Oct. 13, 1925. **1,557,435**

L. N. DIEHM

FIREARM

Filed Feb. 24, 1925

Fig. 1.

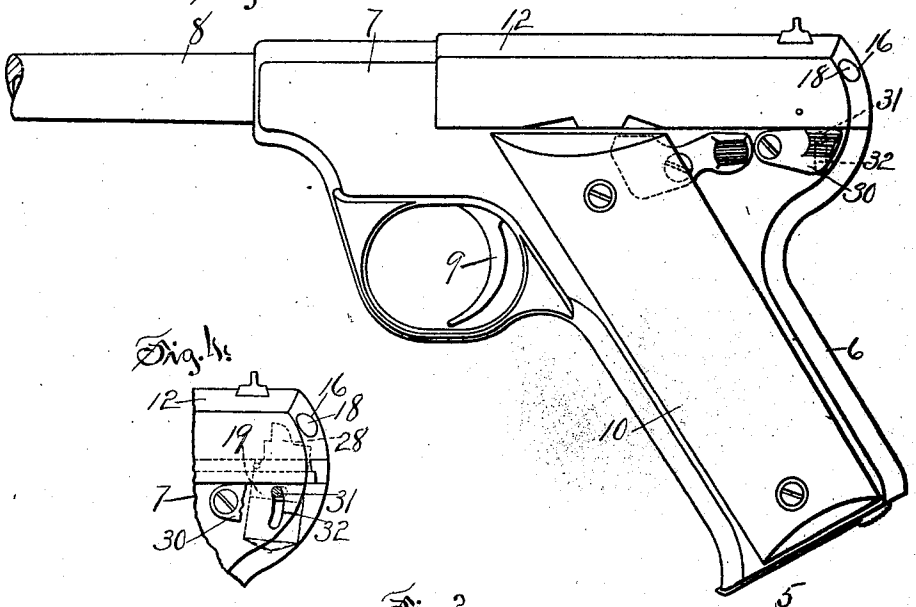


Fig. 4.

Fig. 2.

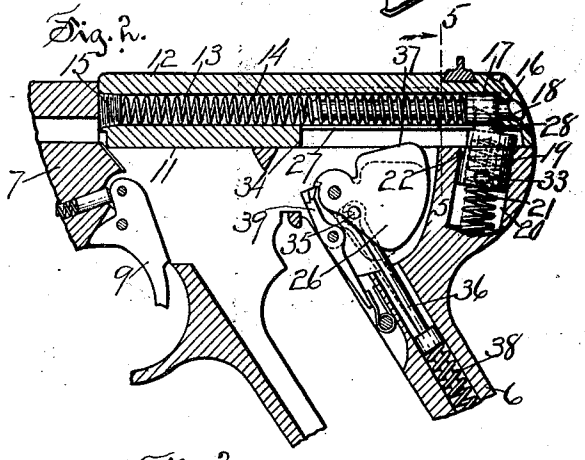


Fig. 5.

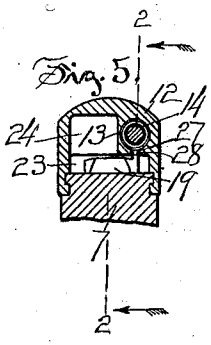
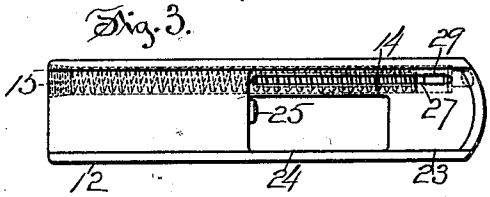


Fig. 3.



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UNITED STATES PATENT OFFICE.

LUCIUS N. DIEHM, OF WEST HARTFORD, CONNECTICUT.

FIREARM.

Application filed February 24, 1925. Serial No. 11,375.

To all whom it may concern:

Be it known that I, LUCIUS N. DIEHM, a citizen of the United States, and a resident of West Hartford, in the county of Hartford and State of Connecticut, have invented new and Improved Firearms, of which the following is a specification.

