

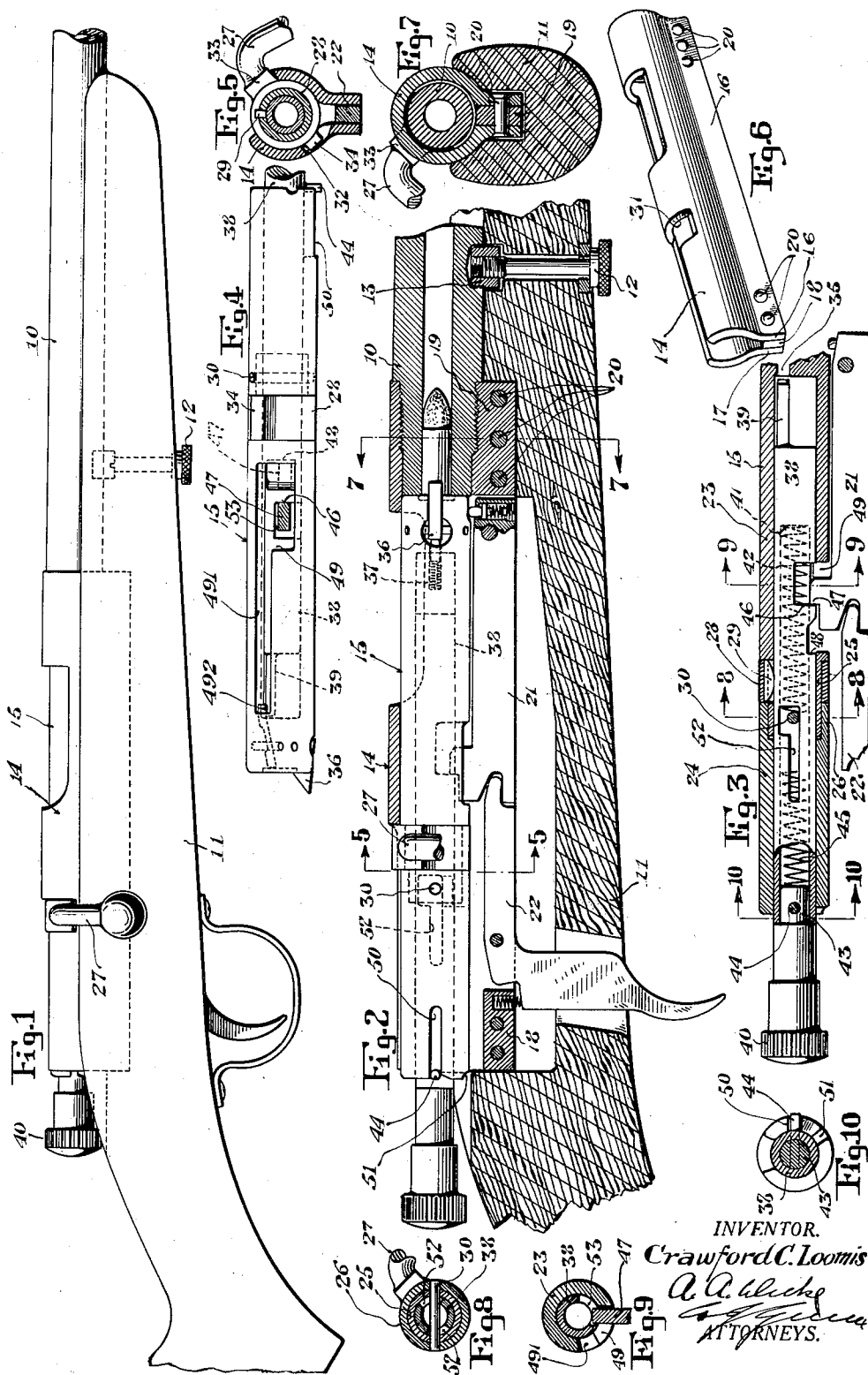
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FIREARM

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FIREARM

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10 Claims. (Cl. 42-16)

This invention relates to firearms, particularly to a firearm of the bolt action type. The invention contemplates certain improvements and refinements in the construction of bolt action firearms, particularly single shot firearms adapted to relatively low-power cartridges, with a view to producing a firearm comprising a minimum number of rugged and durable parts assembled in such a manner as to insure both safety and accurate functioning.

