Nov. 21, 1944. J. M. SHERRER ET AL 2,363,203

FLARE PISTOL

Original Filed June 29, 1942 3 Sheets-Sheet 1

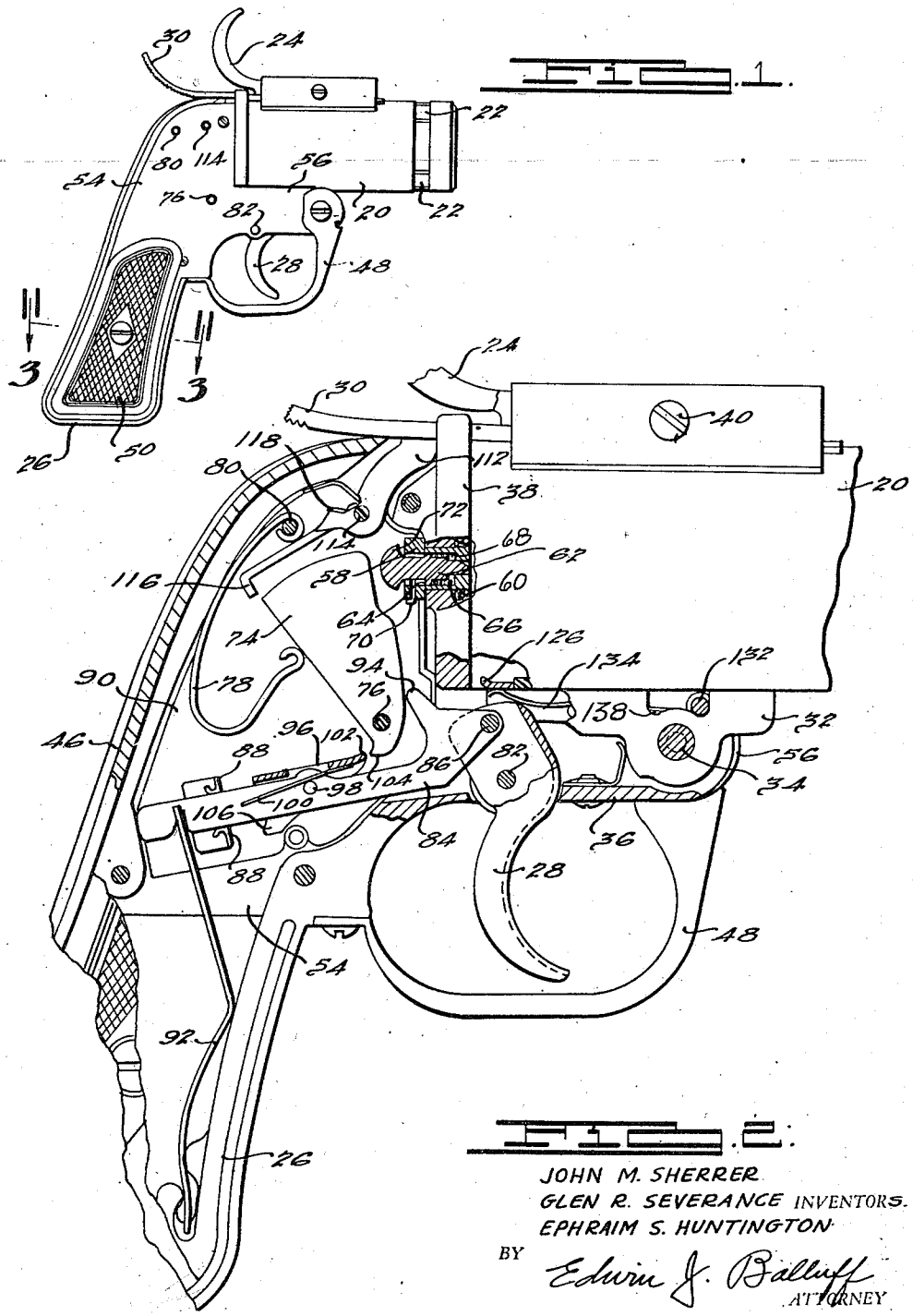


FIG. 1.

FIG. 2.

