O. R. TROJE.

TOY PROJECTILE.

APPLICATION FILED MAR. 27, 1917.

1,229,170.

Patented June 5, 1917.

2 SHEETS—SHEET 1.

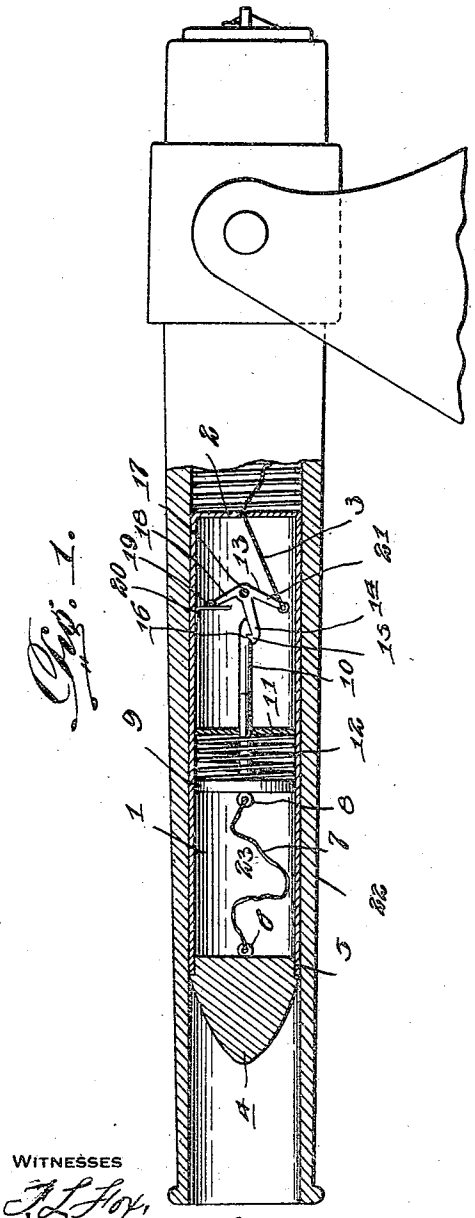


Fig. 1.