More specifically, one object of the invention is to provide for a firearm of this type a frame or receiver made of sheet metal.

A further object is to provide bolt locking devices associated with such a sheet metal receiver.

A further object is to provide, in such a receiver, mountings for all working parts of the firearm.

A further object is to provide an improved bolt construction, and a novel means of attaching the bolt handle to the bolt.

A further object contemplates the provision of novel safety features, and improved bolt and striker construction.

With these and other incidental objects in view, the invention consists in the novel constructions, combinations and arrangements of parts, illustrated in the drawing and hereinafter more fully described.

In the drawing:

Fig. 1 is a fragmentary side elevation of a firearm embodying the present inventions.

Fig. 2 is a fragmentary, sectional, side elevation of the receiver and the rear end of the barrel; the section is substantially on a central line, except that the bolt is shown in side elevation.

Fig. 3 is a sectional side elevation of the bolt, striker, sear, and a part of the trigger.

Fig. 4 is an inverted plan view of the bolt.

Fig. 5 is a section on the line 5-5 of Fig. 2.

Fig. 6 is a perspective of the improved receiver.

Fig. 7 is a section on the line 7-7 of Fig. 2.

Fig. 8 is a section on the line 8-8 of Fig. 3.

Fig. 9 is a section on the line 9-9 of Fig. 3.

Fig. 10 is a section on the line 10-10 of Fig. 3.

The firearm comprises a barrel 10 and a stock 11 detachably secured to the barrel by means of a take-down screw 12, threaded into a suitable bushing 13 secured in the underside of the barrel. The stock is apertured and recessed, as shown in Fig. 2, to receive the lower part of the breech mechanism housing frame. This frame or receiver 14 is separately illustrated in Fig. 6, and consists of a folded piece of sheet metal, the upper portion of which is of cylindrical configuration adapted to receive a breech bolt, identified gen-

erally by the numeral 15. The lower portion of the sheet metal receiver comprises downwardly extending flanges 16 and 17 which, at their extremities, are spaced and joined by blocks 18 and 19 secured in place by suitable means, such as rivets 20. The space between the blocks 18 and 19 forms a channel which receives a sear 21 and the forwardly extending part of a trigger 22. The forward end of the sheet metal receiver and the upper surface of the spacer block 19 are threaded to receive the threaded end of the barrel 10, as shown in Fig. 2.

The breech bolt 15 preferably comprises a forward section 23 and a rearward section 24. The forward section comprises a tenon 25 of reduced diameter, while the rearward section comprises an under-cut 26 adapted to receive the end of said tenon 25. Integral with the bolt handle 27 is an apertured member 28 adapted to receive the tenon 25. The tenon 25 and member 28 comprise co-operating key-ways adapted to receive a key 29. In assembly, the key 29 is inserted in the key-way in tenon 25 and the bolt handle is placed thereon, after which the rearward section 24 of the bolt is placed over the end portion of tenon 25 and is secured in place by a pin 30.

The receiver comprises two bolt locking notches 31 (Fig. 6) and 32 (Fig. 5). The notch 31, which is adapted to receive a squared section 33 of the bolt handle, communicates with a longitudinal slot which is traversed by the bolt handle in the forward and rearward movements of the bolt. The notch 32 receives a lug 34 which projects from the bolt handle member 28, as clearly shown in Fig. 5. Preferably the forward face of one or both of the notches 31 and 32 is inclined slightly to provide a slight rearward movement of the bolt upon its rotation by the operating handle, this movement facilitating the extraction of cartridge shells from the chamber.

The bolt is essentially a cylindrical shell, open at the rear end but closed at the forward end except for a small aperture 35 which accommodates the firing pin. The forward end of the bolt is chamfered and recessed in the usual manner to receive the head of a cartridge, and is provided with a cartridge extractor 36 and an extractor spring 37 of conventional type. The top of the receiver 14 is apertured, as shown in Figs. 2 and 6, to permit loading and ejection of shells.

