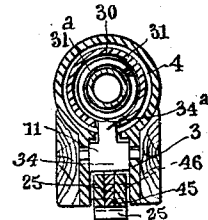
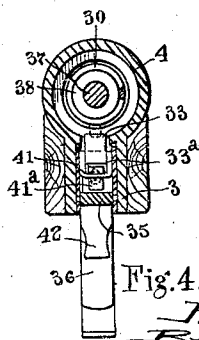
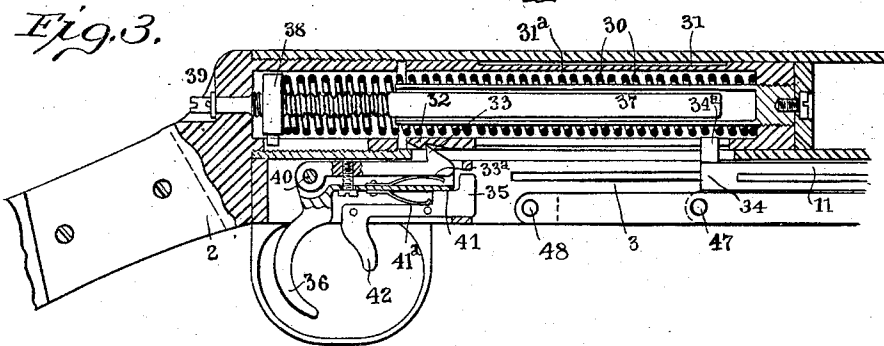
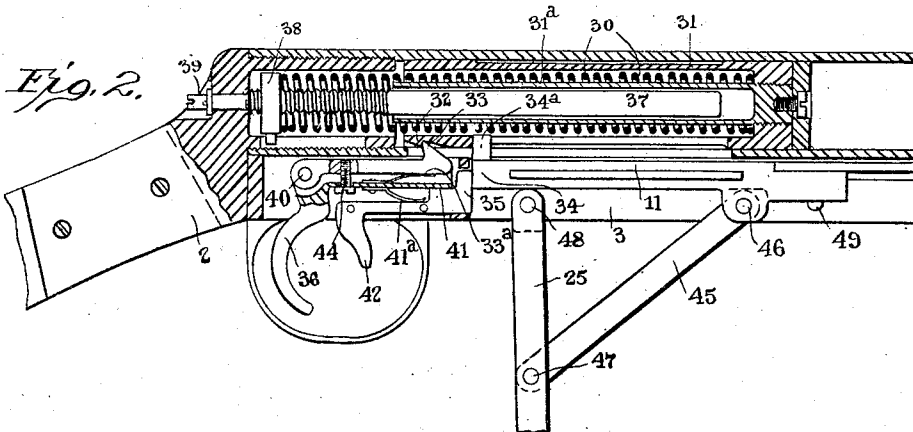
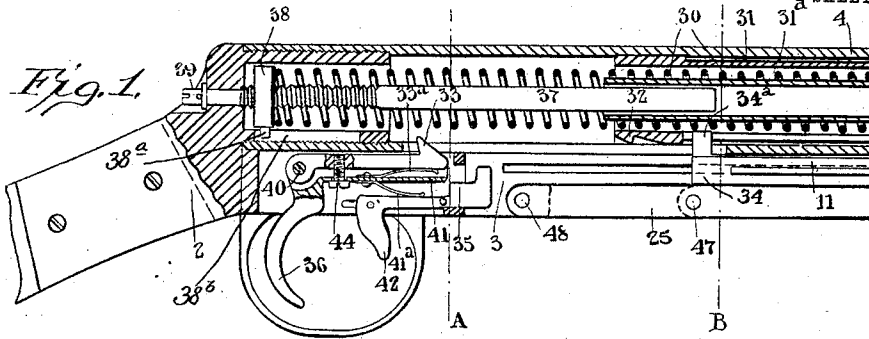


H. A. C. SCHOBBERT.
AIR RIFLE AND THE LIKE.
APPLICATION FILED SEPT. 25, 1908.

906,309.

