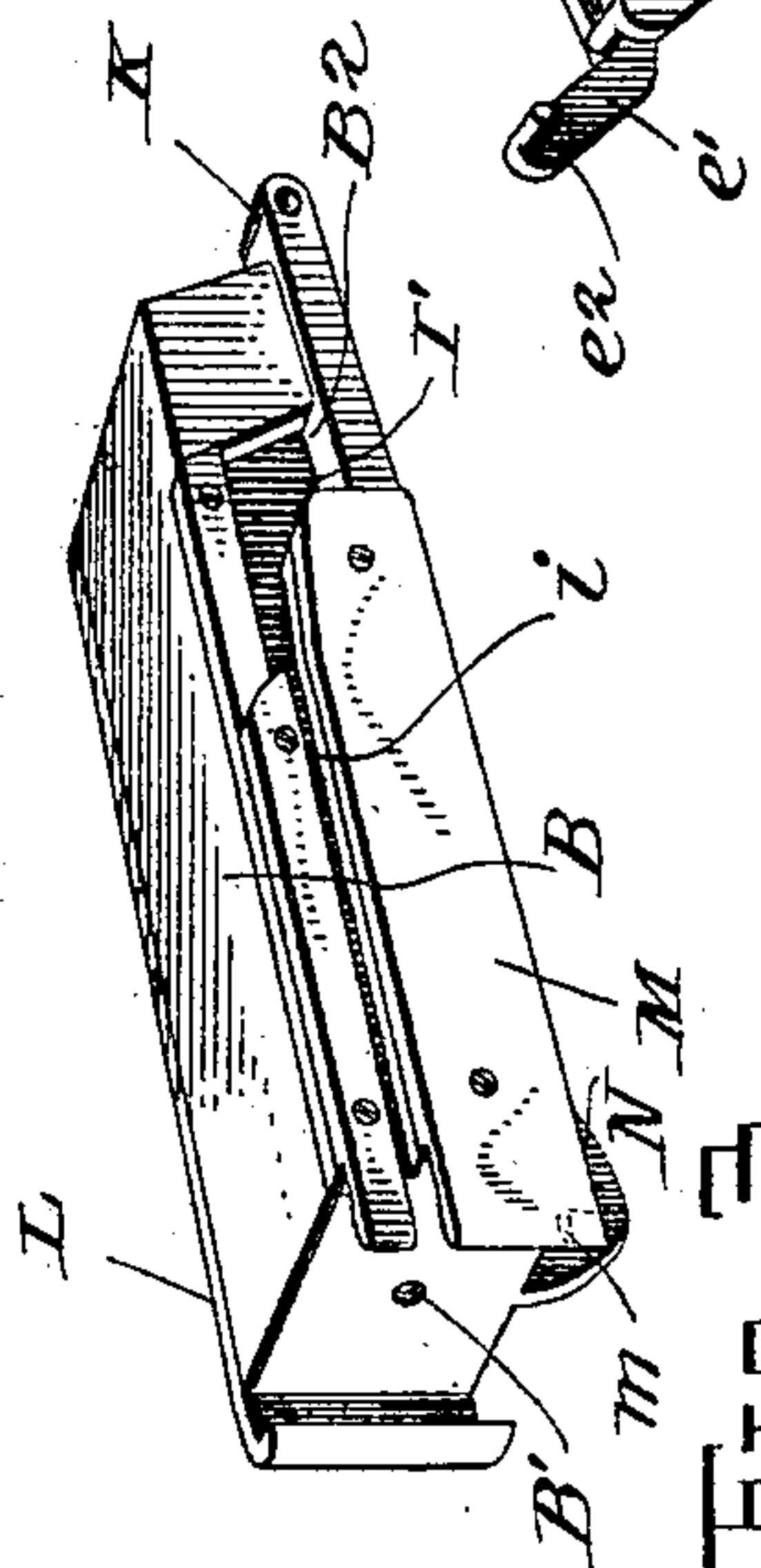
2 SHEETS—SHEET 1.



Witnesses
F. E. Alden.
L. E. Parkley.



