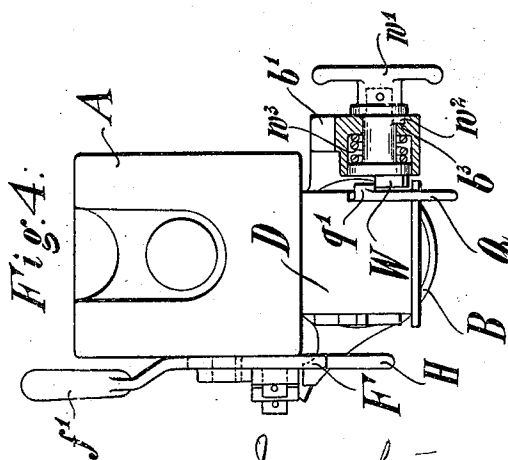
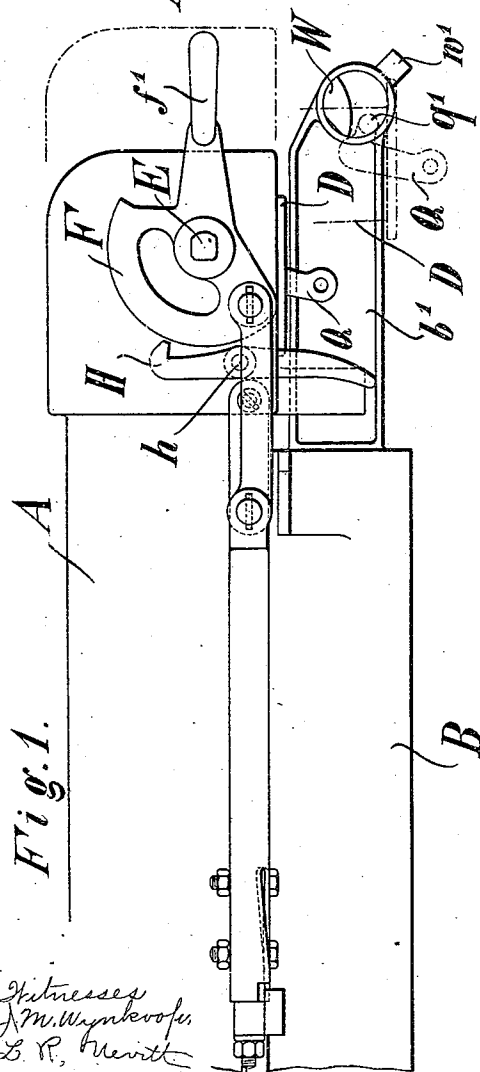
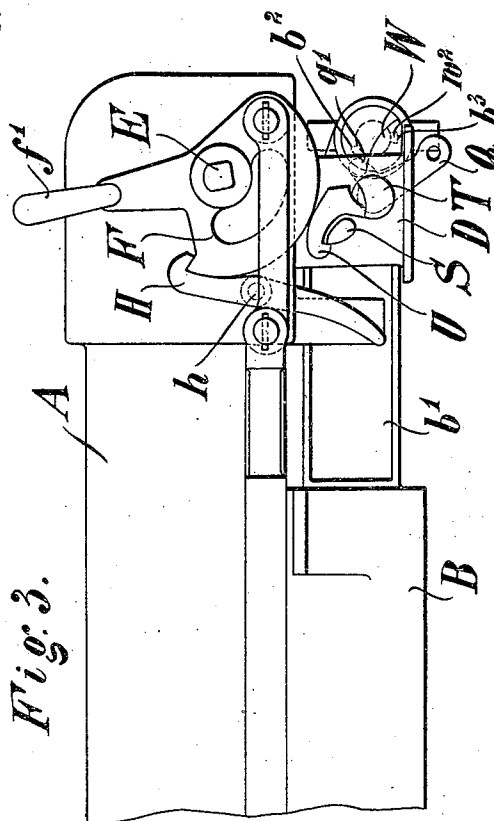
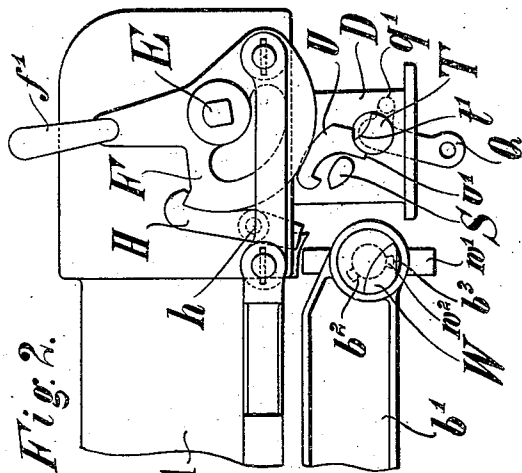


