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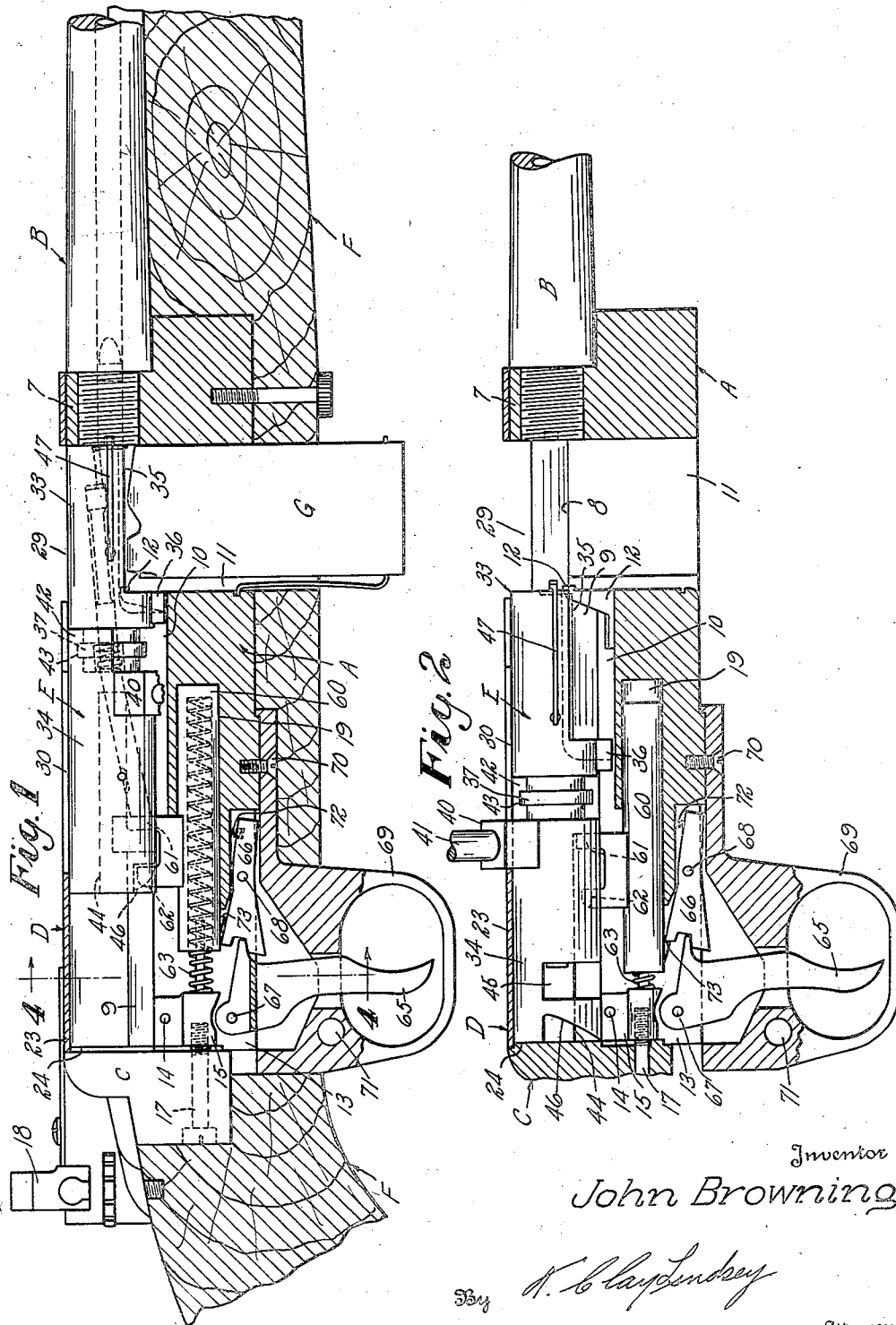
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2,098,562

FIREARM

Filed Oct. 17, 1935

3 Sheets-Sheet 1



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Nov. 9, 1937.