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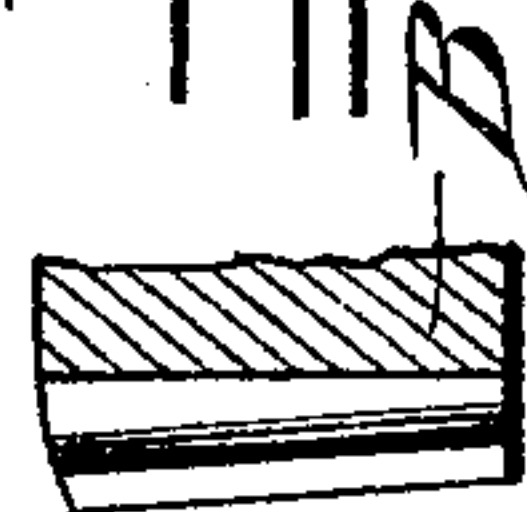
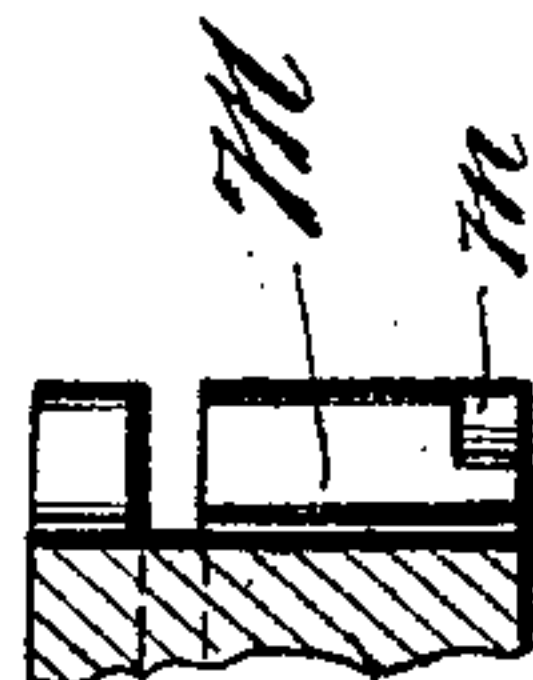



Fig. 9.



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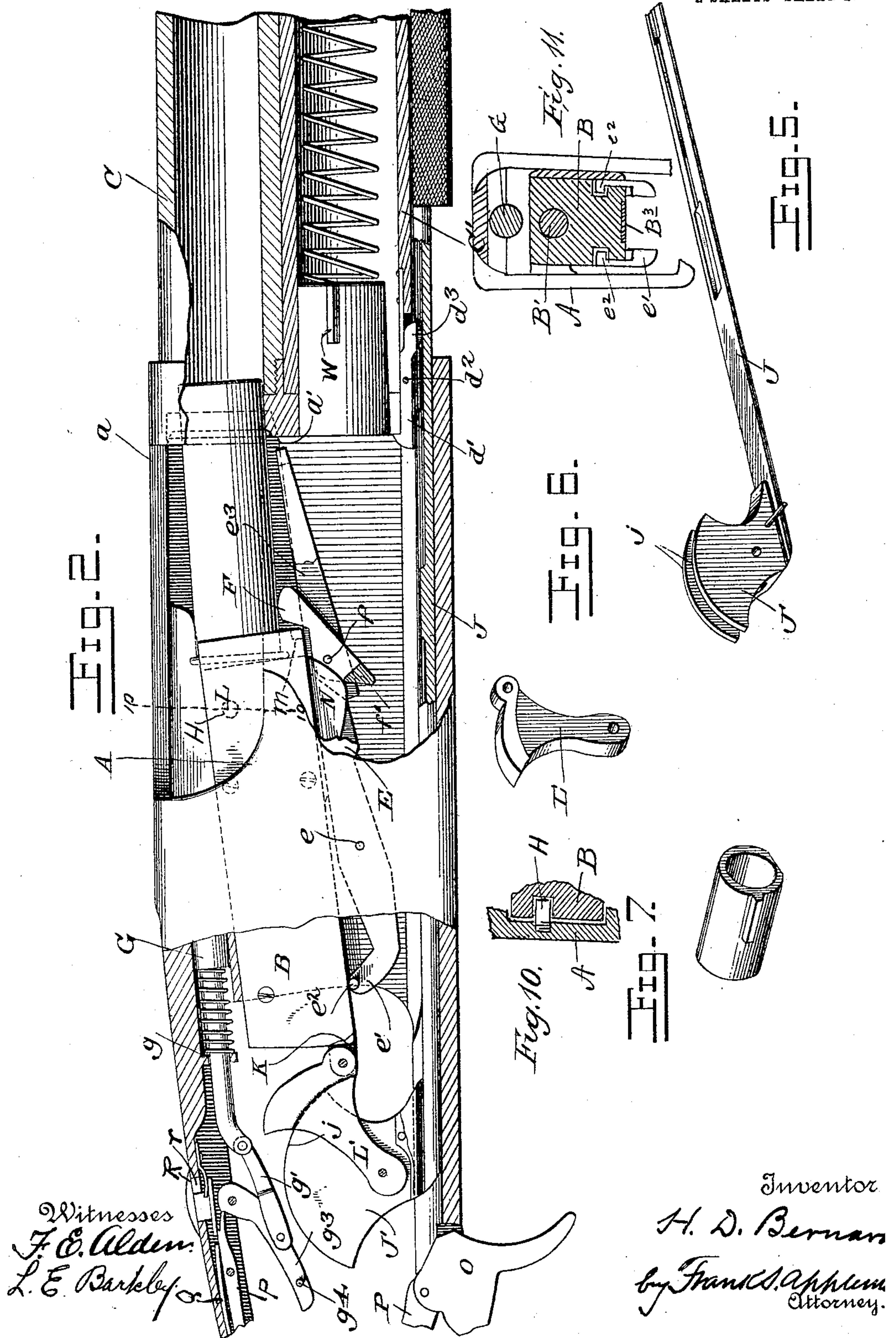
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

