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[54] **LOCKING MEANS FOR BOLT TYPE FIREARMS**

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[51] **Int. Cl.** **F41c 11/06**

[58] **Field of Search** 42/16

[56] **References Cited**

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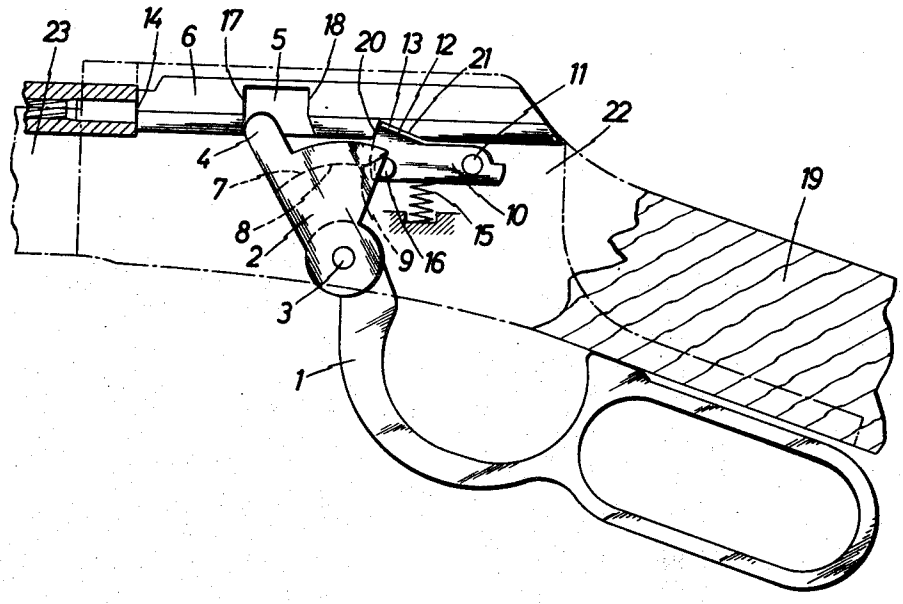
[57] **ABSTRACT**

The operation of a repeater hand firearm which has a pivotable element or lever for moving the breech member to close the breech, and a detent catch for holding the breech closed, is simplified by the provision of this catch with a follower which engages in a cam track on the said pivotable element or lever.