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3 Sheets-Sheet 2

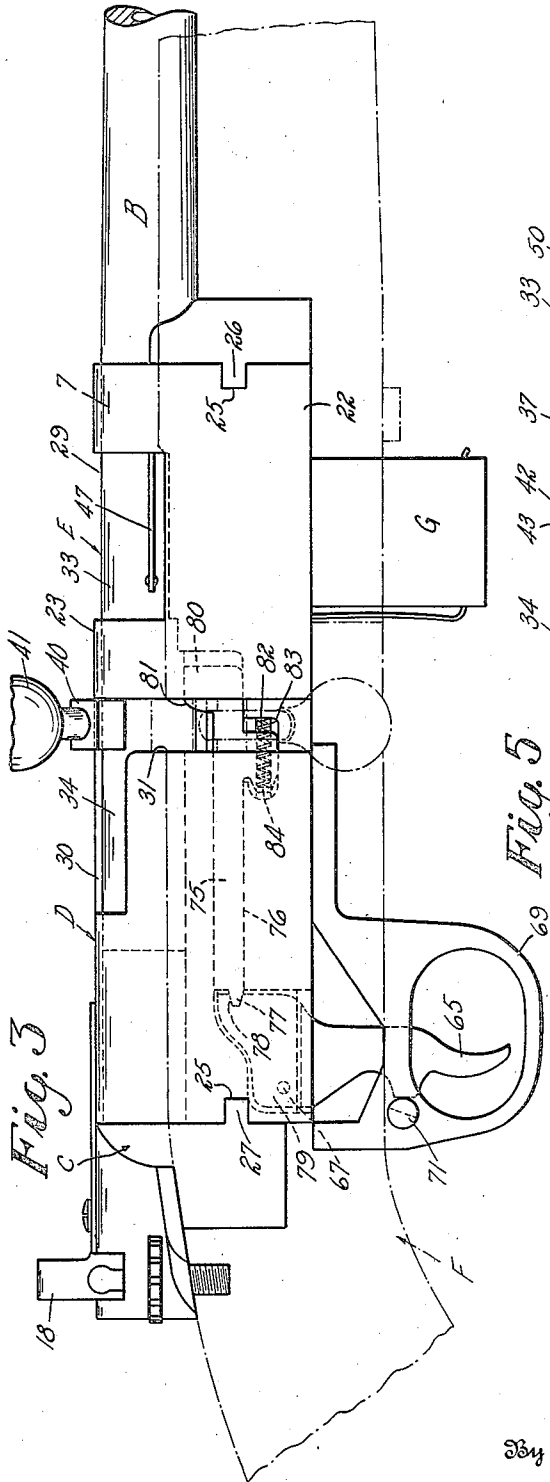


Fig. 3

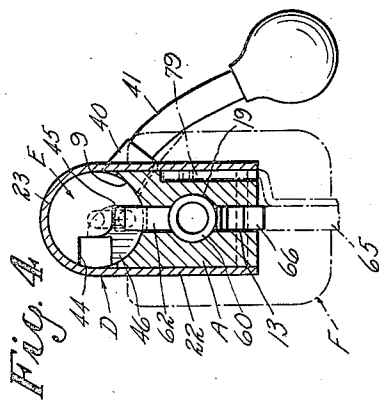
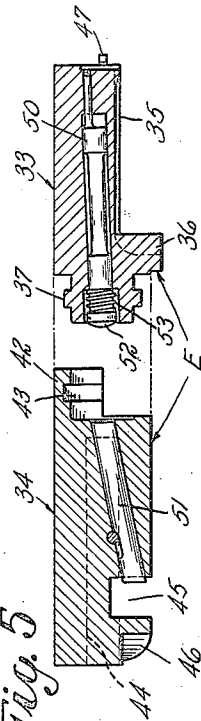


