

[54] **RIFLE CHARGING MECHANISM**

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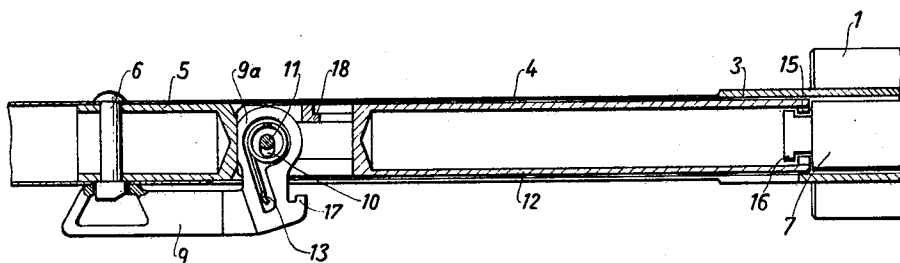
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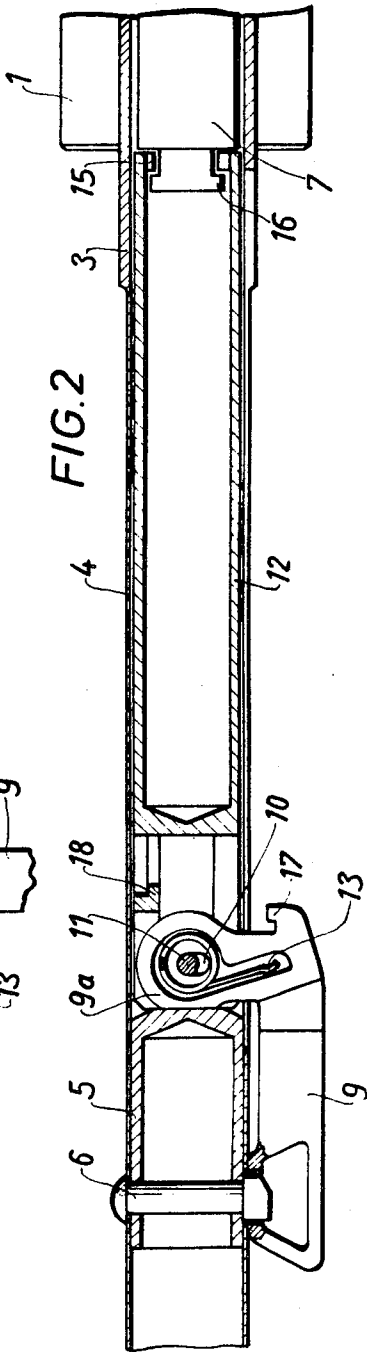
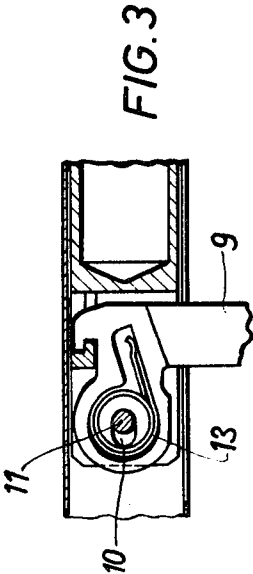
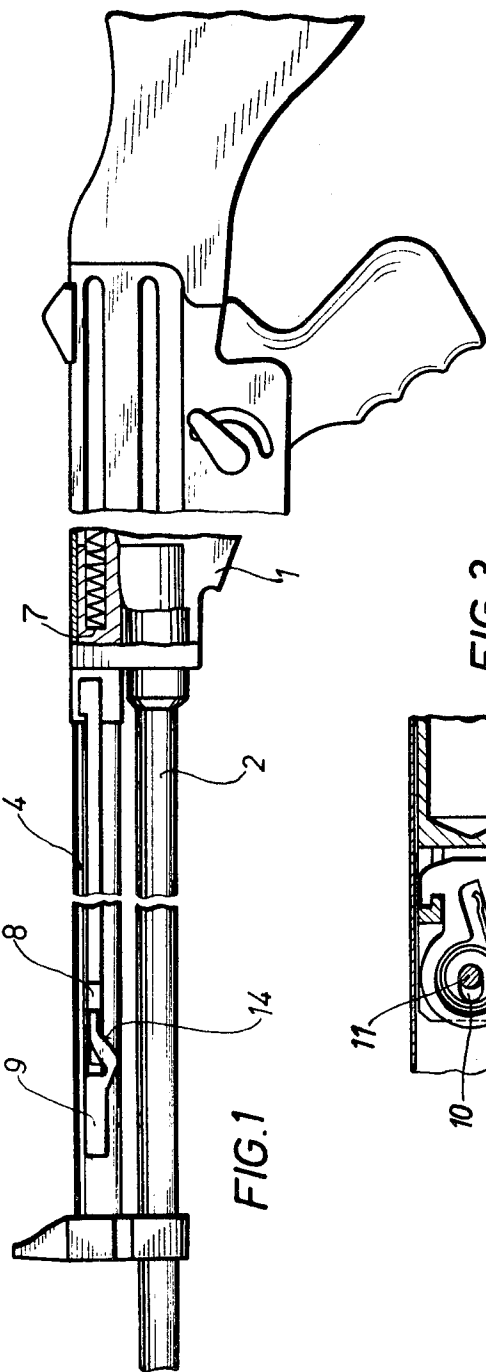
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[57] **ABSTRACT**