3 Claims, 2 Drawing Figures



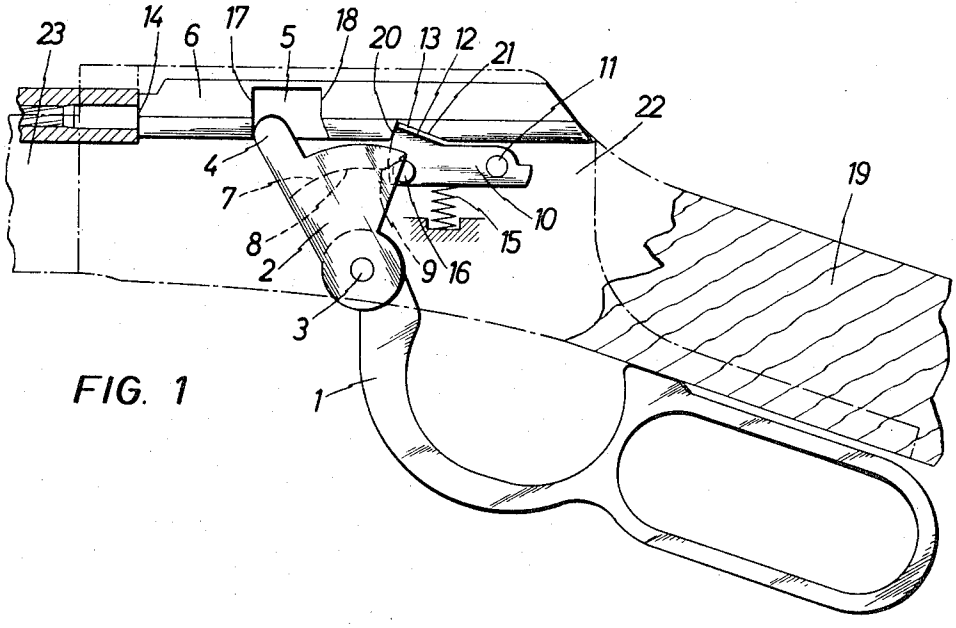

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FIG. 1

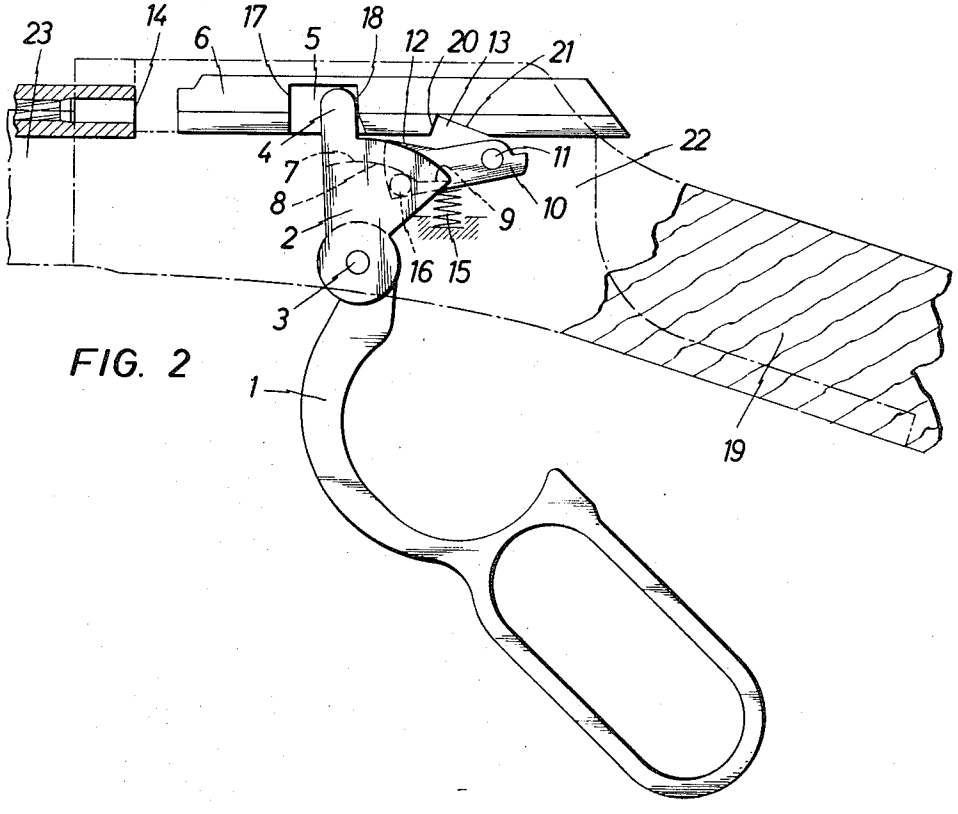
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FIG. 2

LOCKING MEANS FOR BOLT TYPE FIREARMS

The invention relates to repeater hand firearms, for example those of the type operated by a pivoted hand lever or a movable fore-end stock.

To control the repeated operation of the breech member of firearms of this type a breech member is moved repeatedly to and from a cartridge chamber by hand in various ways from the hand lever (lever action), or by means of the movable fore-end stock (pump action). In order to hold the breech member in its closed position against the cartridge chamber use is usually made of a detent catch which engages in an associated groove in the breech member and is brought out of the groove to release this member. It is also known to operate this catch by the hand lever.

The object of the present invention is to so construct a firearm of the kind set forth which requires a smaller number of constructional parts than similar existing types, which is of lighter operation needing less expenditure of force thereon, and which has a recoil-free operation.

Thus the invention is concerned with a hand firearm of the kind comprising a stock, a barrel mounted on said stock, a cartridge chamber associated with said barrel, a breech member movable on said stock relatively to said cartridge chamber to open and close the breech of the firearm, a control element mounted on said stock and manually operable to move said breech member to and from the cartridge chamber, and a detent catch to releasably hold the breech member in the breech-closed condition. In a hand firearm of this kind the invention resides in the improvement whereby the detent catch has a follower element which co-operates with a cam track on said control element for operation of this catch.

By a further feature of this invention, the cam track on the control element is in two sections, namely a first arcuate section corresponding to disengagement of said detent catch from a recess in the breech member and a second and bevel section corresponding to engagement of the detent catch in said recess.

In a preferred arrangement, in accordance with a further feature of the invention, the control lever is pivotally mounted on a pin disposed beneath the breech member, in which the first section of the cam track is concentric with said pin, and in which the second section of the cam track is rectilinear and inclined to the segmental line of the first section of the track.

It is within the scope of the invention to arrange that the operating lever is not pivotable but displaceable on a slide-way of the firearm and for the cam track to have a corresponding form.

In an advantageous development within the invention the detent catch-receiving recess in the breech member is shaped to provide a short forward edge and a longer edge at an angle to the first and defining the base of the recess, and the detent catch is provided with a nose having a leading edge which bears flush with the forward edge of said recess when the breech member is held by the detent catch in its closed condition, and having a trailing edge which remains clear of the base edge of said recess when the breech member is held by said catch.

Advantageously in a further feature of the invention the said follower is a pin, and spring means is provided to urge the detent catch towards the breech member and the follower pin against the cam track in said control element.

By another feature, the control element is provided with an actuating projection (e.g. a finger) which engages with play in an accommodating recess in said breech member.

In all the operating arrangements constructed in accordance with the present invention there is always the optional possibility of connecting the control element (varying from case to case) either integrally with a pivotal operating lever, or through a suitable mechanical system with a fore-end stock displaceably mounted on the firearm.

The advantage of the invention resides in the first place in the fact that there is a secure and non-slip operation of the breech member by virtue of the non-positive operation of the detent catch by means of the operating element, this conferring a longer effective life to the parts. Furthermore the arrangement can be constructed so that the parts are readily accessible and in addition the detent catch holds the operating element firmly against the cartridge chamber when the breech is closed, without the after-firing recoil being transmitted through the control element to those parts which are hand operated; this closed position of the operating element is guaranteed by the detent catch additionally to the latching function of the latter.

