

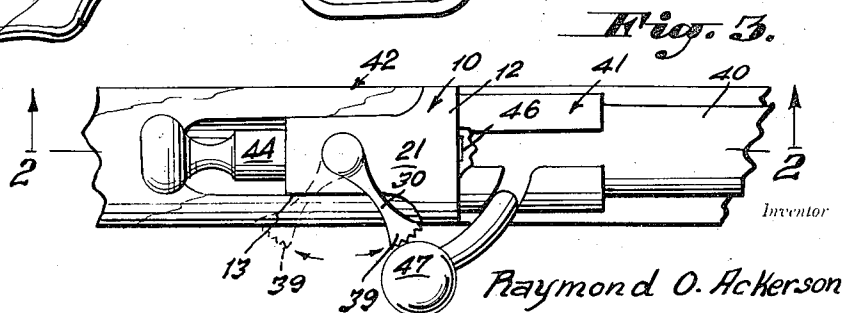
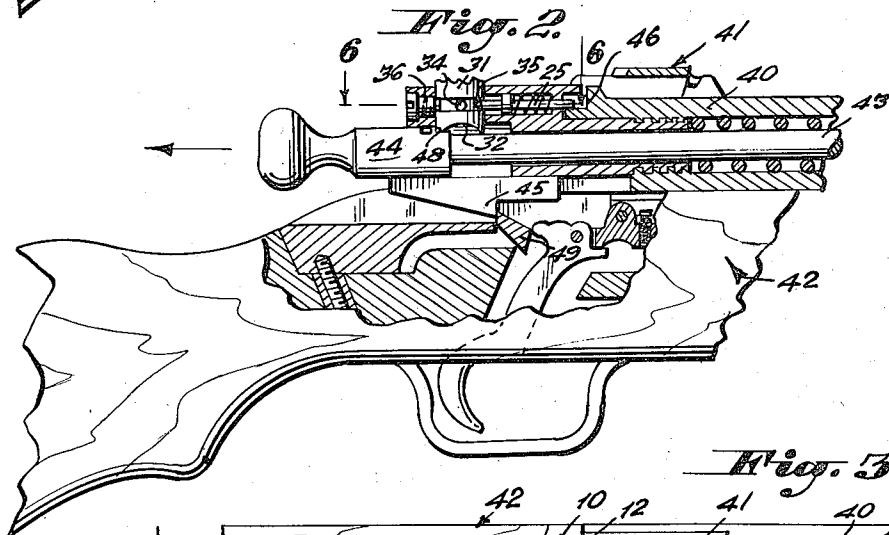
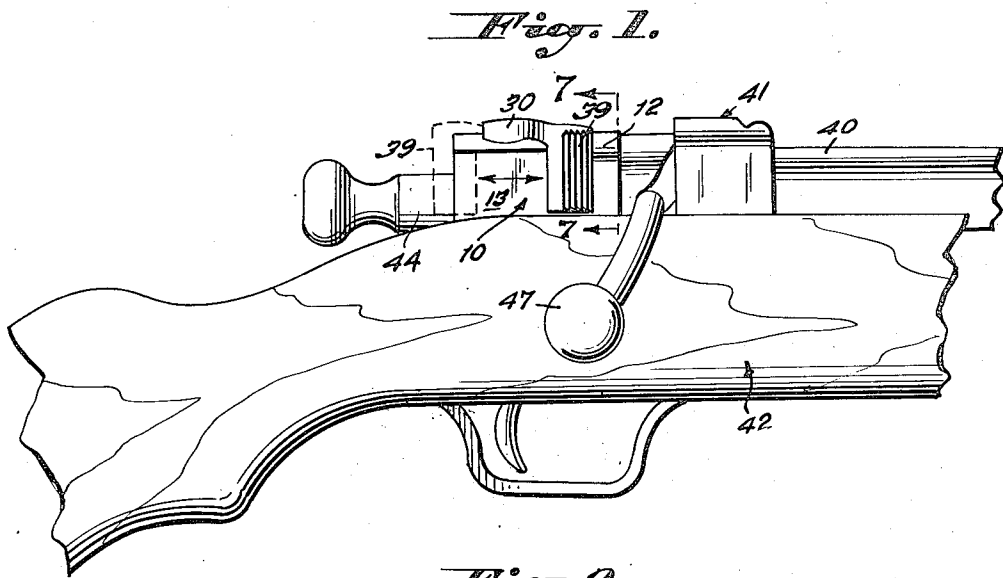
Aug. 18, 1953

