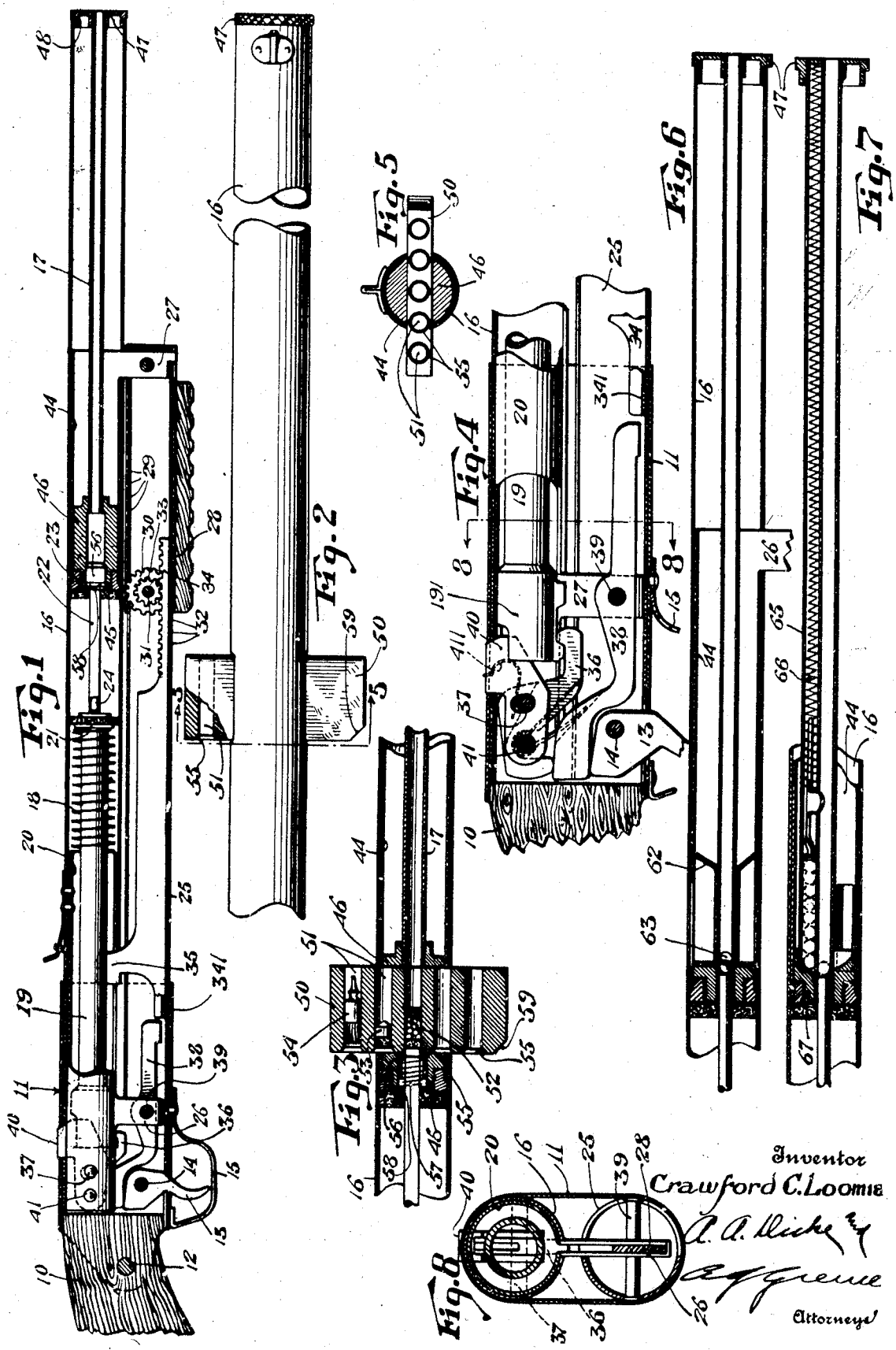
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AIRGUN

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CRAWFORD C. LOOMIS, OF ILION, NEW YORK, ASSIGNOR TO REMINGTON ARMS COMPANY, INC., A CORPORATION OF DELAWARE

AIRGUN

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This invention relates to spring operated air guns, and among other improvements contemplates a gun capable of shooting different kinds of projectiles.

