Dec. 9, 1958 E. C. LEE 2,863,246

BOLT ASSEMBLY FOR A FIREARM

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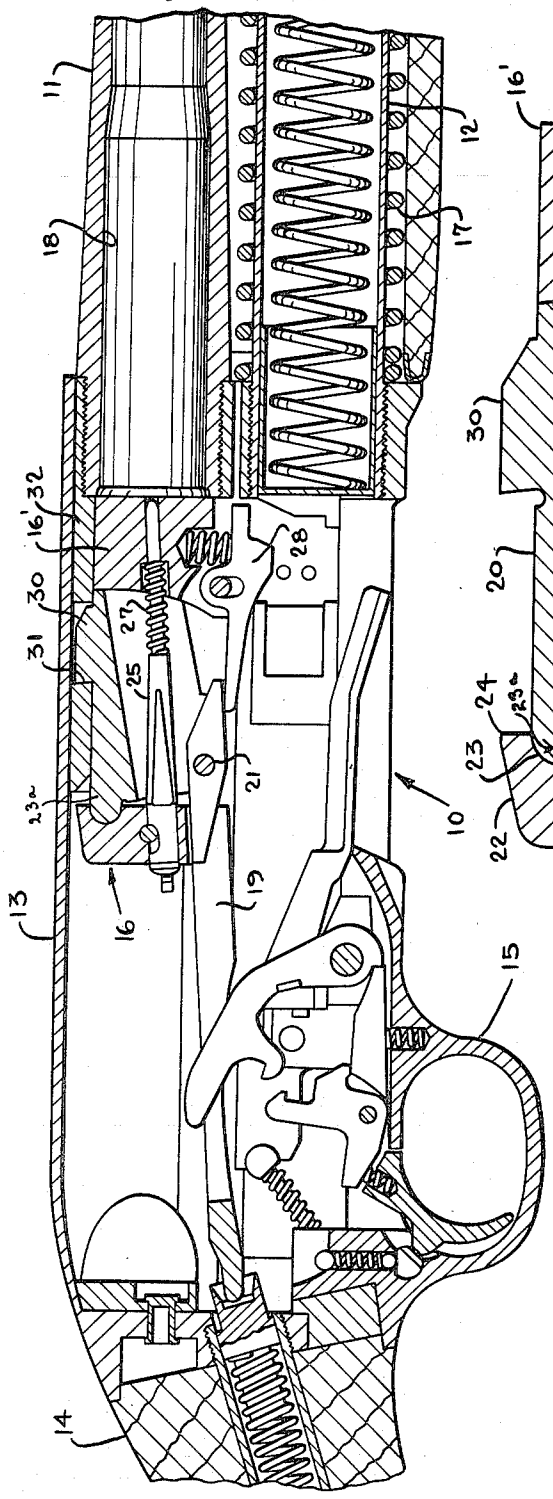