R. O. ACKERSON
RIFLE BOLT SLEEVE AND SAFETY

2,648,926

Filed Aug. 2, 1950

2 Sheets-Sheet 1



By

John N. Randolph

Attorney

Aug. 18, 1953

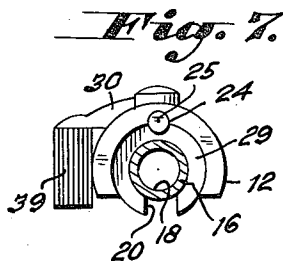
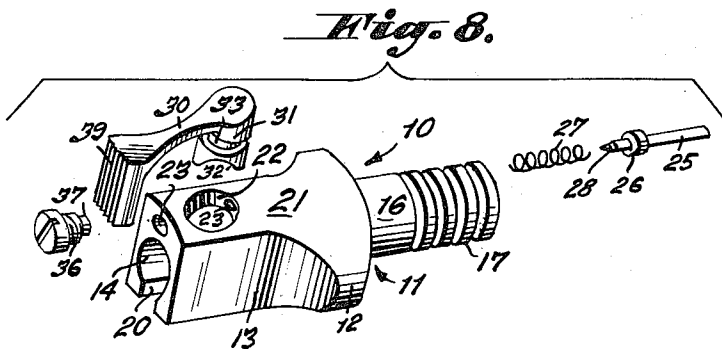
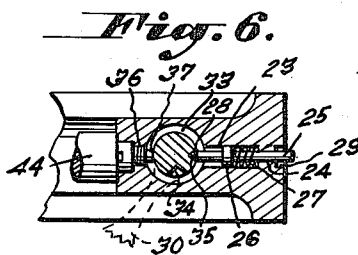
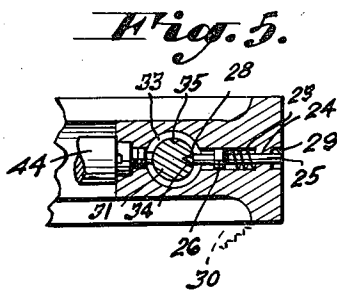
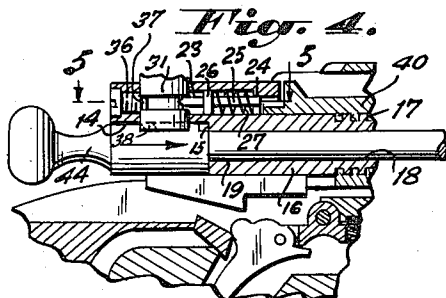
R. O. ACKERSON

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RIFLE BOLT SLEEVE AND SAFETY

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2 Sheets-Sheet 2



Inventor

Raymond O. Ackerson

By

John H. Randolph

Attorney

UNITED STATES PATENT OFFICE

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RIFLE BOLT SLEEVE AND SAFETY

Raymond O. Ackerson, Earp, Calif.

Application August 2, 1950, Serial No. 177,316

5 Claims. (Cl. 42-70)

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This invention relates to an improved construction of bolt sleeve and safety primarily adapted for use on a Springfield, Model #1903, rifle and has for its primary object to provide an improved bolt sleeve which may replace the conventional bolt sleeve of such rifles without otherwise changing or modifying the rifle or any part thereof and which will provide a bolt sleeve having a safety which is disposed for swinging movement in a horizontal plane rather than in a vertical plane, as occurs with the safety lever as conventionally employed on such rifles, to thereby permit a telescope sight to be mounted at a low level and with the rear end above and adjacent the cocking piece of the rifle.

