

May 7, 1929.

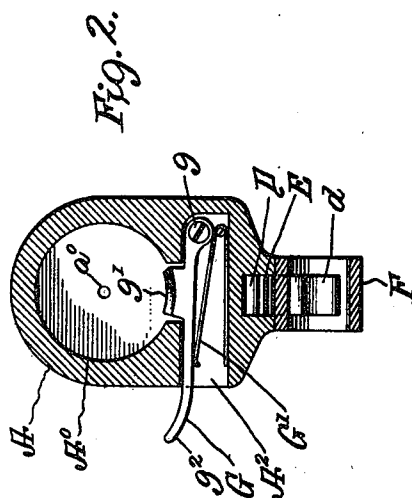
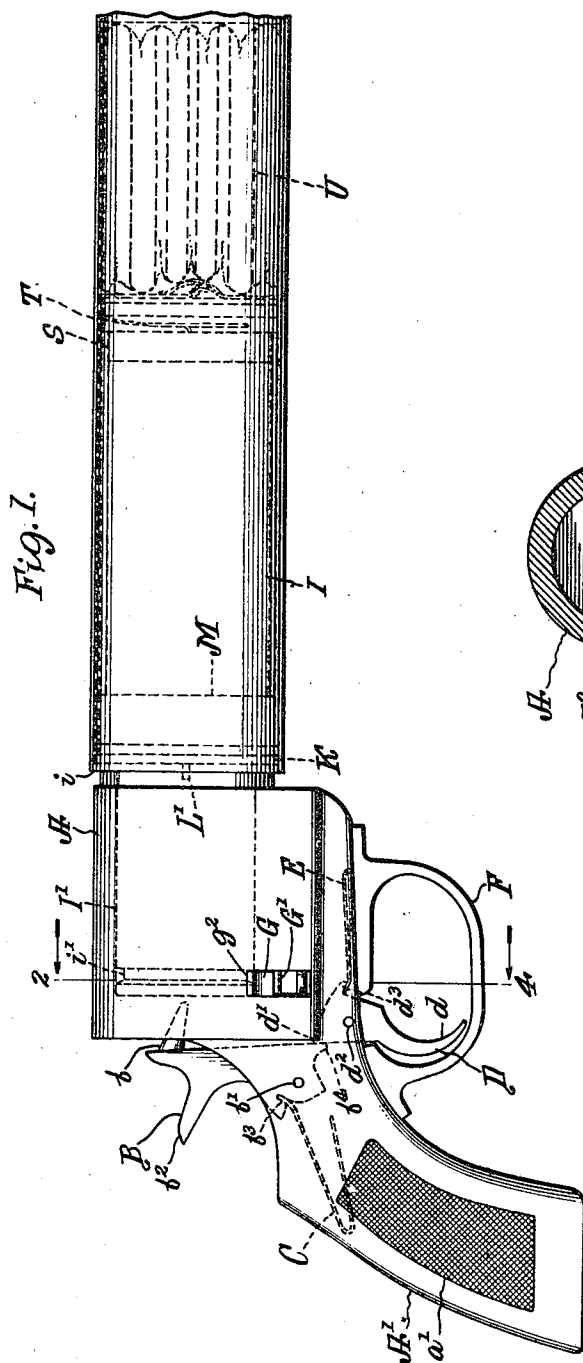
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1,712,382

FIREARM

Filed March 20, 1928

2 Sheets-Sheet 1



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Fig. 5.