Within the cylindrical bolt 15 is mounted a striker 38 provided at its forward end with a firing pin 39, and at its rearward end with an operating handle or finger piece 40. Said striker comprises a cylindrical recess extending from its

rearward end a substantial portion of its length, the base 41 of said recess serving as an abutment for a firing spring 42 which is housed in said recess and at its forward end abuts the assembly pin 30 which extends transversely through both parts of the bolt and through slots 52 in the striker, as clearly shown in Fig. 8. The striker handle 40 comprises an extension 43 of reduced diameter adapted to be received within the body of the striker and secured therein by a transversely extending pin 44 (Figs. 3 and 10). Within the bore of the striker, and in the rear of assembly pin 30, is a rebound spring 45, adapted, when the striker moves forward under the action of the firing spring 42, to be compressed between the end of the striker handle extension 43 and the assembly pin 30, and being so compressed, to retract the striker a sufficient amount to withdraw the firing pin from contact with the head of a shell in the chamber.

The striker comprises a shoulder 46, adapted to engage a nose 47 of the sear 21 when the striker is cocked; and a safety shoulder 48, adapted to engage the nose 47 of the sear when the striker is forward, thereby positively preventing the striker being driven forward into contact with the cartridge head by a blow on the striker handle 40. To engage with the striker, the sear nose projects through an aperture 49 (Fig. 4) in the bolt, said aperture comprising a narrow forward extension 491 which is traversed by the nose 47 as the bolt is reciprocated. As shown in Fig. 4, this extension is out of alignment with the nose 47 when the bolt is locked, and is brought into alignment with said nose by the unlocking rotational movement of the bolt. As the nose 47 reaches the forward end of slot 491 it engages the rearward end of an ejector plunger 492, which passes through the face of the breech bolt, and is thrust forward by nose 47 to eject the shell which has been withdrawn from the chamber and held on the face of the breech bolt by extractor 36. The shoulders 46 and 48 on the striker 38 are formed by transverse cuts on this cylindrical member, the lateral arrangement of which is clearly shown in Fig. 4. The cut or slot comprising the shoulder 46 terminates at the left in a position such that when the bolt is unlocked the slot is out of alignment with the sear nose 47; hence, when the bolt is moved forward toward breech closing position the sear nose is not engaged by the shoulder 46, the bolt moving forward past said nose until the nose comes opposite the slot which terminates in the locking shoulder 48. As the bolt is rotated to locked position, the nose 47 enters this notch; this position being indicated in dotted lines in Fig. 4. Thus, the striker is not cocked by the reciprocation of the bolt, and the engagement of nose 47 with shoulder 48 renders the gun safe from accidental discharge by a blow upon the bolt handle.

In order to cock the gun, it is necessary to manually retract the striker by means of the bolt handle. As the striker is thus retracted, the projecting end of pin 44 traverses a slot 50 in the bolt sleeve, and with the striker in cocked position said pin is located substantially at the end of the bolt sleeve. Simultaneously, the slot 52 moves over the assembly pin 30 coming to the position shown in Fig. 3, in which pin 30 stands opposite a transverse extension of said slot and thus permits a limited rotation of the striker within the bolt.

In this condition the gun is ready to fire. Provision is made, however, for rendering the gun safe against accidental discharge with the striker

in cocked position. This is accomplished by retracting the striker from the cocked position until the pin 44 clears the end of the bolt sleeve, then rotating the striker within the bolt sleeve until the pin 44 comes opposite a shallow recess 51 in the end of the bolt sleeve. The striker is thus locked, and cannot be moved forward until it is retracted slightly and rotated to bring the pin 44 into alignment with the slot 50. When the striker is in forward or "fired" position, the pin 30 will occupy the longitudinally extending part of the slot 52; thus, preventing relative rotation of the striker and bolt sleeve. When the striker is cocked, and in "firing" position, the bolt cannot be rotated to unlock the breech by reason of the engagement of sear nose 47 with the lateral edge 53 of the sear nose receiving aperture, and the engagement of pin 44 on the striker head in slot 50 in the bolt sleeve. If, however, the striker is moved to "safe" position, the margin 53 of the aperture is thereby moved away from striker nose 47 an amount sufficient to allow the bolt to be rotated and unlocked. It is thus impossible to open the breech when the striker is cocked, and in firing position, but the breech may be opened with the striker in "safe" position. Provision is thus made for removing an unfired cartridge from the chamber while the striker is positively held retracted.

