D. HEYMAN & T. R. ARDEN.

POP GUN.

APPLICATION FILED MAY 5, 1915.

1,164,646. Patented Dec. 21, 1915.

Fig. 1.

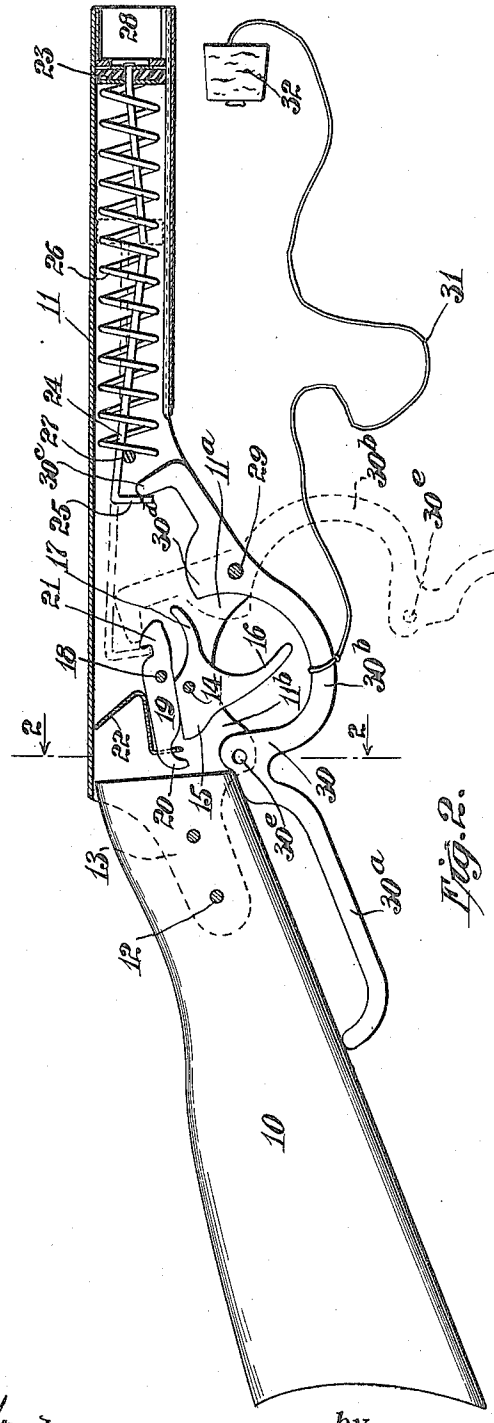
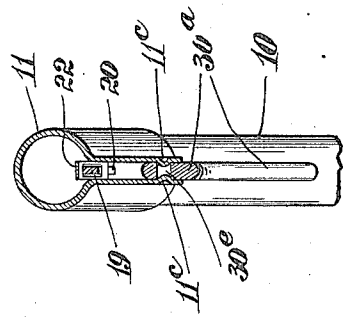


Fig. 2.



Witnesses:

Inventors:

by

Their Atty

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DAVID HEYMAN AND THOMAS RAYMOND ARDEN, OF NEW YORK, N. Y.; SAID ARDEN ASSIGNOR TO SAID HEYMAN.

POP-GUN.

1,164,646. Specification of Letters Patent. Patented Dec. 21, 1915.

Application filed May 5, 1915. Serial No. 25,877.

To all whom it may concern:

Be it known that we, DAVID HEYMAN and THOMAS RAYMOND ARDEN, citizens of the United States of America, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Pop-Guns, of which the following is a specification.

Our invention relates to improvements in what are generally termed "pop guns", a type of gun in which a cork or like object is expelled from the mouth of the gun by means of the expansion of a previously compressed spring. The expulsion of the cork is attended with a loud report or "pop" from which the gun derives its name. These guns are used as toys, and it is customary to employ very simple mechanism, and to construct the device as cheaply as possible. One of the difficulties with a toy of this kind is the likelihood of the accidental discharge or expulsion of the cork, and the principal object of our invention is to obviate this difficulty, and to construct the device so that it is necessary to return the operating lever completely to retracted position before the trigger may be actuated to cause expulsion of the cork.

The invention is illustratively exemplified in the accompanying drawing, in which—

Figure 1 is a side elevational view, partly in vertical section, of a pop gun embodying our invention; and Fig. 2 is a vertical sectional view, on the line 2—2 of Fig. 1, looking in the direction of the arrows.

Referring to the drawing, 10 denotes the gun stock and 11 the barrel attached thereto by rivets 12 passing through the rearwardly extended flanges 13 of the barrel 11. The stock and barrel are of the kind usually employed in this type of guns.

Pivotally mounted on a stud 14 in the barrel 11, adjacent the stock 10, is the trigger 15 provided with the depending curved finger piece 16 and the oppositely curved striker member 17. Pivoted within the barrel 11 on the stud 18, and arranged above the trigger 15, is sear 19 having the rearwardly projected slotted tail piece 20 and the forwardly projected hooked end 21. The hooked end of the sear is normally pressed upward by an angular spring 22 having one end passing through the slot in the tail 20 of the sear, and the other end bearing against the inner, upper, face of the barrel 11.

Slidable within the forward cylindrical portion of the barrel 11 is a piston 23 attached to the front end of a rod 24 the rear end of which is formed as a hook or finger 25. Encircling the rod 24 is a compression spring 26, one end of which presses against the inner face of the piston 23, and the other end of which abuts against the pin 27 passing transversely through the barrel 11. The normal tendency of the spring 26 is to force the piston 23 toward the mouth of the barrel 11, the piston being prevented from escaping from the barrel by a thimble 28 held, by any suitable means, at the barrel mouth.