M. HERMSDORF.
PERCUSSION LOCK GUN.
APPLICATION FILED JUNE 27, 1907.

Patented Aug. 24, 1909.

3 SHEETS--SHEET 1.

932,016.



Witnesses
J. M. Wynkoop,
L. P. Hewitt

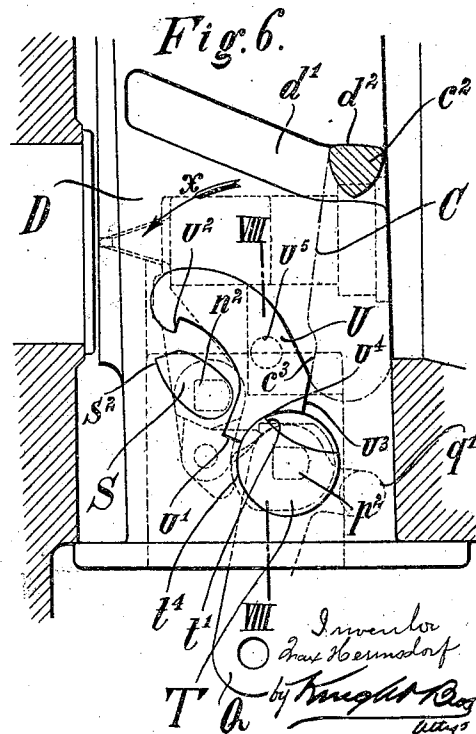
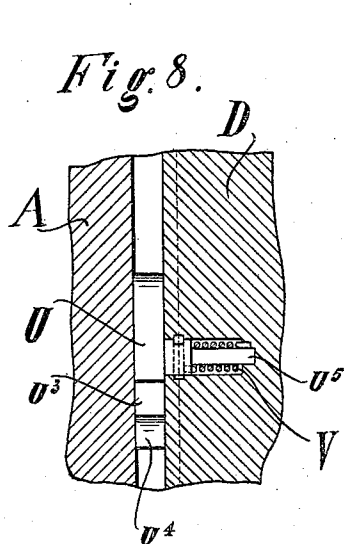
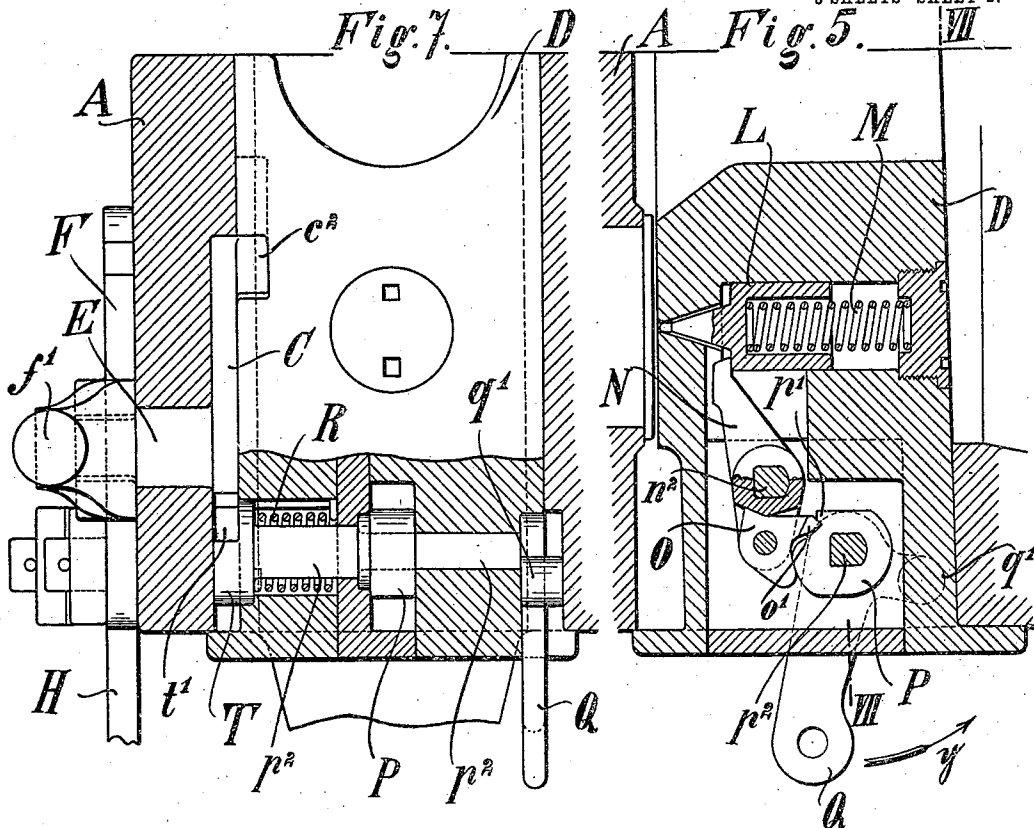
Inventor
May Hermsdorf
by Knight Bros atty

