

[54] **RIFLE BOLT WITH A REMOVABLY  
 SECURED STABILIZING LUG  
 THEREON**

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 [51] Int. Cl. .... **F41c 11/00**  
 [58] Field of Search ..... **42/16**

[56] **References Cited**

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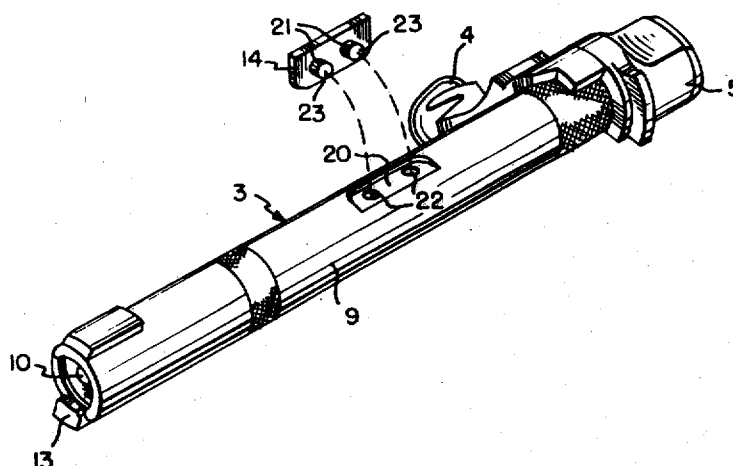
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[57] **ABSTRACT**

A cylindrical breech bolt for a bolt action rifle, the bolt having a lug-receiving recess formed in the exterior cylindrical surface thereof that is adapted to receive a separate stabilizing lug member. The separate stabilizing lug member is removably secured to the bolt by inwardly extending projections integrally formed on the inner surface of the lug member, the inwardly extending projections being received in holes formed in the annular wall of the bolt.