Fig. 4

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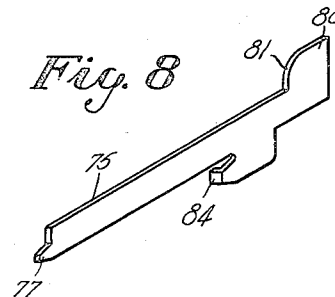
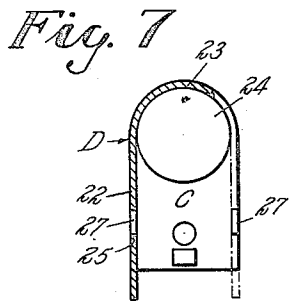
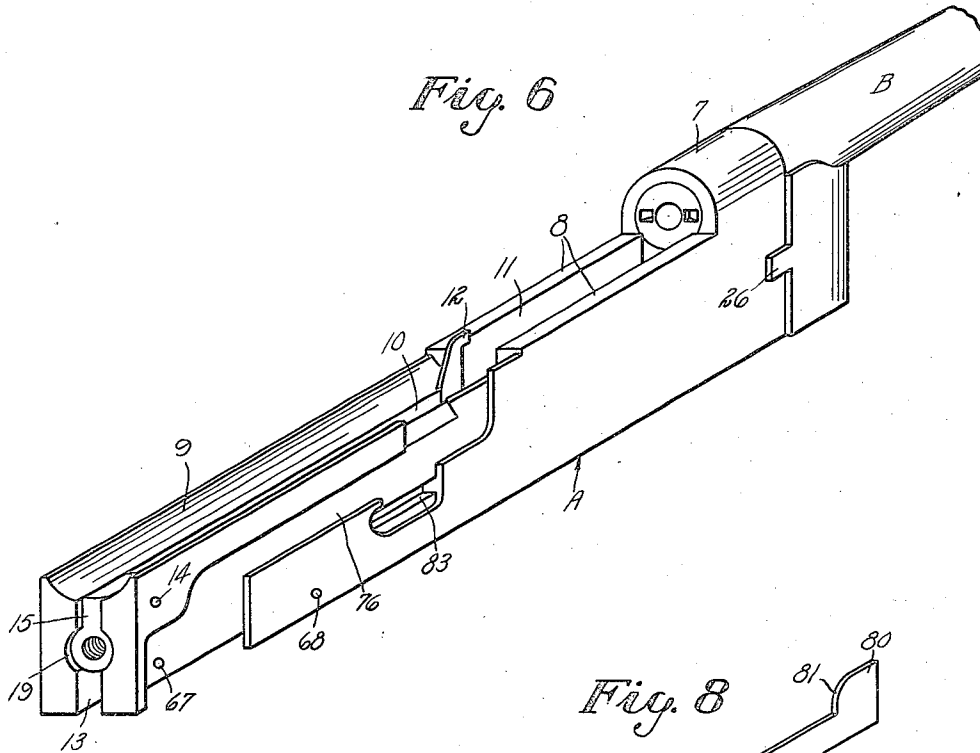
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2,098,562

FIREARM

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,098,562

FIREARM

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6 Claims. (Cl. 42—16)

This invention relates to firearms and has particular reference to a firearm of the bolt action type.

The aim of the invention is to provide an improved firearm of the character described having various features of novelty and advantage and which is particularly characterized by its simplicity in construction, by its economy in manufacture, by the ease and facility with which the parts may be assembled, and by its reliability and ease in operation.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings wherein is shown for illustrative purposes one of the embodiments which the present invention may take:

Figure 1 is a view in vertical longitudinal section of a firearm constructed in accordance with my invention and showing the hammer in "fired" position;

Fig. 2 is a similar view showing the bolt in retracted position and the hammer in cocked position;

Fig. 3 is a side elevational view of the firearm, the bolt handle being shown by unbroken lines in raised position and by dot and dash lines in locked position;

Fig. 4 is a transverse section view through the receiver substantially on line 4—4 of Fig. 1;

Fig. 5 is a detail sectional view of the bolt;

Fig. 6 is a perspective view of the receiver frame;

Fig. 7 is a view looking at the forward end of the block C, a portion of the receiver cover being shown in section; and

Fig. 8 is a detail view of the member for interlocking the bolt and trigger.

Referring to the drawings in detail, my improved firearm has a receiver frame A to the forward upper end of which is connected a barrel B. Secured to the rear end of the frame A is a block C. The letter D designates a sheet metal cover adapted to house the receiver frame and the bolt E carried thereby. F designates a stock of any suitable construction. The letter G designates a magazine.

The frame A is in the form of an elongated block generally rectangular in horizontal section and preferably formed of one piece. It has, at

its forward corner, a parti-cylindrical extension 7 in which the rear end of the barrel B is fitted in suitable manner, as by threading. The upper surface of the frame has flat lands 8 immediately behind the extension 7, and rearwardly of these lands is a parti-cylindrical groove 9 which accommodates the cylindrical portions of the bolt. At the bottom of the groove is a channel 10. The frame, adjacent its forward end, has a vertical chamber or opening 11 adapted to receive the magazine G which may be of any suitable construction. The frame, immediately behind the upper end of the magazine chamber, is provided with an ejector 12. The frame, at its rear end, is vertically slotted as at 13, and extending forwardly from this slot is a bore 19 which accommodates the barrel portion of the hammer, as hereinafter described more in detail. Positioned in the rear end of the slot 13 and held in place by a pin 14 is a block 15 which serves as an abutment for a main spring. The block C is secured to the block 15 by means of a screw 17. The block C and the cover D are co-extensive in width. A suitable rear sight 18 is carried by the block C.