My invention relates more especially to that class of firearms that are customarily held in the hand and that are otherwise unsupported while being fired, and which are commonly known as pistols, and an object of my invention, among others, is the production of a firearm of this class having novel features of construction with respect to the firing mechanism.

One form of a firearm embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the frame of a firearm embodying my invention.

Figure 2 is a view in section on a plane denoted by the dotted lines 2—2 of Figure 5.

Figure 3 is a bottom view of the breech bolt.

Figure 4 is a view in side elevation of the upper rear end of the frame with the thumb lever for actuating the breech-bolt stop broken off.

Figure 5 is a view in cross section on a plane denoted by the dotted line 5—5 of Figure 2.

In the accompanying drawings the numeral 6 denotes the stock or handle comprising a portion of the frame of my improved firearm, 7 the receiver comprising a portion of said frame, 8 the barrel, 9 the trigger, and 10 the grip, all of which parts may be of any ordinary and well known construction.

The receiver is cut away at its upper rear end to form a ledge 11 upon which the breech-bolt 12 is mounted for reciprocating sliding movement, the breech-bolt being attached to the receiver as by means of interengaging ribs and grooves, in a manner common to firearms of this class, and as shown in Figure 5 of the drawings. A hole is formed extending inwardly from the front end of the breech-bolt and at one side thereof to constitute a recess 13 for a breech-bolt actuating spring 14, the front end of said hole being closed as by a screw threaded plug 15. A hole 16 is formed through the rear end of the breech-bolt into the recess 13, said hole being somewhat smaller in diameter than that of the recess and providing a shoulder at the bottom of the recess to receive the thrust of a spring support 17 located in the recess and having a push lug 18 extending therefrom through the hole 16, and as shown in Figure 2 of the drawings.

A breech-bolt stop 19 is located in a recess 20 in the receiver or upper part of the frame, said stop being seated upon a spring 21, and said stop being held within the recess as by means of a pin 22. The upper end of the stop projects into a breech-bolt stop recess 23 located in the under surface of the breech-bolt at the back part thereof, a hammer recess 24 opening at the bottom of the breech-bolt stop recess, and as shown in Figure 3 of the drawings, the end of a firing pin 25 projecting into the recess 24 to be struck by the hammer 26 in a manner that will be readily understood.

A slot 27 extends through the bottom of the recess 23 into the breech-bolt actuating spring recess 13, and a spring retainer 28, in the form of a nose extending from the end of the breech-bolt stop 19, passes through said slot and into an opening 29 in the under surface of the spring support 17. A breech-bolt stop actuating lever 30 is pivotally mounted on the side of the receiver or upper part of the frame, this lever having a breech-bolt stop actuating pin 31 extending through a slot 32 in the side of the receiver and into a hole 33 in the side of the breech-bolt stop as a means for actuating the latter.

When the firearm is discharged the breech-bolt will be forced backwardly for the purpose of ejecting an empty shell, and in this movement the spring 14 being seated against the support 17, the latter being held by its retainer, the spring will be compressed, and when the breech-bolt has reached the backward limit of its play, as determined by the breech-bolt stop 19 against which it strikes, the reaction of the spring 14 will cause the breech-bolt to be moved forward and the breech-bolt will thereby be closed. The stop herein illustrated and described provides a very rigid

abutment that acts as an effective barrier to the backward movement of the breech-bolt the structure being such that the stop will last indefinitely.

If it be desired to remove the breech-bolt the actuating lever 30 is pressed downwardly as to its rear end, thus moving the stop 19 downwardly out of the path of movement of a stop shoulder 34 at the front end of the recess 23 and the retainer 28 is also moved out of the path of movement of said shoulder. This releases the spring support 17 from the retainer and said support is forced by the spring backwardly against the bottom of the recess 13. The breech-bolt may now be slid along its ways and removed from the rear end of the frame. When it is desired to replace the breech-bolt the lever 30 is again moved downwardly, as above described and with the same results, and the breech-bolt may be readily slid to place. In this movement of the breech-bolt should the retainer 28 be located in its path of movement the rounded or beveled rear end of the retainer, as shown in Figures 2 and 4, will cause the breech-bolt stop to be pressed downwardly so that the retainer will not prove an obstruction to the movement of the breech-bolt. When the breech-bolt has been seated the push lug 18 is pressed inwardly to register the opening 29 with the retainer 28 when the latter will spring into place in said opening and the support 17 will thus be held to effect contraction of the spring when the breech-bolt shall be moved backwardly.

