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L. N. DIEHM

FIREARM

Filed May 17, 1919

Fig. 1.

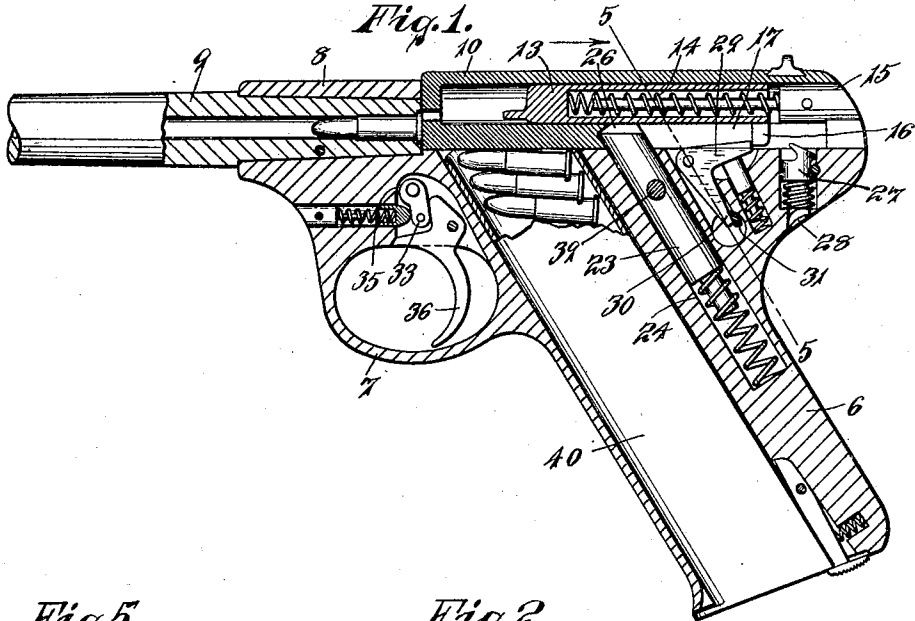


Fig. 5.

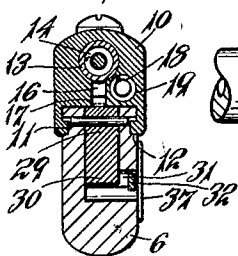


Fig. 2.

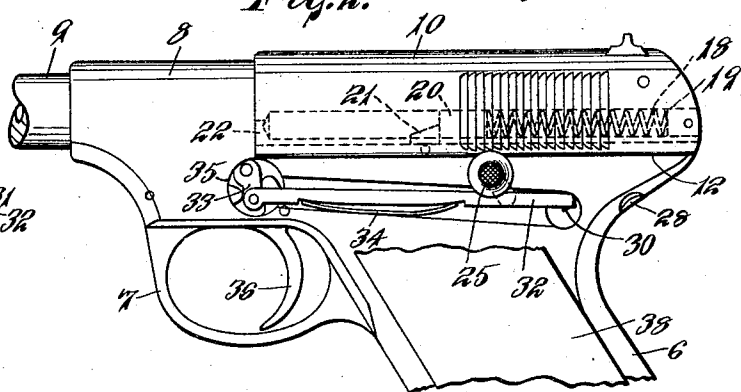


Fig. 3.

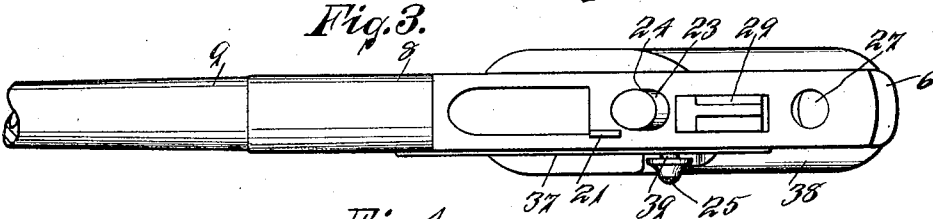


Fig. 4.