Fig 1

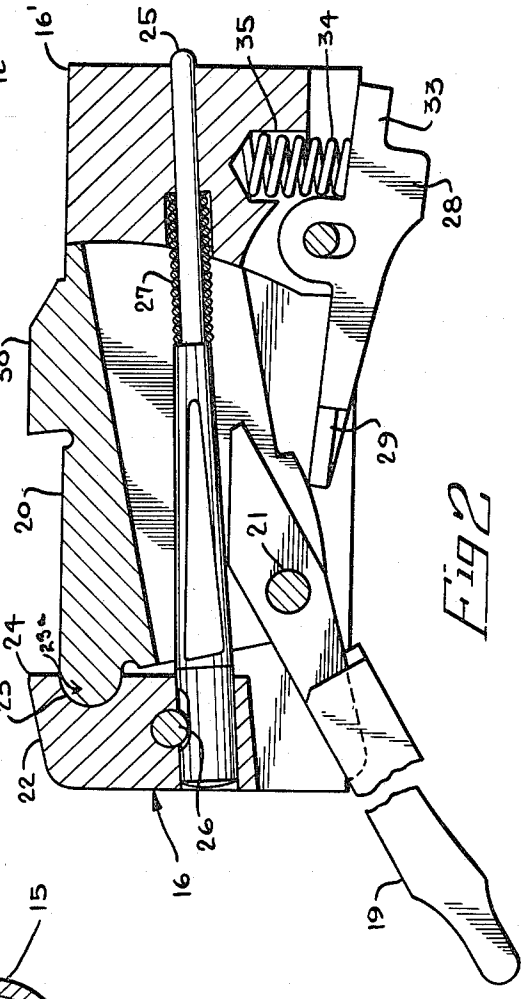


Fig 2

INVENTOR.
EDWARD C. LEE

BY

Dicke and Pallon

ATTORNEYS

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Fig 3

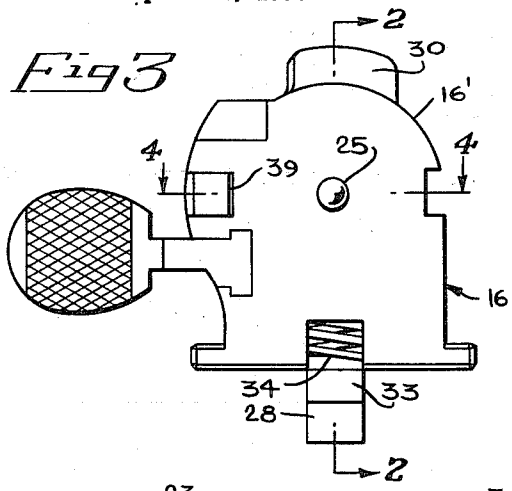
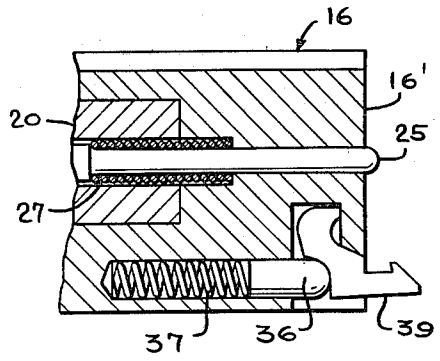


Fig 4



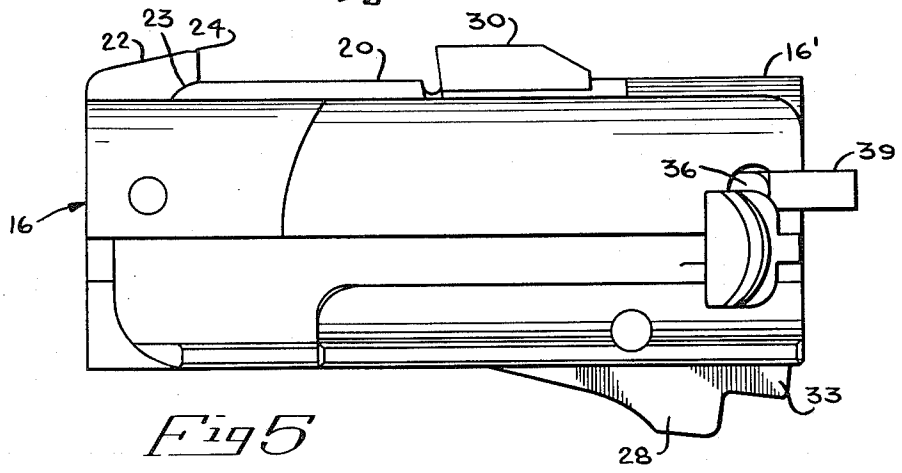


Fig 5

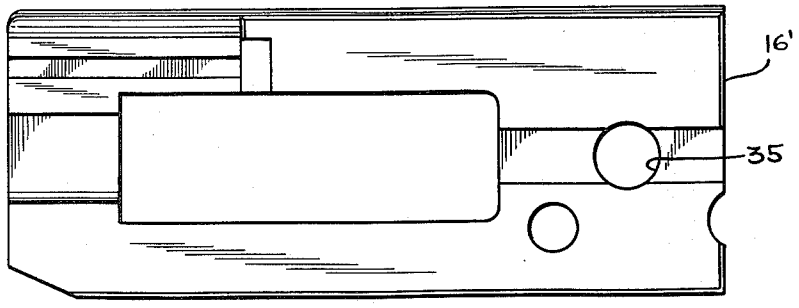


Fig 6

INVENTOR.
EDWARD C. LEE

BY Dicke and Pallon

ATTORNEYS

United States Patent Office

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BOLT ASSEMBLY FOR A FIREARM

Edward C. Lee, Detroit, Mich., assignor to Ithaca Gun Company, Incorporated, Ithaca, N. Y.