Due to the vertical swinging movement of the conventional locking lever of Model #1903 Springfield rifle, to use a telescope sight therewith it is necessary to either mount the sight at a relatively high level with respect to the receiver, where it cannot be conveniently employed by a marksman, or else positioned forwardly of the bolt sleeve so that it will not interfere with operation of the locking lever and which locates the rear end of the sight considerably in advance of the firer's eye and which is likewise an undesirable mounting.

Accordingly, it is a primary aim of the present invention to provide a bolt sleeve to replace the conventional bolt sleeve and wherein the locking lever swings in a horizontal rather than a vertical plane beneath a telescope sight mounted above the bolt sleeve and cocking piece so that the rear end of the sight may be disposed close to the eye of the marksman and with the sight mounted at a low level relatively to the receiver without the sight in any way affecting or impairing the operation of the locking mechanism, actuated by the locking lever.

Still a further object of the invention is to provide an improved bolt sleeve of extremely simple construction which is capable of being economically manufactured and sold and which will effectively function with other parts of the bolt and cocking piece for effectively locking the firing pin against forward movement when in a "safe" position and which may be quickly and easily moved to a position to permit firing of the piece without interference by the locking mechanism.

Still a further aim of the invention is to provide a bolt sleeve having a locking mechanism which will function with a conventional part of the piece to prevent opening of the bolt when said mechanism is in a "safe" position.

Still a further object of the invention is to provide a bolt sleeve with locking mechanism which is so mounted that the locking mechanism may be quickly and easily assembled in or removed from the bolt sleeve when necessary to repair or replace any parts thereof.

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Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a fragmentary side elevational view of a portion of a Model #1903 Springfield rifle showing the invention applied thereto;

Figure 2 is a longitudinal substantially central sectional view, partly in side elevation of the receiver portion of the rifle, showing the invention applied and with the locking mechanism in a "safe" position;

Figure 3 is a fragmentary top plan view of the parts as shown in Figure 1;

Figure 4 is a fragmentary longitudinal sectional view of a portion of the receiver with the locking mechanism of the bolt sleeve in a "firing" position;

Figure 5 is a horizontal sectional view thereof taken substantially along a plane as indicated by the line 5-5 of Figure 4;

Figure 6 is a sectional view similar to Figure 5 taken substantially along a plane as indicated by the line 6-6 of Figure 2 and showing the locking mechanism in a "safe" position;

Figure 7 is a cross sectional view of the improved bolt sleeve, as it would appear removed and taken substantially along a plane as indicated by the line 7-7 of Figure 1, and

Figure 8 is an enlarged, exploded perspective view of the various parts constituting the improved bolt sleeve and locking mechanism.

Referring more specifically to the drawings, for the purpose of illustrating a preferred application and use of the improved bolt sleeve and locking mechanism, designated generally 10 and comprising the invention, the receiver portion only of a conventional Springfield rifle, Model #1903, has been illustrated and as all of the parts thereof as disclosed, with the exception of the unit 10 are conventional, said parts will not be described in detail and only those parts which actually function with the unit 10 will be referred to.

The invention 10 includes a bolt sleeve, designated generally 11, including a body portion 12, similar in shape to the body portion of the conventional bolt sleeve of Springfield, Model #1903 rifle, which is provided with recessed sides 13 and a longitudinally extending bore 14 having an enlarged rear end and a restricted forward end defining a rearwardly facing shoulder 15. The body portion 12 at its forward end is provided with a forwardly extending sleeve 16 which is externally threaded as seen at 17 adjacent its forward end and which is provided with a bore 18 extending longitudinally therethrough and which forms a continuation of the restricted forward end 19 of the bore 14. The bottom portion of the body member 12 is provided with a longitudinally

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extending slot 20 which opens into the enlarged bore portion 14 and which extends from end-to-end of said body portion 12. The top surface 21 of the sleeve body 12 is provided adjacent the rear end of said sleeve with a relatively large opening 22 which opens downwardly into the bore portion 14 and outwardly of said top surface 21. Above the bore portions 14 and 19, the sleeve body 12 is provided with a longitudinal bore 23 which extends from end-to-end of the sleeve and which intersects diametrically with the opening 22. The bore 23 is provided with a restricted forward end 24, for a purpose which will hereinafter become apparent.