HARRY D. BERNARD, OF WARREN, MINNESOTA.

BREECH-LOADING GUN.

No. 803,389.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed August 3, 1904. Serial No. 219,324.

To all whom it may concern:

Be it known that I, HARRY D. BERNARD, a citizen of the United States of America, residing at Warren, in the county of Marshall and State of Minnesota, have invented certain new and useful Improvements in Breech-Loading Guns, of which the following is a specification.

This invention relates to firearms, and particularly to a breech-loading gun of the magazine type.

An object of this invention is to provide a firearm of the character noted in which the breech-block and the operating mechanism except the action-rod is contained within the receiver and stock.

Furthermore, an object of this invention is to provide a firearm of the character noted which can be produced as a hammerless gun; and the invention comprises in part novel means for resetting the plunger and firing mechanism which may be released by a pull on the trigger.

Furthermore, an object of this invention is to provide novel means for removing the shell from the magazine and for delivering it to the barrel, the said mechanism being confined within the casing, so that no parts of the said mechanism project except the action-rod.

Furthermore, an object of this invention is to provide novel means for reciprocating the breech-block longitudinally and for oscillating the said breech-block vertically; and the invention further comprises novel means for retaining the breech-block closed and locked in order that the recoil incident to the firing of the gun may not displace or dislodge the breech-block.

The invention further comprises novel means for operating an ejector for causing the empty shell to be thrown to one side free from the breech mechanism.

Finally, an object of this invention is to produce a gun of the character noted comprising comparatively few parts which will prove efficient and satisfactory in use.

With the foregoing and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and specifically claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of this specification, wherein like characters denote corresponding parts throughout the several views, in which—

Figure 1 is a longitudinal sectional view

through the breech and through the gun-stock. Fig. 2 is a similar view with the parts in a different position. Fig. 3 is a perspective view of the breech-block. Fig. 4 is a perspective view of the carrier and shell-lifter. Fig. 5 is a perspective view of the action-rod and the arm carried thereby. Figs. 6 and 7 are detail perspective views. Figs. 8 and 9 are fragmentary sectional views of the breech-block, showing the means carried by the plates thereon for gripping the flange of a shell. Fig. 10 is a detail sectional view taken on the line 10 10, Fig. 2. Fig. 11 is an additional detailed view in section.

In the drawings, A indicates the receiver, having one corner cut away, as at *a*, for the purpose of permitting the application and removal of the shells, and the inner side walls of the receiver are provided with inclined shoulders *a'*, which form tracks or ways on which the breech-block B is slidable.

The receiver is provided with any suitable barrel C and a magazine C', which may be of any desired construction, the said magazine of course having a spring-pressed follower *d* for normally pressing the shells or charges rearwardly.

