

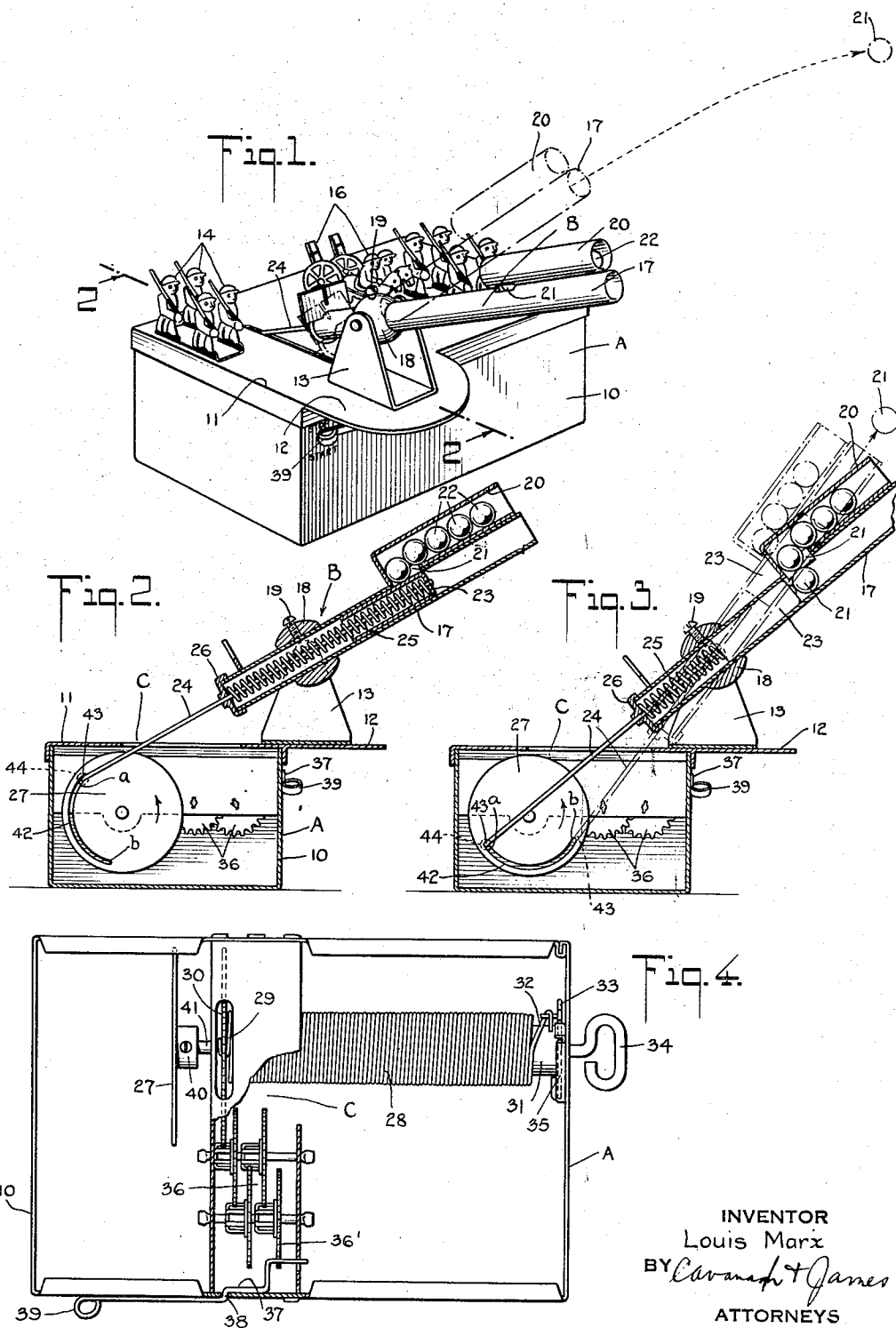
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TOY REPEATING GUN

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TOY REPEATING GUN

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This invention relates to a toy gun, and has special reference to the provision of a mechanically operated toy repeating gun.

The prime object of my present invention is to provide a mechanically operated gun capable of being set into operation by a child for realistically simulating the firing of projectiles from a field gun or the like.

More specific objects of the invention include the provision of a toy designed to represent in a natural way the operation of field artillery such as a long range gun; the further provision of a toy gun of this nature in which a motor, such as a spring motor, readily energized by a child, controls the repeating projectile discharging operations of the gun; the further provision of a repeating toy gun embodying a motor operated means for recurrently discharging the gun and for simultaneously moving the same to realistically simulate either a recoiling movement of the gun or an aiming operation thereof; and the still further provision of a toy repeating gun embodying a structural organization which is simple to produce and operate and which is capable of being manufactured and sold at a low cost and figure.