**8 Claims, 4 Drawing Figures**



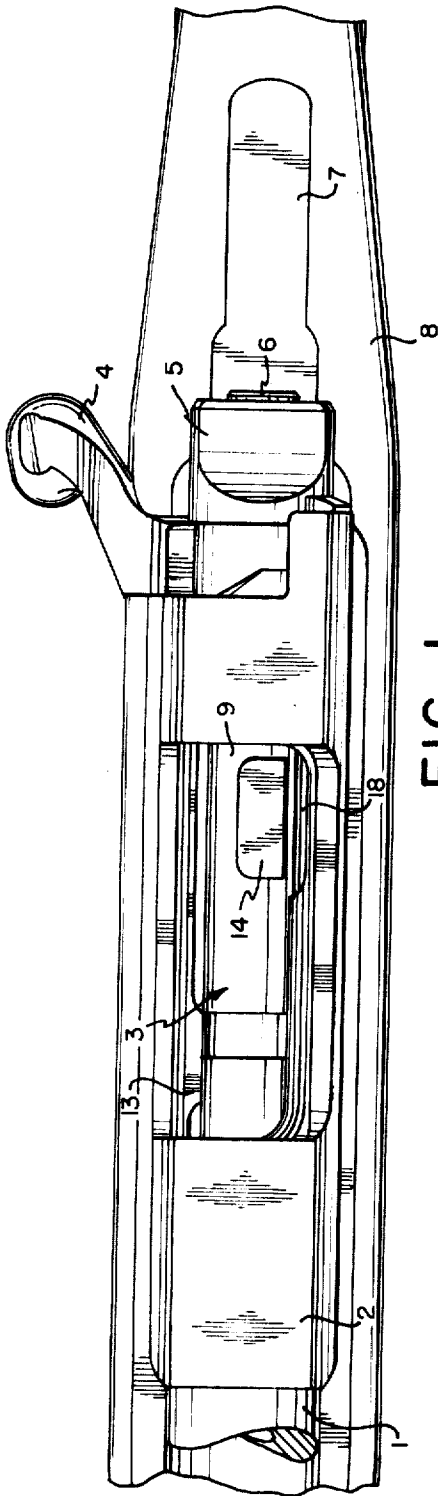


FIG. 1

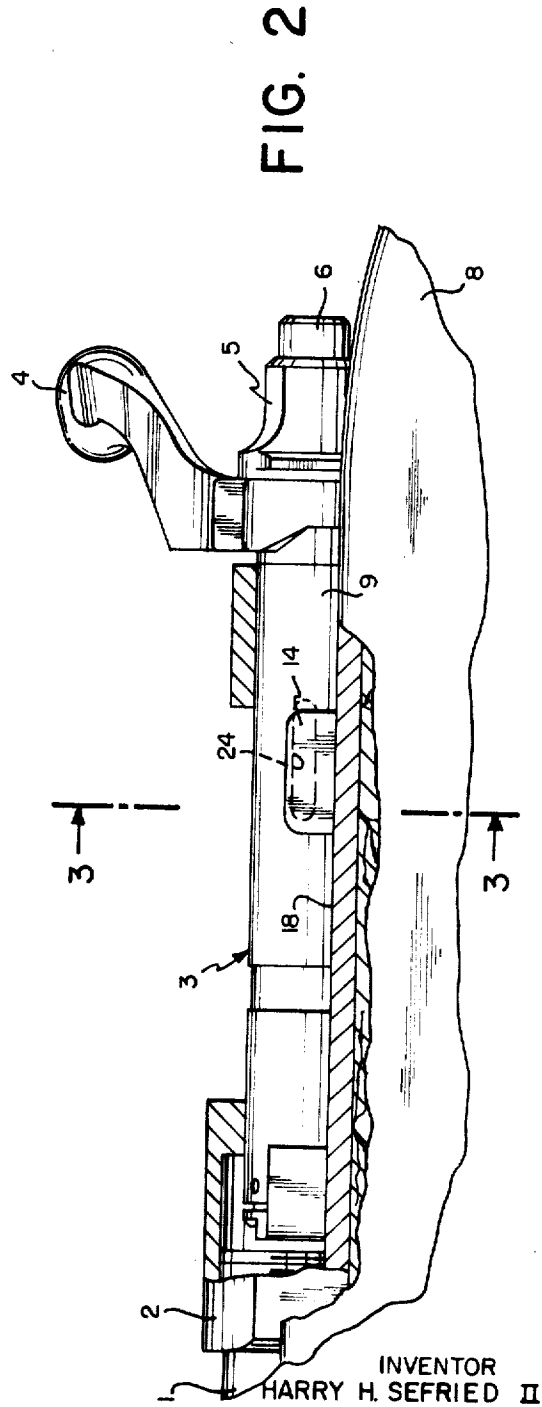


FIG. 2

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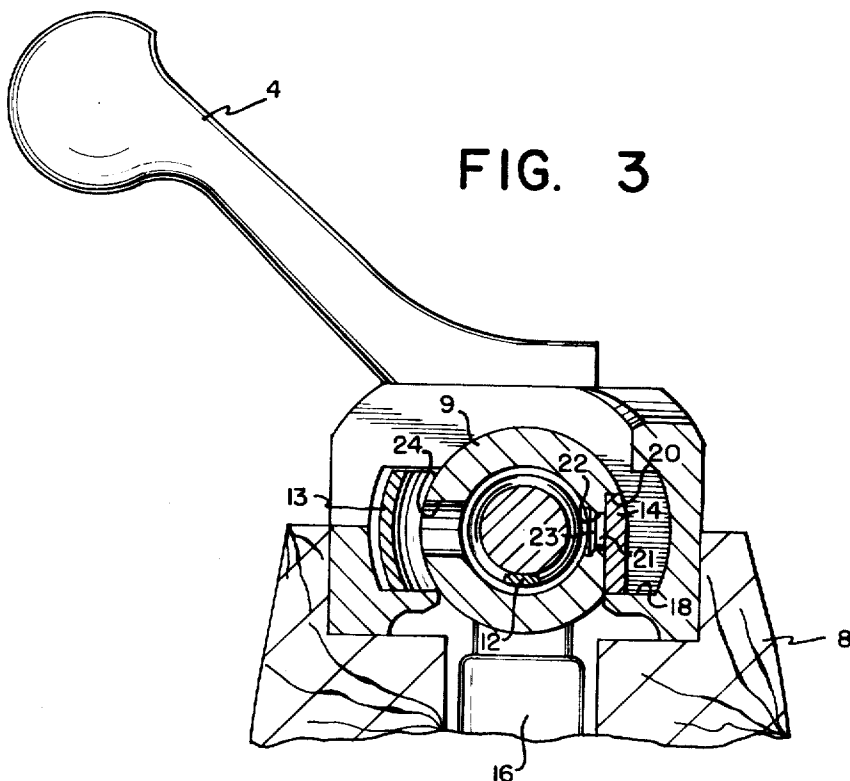
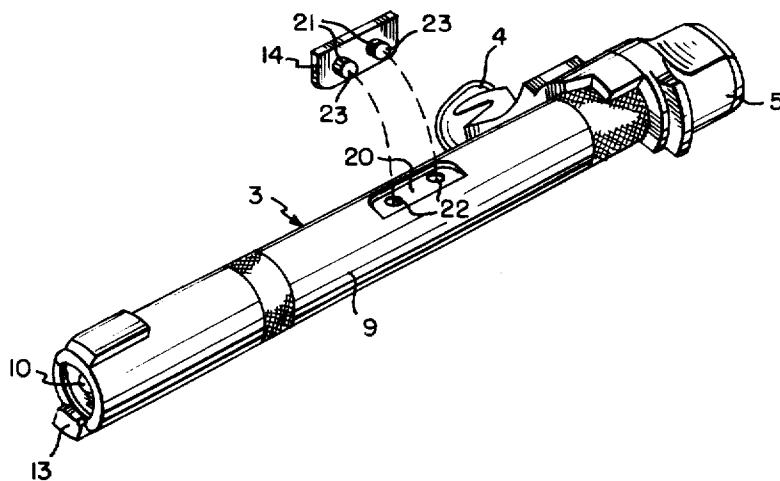


FIG. 4



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# RIFLE BOLT WITH A REMOVABLY SECURED STABILIZING LUG THEREON

## BACKGROUND OF THE INVENTION

### 1. The Field of the Invention

This invention relates to bolt action rifles, and in particular to cylindrical breech bolts for such rifles.

### 2. Prior Art

The major components of a conventional bolt action firearm comprise the barrel, a receiver secured to the rear of the barrel, a cylindrical breech bolt mounted in the receiver in axial alignment with the barrel, a firing mechanism including the trigger mounted on the receiver below the bolt, and the stock. The cylindrical breech bolt is rotatable about its longitudinal axis from its locked firing position to its unlocked extracting and loading position, the bolt being longitudinally slidable within the receiver when it is in its unlocked position. When the bolt is rotated from its locked to its unlocked position and then is moved rearwardly, the spent cartridge is extracted from the chamber of the barrel and is ejected from the rifle. When the bolt is moved forwardly from its rearwardmost position a fresh cartridge is inserted into the chamber of the barrel. When the bolt reaches its forwardmost position it is rotated about its longitudinal axis to lock the bolt and cock the firing mechanism.

The rotational and reciprocating movement of the cylindrical breech bolt within the receiver is carried out by manual manipulation of a bolt handle that extends laterally with respect to the bolt, usually at the rear thereof. Because the bolt handle is displaced to one side of the longitudinal axis of the bolt, manipulation of the bolt handle imposes uneven stresses or force vectors on the bolt which in turn would cause the bolt to become out of alignment with respect to the axis of the barrel unless some means are provided for stabilizing the bolt during its reciprocating travel within the receiver. The means commonly employed to stabilize the bolt comprises a stabilizing lug formed on the outer surface of the bolt that rides or slides on a bolt guide ledge formed on the interior surface of the receiver. The bolt stabilizing lug is normally integrally formed with the bolt when the bolt is manufactured, and thus a relatively difficult and expensive machining operation is required to manufacture the bolt. Moreover, because the bolt stabilizing lug is integrally formed with the bolt itself, the entire bolt must be replaced should, for some reason, the stabilizing lug become damaged or deformed.