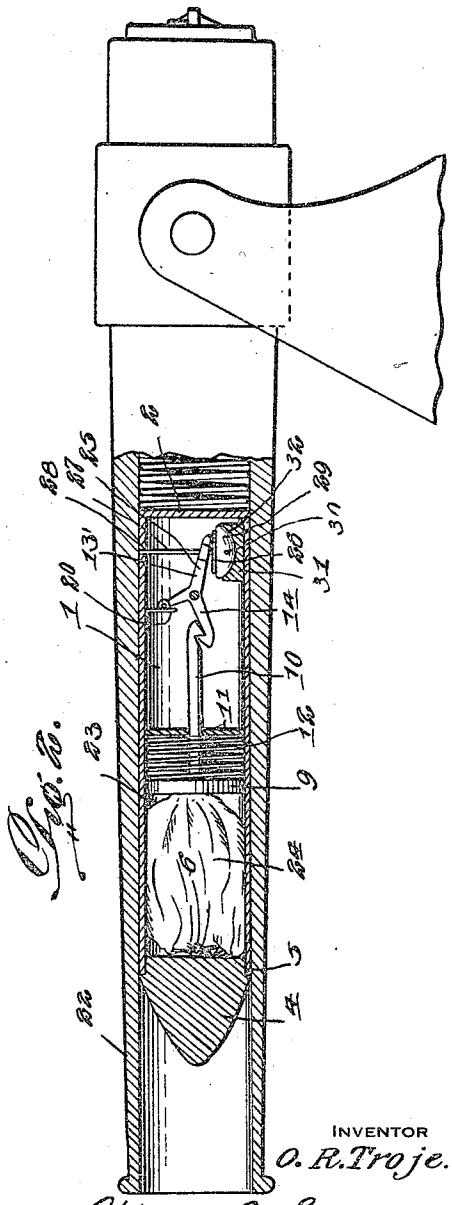


Fig. 2.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

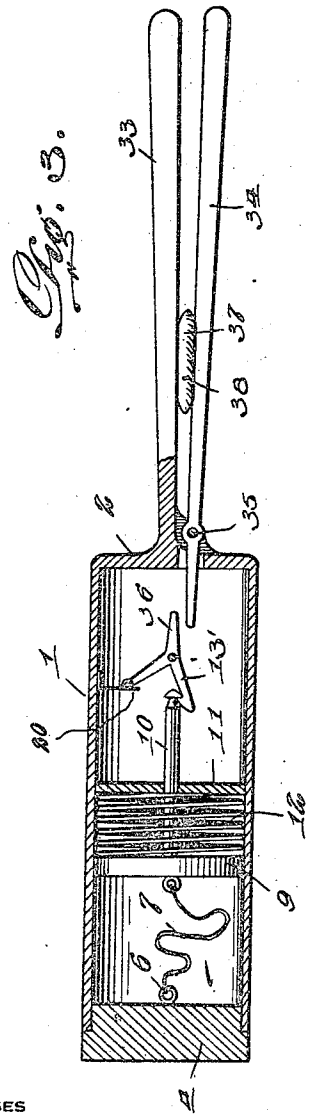


Fig. 4.

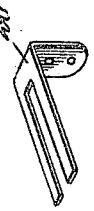
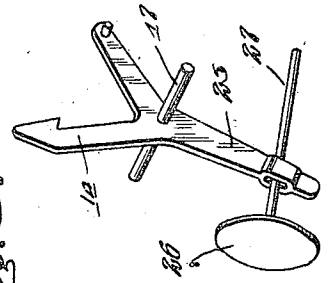


Fig. 5.



WITNESSES

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TOY PROJECTILE.

1,229,170. Specification of Letters Patent. Patented June 5, 1917.

Application filed March 27, 1917. Serial No. 157,710.

To all whom it may concern:

Be it known that I, OSCAR R. TROJE, a citizen of the United States, residing at Ensley, in the county of Jefferson and State of Alabama, have invented new and useful Improvements in Toy Projectiles, of which the following is a specification.

This invention relates to toy projectiles, the object in view being to provide a harmless projectile resembling in its operation an explosive shell, the same being adapted to be projected from the barrel of a toy gun or cannon by means of a propelling spring, bow, or the like, the projectile embodying means whereby the shell may be projected to a considerable distance from the projecting means before the mechanism of the projectile itself operates to expel its contents which may consist either of a parachute or some substance such as flour or talcum powder thereby producing the effect of an explosive shell.

With the above and other objects in view, the invention consists in the novel construction, combination and arrangement of parts, herein fully described, illustrated and claimed.

In the accompanying drawings:—

Figure 1 is a longitudinal section through a toy projectile, embodying the present invention, showing the same in the barrel of a toy gun or cannon.

Fig. 2 is a view similar to Fig. 1, showing another arrangement of trigger operating means.

Fig. 3 is a longitudinal sectional view of the projectile showing other means for operating the trigger.

Fig. 4 is a detail perspective view of the trigger spring.

Fig. 5 is a detail perspective view of the trigger operating plunger of Fig. 2.

The projectile, in the preferred embodiment thereof, comprises a cylindrical tubular shell 1 partially or wholly closed at one end as shown at 2, there being an opening in the end wall 2 however for the purpose of admitting a trigger operating flexible connection or cord 3.

A plug or cap 4 is removably fitted in the other open end of the shell 1, said cap being shown as formed with a rabbet 5 to receive the adjacent extremity of the shell 1, the outer surface of which therefore lies flush with the adjacent outer surface of the cap 4, thus giving a true projectile or cartridge shape to the structure. The cap 4 is provided on the inner surface thereof with an eye 6 to which is attached one end of a flexible cap retaining connection or cord 7. The opposite end of the cord 7 is fastened to an eye 8 projecting from a piston 9 having a stem 10 extending through the central opening of a disk shaped guide 11 fixedly positioned within the shell 1. A helical spring 12 is interposed between the piston 9 and the guide 11, the latter therefore forming a stationary seat or abutment for the spring 12, the latter in expanding, serving to thrust the piston 9 toward the end of the shell 1 which contains the displaceable cap 4.