Patented Dec. 8, 1908.

2 SHEETS—SHEET 1.



Witnesses:

W. K. K. K.
C. D. Hester

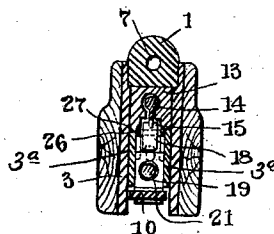
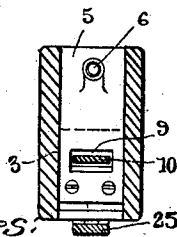
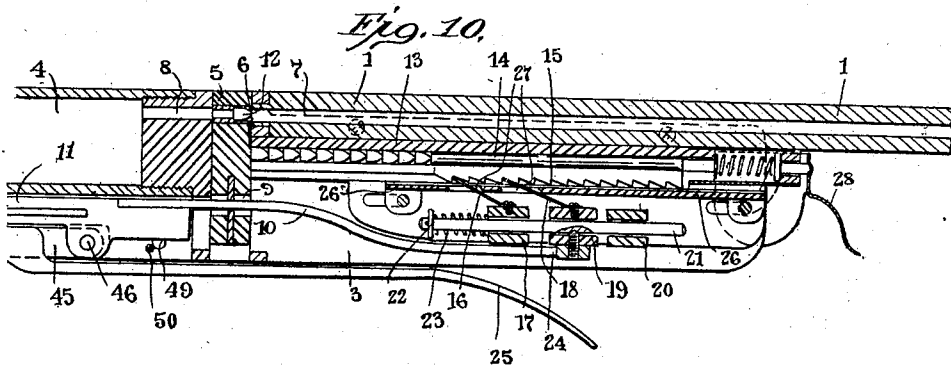
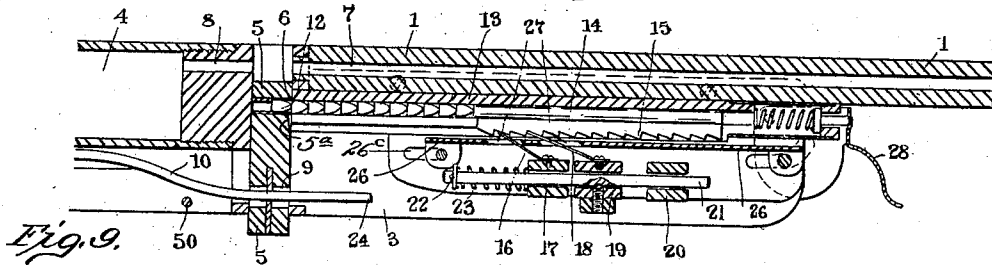
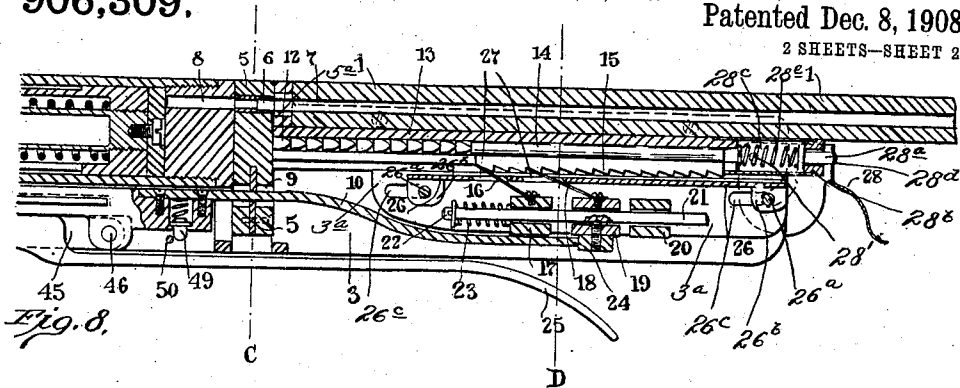
Inventor
Henry A. C. Schobbert
By *James L. Norrie*
Atty.