To the accomplishment of the foregoing and such other objects as will hereinafter appear, my invention consists in the elements and their relation one to the other, as hereinafter more particularly described and sought to be defined in the claims; reference being had to the accompanying drawing which shows the preferred embodiments of my invention, and in which:

Fig. 1 is a perspective view of the toy repeating gun of my invention;

Fig. 2 is a view thereof taken in cross section in the plane of the line 2, 2, Fig. 1 and showing the parts in one position of operation;

Fig. 3 is a similar view of the same with the parts shown in different positions of operation; and

Fig. 4 is a plan view of the motor mechanism of the toy.

Referring now more in detail to the drawings, the toy repeating gun of the invention

comprises a support in the form of a casing A, a simulated cannon B mounted on said casing support, and a motor mechanism generally designated as C arranged in the casing A and connected to the gun B for recurrently or repeatedly operating the said cannon or gun B for discharging projectiles therefrom in realistic imitation of the action of field artillery.

The motor casing A is designed constructionally to house the operating motor C and to form a supporting stand for the gun B, and is designed in appearance to represent a portion of a field in which artillery is operating. This motor casing is therefore made to comprise a casing body 10 which may be of rectangular formation provided with a removable cover or closure 11, both of which may be made of sheet metal, the said cover or closure 11 being provided with an extension 12 to which is fixed the U-shaped or trunnion support 13 for the gun or cannon B. Also the top wall of the cover 11 is ornamented to represent the artillery field and for this purpose I provide a plurality of toy figures fixedly attached to said cover 11, said toy figures consisting, for example, in the elements 14 representing troops in marching formation, and figure elements such as 16 representing field artillery pieces in movement. The figure elements 14 and 16 may be suitably made of sheet material.

The cannon B comprises a gun barrel 17 swivelly mounted on the trunnion support 13 by means of the swivelling sleeve member 18 to which the barrel 17 is adjustably fixed by means of the set screw 19, the said gun B further including a magazine in the form of a barrel 20 fixed to the gun barrel 17, both barrels being provided with registering openings 21 serving as the intercommunicating means between the magazine barrel and the gun barrel. The gun B is mounted on the support A in an inclined aiming position, as shown in the drawings, so that when a plurality of missiles or projectiles 22, 22 are deposited in the magazine 20 through the top opening thereof, the projectiles will be gravitatively fed singly or individually to the gun

barrel for discharge therefrom by means to be described presently.

The gun B is provided with mechanism for forcibly discharging projectiles fed to the gun barrel 17 thereof, the force being of such a nature, however, as to propel the projectile a short playing distance and without any risk of harm to the child. This discharging mechanism comprises a plunger or piston 23 reciprocally movable in the gun barrel 17, the said piston being fixed to a piston rod 24 and being operated by said piston rod in conjunction with a compression spring 25 arranged between and active against the head of the piston 23 and a closure cap 26 of the gun barrel 17. The discharging piston 17 is operable by drawing the piston 23 against the action of its spring 25 (from the position shown in Fig. 2 to that shown in Fig. 3 of the drawings), and by then suddenly releasing said piston to permit the full action of the now tensioned spring 25 to become effective in forwardly propelling the said piston and any projectile in its path. This forward propulsion of the piston 23 under the freedom of action of the spring 25 causes a sudden movement of the piston 23 from the full position to the dash-dotted line position shown in Fig. 3 of the drawings, and results in a forceful ejection of the projectile 21 in its path, as illustrated by both the full and dash-dotted line positions shown in said Fig. 3 of the drawings. In the discharging movement of the piston 23 the feed opening 21 of the magazine is closed by the piston, as shown in Fig. 2 of the drawings, and in the return or withdrawing movement of the said piston, the said feed opening is uncovered to permit the next projectile 21 to gravitatingly feed into position for the next operation, as is clearly shown in Fig. 3 of the drawings.

For operating the projectile discharging means recurrently, I provide the motor mechanism C which consists of a spring motor of any well known design suitably housed by the casing support A and means such as device 27 for controlling the withdrawing and releasing movements of the piston rod 24. The spring motor may comprise a torsion spring 28 having one end 29 anchored to a gear wheel 30 which is fixed to a drum 31, the other end 32 being anchored to a ratchet wheel 33 fixed to a winding key 34, with which ratchet wheel cooperates a stop dog 35. For governing the speed of the motor and for starting and stopping the same, the gear wheel 30 is connected to a gear train generally designated as 36, the last gear element 36' of which cooperates with a start and stop lever 37 pivoted at 38 and provided with an operating finger piece 39. These motor elements are well known and old in the art; and in operation, when the spring 28 is energized by actuating the winding key 34 and is released by the start and stop device 37, the drum 31 will rotate to continuously ro-

tate the connecting device 27 in the direction indicated by the arrow, the said connecting device comprising a disk member fixed by the collar 40 to a shaft 41, which shaft is fixed to the gear 30 and drum 31.