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FLARE PISTOL

Original Filed June 29, 1942 3 Sheets-Sheet 2

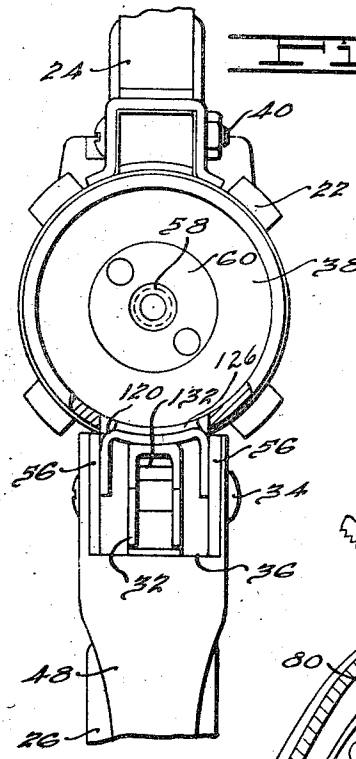


FIG. 4.

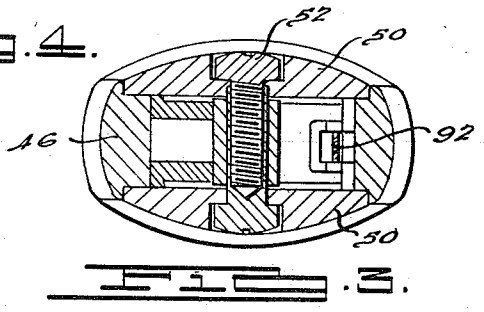


FIG. 3.

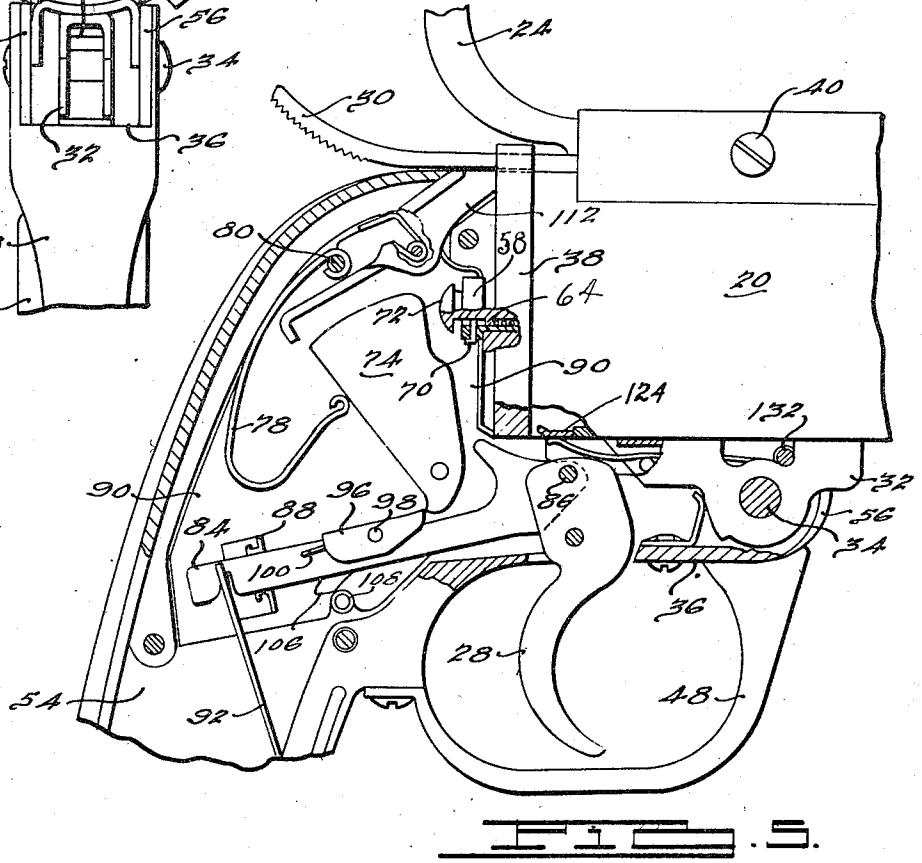


FIG. 5.