Mounted within the inner end portion of the shell 1 is a trigger 13 having an arm 14 embodying a catch lip 15 which engages a small catch lip 16 on the adjacent end of the stem 10 of the piston 9. The trigger is pivoted at 17 and comprises another arm 18 having a projecting stud 19 which is normally engaged by a spring 20 fastened to the shell 1, said spring serving to hold the trigger in engagement with the stem 10. The trigger further comprises an operating arm 21 to which the trip cord 3 is attached. The projectile as a whole is placed in the barrel 22 of a toy gun or cannon and is adapted to be projected from said barrel by means of a spring, or bow, compressed air, or any other usual means. The cord 3 is fastened to the barrel 22 at the inner end thereof and may be of any suitable length, say from twenty to fifty feet.

It will be understood from the foregoing description taken in connection with Fig. 1 of the drawings that when the projectile is propelled from the barrel 22, it will proceed as far as the length of the cord 3 will permit and when said cord becomes taut, it operates the trigger 13, thereby releasing the stem 10 and permitting the piston 9 to be propelled by means of the spring 12 toward the cap 4. Any powdery substance such as flour or talcum powder may be initially placed in the chamber 23 of the shell 1 between the piston 9 and the cap 4 and when the piston 9 is released by the means just described, said powdery substance will be quickly expelled from the shell, the cap 4 being at the same time displaced. If desired a parachute 24 (see Fig. 2) may be placed in the chamber 23 and attached to the eye 6 of the cap 4 so that when the projectile has reached the limit of its travel

and the piston is released, the cap 4 and the parachute 24 attached thereto will be projected from the shell 1, the parachute will spread automatically, and the projectile will descend at a comparatively reduced speed.

In Fig. 2, the trigger 13′ comprises an operating arm 25 which lies in the path of the head 26 of a trigger operating plunger 27 the stem of which extends through a hole 28 in the shell 1 near the inner end of the latter. When the shell 1 is in position in the barrel 22, the plunger 27 is held at the inner end of its throw by contact with said barrel. Arranged behind the plunger head 26 is a self expanding resilient member 29 shown in the form of a hollow rubber ball pierced by a small hole or vent 30 to allow said ball to slowly expand against the plunger head 26 so as to cause said plunger head to operate against the arm 25 of the trigger and move the latter out of engagement with the stem 10 of the piston 9, thereby releasing the latter. 31 designates a seat or saddle for the ball 29, said ball being preferably glued or otherwise fastened to the concaved surface 32 of the seat or saddle 31, and the latter being fixedly secured to the inner wall of the shell 1.

When the projectile as a whole is propelled from the barrel 22 by any suitable means, the plunger 27 is free to move and it is slowly pressed in the direction of the arm 25 of the trigger by the expanding resilient member or ball 29. The size of the hole or vent 30 will determine the length of time required for the ball 29 to expand sufficiently to cause the plunger head 26 to act on the arm 25 of the trigger and effect a release of the piston 9.

Another form of trigger operating mechanism is illustrated in Fig. 3, the device of Fig. 3 representing what may be termed a hand grenade. In said figure, the shell 1 has extending from the inner head 2 thereof a relatively fixed handle 33. Extending alongside of the handle 33 is another handle 34 which passes through the head 2 of the shell and is pivotally connected thereto at 35. The inner end of the handle 34 which projects into the shell 1 is adapted to contact with an arm 36 of the trigger 13′ as clearly shown in Fig. 3 for the purpose of operating said trigger and releasing the stem of the piston 9. A self expanding member 37 in the form of a hollow rubber ball, similar to that shown in Fig. 2, is placed between the handles 33 and 34 and is pierced by a small hole or vent 38. The ball 37 is glued to one or both of the handles 33 and 34 so that it will not become displaced or detached when the device is thrown into the air. The projectile shown in Fig. 3 is intended to be thrown by hand, the handles 33 and 34 being pressed toward each other so as to compress the ball 37 and expel the air therefrom. The projectile is thrown into the air by means of the handles 33 and 34 and during its flight, the ball 37 expands at a rate governed by the size of the hole or vent 38. When the ball 37 has sufficiently expanded, the handle 34 is operated or moved sufficiently to cause the inner end of said handle within the shell 1 to operate the trigger 13′, which releases the piston 9, whereupon the operation hereinabove described takes place.