Application April 16, 1954, Serial No. 423,553

1 Claim. (Cl. 42—16)

This invention relates to a bolt assembly for a firearm and, more particularly, to a bolt or breech block containing a novel type of locking block therein for use in firearms of the automatic and semi-automatic type.

In the ordinary type of shot gun, such as that disclosed by Browning U. S. Patent No. 689,283 dated December 17, 1901, it will be noted that the bolt or breech block assembly is provided with a body portion, an operating slide and a locking block connected to the spring action link assembly and a firing pin extending through the body portion. The locking block assembly, as used therein and in other types of guns, is complicated and expensive to machine in that it and the body portion must be provided with a combined, machined pivot action whereby the locking block has an outwardly extending circulater rib or track section adapted to fit in a correspondingly circular recessed portion in the body of the breech or bolt assembly. In addition, the circular track of the locking block must be separately and accurately machined and the corresponding circular recess in the body must be separately trepanned and the bolt properly fitted. It is apparent, therefore, that a construction of this type requires considerable machining in contrast to the invention hereinafter described.

With the above in view, it is an object of my invention to provide a breech block or bolt assembly which can be economically and relatively more easily made for use for any type of firearm of the automatic or semi-automatic type.

Still another object of my invention is to provide a breech block having an easily connectible locking block of relatively simple construction.

Other objects and features of my invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a fragmental, longitudinal, sectional view of a firearm embodying a preferred type of my invention;

Fig. 2 is a detailed, enlarged, longitudinal, sectional view of my invention, separate from the firearm and taken on line 2—2 of Fig. 3;

Fig. 3 is a front end view of Fig. 2;

Fig. 4 is a fragmental, sectional view taken on line 4—4 of Fig. 3;

Fig. 5 is a side elevation of Fig. 2; and

Fig. 6 is a bottom plan view showing a breech block embodying my invention but having the locking block removed therefrom.

Referring now particularly to the drawings embodying a preferred type of my invention and wherein like reference characters denote like parts throughout, it will be noted that a gun **10** is provided with a barrel **11** and a magazine tube **12**, a receiver **13**, and a stock **14**. Said receiver **13** is provided with a trigger mechanism assembly **15** and a bolt or breech block assembly **16** which will be hereinafter more fully described.

In said bolt or breech block assembly **16**, it will be noted that the body or breech portion **16'** is adapted to slide in opposed grooves not shown in the inside face of the receiver. Rearward sliding action of the block assembly is accomplished by the recoil forces resulting from the explosion of a shell in the gun chamber **18** of the barrel **11** and in a forward direction from the recoil spring **17** for the initial start of the movement and the action spring **40** through the link **19** for the completion of the same. The link **19** is pivotally connected to the under, rear part of a locking block **20** in the body **16**. Said block **20** is movable up and down around its pivot **21** by means of said link **19**. Said block body **16'**, as noted, is longitudinally recessed to accommodate said locking block **20** to permit free movement of the same in the body **16'**. The body portion **16'** has an upwardly extending rear portion **22** which is horizontally and circularly or arcuately recessed as shown at **23** forming a resting support as hereinafter will be described. The block **20**, as noted, is provided with a correspondingly outwardly projected and rounded portion **23a** to fit in said recess at **23** and is recessed forming a bifurcated lower portion for the end of link **19**. The rounded portion **23a**, with the recess, forms a bearing pivot for the locking block **20** to permit its easy up and down movement in the body portion **16'**. Furthermore said rear portion **22** of breech block **16** has an overlap **24** to prevent the block **20** from dropping out of the body **16'** when the locking block drops down into the recess of the body **16'** or from being pushed out of the body when the link **19** forces the locking block upward. Said body **16'** is recessed so as to accommodate firing pin **25** also which extends through the body but is held in position therein by means of a cross pin member **26** extending horizontally through the rear portion of said body. It will be noted also that said firing pin **25** is provided with a tension spring **27** at its forward end, as shown, which tension spring is partly housed in the forward part of the body portion of the breech block **16**. The bolt or breech assembly is further provided at its lower portion with a latch **28** pivoted to the forward part of the body portion. Latch **28** is adapted, at its rear end **29**, in conjunction with link **19**, to keep the locking block upward whereby the tongue **30** of said locking block **20** fits in the opening **31** in the barrel extension **32** of the gun and engages the rear of the opening **31**.