To impart the desired operations to the discharge mechanism of the gun B, the disk 27 is provided with an arcuate slot 42 into which is inserted the inwardly bent end 43 of the piston rod 24, the terminus of said end being provided with a head 44 for preventing detaching displacement of the parts. With this construction it will now be seen that in a cycle of movement or revolution of the disk member 27 in the operation of the motor, the end *a* of the slot 42 will engage the end 43 of the piston 24 and will therefore move the piston 17 from the position shown in Fig. 2 to that shown in Fig. 3 against the action of the spring 25 to tension the same, and that when the parts assume the position shown in Fig. 3 of the drawings with the end 43 of the piston rod free to move in the slot 42 under propelling action of the tension spring 25, the said piston rod will be moved with an impulse operation from the full to the dotted line positions shown until the end of the piston rod 24 is engaged or stopped by the other end *b* of the slot 42. As the device 27 completes its cycle of movement, the end of the piston rod will again be engaged by the forward end *a* of the slot and the parts will be moved to the initial position of the cycle shown in Fig. 2 of the drawings.

In the preferred construction, the gun B is so mounted and the operating mechanism C so related thereto that in the operation of the gun the same is moved to simulate or imitate the elevation of the gun before firing, and the recoiling movement thereof after firing. This is accomplished by swivelly or pivotally mounting the gun barrel on the trunnion support 13 and by providing the operating mechanism for the gun, as already set forth. By reference to Figs. 2 and 3 of the drawings, it will be noted that as the projectile discharging means is moved from the released position shown in Fig. 2 to the tensioned position shown in Fig. 3, the angle of the gun barrel 17 is varied, this giving the impression of an aiming operation prior to the firing of the gun; and by reference to Fig. 3 of the drawings it will be noted that when the projectile is fired, the gun barrel is suddenly moved from the full line to the dotted line positions shown in said Fig. 3 of the drawings, this creating the impression in a realistic manner of the recoiling movement of a cannon when fired.

The use and operation of the repeating gun toy of my invention and the many advantages thereof for affording an interesting and absorbing play for the child will in the main be fully apparent from the above detailed description thereof. The gun may be automati-

cally operated repeatedly for the discharge of a plurality of projectiles or may be operated for the discharge of projectiles singly at the will of the child. Thus when the motor

5 C is energized and the magazine 20 is filled, release of the start and stop lever 37 will result in the repeating or recurring projectile discharging operations of the gun. However, the start and stop lever 37 may be operated
10 by the child by a start and stop action so as to cause separate discharging operations of the gun with a full magazine.

It will be further apparent that while I have shown and described my invention in the preferred form, many changes and modifications may be made in the structure disclosed without departing from the spirit of the invention, defined in the following claims.

I claim:

20 1. A mechanically operated toy gun comprising a movably mounted simulated gun barrel, a magazine for holding a plurality of projectiles associated with said barrel for feeding the projectiles individually to said
25 barrel, means movable in said barrel for forcibly discharging a projectile fed thereto, and a motor for recurrently operating said projectile discharging means and for simultaneously imparting to said gun barrel a sudden
30 bodily movement.

2. A mechanically operated toy gun comprising a movably mounted simulated gun barrel, a magazine for holding a plurality of projectiles associated with said barrel for
35 feeding the projectiles individually to said barrel, spring operated means movable in said barrel for forcibly discharging a projectile fed thereto, and a spring motor for recurrently operating said projectile discharging
40 means and for simultaneously imparting to said gun barrel a sudden bodily movement.

3. A mechanically operated toy gun comprising a movably mounted gun barrel, a magazine barrel fixed to the gun barrel, said
45 barrels having an intercommunicating opening, the said magazine barrel being adapted to hold a plurality of projectiles which gravitatingly feed into the gun barrel through said opening, a piston movable in said barrel for
50 forcibly discharging a projectile fed thereto, the said piston being movable to cover said opening during a discharge operation and to uncover said opening after a discharge operation, and a motor for operating said projectile
55 discharging means and for simultaneously imparting a bodily movement to said gun barrel for simulating an aiming and recoiling operation thereof.