M. HERMSDORF.
PERCUSSION LOCK GUN.
APPLICATION FILED JUNE 27, 1907.

932,016.

Patented Aug. 24, 1909.

3 SHEETS—SHEET 2.



Witnesses
J. M. Wyke & Co.
L. R. Revitt.

Inventor
M. Hermsdorf
by *Knights & Co.*
Attys

M. HERMSDORF.
PERCUSSION LOCK GUN.

APPLICATION FILED JUNE 27, 1907.

932,016.

Patented Aug. 24, 1909.

3 SHEETS—SHEET 3.

Fig. 9.

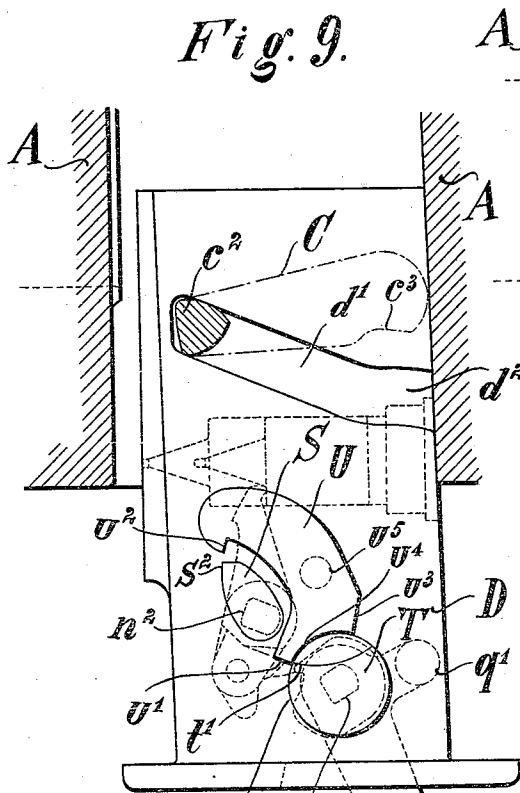


Fig. 10.

