B. CLARUS.
RECOIL LOADER WITH FIXED BARREL.
APPLICATION FILED SEPT. 21, 1911.

1,057,329.

Patented Mar. 25, 1913.
To all whom it may concern:

Be it known that I, Bruno Clarus, engineer, a subject of the German Emperor, residing at 20 Rue des Armuriers, Liege, in the Kingdom of Belgium, have invented certain new and useful Improvements in Recoil-Loaders with Fixed Barrels, of which the following is a full, clear, and exact description.

The present invention relates to a recoil loader with fixed barrel and straight pull breech and a breech spring with a loose intermediate roller arranged beneath the breech chamber.

The invention is illustrated in the accompanying drawing in which:

Figure 1 shows a longitudinal horizontal section, showing the breech closed, the breech bolt locked and the percussion bolt cocked ready for firing. Fig. 2 shows a longitudinal vertical section showing the parts in position immediately after firing and before the recoil has taken place. Fig. 3 shows a view similar to Fig. 1 showing the parts in position immediately after firing, the breech bolt being unlocked and ready to commence its breech opening movement. Fig. 4 shows a view similar to Fig. 2 but with the parts in different positions, the breech bolt being in its rearmost position and ready to commence its breech closing movement. Fig. 5 shows a longitudinal section through the head of the breech bolt, showing the locking dogs and the means for operating them, both automatically and manually.

The gun is arranged for the detachable magazine; the case 1 is closed above by the cover 2 retained in place by means of a spring bolt 3 and below in the known manner by the trigger plate 4 secured by means of screws. In the rear end of the case a movable buffer 5 is fitted; said buffer being provided with springs 6 and held in the case by means of studs 7. Underneath the guide ledges for the breech bolt the case forms a tube for the reception of the breech spring 8; this tube is closed at the rear end by a bolt 9 and its front portion is provided with guides for the spring piston 10 (with chain roller 11). A link chain 12 connects the rear end of the breech bolt with the trigger 13 pivoted to the case in such a manner that upon the rearward movement of the bolt the spring is compressed by half the length of the stroke of the bolt; in this manner the breech spring simultaneously serves as a spring for the trigger.

The breech bolt 14 carries at its front end two locking dogs or pawls 15 rotatable about pivots 16 and under the influence of springs 17 their locking heads enter recesses in the case and lock the breech bolt when the bolt occupies its closed position in the case. After firing the breech bolt is unlocked by the action of an inertia sleeve 18 movably mounted inside the bolt and which when the projectile leaves the barrel, owing to the recoil and its own inertia effects a relative forward movement and thereby by means of the wedge surfaces 19 forces the rear ends of the locking dogs or pawls apart in such a manner that the locking dogs are turned inward. In the subsequent recoil of the breech bolt a two-armed lever 20 rotationally mounted on the bolt and supported on a stop 21 on the gun case cocks the percussion bolt 22 in the known manner and when the bolt again moves forward is retained cocked by the trigger nibs 23. Firing is effected in the usual manner by drawing down the trigger nib which in the present case is subjected to the action of a spring 24 which also actuates the pawl 25 for retaining the detachable magazine and a pressure bolt 26 for securing the trigger plate on the case.

The sleeve 18 receives the percussion bolt 22 and the percussion bolt spring 27 in such a manner that the percussion bolt is first of all pressed from the rear into the sleeve whereupon the percussion bolt spring is inserted and rigidly united with the sleeve by means of a lock bolt 28 and a stud 29.