906,309.

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2 SHEETS-SHEET 2.



Witnesses:

James L. Norris
James L. Norris

Inventor
Henry A. C. Schobbert

By
James L. Norris

Atty.

UNITED STATES PATENT OFFICE.

HENRY ALBERT CHARLES SCHOBERT, OF STAMFORD HILL, LONDON, ENGLAND.

AIR-RIFLE AND THE LIKE.

No. 906,309.

Specification of Letters Patent.

Patented Dec. 8, 1908.

Application filed September 25, 1908. Serial No. 454,808.

To all whom it may concern:

Be it known that I, HENRY ALBERT CHARLES SCHOBERT, subject of King Edward VII of Great Britain, residing at 59 Darent road, Stamford Hill, London, England, have invented certain new and useful Improvements in Air-Rifles and the Like, of which the following is a specification.

This invention relates to air guns and similar small arms, and particularly to repeating, or magazine, air guns, of the type in which the bullet is propelled by the escape of compressed air from an air chamber into the barrel of the gun, produced by the forward movement of a plunger due to a powerful main spring, which is compressed, and the trigger cocked ready for firing the gun, by pulling towards the stock a lever normally lying flat up against the underside of the rifle.

The present improvements have for their main object the provision of an improved repeating or magazine air-gun of the above type, capable of firing a shot each time the trigger is pulled,—the operations of compressing the plunger-spring, cocking the trigger, actuating the safety-lock for the trigger, bringing into action the repeating mechanism of the magazine and the vertically-sliding breech block in conjunction therewith,—all being performed in one complete rearward and forward stroke of the horizontally-moving slide, without necessarily removing the gun from the shoulder, or performing any other operation beyond working the one lever, or its equivalent, until the magazine is exhausted.

The invention includes, as a further novel feature, a means for regulating the tension of the main spring.

A repeating air gun constructed in accordance with this invention is illustrated in the accompanying drawings, in which:

Figure 1 is a central longitudinal section of the rear portion of the gun showing the positions of the parts in the normal condition of the gun after discharge, and before re-loading. Fig. 2 is a similar view showing the positions of the parts in an intermediate stage of the loading operation; Fig. 3 is a similar view showing the positions of the parts when the gun is ready for discharging. Fig. 4 is a vertical cross section on the line

A of Fig. 1. Fig. 5 is a vertical cross section on the line B of Fig. 1; Fig. 6 is a vertical cross section on the line C of Fig. 8; Fig. 7 is a vertical cross section on the line D of Fig. 8; Fig. 8 is a central longitudinal sectional view of the forward part of the gun with the parts disposed as in the operation shown in Fig. 1. Fig. 9 is a similar view with the parts disposed as in the operation shown in Fig. 2, and Fig. 10 is a similar view with the parts disposed as in the operation shown in Fig. 3.

In all these figures the same references indicate the same parts.

1 is the barrel, 2 is the stock, and 3 is the frame or casing of the gun.

4 is the air chamber in the form of a horizontal cylinder connecting the fixed breech piece of the gun frame with the stock end of the said frame.

By reference to Figs. 8, 9 and 10 it will be seen that between the front of the air chamber 4 and the breech of the barrel, 1, there is arranged a movable breech block, 5, hereinafter called the "lift" and adapted to slide vertically across the breech in known manner. In the upper portion of this "lift" there is a hole, 6, hereinafter called the bullet chamber just large enough to take one bullet at a time, and so situated that when the "lift" is in its upper position this bullet chamber, 6, will be in line with the bore, 7, of the barrel and with an air passage, 8, formed in the front end of the air chamber, 4. According to my invention, the "lift" is also formed in its lower portion with a perforation, 9, in which works an inclined extension, 10, of the slide, 11, in such a manner that when the slide is moved to the rear its extension, 10, will pull down the lift, 5, so as to bring the bullet chamber, 6, in the lift into line with the rearmost bullet, 12, in the magazine, 13, and that when the slide is moved forward again the lift will be moved up again into line with the bore of the barrel for a purpose hereinafter described.