In one side of the magazine is formed a longitudinal groove or recess *s*, which extends the entire length thereof. In this groove rides the elongated lug *w*, formed on one side of the follower *d*. By this means or arrangement the follower *d* is held against rotary movement, which would tend to affect the efficiency of the follower.

At the point where the magazine enters the receiver I pivot a latch *d'* by the pivotal pin *d''*, the said latch having its nose extending above the lower wall of the magazine and serving to arrest the shells successively as they are forced from the magazine by the follower. The heel end *d'''* of the latch extends below the wall of the magazine and at the outward limit of movement of the action-rod the said heel end is forced upwardly, thus causing the latch to swing downwardly and release the shell. The latch may be tripped by a lug on the action-rod or by any other suitable means which will accomplish the result. The shell-carrier E occupies a position at the bottom of the receiver and is pivoted by the pin *e*.

The carrier terminates at the rear in two curved fingers *e'*, each of which has an inwardly-extending stud *e''*, adapted to ride in a cam-slot (to be hereinafter described) in

the breech-block. The carrier is provided with a longitudinal slot e^3 , in which the lifter F is pivoted on the pin f , the said lifter comprising two fingers connected at one end by a cross-piece f' , which cross-piece is engaged and depressed by a fin (to be hereinafter described) of the breech-block. The breech-block B contains a firing-pin B' , which may be held retracted in any suitable manner, and the firing-pin is moved into alinement with the plunger G when the breech-block is closed. The plunger is spring-pressed to project it, and it operates through a suitable guide g' and has its rear end connected to a link g' , and the link in turn is pivoted to a lever g^3 , which has its lower end provided with a cross-pin g^4 .

The breech-block B has on its side the grooves B^2 , which extend approximately parallel with the lower edge thereof for a portion of their distance and then depend and merge with the said lower edge, and it is in these slots that the studs e^2 of the fingers of the carrier travel with the reciprocation of the breech-block, the said fingers being forced downwardly by the walls of the grooves into the position shown in Fig. 2. The groove B^2 is not shown in Fig. 2 for the reason that the side plate L obstructs the view thereof. It is to be understood, however, that each side of the block B has a groove B^2 . After the said fingers have been depressed until the studs are disengaged from the walls of the groove a spring-guard B^3 snaps into place and covers the groove at its point of merger with the lower edge of the breech-block. The guard is anchored at one end to the breech-block and is preferably set in flush with the lower surface of the said breech-block. With the reciprocation of the breech-block, as stated, the fingers are depressed, thus elevating the opposite end of the carrier, which movement results in elevating the shell from the horizontal position in which it is received from the magazine to an inclined position, with its end directed to the breech of the barrel. With the closing of the breech-block the shell is forced into the barrel and the carrier is depressed to an approximately horizontal position and on a plane with the lower wall of the magazine.

An ejector-pin H projects into one side of the receiver, and the breech-block has a longitudinal channel i to form a way so that the said breech-block may travel past the stud or pin.

The action-rod J is slidable in a longitudinal groove in the bottom of the receiver, and the rear end of said action-rod carries an arm J' , which flares upwardly and has a camming-surface j , over which the cross-pin of the lever rides as the said arm is forced rearwardly by the action-rod, and as the said lever is forced rearwardly on its pivot the plunger is reset.

The rear end of the breech-block has ears K, between which the link L' is pivoted, one end of the said link being pivoted to the arm J' in order to take motion therefrom. The arm J' is bifurcated from its upper edge toward the bottom, and the link has its end pivoted in the bifurcation. The outer end of the link is flared and one corner thereof is pivoted to the ears K of the breech-block, as fully illustrated. In operation as the action-rod draws the arm J' inwardly toward the breech-block the said breech-block is carried up the inclined way formed by the shoulders a' , thus elevating the pivotal point of the link where it connects to the ears K above the pivotal point of the said link where it is connected to the arm. Hence as the parts move toward the breech of the barrel and the breech-block has reached its limit of movement in that direction further pull on the action-rod would result in the link swinging upwardly on its pivots, and thereby carrying the rear end of the breech-block to the plane of the front end thereof and causing the said breech-block to assume a position in the plane of the barrel, where it is held against displacement through the medium of the arm j .