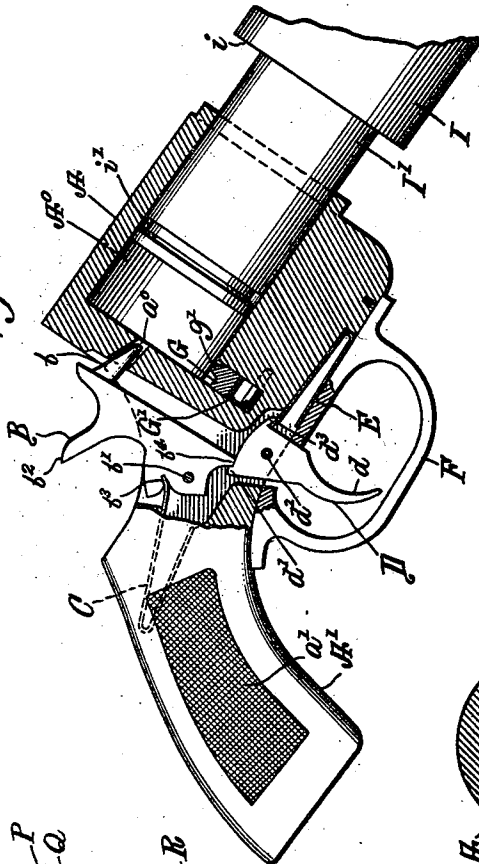


Fig. 4.

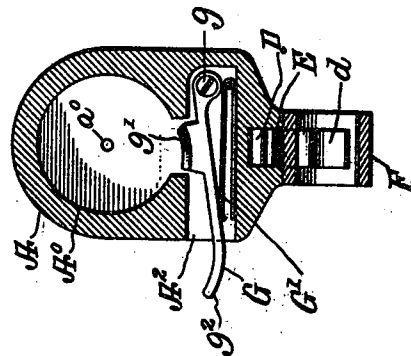
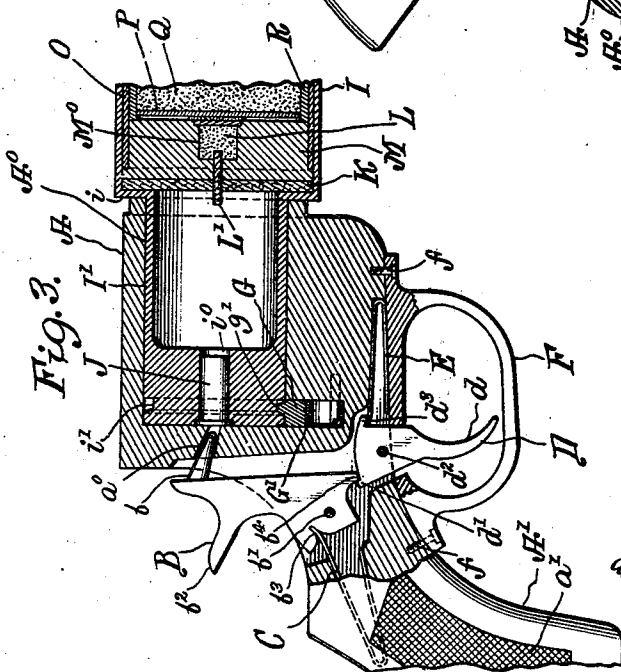


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## FIREARM.

Application filed March 20, 1928. Serial No. 263,024.

This invention relates to an improved hand operated muzzle loading firearm adapted for use in firing comparatively heavy projectiles at a low initial velocity, and with a minimum of recoil, and it is especially adapted for use in firing pyrotechnic signals from aircraft or from water borne vessels.

It may also be used to discharge flares for illumination purposes, smoke signals, or the like, or it may be useful in distributing gases by police, or military or naval troops, and in a great variety of other ways, some of which will be hereinafter more fully described.

The invention will be more clearly understood after reference to the accompanying drawings in which like parts are indicated by similar reference symbols throughout the several views, and in which

Figure 1 is a side elevation of the firearm showing a projectile whose main body is larger than the bore of the firearm.

Figure 2 shows a section along the line 2-4 of Figure 1, looking in the direction of the arrows, and it shows the spring latch for holding the ammunition in the bore in the engaging position.

Figure 3 shows the central longitudinal section through the main body of the piece and the rear end of the projectile, parts being shown in elevation, and the trigger being shown in the cocked position, and the spring latch being shown as engaging the annular groove at the end of the cartridge case.