The rear portion of the barrel 11 is extended downwardly at 11^a to form bearings for a pivot 29 upon which the operating lever, designated generally as 30, is mounted. This operating lever comprises the rearwardly extending handle 30^a, the intermediate curved portion 30^b, the forward pawl shaped end 30^c, and the cam 30^d which is formed adjacent the pivotal point 29. It may be stated at this point, that the cam 30^d is so arranged that the striker member 17 of the trigger 15 can only clear the cam, and thus permit operation of the gun, when the operating lever is in the retracted position indicated by full lines in Fig. 1. Secured to the intermediate curved portion 30^b of the operating lever 30 is one end of a cord 31 to the opposite end of which is attached the cork 32 or other object to be expelled from the gun mouth.

Parallel with the depending portions 11^a of the gun barrel are similar depending portions 11^b which are indented as at 11^c (Fig. 2), and the operating lever 30 is provided with a transverse hole 30^e in such position that when the lever is completely retracted the indentations 11^c will engage the hole 30^e and prevent accidental movement of the lever 30.

The operation of the device is as follows:—The handle 30^a of the lever 30 is grasped and the lever pushed forward into the dotted position shown in Fig. 1. The pawl 30^c is normally in engagement with the finger 25 of the rod 24, when the spring 26 is extended, and by the forward movement of the handle 30^a the pawl 30^c is moved backward toward the stock 10. This action

results in drawing the rod 24 and the piston 23 backward and compressing the spring 26 between the piston 23 and the transverse pin 27. When the pawl 30e reaches the beveled portion 21 of the sear 19 it depresses this portion somewhat against the tension of spring 22, and the hook 25 will engage the recess in the portion 21 of the sear 19. The cork 32 is then inserted in the thimble 28. To expel the cork, pressure must be exerted on the finger piece 16 of the trigger 15. Such pressure, however, will be ineffective until the lever 30 is entirely retracted, because until that time some portion of the cam 30d will be in the path of the striker member 17 of the trigger, preventing the latter from being rocked about its pivot 14. When the lever 30 has been entirely retracted into the full line position of Fig. 1, and pressure is exerted on the finger piece 16, the trigger 15 will rock about its pivot 14, raising the rear portion 20 of the sear 19 and depressing the front portion 21 thereof, thereby releasing the finger 25 from the portion 21 of the sear, and thus enabling the spring 26 to expand and force the piston 23 toward the thimble 28. The forward rush of the piston causes the air between itself and the cork 32 to be compressed and when this compression is sufficiently great the cork 32 is expelled from the piston. Possibly, also, there is a slight impact of the piston 23 against the cork 32 which adds to the expulsive action, although the expansion of the air previously compressed is normally sufficient to expel the cork from the thimble 28.

What we claim as new and desire to secure by Letters Patent is:—

1. In a gun of the class described, the combination of a barrel having a reciprocal piston therein, a rod to which said piston is attached and one end of which is provided with a bent finger, a sear pivotally mounted within the barrel and adapted to engage the finger of said rod when the latter is retracted, a trigger pivotally mounted within the barrel in proximity to said sear, means for forcing the piston toward the barrel mouth, an operating lever adapted to move the finger of said rod into engagement with said sear, and a cam formed on said lever and so positioned that said trigger is obstructed until said lever is completely retracted.

2. In a gun of the class described, the combination of a barrel having a reciprocal piston therein, a rod to one end of which said piston is attached and the opposite end of which is formed as a bent finger, a spring pressed sear pivoted within the barrel and having means for engaging the bent finger of said rod, an operating lever having means for engaging said finger to convey the same into engagement with said sear, a trigger adapted to release engagement between said sear and the bent finger of said rod, means for forcing the piston forward in the barrel when the finger is released from the sear, and a cam on said lever so formed and positioned that said trigger is obstructed and its operation prevented until said operating lever is completely retracted.

3. In a gun of the class described, the combination of a barrel having a reciprocal piston therein, a rod to one end of which said piston is attached and the opposite end of which is formed as a bent finger, a pin traversing said barrel, a spring encircling said rod and having one end abutting said pin and the other end abutting said piston, a spring pressed pivotally mounted sear in said barrel having a recessed portion adapted to receive the bent finger of said rod, a pivotally mounted operating lever having means at one end thereof for engaging said bent finger to convey the same into engagement with the recess in said sear, a pivotally mounted trigger adapted to rock said sear and cause release of said bent finger from the recess in the sear, and a cam on said lever so formed and positioned that said trigger is obstructed until said lever is completely retracted.

4. In a gun of the class described, the combination of a barrel having a reciprocal piston therein, a rod to one end of which said piston is attached and the opposite end of which is formed as a bent finger, a pin traversing said barrel, a spring encircling said rod and having one end abutting said pin and the other end abutting said piston, a spring pressed pivotally mounted sear in said barrel having a recessed portion adapted to receive the bent finger of said rod, a pivotally mounted operating lever having means at one end thereof for engaging said bent finger to convey the same into engagement with the recess in said sear, a pivotally mounted trigger adapted to rock said sear and cause release of said bent finger from the recess in the sear, a cam on said lever so formed and positioned that said trigger is obstructed until said lever is completely retracted, and means respectively in said barrel and said operating lever to prevent accidental movement of the latter.

In testimony whereof we have affixed our signatures in presence of two witnesses.

DAVID HEYMAN.
THOMAS RAYMOND ARDEN.

Witnesses:
W. BLANCHARD,
CHAS. F. DE LONG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."