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FLARE PISTOL

Original Filed June 29, 1942 3 Sheets-Sheet 3

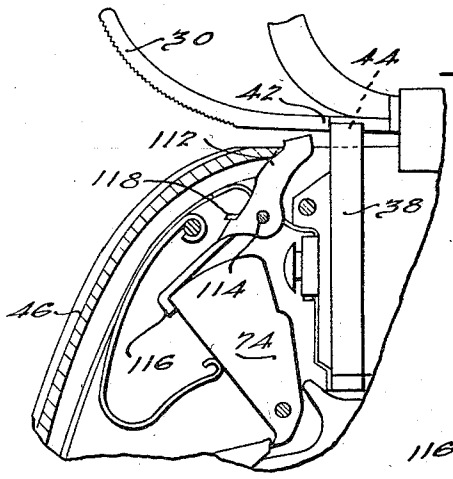


Fig. 6.

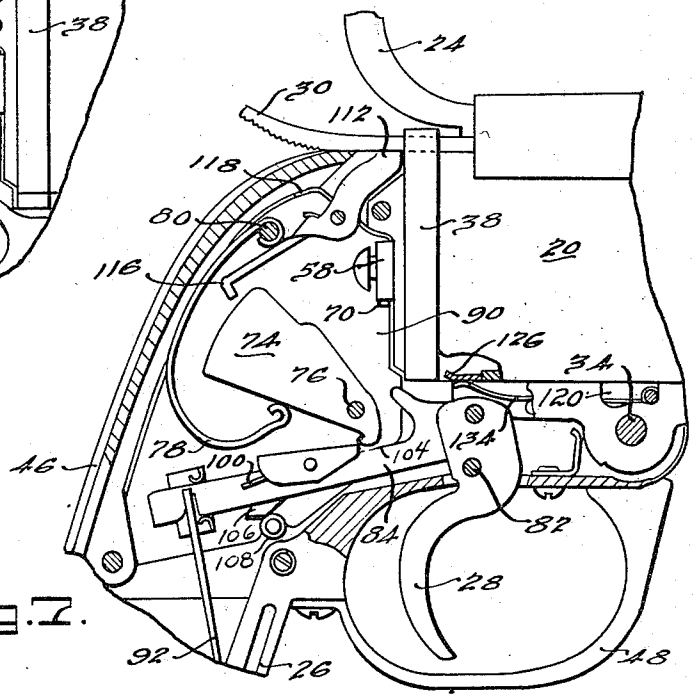


Fig. 7.

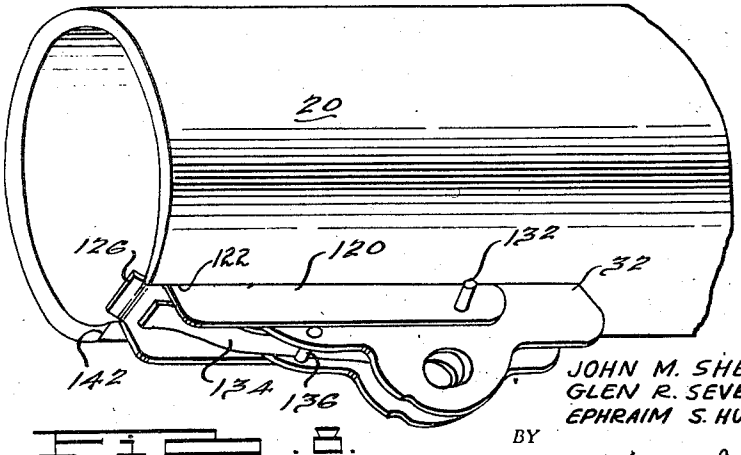


Fig. 8.

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Patented Nov. 21, 1944

2,363,203

UNITED STATES PATENT OFFICE

2,363,203

FLARE PISTOL

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Original application June 29, 1942, Serial No. 448,920. Divided and this application August 14, 1943, Serial No. 498,910

5 Claims. (Cl. 42—69)

This invention relates to pistols and has particular reference to a novel and improved construction of hand pistol which is particularly adapted, although not limited, for firing flare, signal and other types of shells.