The bullets in the magazine, 13, are kept close up to one another by a follower rod, 14, (hereinafter called the "bullet rod") sliding in the magazine and formed on its underside with a depending longitudinal extension having ratchet teeth, 15, that project through a longitudinal slot in the underside of the magazine. Two spring pawls, one, 16,

mounted on a rear block, 17, and the other, 18, on a middle block, 19, engage with the ratchet teeth, 15.

In front of the middle block, 19, is a front block, 20. The front and rear blocks, 20, 17, are kept stationary by being mounted in a fixed part of the gun casing, 3. A rod, 21, capable of sliding longitudinally in the direction of the length of the gun, extends through or along these three blocks, 17, 19, 20, and is capable of sliding in the stationary front and rear blocks, 20, 17. The middle block, 19, is preferably fixed to the rod, 21 so that as this rod slides to and fro, the middle block 19, also moves to and fro between the two stationary front and rear blocks, 20, 17. The rear end of the rod, 21, is formed or provided with a stop, 22, between which and the rear block, 17, there is a rear coil spring, 23.

The slide extension, 10, above referred to is arranged to impinge at its front end, as at 24, against the middle block, 19, or an extension thereof (Figs. 8 and 10). When the slide, 11, is moved towards the rear end of the gun by means of the operating lever, 25, it allows the compressed rear spring, 23, to expand, and therefore to force the sliding rod, 21, with the middle block, 19, towards the rear end of the gun (Fig. 9). Therefore, when the middle block, 19, with its spring pawl, 18, is moved, the rod, 21, also moves and vice versa. The spring pawl, 18, fixed on the movable middle block, 19, puts rearward pressure on the bullet rod ratchet, 15, when the slide is moved rearwards, and it slips into the next forward tooth of the ratchet when the slide returns to its normal forward position (Fig. 10). The rod 14 is thus fed rearwardly in a step by step manner, one tooth at a time, by successive actuations of the lever 25, the spacing of the teeth 15 being equal to the length of one bullet. The spring pawl, 16, on the stationary rear block, 17, engages with the teeth, 15, of the bullet rod ratchet and prevents the bullet rod, 14, from moving towards the front of the gun when the spring pawl, 18, on the middle block, 19, is sliding frontwards from one ratchet tooth to next forward ratchet tooth.

A flat piece, 26, of metal having beveled edge holes, 27, in it through which the spring pawls pass, is, when necessary, pushed rearwardly by means of a hand lever, 28, so as to cause the points of the spring pawls to be pressed downwards and so become disengaged from the bullet rod ratchet.

The plate 26 is slidably mounted in the frame 3 by means of pins 26^a provided on depending ears 26^b formed on said plate, the pins 26^a working in longitudinal slots 26^c formed in inner side plates 3^a secured to said frame. The forward pin 26^a is connected to an extension of the lever 28 and the latter is pivoted to the frame 3 as at 28' (the pivot being shown in dotted lines). The lever 28

is held in its raised inactive position by a latch pin 28^a which passes through an apertured plug 28^b provided in the front end of a barrel 28^d and which engages in a notch or depression 28^e in the lever 28. The barrel 28^c is secured to the front end of the magazine 13 and is co-axial therewith. Within said barrel is confined an expansive coil spring 28^e which bears against the head of the pin 28^a and thus holds the latter at the forward limit of its movement in position to engage the lever 28 as aforesaid. In disengaging the spring pawls 16 and 18 by means of the plate 26 in the manner described, the lever 28 is moved rearwardly and downwardly on its pivot to effect longitudinal rearward sliding movement of the plate 26.

