F. H. FAIRWEATHER.

AIR GUN.

APPLICATION FILED MAR. 6, 1919.

1,309,321.

Patented July 8, 1919.

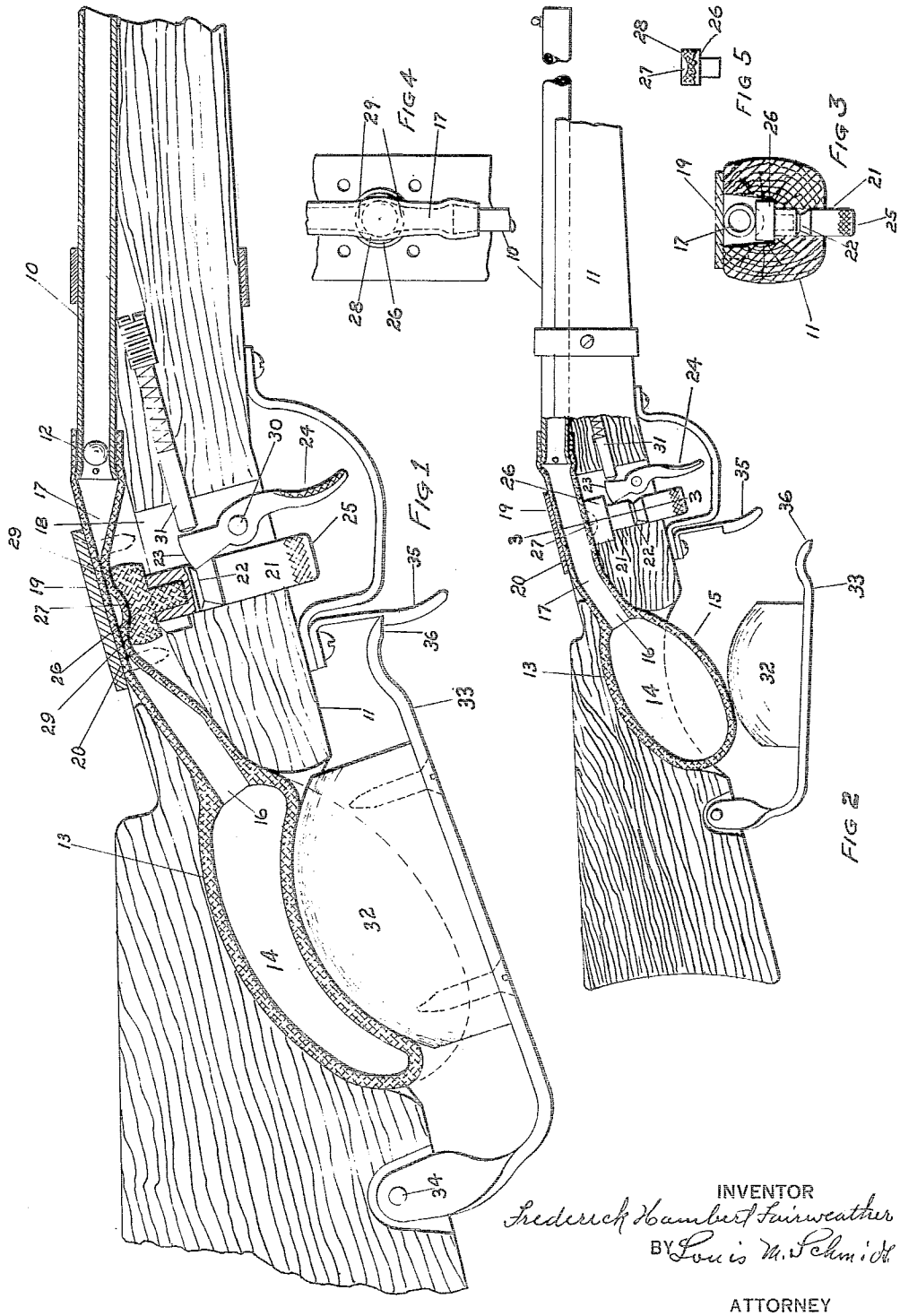


FIG 1

FIG 2

FIG 4

FIG 5

FIG 3

INVENTOR

Frederick Humbert Fairweather.

BY Louis M. Schmidt

ATTORNEY

UNITED STATES PATENT OFFICE.

FREDERICK HUMBERT FAIRWEATHER, OF BRIDGEPORT, CONNECTICUT.

AIR-GUN.

1,309,321. Specification of Letters Patent. **Patented July 8, 1919.**

Application filed March 6, 1919. Serial No. 280,980.

To all whom it may concern:

Be it known that I, FREDERICK HUMBERT FAIRWEATHER, a citizen of Canada, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Air-Guns, of which the following is a specification.

My invention relates to improvements in air guns, and the object of my improvement is to produce an air gun in which the air reservoir has walls of resilient or yielding material, so as to expand when the charge of air is compressed therein and to contract and impart an impelling force to the air when released that is imparted to the projectile, and which is provided with positive and effective means for holding the charge in the reservoir or compression chamber before release and for effecting a quick and essentially instantaneous release of the air charge at discharge.

In the accompanying drawing:—

Figure 1 is a sectional elevation, showing all of the working parts in the loaded position, the projectile also being shown in proper position for firing.

Fig. 2 is a similar view, on a smaller scale, with the parts in the position after discharge.

Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary plan view of certain parts shown in Fig. 1 with the backing plate removed.

Fig. 5 is a detached view of the resilient pad or cushion member.

My improved air gun comprises a barrel 10 that is operatively mounted on the stock 11, and in the stock 11 is mounted mechanism to be described for propelling the projectile 12 from the said barrel 10 by means of compressed air.