Figure 4 is a similar section to Figure 2, but shows the spring latch in the disengaging position, in which position the cartridge case may be caused to drop out of the gun by gravity, and

Figure 5 is a similar view to Figure 3, but shows the barrel tilted slightly and the cartridge case just starting to slide downwards out of the bore.

The firearm comprises a body portion A having a short barrel with a large bore A'. This is preferably smooth and of cylindrical shape without rifling, so that the rear end of the cartridge case may slide freely therein. This body portion A is preferably made of heavy metal, and provided with a handle A', so that a sufficient amount of inertia may be supplied to the firearm when the piece is fired.

The handle A' may be in the form of a

pistol grip, and may be roughened as at a', if desired.

The rear wall of the breech of the piece is perforated as at a'' to permit the entrance of the firing pin b carried by the hammer B, which is pivoted as at b', and provided with the cocking arm b'', and with the notch b''' for the main spring, and with the toe b'''' to engage the trigger piece, as will be hereinafter described.

This hammer is pivoted in a suitable recess in the breech of the piece, and is actuated by the main spring C, which is arranged to throw the hammer forward violently when the main spring, being under compression, is suddenly released, which spring is normally set to slightly withdraw the firing pin after firing to the masked position shown in Figure 3.

D represents the trigger piece provided with the trigger d and with the toe d' engaging the hammer toe b'''. This trigger piece is pivoted in a recess in the gun, as at d'', and is provided with a forwardly projecting lug d''' engaging the trigger return spring E. This spring yields when the trigger is drawn back, as in firing the piece, but normally returns the trigger in the engaging position, as shown in Figure 3. The trigger is protected by the usual trigger guard F secured to the piece in any convenient way, as by the screws f.

Mounted in the transversely disposed recess A'' of the breech of the gun is a spring impressed latch G which is pivoted at g and is provided with the engaging lug g' and with the thumb lug g'', which latter projects beyond the side of the piece, as shown most clearly in Figures 2 and 4. This spring latch is normally pressed into engagement with the rear portion of the cartridge case by means of the latch spring G', shown in Figure 2, but this latch can be withdrawn by pressing down on the thumb lug g'', as shown in Figure 4. To supplement the short barrel of this firearm, as just described, the cartridge case is itself made of sufficient strength to constitute an auxiliary barrel through which the propelling gases escape, and which should not be ruptured by the low pressure used in the device, as will be hereinafter more fully explained.

The cartridge case may be cylindrical throughout, but, in order to carry a more bulky projectile than could be inserted in

the cylinder of slightly less diameter than the bore of the gun, that part of the cartridge case which is exterior to the barrel when the piece is loaded may be of materially larger diameter than the bore of the gun, and we have illustrated such a construction of cartridge case in Figures 1, 3 and 5, which cartridge case and its contents are illustrated, described and claimed in our separate copending application, filed March 20, 1928, Serial No. 263,026, and entitled Improvements in fixed ammunition for fire arms, but for the purpose of illustrating the operation of the gun, this cartridge case and its contents will be now briefly described. I represents the main body of the cartridge case which is provided with the inwardly projecting shoulder *i*, which shoulder terminates in the reduced cylindrical portion or stem *I'* of the cartridge case, which stem is constructed to slide freely in the smooth bore of the piece. This stem is provided with the perforation *i'* in its rear wall and with an annular groove *i''* near the base thereof. In this perforation *i'* is mounted a small blank cartridge J containing powder to drive the contents of the cartridge case outwards to the desired distance.

In front of this perforation *i'*, the stem of the cartridge case is provided with an enlarged recess in which the propelling gases expand before acting on the base of the projectile, and thus lessens the effect of the recoil. The projectile, as shown, comprises a pad K of felt or other similar material, which serves as a gas check at the base of the projectile, and in front of which is the block M, preferably of wood, chambered as at M<sup>o</sup> to receive the expulsion charge used in expelling the parts of the projectile from its case. This expulsion charge L is ignited after a short interval by means of the fuse, or fuses, L'. Exterior to the block M is the cylindrical shell O which encloses the flare composition Q and the sealing disk P in the rear of same; and this flare composition Q is mounted in an inner cylinder shell R which telescopes in the shell O. Forward of the flare charge Q is the enclosed head S of the flare chamber, which is connected by the wire T to the parachute U, as shown in dotted lines in Figure 1.