## SUMMARY OF THE INVENTION

I have now developed an improved bolt for bolt action rifles in which the bolt stabilizing lug comprises a separate member that is removably secured to the outer surface of the cylindrical breech bolt. The cylindrical breech bolt is mounted in the receiver of the firearm to the rear of and in axial alignment with the barrel, the bolt being rotatable about its longitudinal axis from its locked firing position to its unlocked loading position and being longitudinally slidable with respect to the receiver when in its unlocked position. The receiver is formed with a bolt guide ledge that extends longitudinally within the receiver adjacent the longitudinally slidable bolt. In accordance with my invention the exterior cylindrical surface of the bolt is formed with a recess that is adapted to receive a separate stabilizing lug member. The separate stabilizing lug member is received in this recess and is removably secured to the bolt. The stabilizing lug member is formed with a flat bearing surface that contacts the bolt guide ledge of the receiver when the bolt is rotated to its unlocked position, the bearing surface of the lug member remaining in sliding contact with the bolt guide ledge when the bolt is moved rearwardly and then forwardly in the receiver.

In the preferred embodiment of the invention the stabilizing lug member is formed with two inwardly extending projections which are received in corresponding holes formed in the annular wall of the tubular bolt within the confines of the recess. In addition, a lug access opening is formed in the annular wall of

the tubular bolt diametrically opposite the projection-receiving openings formed in the wall thereof.

## BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood from the following description in conjunction with the accompanying drawings of which:

FIG. 1 is a plan view of the receiver and bolt of a bolt action firearm embodying the invention with the barrel and stock broken off, the bolt being shown in its locked position;

FIG. 2 is a side elevation of the bolt and receiver of the firearm embodying the invention with the barrel, stock and a portion of the receiver broken away, the bolt being shown in its unlocked position;

FIG. 3 is a sectional view along line 3—3 of Fig. 2; and

FIG. 4 is a perspective view of the bolt construction of the invention.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention relates to bolt action firearms the major components of which comprise the generally familiar barrel, receiver, breech bolt and bolt handle, trigger and trigger guard, and stock. Referring now to the fragmentary view of such a bolt action firearm that is shown in Fig. 1, the firearm embodying the invention comprises a barrel 1, a receiver 2 secured to the rear of the barrel, a cylindrical breech bolt and bolt assembly 3 mounted in the receiver to the rear of and in axial alignment with the barrel, a bolt handle 4 secured to the rearward end of the bolt assembly 3, a bolt head sleeve 5, a firing pin striker 6, a receiver tang 7, and a stock 8 on which the receiver and barrel are mounted. The firearm also includes such major components as the trigger and trigger guard which are not shown in the drawings.

The breech bolt assembly 3 comprises a generally cylindrical or tubular metal bolt 9 which contains the firing pin 10 (FIG. 4), the aforementioned firing pin striker 6 and the striker spring 12 (FIG. 3). The bolt assembly also includes the bolt handle 4, the bolt head sleeve 5, the extractor 13 and the improved stabilizing lug member 14 of the invention. The firing mechanism includes the aforementioned firing pin, striker and striker spring of the bolt assembly as well as the trigger, trigger spring and sear which are not shown in the drawing.

The cylindrical breech bolt 9 of the bolt assembly 3 is rotatable about its longitudinal axis from its locked firing position shown in Fig. 1 to its unlocked extracting and loading position shown in Figs. 2 and 3. Moreover, when the bolt 9 is in its unlocked position it is longitudinally slidable within the receiver 2 to first extract a spent cartridge from the chamber of the barrel 1 and then to load a fresh cartridge into the chamber in the manner known in the art. Thus, when the bolt 9 is rotated from its locked position to its unlocked position and then is moved rearwardly by means of the bolt handle 4, the spent cartridge is extracted from the chamber of the barrel by means of the extractor 13 and then is ejected from the rifle. When the bolt 9 is moved forwardly a fresh cartridge from the magazine 16 is inserted into the chamber of the barrel 1. When the bolt 9 reaches its forwardmost position it is rotated on its longitudinal axis from the position shown in Fig. 2 to the position shown in Fig. 1 to lock the bolt and cock the firing mechanism.