On the under side of the stock 11, positioned appreciably to the rear of the barrel 10 is a recess 13 in which is seated a closed walled chamber 14 of rubber, which in some cases may have the structural character and form of the ordinary and common rubber bulb, or may be given special form for convenience in housing in the stock.

The lower or outer side 15 of the bulb 14 is uncovered and exposed so as to be accessible for mechanism to be described for compression of the bulb.

The mouth 16 of the bulb 14 and the rear end of the barrel 10 are connected by a collapsible tube 17, made preferably of rubber, and which passes through a cross chamber 18 in the stock 11.

The upper end of the cross chamber 18 is closed by the backing plate 19 which is opposed to and in abutment with the outer side of the portion 20 of the tube 17 that passes through the said cross chamber 18.

On the lower side of the said portion 20 of the tube 17, and positioned suitably to coöperate with the backing plate 19 is a plunger member 21 that is housed in a portion of the cross chamber 18 so as to have a limited reciprocating movement toward and away from the backing plate 19 and the portion 20 of the tube 17 mentioned that is interposed between the parts after the manner described.

The plunger member 21 operates as a cut-off valve by compressing the portion 20 of the tube 17 against the plate 19, is, as shown, of generally cylindrical form, has a circumferential groove 22 extending around the middle of the body portion for receiving and engaging with the nose 23 of the trigger member 24, has the lower end 25 exposed and accessible, suitably to serve as a handle for effecting the cocking, and has the upper and contacting end provided with a pad or cushioning device 26 of rubber or other suitable material.

The pad 26 has the middle portion of the contacting face provided with a recess 27 of suitable form to provide a contacting portion proper 28 of annular form. By having the diameter of the pad 26 appreciably greater than the diameter of the tube 17, as shown, the compression of the tube 17 is effected by both of the two parts 29 of the contracting portion 28 that are positioned generally along the axis of the tube 17, and separated by the recess 27. That is to say, while at different times any and all parts of the annular contacting portion 28 may come into use, at any particular time there are two parts of segmental form and positioned along the axis of the tube that serve as active portions, such as the active parts 29, and which merge with the inactive parts at the sides.

The pad 26 also serves as a spring member to push the plunger member 21 downwardly so as to permit of a quick and essentially instantaneous release of the confined air when the gun is discharged.

The trigger member 24 is pivotally sup-

ported by a pin 30 so that the nose 23 can swing toward and away from the plunger 21, suitably to engage with the recess 22 when in registration therewith, and is held in such engagement with the plunger 21 by means of the spring plunger 31.

The bulb 14 tends normally to assume the distended position so as to draw air inwardly through the barrel 10 and after the valve 21 has been closed by raising the plunger 21 and locked by the trigger member 24 the compressing of the charge of air is effected by means of a block 32 that is mounted on a lever 33 that is pivotally connected by its rear end with the stock 11 by means of the pin 34. For convenience in holding the charge in the compressed or loaded condition I provide a catch 35 for receiving and engaging with the free end 36 of the lever 33.

A novel feature of the air gun structure described in use is that the expansive qualities of the rubber bulb, because of which when the pressure on the bulb is released and the walls are free to do so they open out and thereby draw in the fresh charge of air for compression, may be utilized at the same time for drawing the projectile into the barrel, and the mechanism described is adapted for permitting this to be conveniently done.

One way of doing this would be to release the latch and at the same time hold the compression lever momentarily in the compressing position. Upon release of the lever the bulb will open and in so doing will force the lever outwardly and simultaneously will draw in a fresh charge of air through the barrel, and a projectile positioned at the mouth of the barrel will be drawn inwardly to the proper loaded position by the entering charge of fresh air.

Thus the lever structure described provides means for controlling the drawing in of the fresh charge of air and of controlling loading of the projectile in the barrel.

I claim as my invention:—

1. An air gun having a barrel, an air chamber, and a collapsible tube connecting the said barrel and chamber, means for collapsing the said tube comprising a member having a movement in the radial direction relatively to the said tube, the said member having two active contacting parts in spaced relation for coöperating with two opposed and appreciably separated portions of the said tube.

2. An air gun having a barrel, an air chamber, and means of tubular form connecting the said barrel and chamber, the said air chamber being in the form of a bulb of elastic material, means for compressing the said air chamber, and means in the form of a lever for controlling the discharge from the said chamber.

3. In combination in an air gun, a stock, a barrel mounted on the said stock, a rubber bulb seated in the said stock, a rubber tube connecting the said bulb and barrel, trigger operated means for compressing the said tube, and means for compressing the said bulb.

4. In an air gun having a barrel, an air chamber, and a collapsible tube connecting the said barrel and chamber, means for collapsing the said tube comprising a member having a movement in the radial direction relatively to the said tube and having one end adapted to engage with the said tube, the said one end being equipped with a cushion contacting pad of rubber of appreciable thickness.

5. An air gun constructed and arranged to draw the projectile inwardly along the barrel to the loaded position simultaneously with the drawing inwardly of the fresh charge of air, comprising a barrel, a bulb having expansive walls connected to the said barrel, and a lever serving as means for compressing the said walls and for controlling the expansion thereof.

6. An air gun comprising a barrel, a bulb, a collapsible tube connecting the said barrel and bulb, and devices for collapsing the said tube, the said devices comprising a moving member for contacting with the said tube and having a movement in a radial direction relatively thereto.

7. An air gun as described in claim 2, and the said means for controlling the discharge from the said chamber being provided with a trigger.

FREDERICK HUMBERT FAIRWEATHER.