The inertia sleeve; percussion bolt; percussion bolt spring and closing bolt are therefore to a certain extent united to form a whole and are introduced from the rear into the breech bolt which is open below and retained therein by means of a stud 30. Now during the cocking and striking of the percussion bolt in the known manner in which operations the closing bolt 28 constitutes the rearward support of the percussion bolt spring the perforation through the inertia sleeve and the closing bolt for the stud 30 are retained rearward so much longer that the inertia sleeve when the projectile leaves the barrel is able to effect the forward movement described above owing to its inertia and unlocks the breech bolt. If the breech bolt is to be unlocked and opened...
by hand by means of the button 31 the latter must be pressed or turned inward as far as possible on its shank and then carried rearward together with the breech bolt; by this displacement of the button on its shank the button slide 32 which has so far been locked to the case is released from the latter and both the lock dogs or pawls rotated inward and thus unlocked. The simultaneous movement of the pawls 15 toward each other is effected by inserting a diagonal slide 33 between the two pawls in the manner shown in Fig. 5, in which the action of the button pressed inward on its shank is indicated by the arrow I in such a manner that upon the pressing inward of the right hand pawl into the breech bolt the slide 33 transmits this movement in the direction indicated by the arrows II and III onto the left hand pawl also and both locking dogs are simultaneously unlocked.

It will thus be seen that upon the depression of the button 31 the stem thereof acts on the adjacent pawl 15 which is rotated about its pivot 16 so that its fore-end becomes disengaged from the recess in the case 1. The fore-end of this pawl acts on the nose of the slide 33 and shifts same transversely to the axis of the sleeve 18. The slide 33 lies with its other nose in contact with the rear arm of the other pawl 15 so that this latter by the aforesaid shifting of the slide 33 is rotated on its pivot and becomes disengaged also from its recess in the case. The breech bolt is now unlocked and can be drawn back by means of the button 31.

In order to prevent firing when the breech bolt is not completely locked inwardly projecting spring noses 34 are provided on the pawls and when the locking is incomplete these noses come in front of the percussion bolt and prevent it from moving forward (Fig. 1). In order, however, to permit of turning the pawls 15 inward for the purpose of opening the breech by hand even when the percussion bolt has sprung forward (Fig. 3) the noses 34 must be movable and able to yield in the pawls. Fig. 5 shows the manner in which the noses 34 are mounted in the pawls 15 in order to fulfill this object.

What I claim as my invention and desire to secure by Letters Patent is:

1. In combination, a firearm having a fixed barrel, recoil loading mechanism, a breech bolt, locking dogs carried by and adapted to lock said bolt when the breech is closed, and inertia means located in the interior of said bolt and adapted on the recoil to move forward initially to actuate said locking dogs to unlock said bolt and subsequently to travel rearward with said bolt during the opening of the breech.

2. In combination, a firearm having a fixed barrel, recoil loading mechanism, a breech bolt, locking dogs carried by and adapted to lock the bolt when in the closed position, an inertia member comprising a sleeve located in the interior of said bolt and adapted on the recoil to move forward initially to actuate said locking dogs to unlock said bolt and subsequently to travel rearward with said bolt, and a percussion bolt and percussion bolt spring located within the said inertia member.

3. Recoil loading mechanism for firearms, comprising a breech bolt adapted to move rearward on the recoil, a trigger, flexible means connecting the trigger with the breech bolt, and a breech spring adapted to be compressed by said flexible means during the rearward movement of said breech bolt.

4. Recoil loading mechanism for firearms, comprising a breech bolt adapted to move rearward on the recoil, a trigger, a chain connecting the trigger with the rear portion of the breech bolt, a breech spring, a roller over which said chain is adapted to ride, and movable means carrying said roller and adapted to compress said breech spring during the rearward movement of said breech bolt.

5. In combination, a firearm having a fixed barrel, a breech bolt, a percussion bolt, locking dogs carried by and adapted to lock the breech bolt when the breech is closed, an inertia member adapted to unlock said locking dogs, and safety means adapted to interrupt the forward movement of the percussion bolt until the locking dogs completely lock the breech bolt.

6. In combination, a firearm having a fixed barrel, a breech bolt, a percussion bolt, locking dogs carried by and adapted to lock the breech bolt when the breech is closed, an inertia member arranged in the interior of the breech bolt adapted to unlock said locking dogs, and movable safety noses carried by said locking dogs and adapted to interrupt the forward movement of the percussion bolt until the breech bolt is completely locked by the locking dogs, said locking dogs being formed with recesses in which said safety noses can engage.

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

BRUNO CLARUS.

Witnesses:
A. COLLINET,
H. ABERT JOHNSON.