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TOY CANNON.

APPLICATION FILED JAN. 16, 1918.

1,270,765.

Patented July 2, 1918.

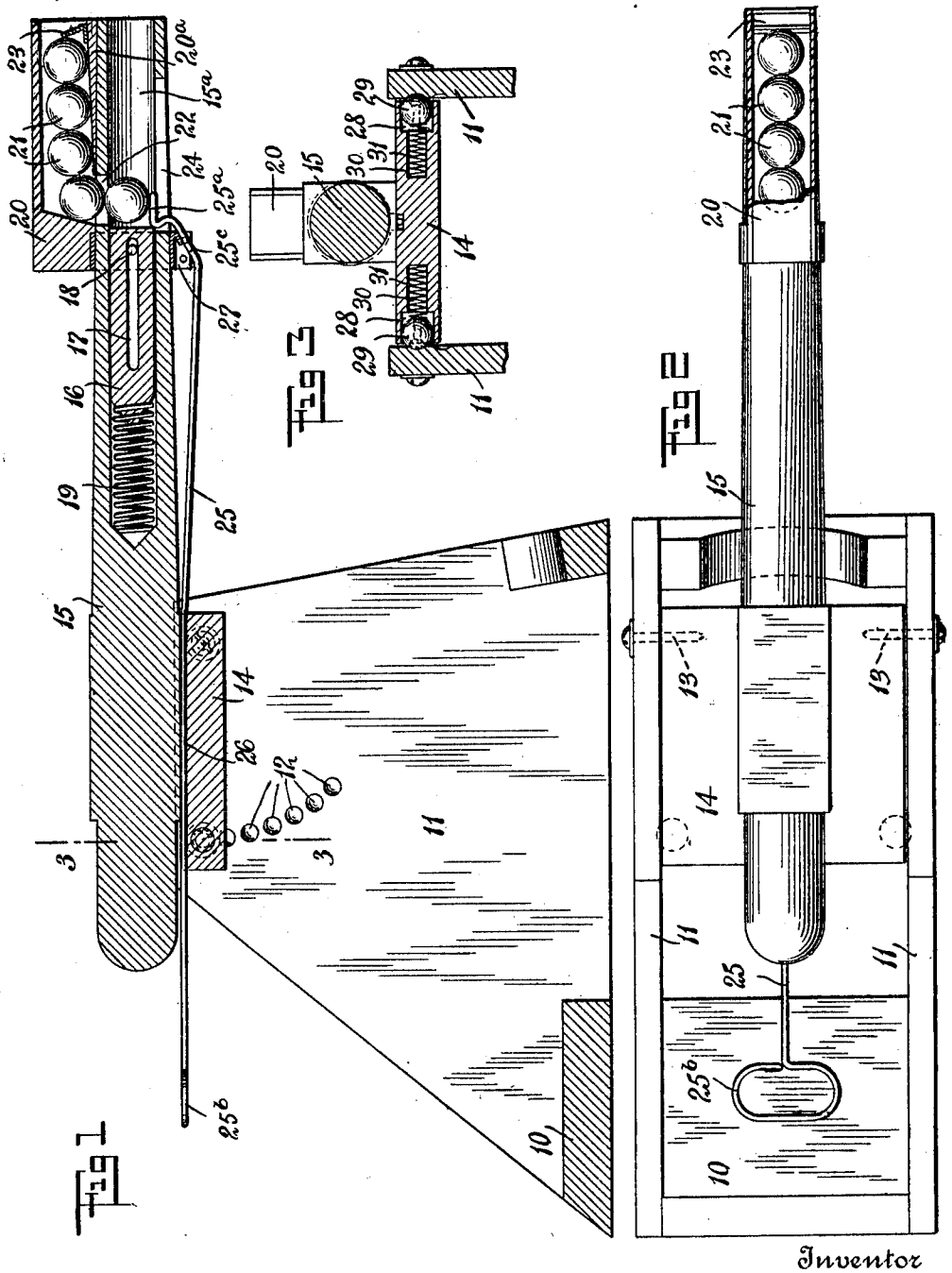


Fig 1

Fig 3

Fig 2

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UNITED STATES PATENT OFFICE.