The cover D is made of sheet metal by stamping out a blank of desired configuration and then bending the blank into generally U-shaped form so as to provide side walls 22 and a semi-cylindrical top wall 23. This cover is substantially co-extensive in length to the frame and, when positioned in place, the side walls thereof straddle and conceal the side of the frame. The top wall 23 is complementary to the parti-cylindrical groove 9 in the top of the frame so as to provide a generally tubular bearing or bore in which the bolt E is adapted to operate. The forward end of the semi-cylindrical top wall fits snugly about the extension 7, and the block C has a boss 24 which fits in the rear end of the cover. The cover has a notch 25 at each end of each of its side walls. The front notches receive the lugs 26 on the frame, and the rear notches receive lugs 27 on the block C. The cover also has in its upper portion the usual loading and ejecting opening 29. Rearwardly of that opening, the cover has a longitudinally extending slot 30 which is provided at its forward end with a laterally extending recess or locking notch 31.

In accordance with the present invention, the bolt is formed of two parts, namely, a front non-rotatable part 33 and a rear rotatable part 34 swivelled at its front end to the rear end of the front part so as to permit partial rotation of the rear part during the locking and unlocking operation without causing rotation of the front

part. The bolt slides in the bore provided by the groove 9 and the top portion of the cover D and is held on the frame by the cover. The front part 33 of the bolt comprises a generally cylindrical piece which is flattened for a portion of its length and on its under side so as to provide bearing surfaces 35 adapted to slide on the aforementioned lands 8 on the top of the frame. Projecting downwardly from the rear end of the front part of the bolt is a lug 36 engaging in the channel 10 so as to insure proper movement of the front part of the bolt. Extending rearwardly from the front part of the bolt is a stem having an annular collar 37. The rear part of the bolt is in the form of a cylindrical piece from which projects a locking lug 40 and a handle 41. The lug 40 is adapted to slide in the slot 30 and into and out of the notch 31. The part 34 has, at its forward end, a semi-cylindrical sleeve 42 provided with an internal annular groove 43. This sleeve partly encircles the stem on the rear end of the front part, and the groove 43 receives the collar 37 of the stud, so that, upon longitudinal movement of the rear part, the front part will move therewith, but the rear part may be rotated with respect to the front part. The rear part 34 is provided with a longitudinal groove 44 for accommodating the hammer lug during the sliding movement of the bolt. Leading laterally from this groove is a notch or recess 45 for accommodating this hammer lug when the bolt is in the advanced and locked position shown in Fig. 1. On the rear end of the rear part 34 is a cam 46 adapted to co-operate with a cam lug of the hammer in such manner as to cock the hammer upon lifting of the operating handle 41 preliminary to withdrawing the bolt. The front part 33 of the bolt is provided with a groove at each side for accommodating a respective extractor 47 which may be of the usual construction.

The firing pin is formed of two sections, one front section 50 supported for sliding movement in the front part 33 of the bolt, and a rear or supplemental section 51 mounted for sliding movement in the rear part 34 of the bolt. The front part 33 is provided with a longitudinal bore for accommodating the pin section 50. This bore, at its rear end, is counterbored so as to accommodate a head 52 on the rear end of the section 50 and a spring 53 interposed between the head and the bottom of the counterbore. The pin section 51 is mounted in an inclined bore leading from the front end of the rear part 34 to the recess or notch 45.

The hammer has a hollow barrel portion 60 slidably mounted within the bore 19 of the frame A. Extending upwardly from the barrel portion is a hammer lug 61 which, as previously indicated, is accommodated by the notch 45 in the rear part of the bolt when the bolt is in forward and locked position. Rearwardly of the hammer or striker lug 61, the hammer has a cam lug 62 which lies behind the camming surface 46 when the bolt is in its forward and locked position. When the rear bolt part has been rotated to a position where it may be withdrawn, that is, when the handle 41 is raised, the lugs 61 and 62 register with the longitudinal groove 44 so that the bolt may be withdrawn. A main spring 63 extends into and bottoms in the bore of the hammer barrel, and at its rear end engages against the block 15. Thus the hammer is normally urged forwardly.