One object of the invention is to provide a simple and improved device for detachably securing the stock or stock assembly to the barrel or barrel assembly.

A further object of the invention is to provide a gun of this type with a plurality of barrels adapted to be used interchangeably and to so arrange the barrel receiving parts that any selected barrel may be easily and quickly attached thereto.

A further object of the invention is to provide a magazine adapted to receive and deliver to firing position any one of a number of different kinds of projectiles.

A further object of the invention is to provide devices by which projectiles of different kinds may be fed into position to be fired in any predetermined sequence.

A further object of the invention is to provide an air gun with a magazine receiving opening, and to provide a magazine removably secured in such opening.

With these and other objects in view the invention consists in the novel combinations and arrangements of parts, a representative embodiment of which is shown in the drawings and will be hereinafter described. The drawings illustrate the present inventions as applied to a spring operated air gun of the type shown and described in my prior copending application Serial No. 224,888, filed October 8, 1927, but it will be understood that in many respects they are of general applicability, and not limited to guns of this particular type.

In the drawings:

Fig. 1 is a longitudinal section thru a gun of the type described in my prior application above identified, having one embodiment of the present invention applied thereto.

Fig. 2 is a fragmentary plan view of the barrel of a gun having one form of the invention applied thereto.

Fig. 3 is a fragmentary enlarged longitudinal section showing the construction of barrel and magazine.

Fig. 4 is a fragmentary sectional elevation thru the receiver.

Fig. 5 is a transverse section substantially on the line 5—5 of Fig. 2.

Fig. 6 is a section in plan, showing how different forms of barrels may be used interchangeably.

Fig. 7 is a fragmentary vertical section showing another form of barrel.

Fig. 8 is a transverse section, substantially on line 8—8 of Fig. 4.

The gun comprises a stock and receiver assembly, a barrel assembly and a power applying assembly. The stock assembly includes the stock 10 and the receiver housing 11 which embraces the forward end of the stock and is secured thereto by suitable means, such as a rivet or screw 12. The receiver housing carries the trigger 13 pivoted on the pin 14, and the trigger guard 15.

The barrel assembly comprises the cylindrical housing tube or false barrel 16, which contains the true or shooting barrel 17 and a power mechanism comprising a power spring 18 which encircles the plunger 19 and is compressed between the flanged end of a fixed reinforcing sleeve 20 and a piston head 21 secured to plunger 19. A driving or piston tube 22 extends forwardly from the piston and enters an aperture in a fixed plug or bushing 23, to be hereinafter more fully described. The bushing 23 and the piston 21 are faced with leather or other material adapted to make an air tight joint with the wall of the tube 16, and thus together define an air chamber which thru the aperture 24 in the piston tube 22 communicates with the rear end of barrel 17.

The power applying unit is chiefly housed in a tubular member 25, secured below the barrel assembly tube 16 by any suitable means, such as the arms 26 and 27 depending from the tube 16. Power is applied to cock the spring 18 by manipulation of the sliding forearm or handle 28, which encircles the tube 25 and is provided at the top with apertures 29 forming a rack engaged by a gear 30 which rotates about the floating pivot 31. Gear 30, which also engages rack teeth formed by the row of apertures 32 in the bottom of

tube 25 has rigidly connected thereto a double gear 33 which is in engagement with a double rack bar 34 having near its rear end an upwardly projecting head 35 which engages the plunger 19. Upon movement of the forearm 28 a lesser movement is thus transmitted to plunger 19, the ratio of reduction of movement depending upon the ratios of the diameters of gears 30 and 33.

A sear 36 pivoted in the barrel tube at 37 is adapted to engage a suitable notch in the head 191 of plunger 19 and to be withdrawn therefrom upon the firing movement of trigger 13 by the movement of a locking lever 38, interposed between the trigger and sear. Lever 38 is pivoted at 39 and its forward end is moved by the firing movement of the trigger into the path of movement of the end 341 of the rack bar 34. Thus the trigger is locked when the forearm 28 and rack 34 are displaced, and the rack and forearm are locked when the trigger is depressed.