A principal object of the invention is to provide a new and improved pistol.

Another object of the invention is to provide a new and improved construction of flare pistol.

Another object of the invention is to provide a new and improved form of firing mechanism for a trigger operated hand pistol.

Another object of the invention is to provide a relatively light weight hand operated pistol which is particularly adapted for shooting flare, signal, and the like type of ammunition.

Another object of the invention is to provide a new and improved type of construction for hand pistols and which construction is particularly adapted to the manufacture of the pistols on a quantity production basis and in accordance with the assembly technique of manufacturing.

Other objects and advantages will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawings, of which there are three sheets and wherein:

Fig. 1 is a side elevational view of a flare pistol embodying the invention;

Fig. 2 is an enlarged fragmentary view with parts broken away and others shown in section and illustrating the firing mechanism;

Fig. 3 is a horizontal section taken in a plane along the line 3—3 of Fig. 1, looking in the direction of the arrows;

Fig. 4 is a partial front elevational view of the pistol with some parts broken away;

Fig. 5 is a view similar to Fig. 2 but illustrating the parts of the firing mechanism in a different position;

Fig. 6 is a fragmentary view illustrating the details of the breech lock and safety mechanism;

Fig. 7 is another view similar to Fig. 2 but illustrating the firing mechanism just before the hammer is released; and

Fig. 8 is a fragmentary perspective view of the barrel and its mounting and illustrating the details of the shell ejector.

In the embodiment of the invention selected for purposes of illustration and as disclosed in Fig. 1, the flare pistol includes a barrel 20 having lugs 22 thereon by means of which the pistol may be mounted if desired in a suitable recoil mechanism provided on a plane, ship, or other device in connection with which it is desired to use the flare pistol. A latch mount 24 also may be provided for latching the pistol against accidental separation from the recoil mounting. The pistol further includes a body upon which the barrel 20 is pivotally mounted, said body being provided with a handle 26 and forming a housing for the firing mechanism which is actuated by the trigger 28. The barrel 20 is held in position with the breech closed by a breech lock 30 as will be more fully explained hereafter.

The barrel has secured thereto a hinge member 32 (Fig. 2) which is pivoted on a stud pin 34 carried by a U-shaped projection 36 at the forward end thereof. The hinge member 32 is received within the bifurcations of the projection 36 (Fig. 4) and together with the pin 34 forms a pivotal mounting for the barrel 20 which, from the position illustrated in Figs. 2 and 5, is adapted to swing in a clockwise direction so as to open the breech. The rear end of the barrel when the breech is closed is positioned next to the breechblock 38 and in such a way as to form a closed chamber in which a flare or other type of shell may be fired. The breech lock 30 is pivotally mounted on a pin 40 affixed to the barrel and is provided with shoulders 42 on each side thereof which are adapted to engage the rear side of the breechblock 38 on opposite sides of an upwardly opening slot 44 formed in the rim of the breechblock 38, that part of the breech lock 30 which passes through the slot 44 being reduced in cross-section so as to form the shoulders 42. As illustrated in Fig. 6, the breech lock 30 may be released by pressing upwardly on the end thereof so as to disengage the shoulders 42 from the breechblock 38. As soon as the breech lock is released, the barrel may be tilted or swung about its pivot 34 so as to expose the rear end of the barrel in order to place a shell therein or remove a shell therefrom, as will be explained more fully hereafter.

The body of the pistol is formed of a frame casting 46, the outside contour of which defines the shape of the piston except for the barrel 20 and the trigger guard 48. The frame casting is hollow and formed to provide the U-shaped forwardly extending projection 36, the breechblock 38, and the handle 26, the sides of which are covered by oppositely disposed grips 50 removably secured to the frame 46 by a bolt and nut assembly 52 as illustrated in Fig. 3. Above the handle grips 50 the sides of the frame casting 46 are covered by cover plates 54 which are suitably secured to the frame casting 46 and cooperate therewith to define a chamber or enclosure for

housing the firing mechanism. The ejector mechanism is arranged forwardly of the trigger 28 and is concealed by forwardly projecting portions 56 of the cover plates 54 and which portions 56 also conceal the U-shaped projection 36 of the frame casting 46.