A bolt locking pin 25 is disposed in the bore 23 and has a forward end slidably disposed in the restricted end 24 of said bore 23. The pin 25, adjacent to but spaced from its opposite, rear end, is provided with an integral collar 26 forming a stop for one end of an expansion spring 27, which is disposed on the forward portion of the pin 25 and within the bore 23, and the opposite end of which spring seats against the rearwardly facing shoulder formed by the restricted bore portion 24, for urging the pin 25 rearwardly of the bore 23 and into the opening 21. The pin 25 is provided with a conical rear end 28, as best illustrated in Figure 8. Said pin 25 and the spring 27, mounted thereon, are insertable into the forward part of the bore 23 and the bore portion 24 through the rear end of said bore 23 and thence diametrically through the opening 22. As seen in Figure 7, the bolt sleeve body 12 is provided at its forward end with a substantially circular forwardly facing groove 29 which is disposed around the rear end of the sleeve 16 and into which a portion of the restricted bore end 24 opens and into which the forward end of the bolt locking pin 25 is capable of being projected, as will hereinafter become apparent.

A safety lever 30 is provided at one end thereof with an integral depending shaft 31, the axis of which is disposed at a right angle to the plane of the lever 30 and which is of a proper diameter to be journaled in the opening 22. The shaft 31 is provided in its lower, free end with a diametrically extending groove or channel 32 of arcuate cross section and said shaft 31 is provided intermediate of its ends with an annular groove 33 which is formed in its periphery and which is disposed to align with the ends of the bore 23. Said groove 33, as best seen in Figures 5 and 6, is provided in the bed portion thereof with a relatively deep conical shaped recess or depression 34 and has a second shallow conical shaped depression 35 which is circumferentially spaced from the depression 34. When the shaft 31 is disposed in the opening 22 the pointed end 28 of the pin 25 engages in the annular groove 33 to assist in retaining the shaft 31 in its position in the opening 22, as illustrated in Figures 2, 4, 5 and 6; however, the shaft 31 is also releasably and positively retained in the opening 22 by a retaining screw 36 which engages in the rear end of the bore 23, which is threaded to receive said screw. The screw 36 is countersunk in the rear end of the bore 23 and has a tit or restricted projection 37 on its inner end which extends into the opening 22 and engages in the groove 33. As seen in Figure 4, a portion of the periphery of the shaft 31 at its free end and on one side of one end of the groove or channel 32 is provided with a tapered recess forming a cam surface 38 for a purpose which will hereinafter become apparent. The opposite end of the lever 33 is provided with a depending

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extension having an outer surface which is preferably knurled and which forms a thumb rest 39 which is disposed for swinging movement in one of the recessed sides 13. The parts 11 to 39, inclusive, constitute the invention.

The threaded end 17 of the sleeve 16 is adapted to be threaded into the rear end of the bolt 40 of the receiver, designated generally 41 of the rifle, designated generally 42, which has only been partially illustrated. This connection of the sleeve 16 with the bolt 40 is in the same manner as the conventional bolt sleeve of a Springfield, Model #1903 rifle is assembled in the bolt. The firing pin 43 extends slidably through the bore portions 18 and 19 and the forward end of the cocking piece 44 is reciprocally mounted in the bore portion 14 and with the sear lug 45 extending downwardly through the slot 20. The forward end of the restricted bore portion 24 is disposed directly behind and just above a locking pin receiving notch 46 which is disposed in the upper surface of a rear portion of the bolt 40 and which opens upwardly and rearwardly.