The mechanism thus far described is substantially similar to that shown in my prior application above identified. The present invention contemplates certain variations and refinements on the construction previously disclosed, one of which comprises improved means for taking the gun down for storage, shipment, or convenience in carrying. To this end means are provided for quickly and easily removing the barrel and power applying assemblies from the stock and receiver assembly as a unit. Barrel assembly tube 16 and power applying tube 25, which are rigidly secured together, enter and in part lie closely adjacent to the wall of the receiver 11 (see Fig. 8). To detachably secure the barrel and power assembly in the receiver, a locking hook 40 is pivoted in the barrel tube at 41. The end of hook 40 is pressed upwardly thru an aperture in the top of the barrel tube by a spring 411. When the barrel tube is in place in the receiver the hook receiving aperture is in alignment with a similar aperture in the top of the receiver, and the hook 40 projects into this aperture, firmly holding the assembled gun together. To take the gun down the hook 40 is pressed back into the barrel tube, and the barrel assembly moved longitudinally out of the receiver.

The present invention further contemplates the provision of a load containing magazine capable of receiving and holding in firing position any one of a number of different kinds of projectiles, such as darts, slugs or charges of small shot. To this end the shooting barrel and associated parts are constructed as follows:

The bushing 23 is secured in or to the end of a reenforcing tube 44 which fits closely within the tube 16, and has rigid or integral therewith the power unit supporting projection 27, previously mentioned. Bushing 23 is interiorly threaded to receive a threaded nipple 45 which projects from the end of an enlarged head or chamber piece 46 secured to the barrel 17. An apertured barrel tube closing cap 47 secured to the forward end of the barrel 17, comprises a flange 48 adapted for peripheral engagement with the housing tube 16, and a slightly projecting knurled edge to facilitate manipulation. The barrel may be removed by turning the knurled cap 47 to unscrew nipple 45 from bushing 23.

The chamber piece 46, which is circular in cross section and substantially fills a section of tube 44 (see Fig. 5) is slotted transversely, the ends of the slot aligning with apertures thru the walls of tubes 44 and 16. A transverse slot thru the barrel assembly is thus provided, said slot being adapted to receive a magazine block 50 which comprises a series of chambers 51 each adapted to receive a load to be fired. The loads may take a variety of forms, and any desired load may be placed in any chamber. A shot charge 52, a felt base slug 53 and a dart 54 have been shown in adjacent chambers, but obviously the same or different loads can be used in any desired rotation. By moving the magazine plug thru its slot in the barrel assembly the successive chambers are in turn brought into alignment with the piston rod 22 and barrel 17, permitting the loads therein to be fired. To accurately align the chambers with the barrel, the rear end of each chamber is chamfered outwardly, and the chamfer 55 receives the conical end of a sleeve 56, contained in a recess in the nipple 45, and pressed forward by a spring 57 interposed between a shoulder in the sleeve and a washer 58 fixed in the end of the nipple recess. The slot is counter bored slightly to receive the conical end of sleeve 56 when the magazine block is removed (Fig. 1) and the corner of the block is beveled at 59 to facilitate depressing the sleeve when the magazine block is inserted. As shown in Fig. 1, when the gun is cocked the piston rod 22 passes thru the sleeve 56 and its coil spring 57 and terminates adjacent the side of the slot.

It will be apparent that the method of securing the barrel above described lends itself readily to the provision of interchangeable barrels. The barrel provided with the magazine receiving chamber piece 46 may be readily removed by screwing it out of the bushing 23 and a different type of barrel substituted. Thus Fig. 6 illustrates a "500 shot magazine" type. The barrel terminates in a nipple received by bushing 23, and is provided with a funnel piece 62 which contacts with the wall of tube 44 and forms the end of a shot magazine comprising substantially the entire space between tube 16 and barrel proper. The shot are delivered to the barrel one at a time thru aperture 63.

Fig. 7 illustrates another type of barrel provided with a tubular magazine 65 contain-

ing a spring pressed follower 66, and also provided with a nipple 67 adapted to be received by bushing 23. These and other types of barrels thus readily replace the barrel provided with the magazine block receiving chamber piece. The invention is, moreover, susceptible of many variations and other embodiments, all falling within the scope of the appended claims.