The foregoing description and drawings are to be understood as showing merely a typical embodiment of inventions which may take other forms, all falling within the scope of the appended claims:

What is claimed is:

1. A breech bolt for firearms comprising a forward section provided with an extending tenon, a bolt handle provided with an aperture adapted to receive a portion of said tenon, a key, cooperating key-ways in said tenon and said handle aperture, a rearward section provided with an undercut adapted to receive a portion of said tenon and retain said handle and key thereon, and an assembly pin securing said rearward section in place on said tenon.

2. A firearm comprising a receiver of folded sheet metal having a cylindrical breech bolt receiving portion, a breech bolt slidable and rotatable therein, an operating handle for said bolt having a part which encircles an intermediate section of said bolt, locking surfaces associated with said handle, and locking apertures in said receiver adapted to receive and engage said surfaces.

3. In a firearm, a hollow cylindrical breech bolt, a cylindrical striker contained therein, an assembly pin secured in said breech bolt and passing through an elongated aperture in said striker, a striker handle, and means for securing said striker handle to said striker comprising a pin projecting transversely from said striker and a slot in said bolt adapted to receive said pin.

4. In a firearm, a receiver, a hollow cylindrical breech bolt mounted for longitudinal and rotational movement in said receiver, a striker in said breech bolt adapted for longitudinal movement therein from a "firing" position to a "fired" position and for rotational movement from "firing" position to a "safe" position, and means cooperating with said striker for preventing rotation of said bolt in said receiver when the striker is in "firing" position, but permitting such rotation when the striker is in "safe" position.

5. In a firearm, a receiver, a hollow cylindrical breech bolt mounted for longitudinal and

rotational movement in said receiver, a striker in said breech bolt adapted for longitudinal movement therein from a "firing" position to a "fired" position and for rotational movement from "firing" position to a "safe" position, means for preventing rotation of said striker in said bolt when the striker is in "fired" position, and means cooperating with said striker for preventing rotation of said bolt in said receiver when the striker is in "firing" position, but permitting such rotation when the striker is in "safe" position.

6. In a firearm comprising a barrel and a receiver of folded sheet metal having a substantially cylindrical bolt receiving portion; a pair of flanges extending downwardly from said bolt receiving portion and a spacing and joining block between said flanges, the upper surface of said block and the forward end of the cylindrical portion of said receiver forming a continuous ring and being threaded to receive a threaded portion of said barrel.

7. A firearm comprising a receiver of folded sheet metal having a substantially cylindrical bolt receiving section and spaced flanges depending therefrom, a breech bolt mounted in said receiver and arranged for reciprocating movement therein and for rotational movement when in breech closing position, locking means associated with said bolt comprising a lug moving between said flanges as said bolt is reciprocated, and an aperture in the cylindrical wall of said receiver adjacent to one of said flanges adapted to receive said lug when said bolt is rotated.

8. A firearm comprising a receiver of folded sheet metal having a substantially cylindrical bolt receiving section, a longitudinal slot in said cylindrical section and spaced flanges depending from said cylindrical section, a breech bolt mounted in said receiver and arranged for reciprocating movement therein and for rotational movement when in breech closing position, lock-

ing means associated with said bolt comprising oppositely extending lugs, one of said lugs being adapted to move in said longitudinal slot and the other of said lugs adapted to move between said flanges when said bolt is reciprocated, and transversely disposed locking apertures in said receiver adjacent said slot and one of said flanges for receiving said lugs when said bolt is rotated.

9. A firearm comprising a receiver of folded sheet metal having a substantially cylindrical bolt receiving section, a longitudinal slot in said section and spaced flanges depending from said section and defining a channel, a breech bolt in said receiver arranged for reciprocating movement therein and for rotational movement when in breech closing position, an operating handle secured to an intermediate portion of said bolt, locking means associated with said operating handle and comprising a lug adjacent thereto and a second lug substantially diametrically opposite the first said lug, the first lug being adapted to move in said slot and the second lug to move in said channel when said bolt is reciprocated, and locking apertures in the wall of said receiver adjacent said slot and said channel adapted to receive said lugs when said bolt is rotated.

10. A firearm comprising a barrel, a receiver of folded sheet metal comprising a cylindrical bolt receiving portion and depending spaced flanges, a spacing and joining block held between said flanges at their forward ends and forming with the forward end of said cylindrical portion a barrel receiving aperture, a breech bolt in said cylindrical portion comprising a striker, a second spacing and joining block held between the rear ends of said spaced flanges, and a striker controlling trigger and sear supported in said flanges between said spacing and joining blocks.

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