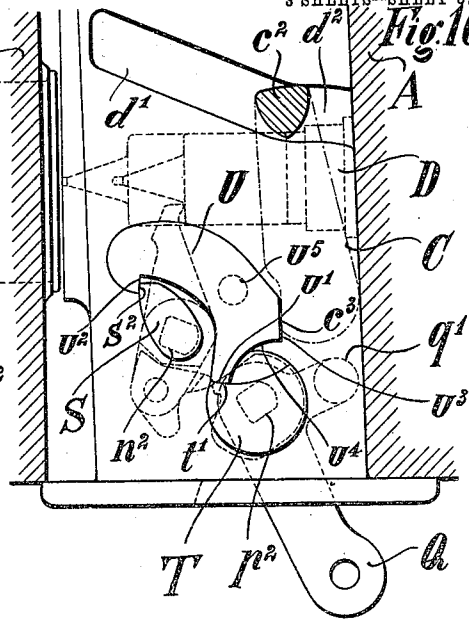


Fig. 12.

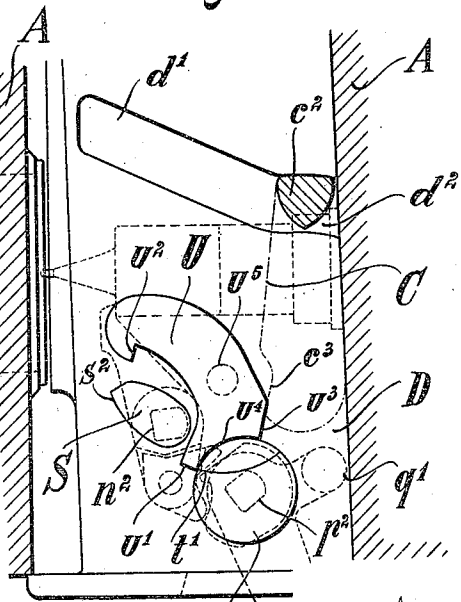
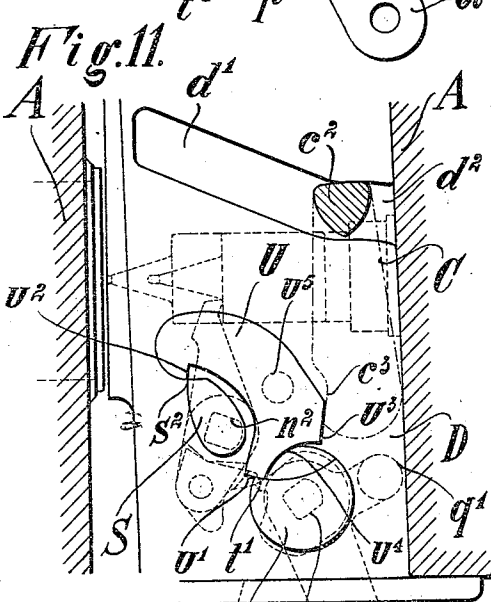


Fig. 11.



Witnesses
J. M. Wynkoop
L. R. Heritt

Inventor
Max Hermsdorf
by Knight & Co.
attys.

UNITED STATES PATENT OFFICE.

MAX HERMSDORF, OF ESSEN-ON-THE-RUHR, GERMANY, ASSIGNOR TO FRIED. KRUPP
AKTIENGESSELLSCHAFT, OF ESSEN-ON-THE-RUHR, GERMANY.

PERCUSSION-LOCK GUN.

932,016.

Specification of Letters Patent. Patented Aug. 24, 1909.

Application filed June 27, 1907. Serial No. 381,148.

To all whom it may concern:

Be it known that I, MAX HERMSDORF, a subject of the Emperor of Germany, and a resident of Essen-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Percussion-Lock Guns, of which the following is a specification.