When the slide, 11, is moved to the rear to compress the main spring, 30 (see Figs. 1, 2 and 3), the front end, 24, of the slide extension, 10, allows the middle block, 19, to move to the rear under the action of the rear coil spring, 23, and thus move the bullet rod, 14, to the rear to the extent of one tooth, and thus push the rearmost bullet, 12, from the magazine, 13, into the bullet chamber, 6, in the lift, 5 (Fig. 9). The block 17, incidentally, serves as a stop to limit the rearward movement of the block 19.

In order to obviate the liability of the lift, 5, becoming jammed in consequence of the next bullet projecting from the magazine partially into the bullet chamber, 6, in front of the rearmost bullet, 12, the front of the lift is made with an inclined face as 5^a extending from a short distance inwards of the lower edge of the bullet chamber downwards and outwards towards the magazine orifice. In moving up, this inclined face acts as a cam to push the said next bullet back into the magazine.

Referring to Figs. 1, 2 and 3, 30 is the main spring which impels the plunger, 31, forward when the gun is discharged. This plunger is of hollow tubular form, closed at its front end and at its rear end formed with a forwardly directed hook, 32, adapted to engage with and be held by a rearwardly directed hooked trigger sear, 33. A hollow rod, 31^a, is fixed centrally in the plunger, concentrically thereof, and serves to guide the main spring internally and also to guide the rod, 37, hereinafter described, the spring 30 being disposed in the space between the plunger 31 and the rod 31^a and the rod 37 projecting axially into the latter. The rear end, 34, of the slide, 11, is formed with an upwardly extending lug, 34^a, which works in a longitudinal slot formed in the plunger. The lug 34^a is adapted to bear against the rear end wall of the slot in the plunger so that when the slide is moved to the rear it will carry the plunger with it to the rear (Figs. 1 and 2). In the retracted position of the plunger the slot therein extends forwardly of

the rear end of the slide, so as to allow the slide to move forward again to the limit of its movement without taking the plunger with it (Fig. 3).

5 The manner of operating the gun is as follows: Assuming it to have just been discharged, the slide, 11, and other parts are in their extreme forward positions, and the slide operating lever, 25, lies flat up against the underside of the gun, as shown in Fig. 1. Then to load the gun, the user holding it to his shoulder with his right hand, draws with his left hand the lever, 25, downwards and to the rear (Fig. 2), and then immediately returns the lever forwards and upwards into its initial position (Fig. 3). The downward movement of the lever, 25, (Fig. 2) has caused the slide 11, to move to the rear carrying with it, by means of the lug, 34^a the plunger, 31, the rear hook, 32, thereof being engaged by the sear 33, the spring 30 being compressed and having power stored therein and the rear end 34, of the slide, 11, pushing the safety device, 35, back so as to safely lock the trigger, 36, (Fig. 2) as hereinafter described. In this movement to the rear the inclined slide extension, 10, draws down the lift, 5, so that its bullet chamber, 6, is in line with the magazine, 13. As soon as this operation takes place the receding slide extension, 10, allows the rear coiled spring, 23, to act upon the bullet rod, 14, to force the rearmost bullet, 12, into the bullet chamber, 6, (Fig. 2). By the return movement of the lever, 25, (Fig. 3) the inclined slide extension moves the "lift", 5, up so as to bring the bullet chamber, 6, with the bullet, 12, therein into line with the bore of the barrel, 1, while the front end, 24, of the slide extension, 10, forces the middle block, 19, forwards so that the spring pawl, 18, thereon moves into the next tooth of the ratchet, 15, ready to force the bullet rod, 14, again rearwards so as to push the next bullet (which is now the rearmost in the magazine) into position for the next shot. The gun is now ready for discharging (Fig. 3). To discharge the gun, the marksman pushes forward the safety catch, 35 to disengage the same from the trigger 36, and pulls the latter, to release the plunger 31, which is shot forward by the main spring 30 and by forcing the air from the air chamber, 4, through the hole, 8, in its front end, propels the bullet through the barrel, 1.