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FIREARM.

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To all whom it may concern:

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

My invention relates to the class of firearms that are adapted to be supported upon the person when being fired and especially to that type of such firearms as are commonly held in the hand when being fired, and an object of my invention, among others is to provide a firearm of this type that shall be extremely simple in construction and particularly efficient in operation.

One form of device 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 view in central vertical section through a firearm embodying my invention, the front end of the barrel being broken off.

Figure 2 is a view in side elevation of the upper rear part of my improved firearm, with parts broken away to show construction.

Figure 3 is a top plan view of the frame of my improved firearm with the front end of the barrel broken off.

Figure 4 is a bottom view of the breech-bolt.

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

My invention is particularly adapted for use in that type of firearms more commonly known as a "pistol" although the invention is not necessarily confined to use in a firearm of this specific type. The frame of my improved firearm comprises a handle 6, trigger guard 7, and a receiver 8, the latter constituting the upper part of the frame to which the barrel 9 is secured, all of which parts may be of any ordinary and usual construction.

A breech-bolt 10 is slidably mounted on the receiver back of the barrel, said bolt being engaged with the receiver as by means of lips 11 on the breech-bolt entering grooves 12 in the sides of the receiver in a manner common to devices of this class. A firing pin 13 is mounted in a chamber in the

breech-bolt and is forced forward as by a spring 14 thrusting at its front end against the firing pin and at its rear end against a plug 15 in an ordinary manner. The firing pin has a cocking lug 16 projecting from its under side through a groove 17 formed in the under surface of the breech-bolt and extending into the firing pin chamber therein.

A breech-bolt retracting spring 18 is located in a bore 19 extending from the rear end of the breech-bolt inwardly, said spring thrusting at its inner end against a spring seat 20 that is supported against a retracting spring support 21 secured to the receiver and projecting upwardly therefrom through a slot 22 cut through the breech-bolt from the bottom surface thereof into the bore 19. A breech-bolt holder 23 is mounted in a bore 24 extending vertically within the frame and has a thumb piece 25 by means of which it is operated for releasing action with respect to the breech-bolt. Said holder projects into a holder opening 26 in the bottom of the breech-bolt and it rigidly retains the breech-bolt in its closed position especially during firing action. A breech-bolt stop 27 is mounted in the receiver in position to pass into the opening 26, said stop being seated upon a spring as shown in Figure 1 of the drawings, and having a lipped thumb piece 28 for engagement by the nails of a thumb and finger or an instrument to remove the stop from engagement with the breech-bolt so that it may be removed from the receiver when desired.

A sear 29 is pivotally mounted in the receiver with its nose in position to engage the cocking lug 16 and its sear tail 30 in position for engagement by a sear bar 31 projecting from a trigger bar 32 pivotally attached to a trigger bar lever 33 and resting upon a trigger bar spring 34. The lever 33 is pivotally mounted in a recess 35 in the side of the receiver, its lower end being in position for engagement with the upper end of a trigger 36 pivotally mounted in the frame and with its lower end projecting into the opening within the trigger guard 7. The trigger bar 32 is located in a recess in the side of the receiver and opening from the recess 35, said recesses being closed by a thin closing plate 37 partially held in place by pins and with its lower edge underlying a handle grip piece 38 secured to the side of the handle. The trigger bar 32 underlies a

pin 39 connecting the thumb piece 25 and holder 23, so that when said thumb piece and pin are pushed downwardly to disengage the holder from the breech-bolt the trigger bar and sear bar will be moved downwardly to disengage the latter from the sear and permit said sear free movement into the path of movement of the lug 16 for engagement therewith when the breech-bolt moves forward after having reached the backward limit of its play.