4. A mechanically operated toy gun comprising a movably mounted gun barrel, a magazine barrel fixed to the gun barrel, said
60 barrels having an intercommunicating opening, the said magazine barrel being adapted to hold a plurality of projectiles which gravitatingly feed individually into the gun bar-
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rel through said opening, a spring operated piston movable in said barrel for forcibly discharging a projectile fed thereto, the said piston being movable to cover said opening during a discharge operation and to uncover
70 said opening after a discharge operation, and a motor for recurrently moving said piston against its spring and for releasing the piston to permit the spring operation thereof and for simultaneously imparting a bodily move-
75 ment to said gun barrel for simulating an aiming and recoiling operation thereof.

5. A mechanically operated swivel toy gun comprising a swivelly mounted gun barrel, a magazine for holding a plurality of projectiles associated with said barrel for feeding the projectiles individually to said barrel, means movable in said barrel for forcibly
80 discharging a projectile fed thereto, and a means for simultaneously operating said projectile discharging means and swivelly moving said gun barrel.

6. A motor operated swivel toy gun comprising a swivelly mounted gun barrel, a magazine for holding a plurality of projectiles associated with said barrel for feeding the projectiles individually to said barrel, means movable in said barrel for forcibly
90 discharging a projectile fed thereto, and a motor for simultaneously operating said projectile discharging means and swivelly moving said gun barrel.

7. A mechanically operated swivel toy gun comprising a casing support, a gun barrel swivelly mounted on said casing support, means movable in said barrel for forcibly
100 discharging a projectile from said gun barrel, and a motor in said casing connected to said gun barrel for simultaneously operating the said projectile discharging means and swivelly moving said gun barrel.

8. A mechanically operated swivel toy gun comprising a casing support, a gun barrel swivelly mounted on said casing support, a spring operated piston means movable in
110 said barrel for forcibly discharging a projectile from said gun barrel, and a spring motor in said casing connected to said gun barrel for simultaneously operating the said projectile discharging means and swivelly moving
115 said gun barrel.

9. A mechanically operated swivel toy gun comprising a casing support, a gun barrel swivelly mounted on said casing support, a magazine for holding a plurality of projectiles fixed to the gun barrel, said barrels having an intercommunicating opening, the said magazine barrel being adapted to hold a plurality of projectiles which gravitatingly feed
120 individually into the gun barrel through said opening, a spring operated piston movable in said gun barrel for forcibly discharging a projectile fed thereto, a piston rod fixed to said piston and reciprocatingly movable in
125 said gun barrel, a spring motor within said

- casing support, and means connecting said spring motor with said piston rod operative for recurrently moving said piston against the action of its spring and for releasing said piston to permit the spring operation thereof and for simultaneously swivelly moving said gun barrel.
10. A mechanically operated toy gun comprising a casing support, a gun barrel mounted on said casing support, a magazine for holding a plurality of projectiles fixed to the gun barrel, said barrels having an intercommunicating opening, the said magazine barrel being adapted to hold a plurality of projectiles which gravitatingly feed individually into the gun barrel through said opening, a spring operated piston movable in said gun barrel for forcibly discharging a projectile fed thereto, a piston rod fixed to said piston and reciprocatingly movable in said gun barrel, a spring motor within said casing support, and means connecting said spring motor with said piston rod operative for moving said piston against the action of its spring and for releasing said piston to permit the spring operation thereof.
11. A mechanically operated swivel toy gun comprising a swivelly mounted gun barrel, means movable in said barrel for forcibly discharging a projectile from said gun barrel and a motor connected to said gun barrel for simultaneously operating the said projectile discharging means and swivelly moving said gun barrel.
12. A mechanically operated swivel toy gun comprising a swivelly mounted gun barrel, means for forcibly discharging a projectile from said gun barrel and a motor connected to said gun barrel for simultaneously operating the said projectile discharging means and swivelly moving said gun barrel.
13. A mechanically operated toy gun comprising a movably mounted simulated gun barrel, means for forcibly discharging a projectile from said gun barrel, and motor means connected to said gun barrel for simultaneously operating the said projectile discharging means and for imparting to said gun barrel a movement simulating an aiming operation.
14. A mechanically operated toy gun comprising a movably mounted simulated gun barrel, means for forcibly discharging a projectile from said gun barrel, and motor means connected to said gun barrel for simultaneously operating the said projectile discharging means and for imparting to said gun barrel a sudden bodily movement.
15. A mechanically operated toy gun comprising a support, a simulated gun barrel movably mounted on said support, piston means for forcibly discharging a projectile from said gun barrel, and motor means connected to said piston means for recurrently operating the same and for simultaneously imparting to said gun barrel a movement simulating an aiming and a recoiling operation.
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