The projectile hereinabove described and herein shown may be propelled into the air by any suitable means. The release of the piston is automatic and may be effected in any of the several ways hereinabove set forth. Any suitable substance, article or device my be placed within the shell to be projected therefrom when the plunger 9 is released. The toy will be found very attractive as it will simulate an explosive shell in its operation or, as above stated, may be equipped with a parachute which until the release of the piston, will be contained and inclosed and concealed within the shell.

I claim:—

1. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, a stem extending from said piston, a trigger within said shell movable into and out of engagement with said stem for holding and releasing said piston, and means for automatically moving said trigger to its releasing position after the projectile has traveled a predetermined distance.

2. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, a stem extending from said piston, a trigger within said shell movable into and out of engagement with said stem for holding and releasing said piston, and means for automatically moving said trigger to its releasing position after the projectile has traveled a predetermined distance, the last named means comprising a member carried by the projectile.

3. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, a stem extending from said piston, a trigger within said shell movable into and out of engagement with said stem for holding and releasing said piston, means for automatically moving said trigger to its releasing position after the projectile has traveled a predetermined distance, and

means for yieldingly holding said trigger in engagement with said stem.

4. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, a stem extending from said piston, a trigger within said shell movable into and out of engagement with said stem for holding and releasing said piston, means for automatically moving said trigger to its releasing position after the projectile has traveled a predetermined distance, the last named means embodying a selfexpanding member, and a trigger operating member actuated by said selfexpanding member.

5. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, a stem extending from said piston, a trigger within said shell movable into and out of engagement with said stem for holding and releasing said piston, means for automatically moving said trigger to its releasing position after the projectile has traveled a predetermined distance, the last named means embodying a selfexpanding member, said trigger operating member serving to hold the selfexpanding member compressed for a predetermined length of time after the projectile starts on its path of travel.

6. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, a stem extending from said piston, a trigger within said shell movable into and out of engagement with said stem for holding and releasing said piston, means for automatically moving said trigger to its releasing position after the projectile has traveled a predetermined distance, the last named means embodying a selfexpanding member, said trigger operating member serving to hold the selfexpanding member compressed for a predetermined length of time after the projectile starts on its path of travel, said trigger actuating member being initially held in its compressing position by the projectile propelling means.

7. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, a stem extending from said piston, a trigger within said shell movable into and out of engagement with said stem for holding and releasing said piston, means for automatically moving said trigger to its releasing position after the projectile has traveled a predetermined distance, the last named means embodying a selfexpanding member, said trigger operating member serving to hold the selfexpanding member compressed for a predetermined length of time after the projectile starts on its path of travel, said selfexpanding member consisting of a hollow resilient ball having a vent.

8. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, a stem extending from said piston, a trigger within said shell movable into and out of engagement with said stem for holding and releasing said piston, means for automatically moving said trigger to its releasing position after the projectile has traveled a predetermined distance, said shell in connection with the displaceable cap and movable piston, comprising an expelling chamber for the load, and the piston acting when released to expel said load.

9. In a toy projectile, the combination of a shell, a piston movable therein, a cap closing the discharge end of the shell and displaceable therefrom by the action of said piston, means within said shell for propelling said piston, and a trigger within said shell for holding and releasing said piston, said trigger being adapted to automatically release said piston when the projectile reaches the end of its path.

In testimony whereof I affix my signature.

OSCAR ROBERT TROJE.

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