The present invention relates to guns with percussion-lock with continuous pull mechanism and the object of the invention is to increase the rapidity of firing. To this end the gun is provided with a device for automatically pulling the trigger.

An embodiment of the invention is shown in the accompanying drawings, by the way of example.

Figure 1 is a side view of those parts of a barrel-recoil gun with an automatically opening breech-closure to which the invention relates, the gun-barrel being in the firing position and the closure being closed; Fig. 2 is a view corresponding to that shown in Fig. 1, the gun-barrel, however, having started on the return movement and the closure being open; Fig. 3 is a view corresponding to that shown in Fig. 2, the position of the gun-barrel being changed; Fig. 4 is a rear view of Fig. 3, partly in section; Fig. 5 is a vertical longitudinal section on an enlarged scale through the breech of the gun shown in Fig. 1. Fig. 6 is a view corresponding to that shown in Fig. 5, the breech block being shown in elevation. Fig. 7 is a section on line VII-VII, Fig. 5, looking from the right. Fig. 8 shows a detail in section on line VIII-VIII, Fig. 6, looking from the right; Figs. 9 to 12 show four elevations corresponding to Fig. 6, the parts being in different positions.

The gun-barrel A is mounted to slide on the track-carrier B (Figs. 1 to 4).

For the purpose of opening and closing the closure, the breech-block D can be moved up and down by means of an operating lever C (Figs. 6 and 7) journaled in the breech of the gun-barrel. To this end the operating lever is provided with a stud c^2 which engages in a groove in the breech-block, the groove consisting of a straight part d' and a curved part d^2 (Figs. 6 and 9-12).

On that end of the shaft E of the operating lever C, which projects outside of the breech is mounted an approximately sector-shaped crank-piece F (Figs. 1-4), which

is provided with a handle f' . A locking lever H is secured on the equally projecting end of a shaft h (the ejector-shaft) which extends parallel to the shaft E.

The closure is automatically opened during the return movement of the gun-barrel through the medium of a device, which will not be further described here, and is held in this position by means of the locking lever H which enters into engagement with the crank-piece F (Figs. 2 and 3). The closure is automatically closed when the locking lever H is moved from its locking position, either by hand or by the insertion of a fresh cartridge.

As a percussion-lock with continuous pull mechanism, the one shown in my prior U. S. Patent No. 797853, may be used. It consists (Figs. 5 and 7) of the firing pin L, the firing spring M, the two-armed cocking lever N to which a cocking nut O is pivoted, the trigger nut P and the trigger Q which is mounted on the shaft of the trigger nut.

The construction, relative arrangement and the mode of operation of the parts just described are known and need not be further explained.

The percussion-lock is provided with a repeating spring which is formed by a helical spring R (Fig. 7) connected, on the one hand, to the shaft p^2 of the trigger nut and, on the other hand, to the breech-block D. The spring tends to turn the shaft p^2 and the trigger Q opposite to the direction of the arrow y (Fig. 5) so as to return the percussion lock, after firing, to the position shown in Figs. 5 and 6.

At that side of the breech-block D which is toward the operating lever C, a cam S, a nut T and a locking lever U are arranged (Figs. 6 and 9-12). The cam S is secured on the shaft n^2 of the cocking lever N, the nut T is secured on the shaft p^2 of the trigger nut P and the locking lever U is secured on a shaft u^5 (see also Fig. 8) which is rotatably but non-slidably mounted in the breech-block and which is parallel to the shafts n^2 and p^2 . The locking lever U serves the purpose of locking the cam S and the nut T, and with these all the parts of the percussion-lock, in those positions which they assume when the percussion-lock has obtained the greatest cocking position (Fig. 10). To this end the locking lever U is provided with locking faces u^2 and u' (Figs. 6