What is claimed is:

1. In an air gun a barrel assembly, a stock and receiver assembly, and means for detachably securing said barrel assembly and said stock receiver assembly together comprising a member pivoted within and adapted to be projected outwardly through the wall of said barrel assembly, and means on said receiver adapted to receive said member when so projected.

2. In a take down air gun, means adapted to hold the parts of the gun in assembled relation by passing thru apertures in juxtaposed parts,. and to release the gun to be taken down when manually depressed out of one of said apertures.

3. In a take down air gun, means for holding the gun assembled comprising a spring pressed member adapted to release the gun for taking down when manually depressed against the tension of its spring.

4. In an air gun, a barrel, a magazine block comprising a plurality of projectile receiving chambers and adapted to be moved transversely of said barrel to align said chambers successively with said barrel, a projectile propelling piston rod aligned with said barrel and adapted to enter the chamber in alignment therewith, and means for yieldingly retaining said magazine with one of the chambers in alignment with said piston rod and said barrel.

5. In an air gun, a projectile propelling piston rod, a magazine comprising a plurality of projectile chambers adapted to be entered by said piston rod, means for yieldingly retaining said magazine with one of its chambers in alignment with said piston rod comprising a spring and spring follower adapted to encircle said piston rod.

6. In an air gun, a barrel comprising an enlarged chamber piece having a transverse slot therethru adapted to receive a magazine block, said chamber piece being provided with means for securing the barrel in the gun.

7. In an air gun, a barrel, a magazine housing, a barrel housing tube surrounding said barrel and spaced therefrom, means secured to said housing tube adapted to retain the barrel in place, cooperating means including said magazine housing secured to the rear end of said barrel, and means associated with the forward end of the barrel adapted to hold the barrel in spaced relation to the tube and to close the end opening between the barrel and tube.

8. A magazine block for airguns comprising a plurality of separate cylindrical chambers having chamfered ends and a beveled corner for facilitating insertion in the gun.

9. An air gun comprising a barrel housing tube, a barrel in said tube provided with a cylindrical chamber piece, a transverse magazine receiving slot in said chamber piece, and apertures in said tube aligned with said slot.

10. In an air gun, a barrel housing, a barrel having secured thereto a chamber piece having formed therein a transverse slot, a magazine block adapted to pass thru said slot, means associated with said chamber piece for securing the barrel in place in the barrel housing, and spring means associated with said chamber piece for yieldingly retaining said magazine block in place in said slot.

11. In an air gun, a false barrel, a true barrel, a chamber piece carried by said true barrel aligning the true barrel in the false barrel, said chamber piece being slotted to receive a magazine block.

12. In an air gun, a barrel assembly, a stock and receiver assembly, and means for detachably securing said barrel assembly and said stock and receiver assembly together including a spring-pressed member movable within and adapted to be projected outwardly through the wall of said barrel, and means on said receiver adapted to receive said member when so projected.

13. In an air gun, a housing, a barrel having secured thereto a slotted chamber piece, a magazine block movable in the slot in said piece, and means associated with said piece for detachably securing the barrel to said housing.

14. In combination with an air gun, a housing, a barrel having secured thereto a slotted chamber piece, a magazine normally movable in the slot in said piece, means associated with said piece for detachably securing the barrel to said housing, a second barrel having a chamber piece secured thereto, a magazine normally fixedly associated with said piece, and means associated with said piece for detachably securing the barrel to said housing, said barrels being adapted for interchangeable attachment to said housing.

15. In combination with an air gun, a barrel having associated therewith a magazine normally movable relative thereto, a second barrel having associated therewith a magazine normally immovable relative thereto, said barrels being adapted for interchangeable mounting in said gun.

16. In combination with an air gun, a barrel having associated therewith a magazine having accommodations for a plurality of projectiles of miscellaneous shapes, means for selectively feeding said projectiles to the barrel, a second barrel having associated

therewith a magazine for spherical shot, said barrels being adapted for interchangeable mounting in said gun.

17. In an air gun comprising a barrel and a firing device in alignment therewith, a transverse slot through said barrel, a magazine block adapted to be received in said slot, movable therein, and comprising a plurality of projectile receiving chambers adapted for selective alignment with said firing device, the construction being such that said magazine block may be moved transversely in either direction to thus align any desired chamber with said firing device at any time prior to the firing movement thereof.

CRAWFORD C. LOOMIS.