Assuming the piece to be loaded and the hammer cocked, the operation will be as follows:

Pulling the trigger will fire the blank cartridge J and the expanding gases will drive the projectile out of the enlarged portion I of the cartridge case. The flame from the propelling charge will ignite the fuse L', and, after the fuse has burnt through the desired time interval, it will ignite the powder charge L, which blows the flare and the parachute out of the cylindrical container O. At the same time the flare will be ignited and

the burning flare falling will cause the parachute to open, and the terrain beneath will be illuminated, as the flare supported by the parachute will slowly settle towards the ground.

While we have shown, for the sake of illustration, a projectile containing a flare and a parachute, obviously other types of signals may be fired from the piece, such for instance, any well-known pyrotechnic signals or bombs, or light bombs, or containers for tear gas or smoke signals, or any other device which may be mounted in the cartridge case and having a stem adapted to slip into the smooth bore barrel of the piece of the character described.

After the piece has been fired as aforesaid, the cartridge case will normally remain in position in the gun, but it may be readily released by pressing down on the thumb lug *g*<sup>2</sup> of the spring latch and tilting the piece, as shown in Figure 5, when the cartridge case will fall out, which case may be grasped by the hand and put back in place or expended. In case the trigger be drawn and the cartridge fails to explode, there may or may not be a hang fire, and it may be desirable to take no risks, and let the cartridge case with its contents fall out of the piece, and this may readily be effected by tilting the piece, as shown in Figure 5, and pulling the thumb lug *g*<sup>2</sup>, as shown in Figure 4, and releasing the latch. This may be done with one hand of the operator, which is an especially desirable feature of a device of this kind on aircraft. It will be seen that the piece may be quickly and conveniently loaded, and, when loaded, may be cocked and fired by the use of one hand of the operator, and that either the empty or loaded cartridge case may be released from the bore of the gun, and allowed to fall clear by pressing down with the thumb of the hand grasping the pistol grip.

While we have shown one embodiment of the invention with its operative parts, which may be cheaply and conveniently constructed, it will be obvious that various changes might be made in the construction, combination, and arrangement of parts, which could be used without departing from the spirit of our invention.

Having thus described our invention, what we claim and desire to secure by Letters Patent of the United States is:—

1. A muzzle loading low pressure fire arm, adapted to be used with fixed ammunition provided with a cartridge case, comprising a pistol grip, a short smooth bore barrel, spring actuated firing mechanism with a trigger for releasing same, and automatic means for holding the cartridge case in said barrel before and after firing, with means for releasing same from said barrel when desired.

2. A muzzle loading low pressure fire arm, adapted to be used with fixed ammunition provided with a cartridge case, having an annular groove near its base comprising a  
5 hand grip, a short smooth bore barrel of large calibre, spring actuated firing mechanism with a trigger for releasing same, and means for retaining the cartridge case in  
said barrel before and after firing, or for releasing same from said barrel when de- 10 sired, and means comprising a spring latch adapted to engage in said annular groove, and to be released by hand.

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### DISCLAIMER

1,712,382.—*Louis L. Driggs, jr.*, New Rochelle, and *Henry B. Faber*, New York, N. Y.  
FIREARMS. Patent dated May 7, 1929. Disclaimer filed September 23, 1931,  
by the *patentees*.

Hereby enter a disclaimer restricting claim 1 as follows:

By restricting the element "cartridge casing" of said claim 1 to "closed at its rear end and capable of standing the strains of firing and ejecting completely a projectile therefrom without deformation of the cartridge casing".

[*Official Gazette* October 20, 1931.]