A firing pin bushing 58 is secured in an opening in the breechblock 38 coincident with the axis of the barrel 20 and is retained in place by a retainer 60 arranged in a suitable recess in the forward face of the breechblock 38. The hole in the retainer 60 and the end of the bushing 58 are threaded for cooperation together in order to secure the bushing 58 in position. The end of the bushing at the rear of the block 38 is enlarged and seats around the opening in the block. The bushing 58 forms a guide for and carries the firing pin 62, a part of which is enlarged to form a radial flange 64 which slides in the bushing 58. A spring 66 is confined in the bushing between the flange 64 of the firing pin and a seat 68 formed internally of the bushing and is adapted normally to position the firing pin so that the end thereof does not project beyond the forward face of the bushing 58 or block 38. A pin or stop 70 carried by the rear end of the bushing 58 projects into the opening therein and engages the flange 64 for limiting the rearward movement of the firing pin under the action of spring 66.

The rear end of the firing pin is provided with a head 72 which is adapted to be struck by a hammer 74 pivoted at 76 on a cross pin carried by the cover plates 54. The hammer 74 normally is positioned as illustrated in Fig. 2 by a spring 78 carried by a cross pin 80, which in turn is carried by the cover plates 54 and by arm 94 as hereinafter explained.

The trigger 28 is pivoted at 82 to a cross pin carried by the U-shaped projection 36. One end of a trigger slide 84 is pivotally connected at 86 to one end of the trigger so as to be moved thereby, the other end of the slide being mounted and guided by inwardly extending guides 88 formed integrally with cover plate liners 90 arranged between each of the cover plates 54 and the frame casting 46. A spring 92 suitably mounted in the handle 26 engages one end of the slide 84 for biasing the same into the position in which it is illustrated in Fig. 2. In this figure note that the slide is provided with an arm 94 which engages the hammer 74 above the pivot 76 for holding the same in the position illustrated. The slide 84 has pivotally connected thereto a trigger pawl 96 pivoted on a pin 98 carried by the slide 84 and a spring 100 biases the leading edge 102 of the pawl upwardly so as to engage the lower end 104 of the hammer upon movement of the slide 84 when the trigger 28 is pulled backwardly by the finger of an operator.

Fig. 5 illustrates the relative position of the parts of the firing mechanism when the trigger has been partially pulled back, and Fig. 7 illustrates the relative position of the parts of the firing mechanism just before the pawl 96 is disengaged from the end 104 of the hammer. The pawl 96 is provided with an arm 106 which upon movement of the pawl 96 from the position illustrated in Fig. 2 to that illustrated in Fig. 7 engages a trip 108 carried by the cover plates 54, the trip 108 being positioned so that after the hammer spring 78 is sufficiently compressed and the hammer 74 retracted sufficiently, the pawl 96 will disengage itself from the end of the hammer, thereby permitting the spring 78 to act on the hammer 74 and cause it to strike the head 72 of the firing pin, which in turn is adapted to strike the detonator of the shell positioned within the barrel 20. As soon as the pawl 96 passes to the right of the end 104 of the hammer, the spring 78 will move it as previously described in order to strike the firing pin 62. When the trigger 28 is released the spring 92 acting through the slide 84 will return the trigger to its normal position and the spring 100 will allow the end 104 of the hammer to depress the end 102 of the pawl 96 so as to permit the pawl 96 to be returned to its normal position.

A trigger guard 48 may be suitably secured to the frame of the pistol in order to protect the trigger 28 thereof. After the shell in the barrel 20 has been fired, the breech must be opened, which, as previously explained, is accomplished by raising the breech lock 30 in order to separate the shoulders 42 from the rim of the breechblock 38. The breech lock 30 acts on a safety lever 112, pivoted at 114, when the barrel is closed and holds the end 116 out of engagement with the hammer, as illustrated in Figs. 2, 5, and 6. However, when the breech lock 30 is released, it is separated from the upper end of the lever 112 and thereby permits a spring 118 acting on the lever 112 to force the end 116 thereof down into the path of movement of the hammer 74, thereby locking the same against retraction and providing a safety for the pistol when the breech is open.