The lever 30 extends across a part of the top surface 21 and is disposed in substantially a horizontal plane and mounted for swinging movement on a vertical axis, provided by the shaft 31. When the handle or thumb piece 39 of the lever 30 is disposed in the forward end of the recess 13, as seen in full lines in Figure 3 and as illustrated in Figure 1, the locking mechanism is in a firing position and the channel 32 of the shaft 31 is disposed in alignment with the bore 14 and flush with a portion of the surface thereof so that the forward end of the cocking piece 44 may slide freely therethrough, as illustrated in Figure 4. When thus disposed, the shaft 31 is positioned as seen in Figure 5 so that the conical end 28 of the pin 25 may seat in the deep depression 34 to allow the spring 27 to displace the bolt locking pin 25 rearwardly so that its forward end will be disposed in the bolt sleeve body 12 and rearwardly of the notch 46 and thus completely out of engagement therewith to permit the bolt to be opened and closed by a manual operation of the bolt handle 47. Likewise, the spring 27 and pin 25 by engagement with the depression 34 will retain the shaft 31 against rotation in the opening 22 to thereby releasably retain the lever 30 in its forward, firing position of Figure 1. If it is desired to lock the piece 42 to prevent firing thereof, the cocking piece 44 must be retracted from its fired position of Figure 4 to a cocked position slightly in advance of its position of Figure 2. When thus disposed, the handle or thumb piece 39 may be grasped or engaged for swinging the lever 31 rearwardly or clockwise, as seen in Figure 3, from its full line to its dotted line position. This initial movement of the lever 30 is resisted by the spring 27 and pin 25 due to the fact that the pin 25 must be displaced forwardly against the tension of the spring 27 by a camming engagement of the recess 34 and pin end 28 and thereafter, due to the fact that as the shaft 31 commences to turn clockwise its cam surface 38 will initially engage a forwardly facing shoulder 48, constituting a conventional part of the cock piece 44 and defining a first step thereof. When this occurs, the cam surface 38 will initially displace the cocking piece 44 and firing pin 33 rearwardly slightly from its cocked position and to its position of Figure 2, thereby relieving the pressure of the cocking piece on the trigger sear 49, thus disengaging the firing mechanism of the piece 42 from its trigger mechanism. At the same time

that the shaft 31 commences this clockwise turning motion, the pin 25 is projected forwardly against the action of the spring 27 to cause the forward end of the pin to extend into the notch 46, as seen in Figure 2, so that the pin 25 will then lock the bolt 40 to prevent it from being turned to a position to open the breech by manual operation of the handle 47, thereby locking the bolt in a breech closing position. As the lever 30 reaches its dotted line position of Figure 3 the shaft 31 will be in a position of Figure 6 so that the conical pin end 28 will then seat in the shallow depression 35 which will still maintain the forward end of the pin 25 in the notch 46 but will combine with the pin end 28 to releasably latch the shaft 31 with the lever 30 in its safe position as seen in dotted lines in Figures 3 and 6.

From the foregoing it will be readily apparent that an improved construction of bolt sleeve locking mechanism 10 has been provided wherein the locking lever 30 is disposed for swinging movement in substantially a horizontal plane about a vertical axis and is disposed just above the top surface of the bolt sleeve so that the telescope sight, not shown, can be readily mounted in a low position directly over and just above the top surface 21 and so as just to clear the lever 30 and will not interfere with the locking, unlocking or operation of the piece 42.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A bolt sleeve and locking mechanism for rifles comprising a bolt sleeve body having a forward end and a rear end and provided with a restricted externally threaded extension projecting from its forward end and adapted to threadedly engage in a rifle bolt for mounting said body detachably on the rear end thereof, said bolt sleeve having a bore extending therethrough and through its restricted extension adapted for reciprocally receiving therein a rifle firing pin and cocking piece, said bolt sleeve body having an opening adjacent its rear end opening into said bore and outwardly and upwardly of the bolt sleeve body, a shaft journaled in said opening having a lower end provided with a diametrically extending groove registering with the wall of said bore in one position of the shaft to permit the cocking piece to slide through said groove and extending into the bore in another position of the shaft to form a stop for engaging and retaining the cocking piece in a retracted, cocked position, a lever projecting radially from the upper end of said shaft and disposed in a horizontal plane above and adjacent the sleeve body for swinging movement in a horizontal plane about the axis of said shaft for positioning the diametrical groove of the shaft in or out of registry with said longitudinal bore, said sleeve body having a second bore disposed above said first mentioned bore and above the level of said restricted extension and provided with a restricted end opening outwardly of the forward end of the bolt sleeve body, a bolt locking pin reciprocally mounted in said second bore for sliding movement longitudinally of the bolt sleeve body and disposed forwardly of said shaft, spring means urging said bolt locking pin into engagement with the shaft, said shaft having circumferentially spaced depressions of different depths for selectively receiving an end of the pin to releasably retain the shaft with the diametri-

cal groove thereof either in or out of registry with said first mentioned bore.