and 9-12), one of which (u^2) is capable of entering into engagement with a locking face s^2 of the cam S while the other (u') can enter into engagement with a locking face t' of the nut T. Furthermore, the locking lever U is under the influence of a spring V (Fig. 8) which tends to turn the lever U from the position shown in Fig. 6 to that shown in Fig. 10. However, when the closure is completely closed and locked (Figs. 6 and 12) the locking lever U is prevented from the aforesaid turning by the operating lever C which lies with its shoulder c^3 against a shoulder w^3 on the locking lever. The lever U is furthermore provided with a locking face u^4 which, when the parts are in the position shown in Fig. 6, is concentric to the turning axis of the nut T and engages with the cylindrical surface t^4 of the nut.

The locking faces $u' t'$ and $u^2 s^2$ are situated and formed in such a manner that, when the locking lever swings, the locking faces $u' t'$ enter earlier into engagement, and consequently pass later out of engagement, than the locking faces $u^2 s^2$.

The trigger Q is provided with a cam q' which projects beyond the outer side face of the trigger (see in particular Figs. 4 and 7). On that side of the track-carrier B which is toward the trigger Q an arm b' having a striker W is secured (Figs. 1-4). By means of the handle w' the striker W can be moved into and secured in two positions (Figs. 1 and 2-4). To this end the handle w' is provided with a nose w^2 (Figs. 2-4) which can be brought into engagement either with a notch b^2 or with a notch b^3 in the arm b' and held therein by means of a spring w^3 . In its active position (Figs. 2-4), the striker W is, when the closure is open, located in the path of the cam q' of the trigger Q.

If it is desired to fire the gun by hand, the striker W is brought into the position shown in Fig. 1. The several parts of the gun then assume the position shown in Figs. 1, 5 and 6. When the trigger Q is moved in the direction of the arrow y (Fig. 5) and is subsequently released, the proceeding described in detail in the U.S. Patent 797853 takes place which is briefly as follows: By reason of the coöperation of the trigger nut P and the cocking nut O, the cocking lever N and the firing pin L are brought into the cocked position. When the nose p' of the trigger nut releases the nose o' of the cocking nut the firing pin is driven forwardly and finally all the parts return to the position shown in Figs. 5 and 6 (the uncocked position) through the action of the repeating spring. While this takes place, the locking lever U does not change its position as it is held in its withdrawn position by the operating lever C. The cam S and the nut T are free to follow the movements of the cocking lever N and trigger nut P as

there is sufficient room between the cam S and the locking lever U, when the latter is held by the operating lever C, to permit the swinging movement of the cam S, and as the nut T and the locking lever U contact by means of the cylindrical faces $t^4 u^4$.

After firing, the gun-barrel effects its recoil and return movement. During the first half of the return movement, the closure is, as already mentioned, opened and held in the opened position by the locking lever H (Fig. 2). When the closure is opened, the shoulder c^3 of the operating lever moves away from the locking lever U. The lever U, however, remains in its withdrawn position because its cylindrical face u^4 , after the trigger Q has returned to the position of rest, again engages with the cylindrical face t^4 of the nut T. When the closure is opened the trigger Q reaches such a position that its cam q' during the further return movement, can pass under the striker W (see the position of the breech-block D and the trigger Q indicated in dotted lines in Fig. 1). The percussion-lock will be then in the uncocked position, when the closure is again closed by withdrawal of the locking lever H which is effected by hand or by reason of the introduction of a fresh cartridge.