It will be understood that when the bolt is in forward and locked position, as shown in Figs.

1 and 4, the lug 40 at the base of the handle is engaged in the locking notch 31 of the cover D. Also, the spring 53 urges the front section 50 of the firing pin rearwardly against the rear section 51, so that the rear end of the latter extends into the notch 45. When the hammer is released from the cocked position, the main spring 63 forces the hammer forwardly with a quick snap movement, whereupon the hammer lug 61 strikes the rear end of the rear pin section 51 thereby causing the front section to move forwardly and strike the cartridge. When the hammer thus moves forwardly, the cam lug 62 is brought up against the low part of the cam 46. Now to extract and eject the shell, the handle first is raised so as to bring the locking lug 40 into alignment with the longitudinal slot 30 and during such operation the rear part of the bolt is rotated with respect to the front portion so that the cam 46, due to its engagement with the cam lug 62, will move the hammer back to the cocked position shown in Fig. 2. The bolt may now be withdrawn rearwardly to extract the shell and eject it in the usual manner and, during such rearward movement of the bolt, the lugs 61 and 62 are accommodated by the longitudinal slot 44 in the rear part of the bolt.

The hammer is released through a trigger 65 and a sear 66, respectively pivoted on pins 67 and 68. 69 designates a trigger guard removably secured to the frame by a screw 70 and having a safety 71 of suitable type. The sear 66 is normally urged into hammer holding position by a spring 72. The sear is adapted to engage in the sear notch 73 of the hammer.

As previously stated, when the handle of the bolt is raised preliminary to withdrawing the bolt, the longitudinal slot 44 in the rear portion of the bolt is brought into registry with the lugs 61 and 62 of the hammer. If at this time the trigger should be pulled and the hammer released, the hammer would assume a forward position which would prevent the bolt again being rotated to locked position. In order to prevent this occurrence, an interlocking arrangement is provided between the bolt and the trigger. This arrangement includes a sheet metal member 75 slidably located in a groove 76 in the right hand side face of the frame A. It has at its rear end a wedge-shaped or tapered projection or point 77 which is adapted to engage in a wedge-shaped or flaring notch 78 in the forward edge of a laterally offset extension 79 on the trigger. The member or slide 75, adjacent its forward end, has an upwardly extending lug 80 provided at its upper rear corner with a downwardly and rearwardly inclined cam edge 81. The slide 75 is normally urged rearwardly by a spring 82 located in a countersink 83 and between the front end of this countersink and an inturned ear 84 on the slide. When the handle is out of its locked position, that is, when it is raised, the slide 75 is free to move rearwardly under the influence of the spring 82 so that the projection 77 will engage in the notch 78 of the trigger and thus prevent the trigger from being pulled. The projection is tapered and the notch is flared so as to insure proper engagement of the projection in the notch. When the slide is in its rearmost position, the cam edge 81 thereof is within the range of the locking notch 31, so that when the locking lug 40 is brought to its final down position during the operation of locking the bolt in advanced position, it will engage this cam edge and thus result in camming of the slide forwardly

so as to withdraw the projection 77 from the notch of the trigger. The trigger is now free to be pulled.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language might be said to fall therebetween.

I claim as my invention:

1. In a firearm of the character described, a receiver frame, a two-part bolt supported for sliding movement on said frame and having a front non-rotatable part and a rear rotatable part swivelled to the front part, a two-section firing pin comprising a front section mounted for longitudinal movement in said front part of said bolt and a rear section mounted for longitudinal movement in the rear part of said bolt and adapted to engage the rear end of said front section, a hammer mounted in said frame and having an upwardly extending hammer lug adapted to engage the rear end of said rear section when the hammer is released, and trigger means for controlling said hammer, said rear part of said bolt having a longitudinal groove adapted to register with and accommodate said lug when said rear part is turned to a position where the bolt may be withdrawn, said bolt having a lateral notch extending from said groove and adapted to accommodate said lug when the bolt is in forward locked position.