With the rearward thrust of the action-rod the link carries the rear end of the breech-block down to an inclined position, where it rests on the shoulders a' and is slidable thereon.

The breech-block has side plates L and M, which project beyond the end of the breech-block, the said plate L having a shoulder in its inner face, the said shoulder standing at an angle with relation to the end of the breech-block, so that the space between the shoulder and the end of the breech-block is restricted at the bottom and becomes a little larger toward the top, and this is provided for the purpose of allowing a limited movement of the flange of a shell in order that the said shell may swing vertically without the flange of the shell being bound between the shoulder and the end of the breech-block.

The plate M, which projects beyond the end of the breech-block, has a lug m at its lower corner, which is designed for the purpose of engaging the flange of the shell to coact with the shoulder of the plate L in moving the said shell.

The fin N is arranged on the breech-block and depends therefrom longitudinally and is preferably formed integral with the said breech-block. The fin is slidable between the guides formed by slotting the shell-delivering device, and it is also slidable between the lifter-fingers, which lifter-fingers, by the way, have the purpose of elevating the rear portion of the shell, so that the said portion will be on the plane of the front portion at the time it is delivered to the barrel. The fin is tapered in depth from the front of

the breech-block toward the rear and terminates about centrally the length of the said breech-block. This arrangement assures the return of the lifter-fingers to their normal position.

By the rearward motion of the breech-block the shell is drawn back or extracted from the barrel and comes into contact with the pin H and is ejected before the carrier is raised, thus allowing room for the next shell. The lifter-fingers take no action except in the forward motion of the breech-block. During the rearward thrust the flange of the shell is pressed against the plate *m* by the plate *l* with sufficient force to hold it from dropping until it is ejected by the pin. When there is a plurality of shells in the gun, each succeeding shell holds up the rear end of the shell that is being ejected.

The trigger O has a link P, which is connected to a latch which holds the said lever *g*³ set when the plunger G is retracted. The latch is normally pressed by the spring Q. A safety-catch R is slidable in a slot *r* and serves to retain the latch against movement when set to accomplish the result, though it may be moved out of engagement with the latch at will of an operator to permit firing of the gun.

The end of the lifter F is beveled and is adapted to engage the beveled ends of the blocks F', which are provided for holding the lifter normally parallel with the carrier and limiting the movement thereof in one direction.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a breech-loading gun, a suitable magazine, a latch for holding the shell in the magazine, an action-rod, means on the action-rod for tripping the latch, a receiver, a carrier pivoted in the receiver, a breech-block movable in and confined by the receiver, a suitable firing mechanism, means whereby the movement of the action-rod is utilized to set the firing mechanism, a lifter pivoted to the carrier and a fin on the breech-block for operating the lifter.

2. In a breech-loading gun, a receiver, a magazine, a latch for retaining charges in the magazine, an action-rod, means on the action-rod for operating the latch, a carrier pivoted in the receiver, a lifter pivoted to the carrier, a breech-block for oscillating the carrier, means for retaining the carrier in operative position for delivering charges to the barrel, a firing mechanism, means carried by the action-rod for setting the firing mechanism, means for elevating the rear end of the breech-block, and means for retaining the breech-block against displacement.

3. In a breech-loading gun, a magazine, a carrier, means for delivering charges from the magazine to the carrier, a breech-block

having cam-slots in its sides, means on the carrier for riding in the cam-slots whereby the carrier is oscillated, a suitable firing mechanism and means whereby the same is set, a lifter pivoted to the carrier and means on the breech-block for oscillating the lifter.

4. In a breech-loading gun, a suitable receiver and magazine a breech-block, means on the breech-block for engaging a shell a carrier for delivering the shell to the breech-block, an action-rod, an arm carried thereby, a link pivoted to the arm and to the breech-block, a firing mechanism, means whereby the arm sets the firing mechanism and means whereby the breech-block oscillates the carrier.

5. In a breech-loading gun, a receiver, a breech-block slidable therein, an action-rod, a firing mechanism, an arm carried by the rod adapted to engage and set the firing mechanism, and a link pivoted at one end to the said arm and at its opposite end to the breech-block.