Furthermore, the forward part **33** of said latch **28** is adapted to be pressed downwardly by means of a spring member **34** housed in a vertical recess or hole **35** of the body of said breech block. Said latch, at its forward end **33**, acts as a stop for a shell as it is forced out of the magazine **12**. It is to be noted that the latch shown herein is not the conventional latch for this system and is used as an illustration.

In Fig. 5 I show details of the forward part of the breech block which is provided with an extractor **39** operated by a plunger **36** which is under the action of a spring **37** in a recess **38** in said breech.

From the foregoing description, taken in connection with the accompanying drawings, it will be noted that I provide a breech block assembly **16** wherein the locking block, at its rearwardly extending portion, bears against the breech block in the circular recess area **23** when the block is pivoting. Also, the upwardly extending forward portion **30** of the locking block readily hooks onto the barrel extension at the opening thereof so as to bring the barrel rearwardly after each explosion of a shell in the firing chamber **18** of said gun.

A bolt or breech block assembly of the type described and illustrated herein can be readily connected or disconnected from the breech block. Also, it prevents freezing and permits accurate and non-obstructive pivotal

movement of the locking block in the breech or bolt assembly. The pivotal action or movement at the end of the locking block, in contrast with the type of circular track movement of the ordinary type of locking block, is simple and very effective. In addition, the block assembly, taken down, can be readily cleaned since the inner walls of the recessed portion of the body 16' are smooth and free of any trepanning or inside cuts.

It is apparent, therefore, that the rear forces are centered on a direction in alignment with the rear movement of the breech block assembly thereby avoiding any side thrusts of the locking block against the breech block as is characteristic of the ordinary type of bolt or breech block assembly.

Another advantage of my invention is that the locking block is a flat piece to work from, being easier to machine and simpler to fit. Furthermore, the piece is cheaper in cost and easier to disassemble from the breech block. In addition, a better fit is provided for the component parts of the assembly.

While a preferred embodiment of my invention has been described and illustrated herein, it will be noted that various modifications as to form, structure and arrangement, and use of parts may be made without departing from the spirit and scope of my invention as claimed.

I claim:

In a recoil operated firearm having a receiver, a barrel with a magazine tube, and a stock, the improvement comprising a barrel extension having an opening therein, said extension being slidable into the receiver, a breech block slidable longitudinally of the barrel in the receiver, said breech block having a longitudinally slotted bottom

therein, straight smooth and parallel interior slot side walls, an interior slot arcuate front wall and a rear end wall, a locking block supported for up and down pivotal swinging movement in the breech block and having straight smooth and parallel side walls to fit into the slotted portion of the breech block, and being slidable on the side walls thereof, said rear end wall having an overlapping upper portion and a horizontally and circularly recessed portion, the latter portion forming a pivot for the locking block, said locking block having a rearward circularly arcuate projection pivoted in said recessed portion about a transverse axis thereat and a forward arcuate portion slidable on the arcuate front wall of the breech block in an arc concentric with said axis, said overlapping portion of the breech block being adapted to prevent dropping out of the locking block, said locking block having a tongue at its upper forward portion adapted to fit in the opening of the barrel extension of the firearm and engage the rear portion thereof, a firing pin extending through the breech block, and a transverse pin through said breech block for said firing pin.

References Cited in the file of this patent

UNITED STATES PATENTS

577,281	Browning	Feb. 16, 1897
1,702,984	Shelman	Feb. 19, 1929
1,852,411	Henry	Apr. 5, 1932
2,418,946	Loomis	Apr. 15, 1947
2,480,074	Browning	Aug. 23, 1949
2,714,334	Harvey	Aug. 2, 1955
2,715,356	Fiorini	Aug. 16, 1955