2. A bolt sleeve and locking mechanism for rifles comprising a bolt sleeve body having a forward end and a rear end and provided with a restricted externally threaded extension projecting from its forward end and adapted to threadedly engage in a rifle bolt for mounting said body detachably on the rear end thereof, said bolt sleeve having a bore extending therethrough and through its restricted extension adapted for reciprocally receiving therein a rifle firing pin and cocking piece, said bolt sleeve body having an opening adjacent its rear end opening into said bore and outwardly and upwardly of the bolt sleeve body, a shaft journaled in said opening having a lower end provided with a diametrically extending groove registering with the wall of said bore in one position of the shaft to permit the cocking piece to slide through said groove and extending into the bore in another position of the shaft to form a stop for engaging and retaining the cocking piece in a retracted, cocked position, a lever projecting radially from the upper end of said shaft and disposed in a horizontal plane above and adjacent the sleeve body for swinging movement in a horizontal plane about the axis of said shaft for positioning the diametrical groove of the shaft in or out of registry with said longitudinal bore, said sleeve body having a second bore disposed above said first mentioned bore and above the level of said restricted extension and provided with a restricted end opening outwardly of the forward end of the bolt sleeve body, a bolt locking pin reciprocally mounted in said second bore for sliding movement longitudinally of the bolt sleeve body and disposed forwardly of said shaft, spring means urging said bolt locking pin into engagement with the shaft, said shaft having circumferentially spaced depressions of different depths for selectively receiving an end of the pin to releasably retain the shaft with the diametrical groove thereof either in or out of registry with said first mentioned bore, one of said depressions being shallower than the other depression and being disposed to engage said pin when the shaft is positioned to lock the cocking piece in a retracted cocked position, for projecting the pin forwardly of the forward end of said bolt sleeve body, the forward end of said pin being adapted to engage in a rearwardly opening notch of the rifle bolt when in a forward position for locking the bolt in a closed position.

3. A bolt sleeve and locking mechanism for rifles comprising a bolt sleeve body having a forward end and a rear end and provided with a restricted externally threaded extension projecting from its forward end and adapted to threadedly engage in a rifle bolt for mounting said body detachably on the rear end thereof, said bolt sleeve having a bore extending therethrough and through its restricted extension adapted for reciprocally receiving therein a rifle firing pin and cocking piece, said bolt sleeve body having an opening adjacent its rear end opening into said bore and outwardly and upwardly of the bolt sleeve body, a shaft journaled in said opening having a lower end provided with a diametrically extending groove registering with the wall of said bore in one position of the shaft to permit the cocking piece to slide through said groove and extending into the bore in another position of the shaft to form a stop for engaging and retaining the cocking piece in a retracted, cocked position, a lever projecting radially from the

upper end of said shaft and disposed in a horizontal plane above and adjacent the sleeve body for swinging movement in a horizontal plane about the axis of said shaft for positioning the diametrical groove of the shaft in or out of registry with said longitudinal bore, said sleeve body having a second bore disposed above said first mentioned bore and above the level of said restricted extension and provided with a restricted end opening outwardly of the forward end of the bolt sleeve body, a bolt locking pin reciprocally mounted in said second bore for sliding movement longitudinally of the bolt sleeve body and disposed forwardly of said shaft, spring means urging said bolt locking pin into engagement with the shaft, said shaft having circumferentially spaced depressions of different depths for selectively receiving an end of the pin to releasably retain the shaft with the diametrical groove thereof either in or out of registry with said first mentioned bore, one of said depressions being shallower than the other depression and being disposed to engage said pin when the shaft is positioned to lock the cocking piece in a retracted cocked position, for projecting the pin forwardly of the forward end of said bolt sleeve body, the forward end of said pin being adapted to engage in a rearwardly opening notch of the rifle bolt when in a forward position for locking the bolt in a closed position, said first mentioned end of the pin and said depressions including cam surfaces whereby the pin is cammed forwardly out of engagement with either of the depressions when sufficient torque is applied to said shaft by the lever.