If automatic firing is desired, the striker W is brought into its active position (Figs. 2-4) by means of the handle w' . The gun is thereupon first fired by hand in the manner just described by moving the trigger Q rearwardly. In this instance, during the return movement and after the closure is opened, the cam q' of the trigger hits the striker W and slides along the same (see Figs. 2 and 4), so as to cause the trigger Q to be moved in the direction of firing. When the percussion-lock has almost obtained the cocking position (Fig. 9) the cylindrical face u^4 of the locking lever U is released from the cylindrical face t^4 of the nut T. The locking lever U can now, as it is not prevented by the operating lever C, follow the rotating action of its spring V, so as to engage with its locking face u^2 , over the locking face s^2 of the cam S, and lie with its locking face u' against the locking face t' of the nut T so as to hold the percussion-lock in its cocked position (Figs. 10 and 3), when, during the latter part of the turning movement of the trigger, the nose p' of the trigger nut P releases the nose o' of the cocking nut O. The gun-barrel continues its return movement until it reaches the firing position. Now as soon as the locking lever H (Fig. 3) is withdrawn by hand or by the introduction of a new cartridge the closure is automatically closed, and when the operating lever C reaches the position shown in Fig. 10, the lever C hits with its shoulder c^3 against the shoulder w^3 of the locking lever U so as to turn the lever U back into its

original position. When, during this movement, the locking lever has reached the position shown in Fig. 11 the locking face u^2 of the locking lever releases the locking face s^2 of the cam S so as to permit the firing pin to move forwardly. While the operating lever moves from the position shown in Fig. 11 to that shown in Fig. 12, the locking face t' of the nut T is therefore also released from the locking face u' of the locking lever U so as to permit the repeating spring R to return the trigger-shaft p^2 and the other parts of the percussion-lock to their original position (Figs. 5 and 6).

By reason of the successive release of the locking of the cam S and nut T contact between the cocking nut O and trigger nut P is prevented when the firing pin is forced forwardly, and a secure action of the percussion-lock is therefore insured, also when automatic firing is employed.

The automatic firing is repeated as long as the striker W is held in its active position and a new cartridge is inserted after each return movement.

Having now described the invention what is claimed as new is:

1. In a gun, a barrel mounted to have recoil and counter-recoil movements, a self opening breech closure, a continuous-pull firing mechanism, means for locking the firing mechanism in cocked position, and means on a fixed part of the gun adapted to automatically effect the transfer of the firing mechanism into locked cocked position on one of the said movements of the gun barrel.

2. In a gun, a barrel mounted to have recoil and counter-recoil movements, a self opening breech closure, a continuous-pull firing mechanism, means for locking the firing mechanism in cocked position, and means on a fixed part of the gun adapted to automatically effect the transfer of the firing mechanism into locked cocked position on the counter-recoil movement of the gun barrel, and while the breech is open.

3. In a gun, a barrel mounted to have recoil and counter-recoil movements, a self opening breech closure, a continuous pull firing mechanism having a trigger operatively connected therewith, means for locking the firing mechanism in cocked position, a fixed arm on the gun provided with a projecting member adapted to engage with the trigger and effect the transfer of the firing mechanism into locked cocked position on one of the said movements of the gun barrel, and means for throwing said projecting member out of the path of movement of said trigger.

4. In a gun, the combination with the gun closure, a percussion lock device with continuous pull mechanism, and a trigger operatively connected with said percussion lock,

of means controlled by the trigger whereby the percussion lock device is automatically locked in cocking position before the breech is closed, and means whereby said locking means is automatically released by the closing movement of the gun closure.

5. In a gun, the combination with the gun closure and means for closing the same, of a percussion lock device comprising continuous pull mechanism and a trigger operatively connected therewith, and a locking lever controlled by the trigger and adapted to lock the percussion lock in cocked position before the breech is closed, said locking lever adapted to be engaged and released by the closure closing means whereby to release the percussion lock.

6. In a gun, the combination with the gun closure and means for closing the same, of a percussion lock device comprising continuous pull mechanism, and a trigger operatively connected therewith, means for bringing the percussion lock device in cocked position before the closure is closed, and means for locking the percussion lock device in said cocked position, said means controlled by the trigger and released through the closure closing means on the closing movement of said closure.