An automatic and semi-automatic rifle, respectively, with a cocking tube disposed parallel to a barrel with a lateral longitudinal slot for the passage and the guidance of a cocking lever, which comprises a closure member and a bearing bolt mounted on the cocking member, and guided displaceably in the cocking tube. A tube-like breech bolt carrier is guided in the cocking tube and is adapted to slide backwardly for tensioning of the breech bolt. The cocking member comprises a cocking slide which extends over the entire length of the loading lever slot and supports the inner wall of the cocking tube.

2 Claims, 3 Drawing Figures





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RIFLE CHARGING MECHANISM

The present invention relates to semi-automatic and automatic rifles, respectively, in particular to the infantry rifle known under the style of G 3. This rifle has a cocking tube disposed parallel to the barrel, in which tube is mounted a cocking lever pivotably mounted in a cocking member and displaceably mounted with the cocking member in the cocking tube. The cocking member engages with its end face a closing spring tube connected with the breech bolt and guided in the cocking tube, which closing spring tube projects far into the cocking tube in this known rifle. The firearm is made ready for shooting such, that the cocking lever is pulled back, whereby the breech bolt is moved rearwardly over the closing spring tube up to behind the cartridge feed. Upon release of the cocking lever, the breech bolt with the closing spring tube, as well as the cocking member with the cocking lever are brought forwardly again by the closing spring, whereby due to the breech bolt a bullet is inserted into the barrel.

The cocking tube comprises, in this firearm, for the reason for weight saving a comparatively thin sheet metal and has in addition still a longitudinal slot for the passage of the cocking lever. It happens now occasionally, that by the deformation of the cocking tube by jolt or hit or by soiling of the wall of the cocking tube disturbances occur in the function of the firearm, according to which the closing spring force, as well as the kinetic energy of the moved masses do not suffice, in order to overcome the occurred clamping resistance between the closing spring tube and the cocking tube such, that still a sufficient force remains for insertion of a bullet and for locking of the breech bolt in its forwardmost position.

In order to be able to cocking manually in such cases, it is known, to bring forward the closing spring tube with the breech bolt by means of the cocking lever. For this purpose, a claw is provided, in a known embodiment, in the cocking lever, by means of which claw the cocking lever is capable of being coupled with a closing spring tube. The breech bolt can in this manner be moved forwardly by hand (See German Gebrauchsmuster GM 1,915,840).

The above stated disturbances cannot be reliably avoided by this known proposal. Slight deformations of the cocking tube and thereby caused jams permit though possibly still a cocking by hand, not, however, an automatic closing, because during each forward stroke of the breech bolt the clamping resistance in the cocking tube must be overcome. Furthermore, still the danger exists, that by the soil penetrated the cocking lever slot into the cocking tube and thus the inside of the firearm during closing and, thereby, likewise causes disturbances.

It is one object of the present invention to provide a rifle, wherein the breech bolt and the breech bolt carrier, respectively, and the cocking device is improved in a firearm of the above mentioned type, in particular, in a rifle G 3, such that disturbances of the function due to deformation or to soiling of the cocking tube is extensively avoided.

It is another object of the present invention, to provide a rifle, wherein the cocking member of the cocking lever comprises a cocking slide extending over the entire length of the cocking lever slot in the cocking

tube and supporting the inner wall of the cocking tube. By this arrangement, on the one hand, the penetration of soil through the cocking lever slot is extensively avoided, since the slot is covered also during the closing continuously by the non-moved cocking slide, and, on the other hand, also possible deformations of the cocking tube are harmless, since they can be effective only on the cocking slide operated during tensioning of the breech bolt by hand, however, do not prevent the automatic closing process. By the cocking slide extending over the entire length of the slot the comparatively thin wall of the cocking tube is supported at its inner periphery, so that deformations are omitted to a great extent.

The cocking lever is mounted in known manner pivotably and tiltably, respectively, about a bolt secured in the cocking member and is maintained by means of a bent spring surrounding the bearing bolt in the resting position in the state tilted to the cocking tube.

In order to put the breech bolt by means of the cocking lever by hand into closing position, the cocking lever has, in an advantageous embodiment, of the present invention, within the range of its passing through the longitudinal slot, an inclined face corresponding during pivoting of the cocking lever with the edge of the flat such, that the cocking member (cocking slide) is thereby rotated about its longitudinal axis and is capable of being coupled by means of coupling members provided at the rear end with the closing carrier (closing spring tube).

The coupling of the cocking slide with the closing spring tube is thus operated by the tilting of the cocking lever. If the lever is released, it engages again due to the force of the bent spring again then the cocking tube, whereby a further inclined face corresponding with the edge of the passage through slot provided on the cocking lever causes a rotation of the cocking slide into its original starting position and thereby lifts again the coupling with the closing spring tube. The closing spring of the breech bolt brings about now the breech bolt and the cocking slide with the cocking lever again into forward position.