4. A bolt sleeve and locking mechanism for rifles comprising a bolt sleeve body having a forward end and a rear end and provided with a restricted externally threaded extension projecting from its forward end and adapted to threadedly engage in a rifle bolt for mounting said body detachably on the rear end thereof, said bolt sleeve having a bore extending therethrough and through its restricted extension adapted for reciprocally receiving therein a rifle firing pin and cocking piece, said bolt sleeve body having an opening adjacent its rear end opening into said bore and outwardly and upwardly of the bolt sleeve body, a shaft journaled in said opening having a lower end provided with a diametrically extending groove registering with the wall of said bore in one position of the shaft to permit the cocking piece to slide through said groove and extending into the bore in another position of the shaft to form a stop for engaging and retaining the cocking piece in a retracted, cocked position, a lever projecting radially from the upper end of said shaft and disposed in a horizontal plane above and adjacent the sleeve body for swinging movement in a horizontal plane about the axis of said shaft for positioning the diametrical groove of the shaft in or out of registry with said longitudinal bore, said sleeve body having a second bore disposed above said first mentioned bore and above the level of said restricted extension and provided with a restricted end opening outwardly of the forward end of the bolt sleeve body, a bolt locking pin reciprocally mounted in said second bore for sliding movement longitudinally of the bolt sleeve body and disposed forwardly of said shaft, spring means urging said bolt locking pin into engagement with the shaft, said shaft having circumferentially spaced depressions of different depths for selectively receiving an end

of the pin to releasably retain the shaft with the diametrical groove thereof either in or out of registry with said first mentioned bore, one of said depressions being shallower than the other depression and being disposed to engage said pin when the shaft is positioned to lock the cocking piece in a retracted cocked position, for projecting the pin forwardly of the forward end of said bolt sleeve body, the forward end of said pin being adapted to engage in a rearwardly opening notch of the rifle bolt when in a forward position for locking the bolt in a closed position, said shaft having an annular groove engaged by said first mentioned end of the pin and into which said depressions open whereby the shaft is releasably retained in said opening of the bolt sleeve body by the pin.

5. A bolt sleeve and locking mechanism for bolt action rifles comprising a sleeve body adapted to be detachably connected to and mounted on the rear end of a rifle bolt and having a bore extending longitudinally therethrough adapted to reciprocally receive therein a rifle cocking piece and firing pin, a latch shaft journaled in the bolt sleeve body perpendicular to said bore and extending upwardly therefrom, said shaft having a diametrical groove in its inner, lower end registering with a portion of the wall of said bore in one position of the shaft whereby the cocking piece may slide freely through said groove and movable out of registry with said wall portion in another position of the shaft to provide an obstruction extending into the bore and into the path of movement of the cocking piece for locking the cocking piece in a retracted, cocked position, a lever projecting radially from the opposite, upper end of said shaft and disposed above and in close proximity to the upper surface of the bolt sleeve and supported by said shaft for swinging movement in substantially a horizontal plane for positioning the shaft in either its first mentioned, "firing" position or in its last mentioned "safe" position, a bolt locking pin slidably mounted in the bolt sleeve body between said shaft and the forward end of said body, spring means biasing the locking pin toward the shaft, said shaft having a shallow depression engaging a rear end of said locking pin for projecting the locking pin forwardly of the bolt sleeve body when the shaft is in the "safe" position for positioning the opposite forward end of the locking pin in engagement with a part of the bolt to retain the bolt in a closed position, and another portion of said shaft having a deeper depression for accommodating the forward end of the locking pin in a retracted position when the shaft is in a "firing" position, whereby the forward end of the locking pin is maintained out of engagement with the bolt by said spring means, said depressions having cam portions for camming the locking pin forcibly out of engagement therewith whereby said locking pin functions as a spring projected latch to retain the shaft releasably in either a "safe" position or a "firing" position.

RAYMOND O. ACKERSON.

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