After the barrel is closed and the breech lock 30 returned to the position illustrated in Fig. 2, the safety lever 112 will be moved out of the path of movement of the hammer 74. When the breech lock 30 is released, the barrel 20 may be swung in a clockwise direction about the pivot 34 so as to remove the spent shell therefrom and to insert a new shell. If the barrel 20 is mounted in a recoil mount, the barrel 20 may remain stationary and the body of the pistol swing in a counterclockwise direction about the pivot 34. In either event, this relative movement between the barrel 20 and the body of the pistol will operate the ejector, the construction and operation of which is hereafter described.

As illustrated more clearly in Figs. 4 and 8, the ejector comprises a slide 120 of U-shaped cross section straddling the projection 36 of the frame casting 46 as illustrated in Fig. 4, the projection 36 being grooved at its sides so as to provide slots between the projection 36 and the forward portions 56 of the cover plates 54 for accommodating the bifurcations of the slide 120. The rear end of the barrel 20 on the under side thereof is notched as indicated at 122 to accommodate a setoff or projection 124 formed integrally with the slide 120, the projection 124 including an upwardly extending finger or member 126 which as illustrated is adapted to project into the annular groove of a shell located in the barrel. The slide 120 at its forward end is provided with a pin 132 projecting laterally therefrom and which pin 132 projects into suitable holes formed in the projection 36 and the parts 56 of the cover plates 54. The pin 132 is free to turn in such holes but is confined against movement relative to the pivot 34. A spring 134 secured to the pin 132 and passing between another pin 136 carried by hinge member 32 and the upper part of the hinge member 32 is adapted to act on the projection 124 and finger 126 of the ejector so as to urge the same upwardly through the slot 122 in the wall of the barrel. This is possible due to the pivotal mounting for slide 120 provided by pin 132.

Without any shell in the barrel 20 the projection 124 and finger 126 normally would be positioned by spring 134 in the position illustrated in Fig. 8, in which position the finger 126 projects inwardly into the bore of barrel 20. In Figs. 2, 4, 5, and 7, the projection 124 and finger 126 are illustrated in approximately the position such parts assume when a British type of shell is in barrel 20.

The hinge member 32 is cut away to form a slot 138 so that the hinge member 32 and barrel 20 may swing a limited amount relative to the pivot 34 without interference from the pin 132. As the pin forming the pivot 34 and the pin 132 are both carried by the same parts, namely the forward projection 36 of the frame casting, it is evident that when the barrel 20 is swung in a clockwise direction about the pivot 34 relative to the body of the pistol or vice versa, the finger 126 of the ejector will move rearwardly relative to the barrel 20 and will extract the shell therefrom. In this position the shell may be grasped and removed from the barrel and another shell placed therein. Upon relative movement of the barrel 20 and the body of the pistol in a direction opposite to the foregoing, or so as to close the breech, the ejector slide 120 will be returned to a position relative to the barrel 20 as illustrated in Fig. 8.

Aside from the main casting 46 and the handle grips 50, most of the parts of the pistol herein disclosed are formed out of sheet metal, the barrel 20 being formed out of a piece of tubing while the other parts may be formed of sheet metal stampings. The pistol herein disclosed is adapted to shoot a shell having a diameter of approximately 1½ inches and a length of approximately 4 inches, and due to the extensive use of stampings in the assembly, the over-all weight of the pistol is not in excess of 2½ pounds.

While the invention has been described with some detail, it is to be understood that the description is for the purpose of illustration only and is not definitive of the limits of the inventive idea. The right is reserved to make such changes in the details of construction and arrangement of parts as will fall within the purview of the attached claims.

This application is a division of our copending application Serial No. 448,920, filed June 29, 1942, for "Flare pistol," the claims of said application being directed toward the firing pin assembly of the firing mechanism, while the claims of the present application are directed to the trigger slide hammer mechanism of the firing mechanism.