By securing of the cocking lever in its tilted position, in which the cocking slide is coupled with the closing spring tube, the breech bolt can also be displaced forwardly by hand.

The manual advancing of the breech bolt by means of the cocking lever is now simplified in a further advantageous embodiment of the present invention such, that the cocking lever is mounted by means of a longitudinal slot on the bearing bolt, whereby the longitudinal slot extends in case of the tilted position of the cocking lever in longitudinal direction of the cocking slide and that the cocking lever in this position can be locked with the cocking slide. For the manual advancing of the breech bolt the cocking lever is displaced slightly in its mounting formed as a longitudinal slot, whereby a claw provided on the cocking lever interlocks with a bolt. By advancing the cocking lever the breech bolt can now be brought forwardly into closing position due to the maintenance of its coupling with the cocking slide.

With these and other objects, which will become apparent in the following detailed description, the present

invention, which is shown by example only, will be clearly understood in connection with the accompanying drawings, in which:

FIG. 1 is a partial elevation of an automatic rifle;

FIG. 2 is a longitudinal horizontal section the through cocking tube; and

FIG. 3 is a fragmentary section disclosing the cocking lever in the tilted position and locked with the cocking slide.

Referring now to the drawings, and in particular to FIG. 1, the automatic rifle 1 is equipped with a barrel 2 and a cocking tube 3 disposed above and parallel to the barrel 2. The cocking tube 3 has a forward part 4 consisting of comparatively thin sheet metal, into which is inserted an abutment member 5 and is secured by means of a rivet 6. In the rear part of the cocking tube is guided a tubular like breech bolt member 7 (closing spring tube).

A cocking tube 3 has laterally a longitudinal slot 8, for guidance of the substantially rectangular cocking lever 9, the arm 9a of which is mounted by means of a longitudinal slot 10 disposed in the direction of the arm 9a on a bolt 11 in the cocking member 12 (cocking slide). The cocking slide comprises a hollow body, thick walled in comparison with the wall of the cocking tube, which hollow body is guided for longitudinal displacement in the cocking tube and which extends over the entire length of the cocking lever slot 8, whereby it supports all around the thin rear wall.

The position of the cocking lever shown in FIGS. 1 and 2 is normal in the normal and resting position, respectively, in which it is held by a bent spring 13 wound about the bearing bolt 11 in the state tilted to the cocking tube. The cocking slide engages thereby with its forward end face the abutment member 5. For tensioning of the breech bolt, the cocking lever 9 is tilted up and rearwardly pulled, whereby the breech bolt member (closing spring) 7 is moved rearwardly by means of the cocking slide 12, in order to insert again the bullet into the barrel during its forward stroke. The cocking lever 9 has an inclined face 14 corresponding with the bottom edge of the longitudinal slot 8 during pivoting and tilting, respectively, from the resting position, whereby the cocking slide is rotated. By this arrangement, claws 15 are provided at the rearward end of the cocking slide behind noses 16 disposed at the forward end of the closing carrier, whereby the cocking slide 12 and the closing carrier 7 are coupled together. In order to move forwardly now the breech bolt by hand, the tilted-out cocking lever, is displaced in its mounting in the longitudinal pin slot 10, whereby it is

locked in this position, shown in FIG. 3, with the cocking slide, by interlocking a claw 17 provided on the cocking lever with a bolt 18 provided on the cocking slide. Upon reaching the forward most position, the arm 9a of the cocking lever finds a counter-bearing on the abutment member, whereby it is moved rearwardly in the longitudinal slot and the locking is released. Upon releasing the lever it tilts by the force of the bent spring again into its resting position, shown in FIGS. 1 and 2.

While I have disclosed one embodiment of the present invention, it is to be understood that this embodiment is given by example only and not in a limiting sense.

I claim:

1. An automatic and semi-automatic rifle, respectively, with a cocking tube disposed parallel to a barrel with a lateral longitudinal cocking slot for the passage and the guidance of a cocking lever, comprising

a cocking member,

a bearing bolt in said cocking member, and said cocking lever being pivotally mounted about said bearing bolt and said cocking lever being guided displaceably with said cocking member in said cocking tube,

a tube-like carrier guided in said cocking tube and adapted to slide backwardly,

said cocking member comprising a cocking slide extending over the entire length of said cocking lever slot and supporting the inner wall of said cocking tube,

coupling means for coupling said cocking lever and said cocking member, respectively, with a breech bolt member,

said cocking lever having an oblique face within the range of the passage through said longitudinal slot and corresponding during pivoting of said cocking lever with the edge of said slot, such that said cocking member is rotated about its longitudinal axis, and

said coupling means are disposed on the rearward end of said cocking member, and coupling said cocking slide with said breech bolt member.

2. The rifle, as set forth in claim 1, wherein said cocking lever is mounted on said bearing bolt by means of a longitudinal slot,

said longitudinal slot extends in longitudinal direction of said cocking slide in the tilted-up position of said cocking lever, and

said cocking lever is lockable in this position with said cocking slide.

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