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TOY CANNON.

1,270,765. Specification of Letters Patent. Patented July 2, 1918.

Application filed January 16, 1918. Serial No. 212,003.

To all whom it may concern:

Be it known that I, THOMAS RAYMOND ARDEN, a citizen of the United States of America residing at Guttenberg, in the county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Toy Cannons, of which the following is a specification.

My invention relates to a toy cannon, capable of rapidly discharging a series of projectiles, such as wooden balls or the like.

The principal object of the invention is to provide a simply constructed toy of this character, which may be easily operated by a child without danger of injury to itself.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which—

Figure 1 is a substantially central vertical sectional view through my improved toy cannon;

Fig. 2 is a top plan view thereof; and

Fig. 3 is a fragmentary vertical sectional view on the line 3—3 of Fig. 1.

The toy is preferably made in a form to closely resemble a real cannon, and comprises a carriage which consists of the base 10 and the sides 11, suitably interconnected to provide a rigid though portable supporting structure for the cannon proper. The inner face of each side member, near its upper end, is provided with an arcuate series of curved depressions 12, for a purpose to be hereinafter described.

Passing through the side members 11 near their upper edges are trunnions 13 to which is rigidly attached a block 14 carrying the gun barrel, designated as a whole by 15. The rear portion of the barrel is solid, while the remainder thereof is hollowed out to provide the bore 15^a for receiving the mechanism employed in discharging the projectiles.

Slidably mounted in the bore of the barrel is a plunger 16, having therein approximately centrally an elongated slot 17 through which a pin 18 projects. The pin 18 traverses and is secured in the bore of the gun barrel intermediate its ends, and its function is to limit the extent of protraction of the plunger 16. Interposed between the rear of the plunger 16 and the solid part of the barrel, and housed within the bore, is a coiled spring 19 which is placed under compression when the plunger is retracted within the barrel. The rear end of the plunger is preferably tapered or pointed, while the front end is preferably flat. The pin 18 also limits the extent of retraction of the plunger in the barrel, thereby preventing the spring 19 from being subjected to excessive compression.

Superimposed on the upper part of the front end of the barrel is a magazine 20, adapted to receive the projectiles 21, here shown in the form of wooden spheres. The front end of the magazine is open, and its floor 20^a inclines rearwardly and stops short at an opening 22 near the forward end of the barrel, through which opening the spheres 21 fall into the bore in front of the plunger 16. The spheres are fed into the magazine through the front end thereof, and to prevent the spheres from falling out of the magazine an angular spring 23 is placed at the mouth thereof. The upstanding inclined arm of the spring is depressed when a sphere is forced past the same into the magazine, but when the pressure of the sphere is removed from this arm it will rise and block escape of the spheres through the magazine mouth. The rear wall of the magazine is preferably forwardly inclined from the bottom to the top, to direct the spheres 21 into and through the opening 22.

Near its front end the lower part of the barrel is provided with a slot 24 into which projects the hooked end 25^a of an operating rod 25, the rear end of which is formed as a ring or finger hold 25^b. The operating rod is sufficiently long to extend from the front to the rear of the barrel, and passes through and is longitudinally movable in a slot 26 formed in the block 14 immediately under the lower face of the solid rear part of the barrel 15. A part of the rod 25 adjacent to the hooked end 25^a is formed as a relatively short incline 25^c and is adapted to move back and forth over the surface of an inclined guide bracket 27, secured to the barrel 15 adjacent the rear end of the slot 24. When the rod 25 is moved rearwardly, coaction of parts 25^c and 27 will lower the hook 25^a, while during the forward movement of the rod the hook will be elevated.

The opposite side faces of the block 14, near its rear end, are provided with sockets 28 for the reception of ball bearings 29, and communicating with each socket is a groove 30 containing a coiled spring 31 having a

normal tendency to force the ball 29 out of the adjacent socket 28. The balls 29 yieldingly engage the curved depressions 12 and hold the barrel in adjusted position relatively to the carriage.