55 The magazine, 13, is preferably made removable. The drawings show a magazine holding 12 bullets, and capable of being slid into and removed from the gun. To remove the magazine, 13, it is merely necessary to operate the hand lever, 28, to clear the front end of the part 28^c and to push the plate, 26, backwards so that the beveled edges of the holes, 27, in it flatten the spring pawls, 16, 18, down out of engagement with the teeth, 15, of the bullet rod, 14, and thus

allow the magazine, 13, (with the bullet rod inside it) to be withdrawn for recharging or replacement with a similar charged magazine. The lever 28 in its lowered position as previously explained thus permits of the removal of the magazine longitudinally or axially from the frame 3, and in its raised position holds said magazine against longitudinal movement, the pawls 16 and 18 assisting in this function. The magazine 13 rests and is slidable on the side plates 3^a.

37 is a rod having a screw threaded portion on which works a disk, 38, that is prevented by a lug 38^a from rotating, the lug 38^a projecting into a slot 38^b formed in the removable rear member of the frame 3. This rod, 37, engages in the gun frame in front of the stock, and, at its opposite end, telescopes into the hollow rod, 31^a, situated in the plunger, and the disk, 38, serves as an abutment for the main spring, 30. By turning the rod (by means of the portion, 39, projecting through the rear of the gun frame in front of the stock) to the requisite extent in one or the other direction, the tension of the main spring may be adjusted as desired and without diminishing the space of the air chamber, the disk 38 moving axially of the rod 37, when the latter is turned as is obvious. A spring, 33^a, is provided to press up the sear, and a spring, 41^a, is provided to keep the safety catch from shifting unintentionally. This spring, 41^a, may serve also as a trigger spring, if used alone, or may reinforce the usual trigger spring not shown.

The sear, 33, is hinged at 40 to the trigger, 36. The trigger is formed with a forward extension, 41, underneath which is the safety piece, 35, capable of being moved forward by means of a finger piece, 42, situated in front of the trigger tail, and inside the trigger-guard. When the slide, 11, is moved back to compress the main spring, 30, its rear end, 34, strikes the safety piece, 35, and pushes it back under the trigger extension, 41. In this position the trigger cannot be pulled down to discharge the gun, which thus remains at safety until the marksman pushes the safety piece, 35, forward a determined distance, when the portion under the trigger extension will move from under the extension and the trigger can then be moved down on its pivot, to release the plunger 31 and effect the discharge of the bullet in the manner described.

For the purpose of enabling the sear to be adjusted with relation to the trigger extension 41, an adjusting screw, 44, is screwed into the sear, 33, and when the sear moves up or down, this screw works in a recess in the trigger extension, 41. The head of the screw, 44, is larger than the recess in the extension. When the trigger is pulled, it presses down the screw, 44, which in turn pulls down the sear. Turning this screw in-

wardly lowers the sear, 33, and vice versa. The lever, 25, for operating the slide, 11, is connected to the latter by means of a link, 45, which is pivoted at one end, 46, to the slide, 11 near the front end thereof, and at its other end, 47, to the said lever. The said lever 25 is pivoted at its rear end to the gun casing at a point, 48, situated in the rear of the slide when the latter is in its mid position, so that the connecting link, 45 when the slide 11 is moved actively, is pulled by the said lever and is not pushed. By this means the link, 45, is subjected to tension only and can therefore be made of very light section.