Reference will now be made to the accompanying diagrammatic drawings which illustrate an embodiment of the invention applied to a repeater rifle. In these drawings:

FIG. 1 shows the arrangement with the breech member closed.

FIG. 2 shows the arrangement of FIG. 1 but with the member open.

The arrangement illustrated in FIGS. 1 and 2 comprises a rocking element 2 which is pivotally mounted in the breech housing 22 of the firearm by a pin 3 and is integrally connected to the operating lever 1. Element 2 takes the form of a segmental plate and has a finger 4 which engages in a lateral recess 5 of the breech block 6 slidable in housing 22. Rocking element 2 is also formed with a cam track 7 which comprises a first arcuate section 8 concentric with the pivot 3, and a second section 9 of bevel form which is angled in relation to the first section 8.

Pivotally mounted on a pin 11 below block 6 in breech housing 22 is a detent catch 10 having a nose 12 which can engage in an accommodating recess 13 in the block 6 to hold the breech block closed against the cartridge chamber 14 in the barrel of the gun supported by fore-end stock 23. A lateral pin 16 is provided at the end of catch 10 disposed beneath nose 12 and this functions as a follower engaging the cam track 7 of element 2 under the action of compression spring 15. This pin 16 could readily take the form of a roller or the like, and in any case could be arranged at any other part of the catch, for example centrally of the end of the latter.

In the locked position of the breech block 6 illustrated in FIG. 1 the element 2 has been turned by the lever 1, when the latter has been moved so as to abut against the butt 19 of the firearm, towards the cartridge chamber 14, whereby the finger 4 of element 2 bears against the detent edge 17 of recess 5 and the breech block 6 is held closed against sleeve 14. The parts are held in this position by the fact that the lateral pin 16

bears against the bevelled second section 9 of the cam track 7 of element 2 under the action of spring 15, and is held in this position by spring 15. This second section 9 of the cam track 7 is so devised and arranged that when a shot has been fired the recoil effect on the breech block 6 is transmitted from the finger 4 of element 2 through this second section 9 to the lateral pin 16 of catch 10 additionally to the latching block 6 by nose 12, so that this recoil effect will not be transmitted to lever 1 and thus to the hand of the firer.

When repeater action is required the lever 1 is pivoted by hand away from butt 19 to the position illustrated in FIG. 2. In this position the second and bevel section 9 of cam track 7 of element 2 first of all presses the lateral pin 16 of the catch 10 downwards against the action of spring 15, so that nose 12 of catch 10 leaves the groove 13 and block 6 is released for return from the cartridge chamber 14 by finger 4 of lever 2. The finger 4 of lever 2 has so much play rearwards in the recess 5 that it will bear against the rear operating surface 18 of this recess 5 only when the lateral pin 16 of catch 10 has passed safely beneath the first section 8 of the cam track 7 by the downswing of lever 1. Catch 10 will be held by this first cam track section 8 out of engagement in recess 13 of block 6 until the opened condition of the breech, illustrated in FIG. 2, is achieved. When the next cartridge has been inserted in the barrel in appropriate fashion the lever 1 is swung back against the butt. The finger 4 of the element 2 then brings the breech block 6 into closed position against the cartridge chamber 14 and the pin 16 of catch 10 moves away from the first section 8 of track 7. When the pin 16 runs on the second section 9 of the track 7 it is moved under the action of compression spring 15 upwards towards block 6 until the nose 12 has entered recess 13 in the latter. The arrangement and shape of the second section 9 of the cam track 7 is so chosen that the catch nose 12 only bears against the leading edge 20 of recess 13 of chamber 6 without reaching the bottom 21 of this recess 13 (FIG. 1).

We claim:

1. In a hand firearm comprising a stock, a barrel mounted on said stock, a cartridge chamber associated with said barrel, a breech member movable on said stock relatively to said cartridge chamber to open and close the breech of the firearm, a control element mounted on said stock and manually operable to move said breech member to and from the cartridge chamber, and a detent catch to releasably hold the breech member in the breech-closed condition, the improvement wherein said detent catch has a follower element which cooperates with a cam track on said control element for operation of said catch, said cam track being in two sections, namely a first arcuate section corresponding to disengagement of said detent catch from a recess in the breech member and a seecond and bevel section corresponding to engagement of the detent catch in said recess.

2. A hand firearm according to claim 1, in which the control element is pivotally mounted on a pin disposed beneath the breech member, in which the first section of the cam track is concentric with said pin, and in which the second section of the cam track is rectilinear and inclined to the segmental line of the first section of the track.

3. A hand firearm according to claim 2, in which the detent catch-receiving recess in the breech member is shaped to provide a short forward edge and a longer edge at an angle to the first and defining the base of the recess, and the detent catch is provided with a nose having a leading edge which bears flush with the forward edge of said recess when the breech member is held by the detent catch in its closed condition, and having a trailing edge which remains clear of the base edge of said recess when the breech member is held by said catch.

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