7. In a gun having a recoiling barrel, the combination with the gun closure, of a percussion lock device comprising continuous pull mechanism and a trigger operatively connected therewith, means carried by a non-recoiling part of the gun and adapted to engage the trigger on the counter-recoil of the barrel and bring the percussion lock device to its cocked position, a locking lever controlled by the trigger for locking the percussion lock in said cocked position, and means for releasing said locking lever from the trigger on the closing movement of the closure.

8. In a recoil gun, the combination with the recoiling barrel, of the gun closure, a percussion lock comprising a cocking lever and a trigger, cam elements carried by said cocking lever and trigger, means carried by a non-recoiling part of the gun and adapted to engage the trigger on the counter-recoil of the barrel and automatically cock the percussion lock, means adapted to engage and interlock said cam elements whereby the percussion lock is locked in its cocked position, and means whereby said locking means is automatically released by the closing movement of the closure.

9. The combination with the recoiling barrel, of a breech block having a percussion lock with continuous pull mechanism, a means carried by the recoiling barrel and adapted to control the displacement of the breech block, means carried by a non-recoiling part of the gun and adapted to actuate the pull mechanism during the coun-

ter-recoil of the barrel whereby to cock the percussion lock, and means for locking said lock in cocked position, said means adapted to be engaged and released by the breech block controlling means when the breech block is in its finally closed position.

10. In a recoil gun, the combination with the recoiling barrel having a breech-closure opening automatically, of a percussion lock with continuous pull mechanism, means carried by a non-recoiling part of the gun for automatically cocking the percussion lock during the return movement of the gun barrel, means whereby the percussion lock is automatically locked in cocking position prior to the closing of the closure, and means whereby said locking means is automatically released by the closing movement of the gun closure.

20 11. In a recoil gun, the combination with the recoiling barrel having a breech closure opening automatically, a track-carrier on which the barrel recoils, of a percussion lock with continuous pull mechanism and having a trigger, a withdrawable striker mounted on the track-carrier in the path of movement of the trigger for operating the trigger to automatically cock the percussion lock during the return movement of the gun barrel, means whereby the percussion lock is automatically locked in cocking position prior to the closing of the closure, and means whereby said locking means is automatically released by the closing movement of the gun closure.

35 12. In a gun, the combination with the gun closure and a percussion-lock with continuous pull mechanism embodying a cocking lever and a trigger, of a locking lever, adapted for interlocking connection with the cocking lever and a nut turning with the trigger and adapted for interlocking engagement with the locking lever to hold the trigger in the position corresponding to the highest cocking of the percussion-lock.

45 13. In a gun, the combination with the

gun closure, and a percussion-lock with continuous pull mechanism embodying a cocking lever and a trigger, of means for locking the cocking lever in cocking position and the trigger in the position corresponding to the highest cocking of the percussion-lock, said means being constructed to release the cocking lever before releasing the trigger.

55 14. In a gun, the combination with the gun closure and a percussion-lock with continuous pull mechanism embodying a cocking lever and a trigger, of a locking lever adapted for interlocking connection with the cocking lever, and a nut turning with the trigger and adapted for interlocking engagement with the locking lever to hold the trigger in the position corresponding to the highest cocking of the percussion-lock, the connection between the cocking lever and the locking lever, and between the nut and the locking lever being so constructed and arranged that the cocking lever is released before the nut.

70 15. In a gun, the combination with the gun closure and a percussion-lock with continuous pull mechanism embodying a cocking lever and a trigger, of a locking lever for the cocking lever, having a cylindrical face, and a nut turning with the trigger and having a cylindrical face to engage the like face on the locking lever to hold the locking lever in unlocking position, said cylindrical faces being so arranged that upon withdrawal of the trigger the cylindrical face of the locking lever is released from the cylindrical face of the nut, when the percussion lock has almost reached cocking position.

85 The foregoing specification signed at Düsseldorf, Germany, this eleventh day of May, 1907.

MAX HERMSDORF.

In presence of—

ALFRED POHLMAYER,
M. ENGELS.