As previously noted, the bolt 9 is rotated and is moved longitudinally within the receiver 2 by manual manipulation of the bolt handle 4. Manual manipulation of the bolt handle 4 tends to move the bolt 9 out of alignment with the barrel 1 unless means are provided to stabilize the bolt. Accordingly, the receiver 2 is formed with a bolt guide ledge 18 that extends longitudinally along the interior of the receiver adjacent the bolt 9. The stabilizing lug member 14 of the bolt 9 is adapted to contact the guide ledge 18 when the bolt is in its open position and thereby stabilizes the bolt when it is moved longitudinally back and forth within the receiver.

In accordance with the practice of the invention the stabilizing lug member 14 is a separate part that is removably secured to the bolt 9, the bolt 9 being formed with a recess 20 that is adapted to receive the lug member 14. In order to removably secure the lug member 14 to the bolt 9, advantageously the lug member is integrally formed with at least one, and preferably two, inwardly extending projections 21 which are received in corresponding holes 22 formed in the annular wall of tubular bolt 9. In this case, the stabilizing lug member 14 is secured to the bolt 9 by peening or swaging the inner ends 23 of the projections 21 as shown in Fig. 3 of the drawing. To facilitate the peening or swaging operation an access opening or slot 24 is formed in the annular side wall of the tubular bolt 9 diametrically opposite the openings 22 in which the projections 21 are received. When the ends 23 of the projections 21 are peened or swaged as described, the stabilizing lug member 14 is securely attached to the bolt 9. However, should it be desired to remove the lug member 14, the swaged or peened inner ends of the projections 21 can readily be cut away to permit removal of the lug member for replacement thereof.

I claim:

1. A cylindrical breech bolt for a bolt action rifle, said bolt having a lug-receiving recess formed in the exterior cylindrical surface thereof, said recess being adapted to receive a separate stabilizing lug member, said separate stabilizing lug member being received in said recess and being removably secured to said bolt, said stabilizing lug member being formed with a bearing surface that is adapted to contact a bolt guide ledge of a firearm receiver.

2. The bolt according to claim 1 in which the stabilizing lug member is integrally formed with at least one inwardly extending projection by means of which the lug member is removably secured to the bolt.

3. The bolt according to claim 2 in which the bolt comprises essentially a cylindrical metal tube, and in which lug projection receiving holes are formed in the annular wall of said cylindrical tube within the lug-receiving recess, the inwardly extending projections of the stabilizing lug member being received in said holes and being secured thereto.

4. The bolt according to claim 3 in which a lug projection access opening is formed in the annular wall of said cylindrical tube diametrically opposite the projection-receiving opening formed therein.

5. In a firearm having a barrel, a receiver secured to the rear of the barrel, a cylindrical breech bolt mounted in the receiver to the rear of and in axial alignment with the barrel, said bolt being rotatable about its longitudinal axis from its locked firing position to its unlocked extracting and loading position and being longitudinally slidable with respect to said receiver when in said unlocked position, said receiver being formed with a bolt guide ledge that extends longitudinally within the receiver adjacent the longitudinally slidable bolt and said bolt being provided with a bolt stabilizing lug that is adapted to contact said guide ledge when said bolt is in its open position and to remain in sliding contact therewith when said bolt is moved longitudinally with respect to the receiver, the improvement which comprises forming the exterior cylindrical surface of the bolt with a recess that is adapted to receive a separate stabilizing lug member, said separate stabilizing lug member being received in said recess and being removably secured to said bolt, said stabilizing lug member being formed with a bearing surface that is adapted to contact the bolt guide ledge of the firearm receiver.

6. The firearm bolt according to claim 5 in which the stabilizing lug member is integrally formed with at least one inwardly extending projection by means of which the lug member is removably secured to the bolt.

7. The firearm bolt according to claim 6 in which the bolt comprises essentially a cylindrical metal tube, and in which lug projection receiving holes are formed in the annular wall of said cylindrical tube within the lug-receiving recess, the inwardly extending projections of the stabilizing lug member being received in said holes and being secured thereto.

8. The firearm bolt according to claim 7 in which a lug projection access opening is formed in the annular wall of said cylindrical tube diametrically opposite the projection-receiving opening formed therein.

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