From the above description it will be noted that the parts being in the position shown in Figure 1 a pull upon the trigger will operate the sear to release the firing pin and the latter being forced forward by its spring will cause an explosion of the cartridge within the barrel. After such firing operation the thumb piece 25 being moved downwardly will release the breech-bolt and it will be forced backwardly under the influence of its spring 18 and the empty shell may be thus extracted and ejected by any of the devices common to structures of this class. When the breech-bolt is moved backward the cartridges in the magazine 40 will be fed upwardly by devices commonly employed in structures of this class and in a manner that will be readily understood into the path of movement of the breech-bolt. The latter will now be closed by a manual operation in which movement a cartridge will be forced into the breech in the barrel, the cocking lug 16 will be engaged by the sear and the firing pin will thus be held in its backward position and this will tension the spring 14 ready for the next firing operation.

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.

I claim—

1. A firearm including a frame, a breech-bolt movably mounted in the frame, a manually operated holder to retain the breech-bolt in its closed position, means for moving the breech-bolt backwardly when released by said holder, a sear, a trigger, means for connecting the trigger and sear, and means connected with said holder for releasing it and simultaneously therewith to break the connection between the trigger and sear when the holder is operated to release the breech-bolt.

2. A frame for a fire arm including a handle, a breech-bolt movably mounted in the frame, a holder longitudinally movable in a bore extending vertically in the handle, said holder operating to hold the breech-bolt in its closed position; a thumb piece extend-

ing from said handle laterally to the outer surface of the frame, a sear, a trigger, and a trigger bar connecting the trigger and sear and underlying said thumb piece to be operated thereby for disengagement from said sear when the breech-bolt is unlocked.

3. A firearm including a frame, a breech-bolt movably mounted on the frame and having an opening in its under surface, said bolt being removable from the frame by a rearward sliding movement, a manually operated holder adapted to be projected into said opening for engagement with the wall thereof to retain the breech-bolt in its closed position, means for automatically, mechanically moving the breech-bolt backwardly, a plunger extending through an opening in the under surface of the frame and adapted to be projected into the breech-bolt opening to stop backward movement of the breech-bolt and providing the sole means for retaining the breech-bolt in the frame, and manually operated means for operating said plunger to release the breech-bolt.

4. A firearm including a frame, firing mechanism mounted in the frame and including a sear, a trigger pivotally mounted in the frame and having an upwardly extending nose, a trigger lever pivotally mounted at one end in front of said nose in a recess in the frame with its end opposite said pivot in operative engagement with said nose, and a trigger bar connecting said lever and said sear.

5. A firearm including a frame having a recess therein, a trigger pivotally mounted in said recess and having a finger to close an opening thereinto, said trigger having an upwardly extending nose, a trigger lever pivotally mounted in said recess and extending in front of said nose to be engaged thereby, a sear, and a trigger bar for operating said sear; said bar being pivotally connected to said lever.

6. A firearm including a frame, a breech-bolt movably mounted on the frame, a firing pin movably mounted in the breech-bolt, a firing pin spring connected with the firing pin and with the breech-bolt to be untensioned in the backward movement of the latter, a sear to engage the firing pin to tension said spring in forward movement of the breech-bolt, a holder to retain the breech-bolt in its forward position, a breech-bolt retracting spring located in a bore in the breech-bolt and thrusting thereagainst, a spring support secured to the frame and extending into said bore to receive the thrust of said spring, and means for releasing said holder to permit said spring to act to retract the breech-bolt.

7. In a breech mechanism for firearms, guide means, a breech block engaging the guide and capable of forward and rearward movement thereon, a shoulder on the breech-

block, locking means for engaging the shoulder when the breech block is in forward position to hold the same closed and a stop device for engaging the shoulder to limit the rearward movement of the breech block when open, a sear, a trigger for operating the same and means for preventing operation of the sear by the trigger when the locking means is unlocked.

8. In a breech mechanism for firearms, guide means, a breech block engaging the guide means, a locking device for holding the breech block in closed position, a firing mechanism, a sear for releasing the firing mechanism, a trigger, a link connection between the trigger and sear for operating the latter from the former and means connected to the breech block, locking mechanism and engageable with the sear operating link for first disconnecting the link from the sear and then releasing the breech block.

LUCIUS N. DIEHM.