For the purpose of preventing the slide, 11, from being moved rearwards unintentionally it is provided with a spring pin, 49, adapted to engage with a stud, 50, in the gun frame. Should the slide operating lever, 25, (or the handle, or the hand grip slide) in consequence of hasty or careless handling, not be returned into its correct forward position so that the front spring pawl, 18, is not properly re-set in the next forwardly situated tooth of the bullet rod ratchet 15, then, in discharging the rifle, the plunger 31, in moving forward will engage the lug, 34^a, to automatically return the slide, 11, into extreme front position and thereby reset the spring pawl, 18. The gun barrel may be made detachable. For this purpose it may be formed with flat under and side faces which fit in a corresponding slide-way or groove in an extension of the frame in front of the lift.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:

1. In an air gun of the type set forth, the combination with an air chamber, a compression spring, a plunger disposed in the air chamber and operated by the spring, a barrel, a magazine, and a breech block working between the air chamber and the barrel and having a bullet chamber therein to receive a bullet from the magazine, of a manually operated slide having means to engage the plunger and to move the same rearwardly and store power in said spring, trigger means arranged to engage and hold the plunger at the limit of its rearward movement, and a member rigidly secured to the slide and associated with the breech block to effect movement thereof in either direction, in accordance with the movement of the slide.

2. In an air gun of the type set forth, the combination with an air chamber, a compression spring, a plunger disposed in the air chamber and operated by the spring, a barrel, a magazine, and a breech block working between the air chamber and the barrel and having a bullet chamber therein to receive a bullet from the magazine, of a manually operated slide having means to engage

the plunger and to move the same rearwardly and store power in said spring, trigger means arranged to engage and hold the plunger at the limit of its rearward movement, said breech block having an opening therethrough and a member rigidly secured to the slide and extending through the opening in said breech block, said member having a portion thereof inclined and acting as a cam to move the breech block in either direction, in accordance with the movement of the slide.

3. In an air gun of the type set forth, the combination with an air chamber, a compression spring, a plunger disposed in the air chamber and operated by the spring, a barrel, a magazine, and a breech block working between the air chamber and the barrel and having a bullet chamber therein to receive a bullet from the magazine, of a manually operated slide having means to engage the plunger and to move the same rearwardly and store power in said spring, trigger means arranged to engage and hold the plunger at the limit of its rearward movement, means operable with the slide to automatically move the breech block in either direction, in accordance with the movement of the slide, a ratchet-toothed follower rod in the magazine, spring movable means including a pawl for engagement with the teeth of said follower rod to effect active movement of the latter, and means operable with the slide to engage and return said spring movable means to a position where its pawl engages the next successive tooth of said follower rod.

4. In an air gun of the type set forth, the combination with an air chamber, a compression spring and a plunger disposed in the air chamber and operated by the spring of a manually operated slide having means to engage the plunger and to move the same rearwardly and store power in said spring, trigger means arranged to engage and hold the plunger at the limit of its rearward movement, and safety means constructed to engage the trigger means and hold the latter against operative movement to release the plunger, said slide having means associated therewith to engage said safety means and automatically move the latter into engagement with the trigger means, said safety means being movable manually out of engagement with said trigger means.

5. In an air gun of the type set forth, the combination with an air chamber, a compression spring, a plunger disposed in the air chamber and operated by the spring, and manually operated means for moving the plunger rearwardly and storing power in said spring, of trigger means for engagement with the plunger to hold the latter at the limit of its rearward movement and including a movable trigger part, a sear part carried by the trigger part and adjustable with respect

thereto, and means for adjusting the sear part.

6. In a magazine gun of the type set forth, the combination with a barrel, magazine means and means for causing the transfer of bullets, one at a time from the magazine to a position in alinement with the barrel, of follower means in the magazine, movable pawl means associated with the follower means to move the latter operatively, a second pawl means having operation to hold said follower means against retrograde movement, and means for moving both pawl means to positions of inoperativeness.