The device operates in the following manner:—Assuming all the balls 21 to have been discharged, the forward portion of the bore 15^a will be empty and the spring 19 will force the plunger toward the mouth of the barrel closing the opening 22. As the plunger moves forward it will also move the rod 25 forward unless the latter is restrained by holding the finger piece 25^b. In this position of the parts the balls are fed into the magazine 20. The operating rod is then pulled rearwardly whereby the plunger 16 is retracted, compressing the spring 19. For a portion of the distance the rod 25 travels rearwardly in a true rectilineal path, the hook 25^a being in engagement with the front flat face of the plunger 16, but as the inclined portion 25^c of the operating rod reaches the guide 27 the hook 25^a is moved down almost out of the path of the plunger and the coiled spring 19 is free to distend and urge the plunger forward in the bore 15^a. During the retraction of the plunger the opening 22 was uncovered permitting a ball 21 to pass from the magazine into the bore, so that when the plunger moves forward it discharges the ball in its path through the barrel mouth. In Fig. 1 the parts are shown in the positions they assume just before a ball is discharged.

It will be obvious that but one ball at a time falls into the bore into the path of the plunger, and the gun may be discharged or "repeated" in rapid succession as frequently as balls are supplied to the gun barrel.

The gun barrel structure as a whole is capable of being swung in the arc of a circle on the trunnions 13 as pivots. The barrel is yieldingly held in angularly adjusted position by the balls 29 being pressed into the depressions 12 in the side members 11.

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

1. A toy cannon, comprising a barrel having a bore therein, a plunger reciprocable in said bore, plunger protracting means, and plunger retracting means comprising a rectilineally movable rod having a portion thereof movable into and out of contact with the face of the plunger.

2. A toy cannon, comprising a barrel having a bore therein, a plunger reciprocable in said bore, plunger protracting means, and plunger retracting means comprising a rectilineally movable rod having a crooked end movable into and out of the path of the forward face of the plunger.

3. A toy cannon, comprising a barrel having a bore therein, a plunger reciprocable in said bore, plunger protracting means, plunger retracting means comprising a reciprocable rod having a portion movable into and out of contact with the plunger, and a guide adjacent said barrel for confining the movement of the body of said rod in a path substantially parallel to the axis of said barrel.

4. A toy cannon, comprising a barrel having a bore therein, a plunger reciprocable in said bore, compressible means for protracting the plunger, plunger retracting means comprising a rod having a hooked end to engage the face of the plunger and an inclined portion adjacent said hooked end, and a guide along which said inclined portion is adapted to glide during movement of the rod to elevate or lower said hooked end.

5. A toy cannon, comprising a carriage, a gun barrel pivotally carried thereby, and ball bearings interposed between the barrel and carriage to hold the barrel in angularly adjusted position.

6. A toy cannon, comprising a carriage including side members having a series of depressions therein, a barrel pivotally supported by said carriage, and ball bearings carried by said barrel and adapted to engage said depressions to hold the barrel in angularly adjusted position.

7. A toy cannon, comprising a carriage including side members having a series of depressions therein, a barrel pivotally supported by said carriage, and oppositely disposed spring pressed balls interposed between the barrel and the carriage and adapted to enter said depressions to hold the barrel in angularly adjusted position.

8. A toy cannon, comprising a carriage, a barrel pivotally supported thereby, said barrel having a bore therein and an opening communicating with said bore, a magazine superimposed on the barrel and having an inclined floor for directing projectiles to said opening, a plunger reciprocable in said bore, a coiled spring in rear of said plunger and adapted to protract the same, an operating rod for the plunger having a hooked end to engage the face of the plunger and an inclined portion adjacent said hooked end, and an inclined guide along which said inclined portion is adapted to glide during movement of the rod to elevate or lower said hooked end.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS RAYMOND ARDEN.

Witnesses:
CLARICE FRANCK,
BERTHA MUELLER.

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