6. In a breech-loading gun, a receiver having an opening in its side, a breech-block slidable therein, inclined shoulders formed within the receiver on which the block rests, said block having a longitudinal channel in its side, an ejecting-lug on the receiver adapted to ride in said channel, a carrier operated by the breech-block, and a lifter pivoted to the carrier and operated by the breech-block.

7. In a breech-loading gun, a firing mechanism, a receiver, a lever connected to said firing mechanism, a breech-block, an action-rod, an arm on the end of said rod adapted to engage the lever of the firing mechanism, and a link connection between the arm and the breech-block.

8. In a breech-loading gun, a receiver, a firing mechanism having a lever connected thereto, an action-rod, an arm on the rod having its end cammed to engage the lever of the firing mechanism, and link connection between the arm and the breech-block.

9. In a breech-loading gun, a receiver, a firing mechanism having a lever connected thereto and a cross-pin on said lever; a breech-block, an action-rod, an arm on the rod, said arm being bifurcated and adapted to engage the cross-pin, and a link connection between the arm and the block.

10. In a breech-loading gun, a receiver, a breech-block slidable therein, a fin on the block, a carrier operated by the block and a lifter pivoted in the carrier and adapted to be engaged by the fin.

11. In a breech-loading gun, a receiver, a breech-block slidable therein, a fin on the block, a carrier operated by the block, fingers pivoted in the carrier, a cross-pin connecting an end of each of the fingers, said cross-pin being adapted to be engaged by the fin on the block.

12. In a breech-loading gun, a receiver, a

breech-block slidable therein, a fin on the block, a carrier operated by the block, said carrier having a slot, and a lifter pivoted in the slot and adapted to be engaged by the fin on the block.

13. In a breech-loading gun, a receiver, a breech-block slidable therein, a fin on the block, said fin being tapered rearwardly, a carrier operated by the block, and a lifter pivoted to the carrier and adapted to be engaged by the fin.

14. In a breech-loading gun, a receiver, a breech-block slidable therein, a fin depending from the block, a carrier operated by the block and a lifter pivoted to the carrier adapted to be engaged by the fin.

15. In a breech-loading gun, a receiver, a breech-block slidable therein, a fin depending longitudinally from the block, a carrier operated by the block and a lifter pivoted to the carrier and operated by the fin.

16. In a breech-loading gun, a receiver, a breech-block slidable therein, a fin depending centrally from the block, a carrier operated by the block, and a lifter pivoted to the carrier and operated by the fin.

17. In a breech-loading gun, a receiver, a breech-block slidable therein, said block having cam-slots in its sides, a carrier pivoted within the receiver, lugs on the carrier adapted to ride in said cam-slots and means whereby one end of each slot is guarded.

18. In a breech-loading gun, a receiver, a breech-block slidable therein, said block having cam-slots in its sides, a carrier pivoted within the receiver, lugs on the carrier adapted to ride through the slots, and a spring for closing one end of each slot.

19. In a breech-loading gun, a receiver, a breech-block slidable therein, said block having slots in its sides, a carrier pivoted within

the receiver, fingers on one end of the carrier, and inwardly-extending lugs on the fingers adapted to travel through the slots.

20. In a breech-loading gun, a receiver, a breech-block slidable therein, said block having slots in its sides, a carrier pivoted within the receiver, parallel fingers on one end of the carrier, lugs on the fingers adapted to travel through the slots on the block.

21. In a breech-loading gun, a receiver, a breech-block, a plate on each side of the block extending beyond an end thereof, a lug on one of the plates and a shoulder on the other said shoulder being at an angle with relation to an end of the breech-block.

22. In a breech-loading gun, a receiver, a breech-block, an action-rod, a firing mechanism, an upwardly-extending arm on the rod adapted to engage and set the firing mechanism, and a connection between the arm and block for operating said block.

23. In a breech-loading gun, a receiver, a breech-block slidable therein, said block having cam-slots in its sides, said slots being open at each end, a carrier pivoted within the receiver, and means carried by the carrier adapted to ride in and through the cam-slots of the block.

24. In a breech-loading gun, a receiver, a breech-block therein, said block having cam-slots in opposing sides thereof, a carrier pivoted within the receiver, and means on the carrier for riding in the slots.

In testimony whereof I affix my signature, in the presence of two witnesses, this 25th day of July, 1904.

HARRY D. BERNARD.

Witnesses:

HOWARD E. DADY,
WM. J. BROWN.