In order that the hammer 26 shall not obstruct the replacing of the breech-bolt I so construct the pivotal point 35 of attachment of the hammer plunger 36 and the nose 37 of the hammer, that when the latter is pressed downwardly by the shoulder 34 in the backward movement of the breech-bolt the pivotal point of attachment of the plunger to the hammer will be moved past a straight line extending between the pivot of the hammer and the point of rest of the plunger upon the hammer actuating spring 38 and to the position shown in dotted lines in Figure 2 of the drawings. The result of this positioning of the parts will be that the spring 38 will hold the hammer in its retracted position and the nose 37 will, therefore, be located out of the path of movement of the breech-bolt in the operation of replacing said bolt upon the receiver. The pivot 35 is so located that it will not pass to a great distance beyond a straight line between the pivot of the hammer and the resting point of the plunger so that the slight jar incident to forcing the breech-bolt to place, as by striking the rear end with the hand, will dislodge the hammer and cause it to move into position where it is held in the usual manner by a sear 39, and this same operation will take place when the breech-bolt is moved backwardly by the forces of discharge.

In accordance with the provisions of the patent statutes I have described the principles of operation of my invention together with the device which I now consider to represent the best embodiment thereof; but I desire to have it understood that the device shown is only illustrative, and that the invention may be carried out by other means and applied to uses other than those above set out.

I claim:—

1. A firearm including a frame, a breech-bolt slidably attached to the frame, a hammer pivotally mounted on the frame for engagement by the breech-bolt, a spring having a pivotal point of connection with said hammer for actuation thereof, said pivotal point being positioned to force the hammer backwardly when said hammer is in its rearmost position, means for positioning the hammer in such a sensitive but inoperative retracted position as to effect movement from such position by the jar incident to the manual closing of the breech-bolt to an operative firing position, means for holding the hammer in such firing position against the force of said spring, and means for releasing said holding means.

2. A firearm including a frame, a breech-bolt slidably attached to the frame, a hammer pivotally mounted on the frame for engagement by the breech-bolt, a spring having a pivotal connection with said hammer for actuation thereof, the engaging parts of said breech-bolt and hammer being formed to cause said pivotal point of connection to pass to a point to force the hammer backwardly when said hammer is in its rearmost position, means for positioning the hammer in such sensitive but inoperative retracted position as to effect movement from such position by the jar incident to the manual closing of the breech-bolt to an operative and firing position, means for holding the hammer in such firing position against the force of said spring, and means for releasing the hammer.

3. A firearm including a frame with a recess therein, a breech-bolt slidably attached to the frame overlying said recess, a breech-bolt stop movably located and having a restricted movement in said recess to limit backward movement of the breech-bolt, means for moving said stop in said recess, a breech-bolt retracting spring located in the breech-bolt, and means on said stop to act as a seat for said spring.

4. A firearm including a frame with a recess therein, a breech-bolt slidably attached to the frame overlying said recess and having a spring recess with a slot thereinto, a breech-bolt stop located in the first

mentioned recess to limit backward movement of the breech-bolt, a breech-bolt retracting spring located in said spring recess, and means on said stop projecting through said slot to act as a seat for said spring.

5. A breech-bolt having a spring recess extending lengthwise thereof at one side, a hammer recess located beside the spring recess and divided therefrom, and a breech-bolt stop recess opening to said hammer recess and having a slot opening into said spring recess.

6. A firearm including a frame, a breech-bolt slidably attached thereto and having a spring recess and a breech-bolt stop recess with a slot in the partition between said recesses, a spring support located in the spring recess with a push lug projecting through a hole to the end of the breech-bolt, a spring located in the spring recess and seated against said spring support, a breech-bolt stop located in a recess in the frame to limit backward movement of the breech-bolt, and a spring retainer projecting from said stop through said slot into engagement with said spring thereof.

LUCIUS N. DIEHM.