7. In a magazine gun of the type set forth, the combination with a barrel, a gun frame, a magazine mounted in the gun frame for removal therefrom and means for causing the transfer of bullets, one at a time from the magazine to a position in alinement with the barrel, of follower means in the magazine, pawl means engaging the follower means at an angle to prevent retrograde movement of the latter, means for supporting the pawl means from the gun frame and manually operable means for moving and holding the pawl means out of engagement with the follower means to permit of the magazine being removed from the gun frame.

8. In a magazine gun of the type set forth, the combination with a barrel, a gun frame, a magazine removably mounted in the gun frame and means for causing the transfer of bullets one at a time from the magazine to a position in alinement with the barrel, of a ratchet toothed follower in the magazine, a stationary spring pawl for engagement with the teeth of said follower means, a movable spring pawl for engagement with the teeth of said follower means, means for supporting said pawls in the gun frame, a slidably mounted plate having openings surrounding said pawls, and manually operable means for moving said plate, to disengage said pawls from said follower means and to thereby permit of the removal of the magazine from the gun frame.

9. In a gun of the type set forth the combination with a spring pressed plunger, a barrel, a magazine, means for transferring bullets from the magazine to the barrel, and a follower in the magazine, of movable pawl means engaging said follower to effect operative movement thereof, spring means for moving said pawl operatively, a slide having means to engage and move said plunger on the movement of the slide in one direction and having means to engage and reset said pawl means on the return movement of the slide in the other direction and trigger means for holding the plunger against the tension of the spring in the position into which it is moved by said slide.

10. In a gun of the type set forth, the combination with a spring pressed plunger, a bar-

rel, a magazine, a movable breech block for transferring bullets from the magazine to a position in alinement with the barrel and a follower means in the magazine, of movable pawl means engaging said follower to effect operative movement thereof, spring means for moving said pawl means operatively, a slide having means to engage said plunger and move the same in one direction of movement of said slide and having means to engage and reset said pawl means on the return movement of said slide in the other direction, said slide also having means to move said breech block in either direction in accordance with the movement of said slide, and trigger means for holding the plunger against the tension of the spring in the position with which it is moved by the slide.

11. In a gun of the type set forth the combination with a spring pressed plunger, a barrel, a magazine, a movable breech block for transferring bullets from the magazine to a position in alinement with the barrel and a follower means in the magazine, of movable pawl means engaging said follower to effect operative movement thereof, spring means for moving said pawl means operatively, a slide having means to engage said plunger and move the same in one direction of movement of said slide and having means to engage and reset said pawl means on the return movement of said slide in the other direction, said slide also having means to move said breech block in either direction in accordance with the movement of said slide, trigger means for holding the plunger against the tension of the spring in the position into which it is moved by the slide, and manually releasable safety means operable by the slide in its movement to retract the plunger, to engage the trigger means and hold the latter against operation.

12. In a magazine gun of the type set forth, in combination, a barrel, a magazine, and a breech block movable transversely of the magazine and the barrel and having a bullet chamber to receive a bullet from the magazine and to aline the bullet with the barrel, said breech block having a portion of its face at one side of the bullet chamber inclined to serve as a cam to engage and return to the magazine any bullet which might project slightly after the breech block has commenced its movement toward the barrel.

13. In a gun of the type set forth, in combination, a gun frame, a plunger casing, a spring pressed plunger in the casing, a longitudinally movable slide having means to engage the plunger and move the latter against the tension of its spring, trigger means for holding the plunger in its retracted position and means for moving the slide comprising a lever pivoted to the gun frame at some distance rearwardly of the slide in the forward position thereof and a link pivoted to the

lever and to the slide near the forward end thereof, said lever in its active movement to retract the plunger pulling upon said link and being movable to lie flat upon the gun in re-
5 turning the slide to its forward position.

Dated this 13th day of March, 1908.

In testimony whereof I have hereunto set

my hand in presence of two subscribing witnesses.

HENRY ALBERT CHARLES SCHOBERT.

Witnesses:

F. L. RAND,

H. D. JAMESON.