2. In a firearm of the character described, a receiver frame, a two-part bolt supported for sliding movement on said frame and having a front non-rotatable part and a rear rotatable part swivelled to the front part, a two-section firing pin comprising a front section mounted for longitudinal movement in said front part of said bolt and a rear section mounted for longitudinal movement in the rear part of said bolt and adapted to engage the rear end of said front section, a hammer slidably mounted in said frame below said bolt and having an upwardly extending hammer lug adapted to engage the rear end of said rear pin section when the hammer is released, said hammer also having an upwardly extending cam lug rearwardly of said hammer lug and said rear part of said bolt having a camming surface at its rear end adapted to engage said cam lug to cam the hammer into cocked position when the rear part of the bolt is turned preliminary to withdrawing the bolt, and trigger means for controlling said hammer, said rear part of said bolt having a longitudinal groove adapted to register with and accommodate said lugs when said rear part of said bolt is turned to a position where the bolt may be withdrawn, said bolt having a lateral notch extending from said groove and adapted to accommodate said hammer lug when the bolt is in forward locked position.

3. In a firearm of the character described, a receiver frame, a two-part bolt slidably mounted thereon and comprising a front non-rotatable part and a rear rotatable part swivelled to the front part, a firing pin having a front section located in said front part and a rear section

located in said rear part, a hammer slidably mounted in said frame and having a hammer lug adapted to engage the rear end of said rear section when the hammer is released, said rear part having a longitudinal groove adapted to accommodate said lug upon sliding movement of the bolt and also having a recess leading from said groove adapted to accommodate said lug when the bolt is in locked position, a trigger for controlling said hammer, and interlocking means between said bolt and trigger for preventing pulling of the trigger and release of the hammer except when said rear part of the bolt is in forward and locked position.

4. In a firearm of the character described, a receiver having a longitudinal slot and a locking notch, a two-part bolt slidably mounted in the receiver and comprising a front non-rotatable part and a rear rotatable part swivelled to the front part, said rear part having a handle accommodated by said slot for rotating said rear part and sliding said bolt into and out of position and having a locking lug adapted to engage in said locking notch, a firing pin slidably mounted in said bolt, a hammer slidably mounted in said frame and having a lug adapted to engage said firing pin when the hammer is released, a trigger for controlling said hammer, a member slidably carried by said receiver and removably interlocking with the trigger to prevent it from being pulled, a spring normally urging said member into interlocking engagement with said trigger, and a cam on said member engageable with said locking lug when the locking lug is moved into said notch whereby said member is withdrawn from interlocking relation with said trigger.

5. In a firearm of the character described, a receiver having a locking notch, a two-part bolt slidably mounted in the receiver and comprising a front non-rotatable part and a rear rotatable part swivelled to the front part, said rear part having a handle for turning the same and for moving the bolt longitudinally and having a locking lug adapted to engage in said locking notch, a firing pin having a front section located in said front part and a rear section located in said rear part, a hammer slidably mounted in said receiver below said bolt and having a hammer lug adapted to engage the rear end of said rear section when the hammer is released, said rear part having a longitudinal groove adapted to accommodate said hammer lug upon sliding movement of the bolt and also having a recess leading from said groove adapted to accommodate said hammer lug when the bolt is in locked position, a trigger for controlling said hammer, and interlocking means between said bolt and trigger for preventing pulling of said trigger and release of said hammer except when the rear part of the bolt is in forward and locked position, said interlocking means comprising a member slidably mounted in said receiver and having, in its rear end, a locking projection adapted to engage in a notch in said trigger and a spring normally urging said member into interlocking relation with said trigger, said member having a cam projecting into the range of said locking notch when said member is in interlocking relation with said trigger, said locking lug being adapted to engage said cam when the locking lug is moved into said locking notch whereby said member is moved out of interlocking relation with said trigger.

6. A firearm of the bolt action type comprising a receiver frame having at its forward upper

corner an upward extension adapted to receive the rear end of a barrel, a block secured to the rear end of said frame, a U-shaped sheet metal cover substantially co-extensive in length to said frame and having a pair of parallel side walls covering and straddling the sides of said frame and a top semi-cylindrical wall, said frame having adjacent its forward end and on each side a lug and said block having at each side a forwardly

extending lug, said side walls of said cover having notches receiving said lugs whereby the cover is held in place, a generally cylindrical bolt slidably mounted on said frame between said extension and block and maintained on said frame by said cover, a firing pin carried by said bolt, a hammer on said frame, and a trigger and sear for said hammer.

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