We claim:

1. Firing mechanism for a gun comprising a breech block, a firing pin operatively associated with said breech block, a hammer adapted to strike said firing pin for actuating the same, a pivot for said hammer, a hammer spring acting on said hammer, a trigger slide having a member thereon, a trigger connected to said slide, a spring resisting movement of said slide by said trigger in one direction and adapted normally to position said trigger and slide, said member on said slide, upon movement thereof in said direction by said trigger, being engageable with a part of said hammer for retracting the same against the tension of said hammer spring and upon further movement in the same direction being adapted to release said hammer thereby permitting said hammer spring to expand and cause the hammer to strike the firing pin, and an arm on said trigger slide engageable with said hammer for moving the same out of contact with said firing pin and against said hammer spring when the trigger after being released is moved in the opposite direction by said spring.

2. Firing mechanism for a pistol comprising a breech block, a firing pin operatively associated with said breech block, a hammer adapted to strike said firing pin for actuating the same, a pivot for said hammer, a hammer spring acting on said hammer, a trigger slide having a member pivoted thereon, a trigger connected to one end of said slide, a spring acting on the other end of said slide for resisting movement of said slide by said trigger in one direction and adapted normally to position said trigger and slide, said member on said slide, upon movement thereof in said direction by said trigger, being engageable with a part of said hammer for retracting the same against the tension of said hammer spring, means cooperable with said member upon further movement of said slide in the same direction to release said member from said hammer thereby permitting said hammer spring to expand and cause the hammer to strike the firing pin, and means on said trigger slide engageable with said hammer for moving the same out of contact with said firing pin and against said hammer spring when the trigger after being released is moved in the opposite direction by said spring.

3. Firing mechanism for a pistol comprising a breech block, a firing pin operatively associated with said breech block, a hammer adapted to strike said firing pin for actuating the same, a pivot for said hammer, a hammer spring acting on said hammer, a trigger slide arranged below said hammer and having means thereon adapted to engage a part of said hammer below said pivot, a trigger connected to said slide, a spring resisting movement of said slide by said trigger in one direction and adapted normally to position said trigger and slide, said member on said slide, upon movement thereof by said trigger, being engageable with said part of said hammer for retracting the same against the tension of said hammer spring and upon further movement in the same direction being adapted to release said hammer thereby permitting said hammer spring to expand and cause the hammer to strike the firing pin, and an arm on said trigger slide engageable with said hammer above said pivot for moving said hammer out of contact with said firing pin and against said hammer spring after the trigger has been pulled and released.

4. Firing mechanism for a breech loading pistol having a hollow handle, a breech block and a barrel in front of said breech block, a firing pin operatively associated with said breech block, said hollow handle providing a chamber for housing at least part of the firing mechanism which includes, a hammer adapted to strike said firing pin for actuating the same, a pivot for said hammer and arranged below said firing pin, a hammer spring acting on said hammer about its pivot, a trigger slide disposed below said hammer and having a member thereon adapted to engage a part of said hammer below its pivot, a trigger connected to the forward end of said slide, a spring resisting movement of said slide by said trigger in one direction and adapted to position said trigger and slide when said trigger is released, said member on said slide, upon forward movement thereof by said trigger, being engageable with said part of said hammer for retracting the same against the tension of said hammer

spring and upon further movement in the same direction being adapted to release said hammer thereby permitting said hammer spring to expand and cause the hammer to strike the firing pin, and an arm on said trigger slide engageable with said hammer for moving the same out of contact with said firing pin and against said hammer spring after the trigger has been pulled and released.

5. A pistol comprising a barrel, a firing pin operatively associated with the rear end of said barrel, a hammer adapted to strike said firing pin for actuating the same, a pivot for said hammer, a hammer spring acting on said hammer, a trigger slide having a pawl thereon, a trigger connected to the forward end of said slide, a spring resisting movement of said slide by said trigger in a forward direction and acting thereon normally to position said trigger and slide when said trigger is released, said pawl, upon forward movement of said slide when the trigger is pulled, being engageable with a part of said hammer for retracting the same against the tension of said hammer spring, a trip operable upon further movement of said slide in the same direction, to disengage said pawl from said hammer, thereby to release said hammer for permitting said hammer spring to expand and cause the hammer to strike the firing pin, and an arm on said trigger slide forwardly of said pawl and engageable with said hammer for moving the same out of contact with said firing pin and against said hammer spring after said trigger has been pulled and released.

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