Aug. 28, 1951 J. P. MARCY 2,566,090

TOY MACHINE GUN

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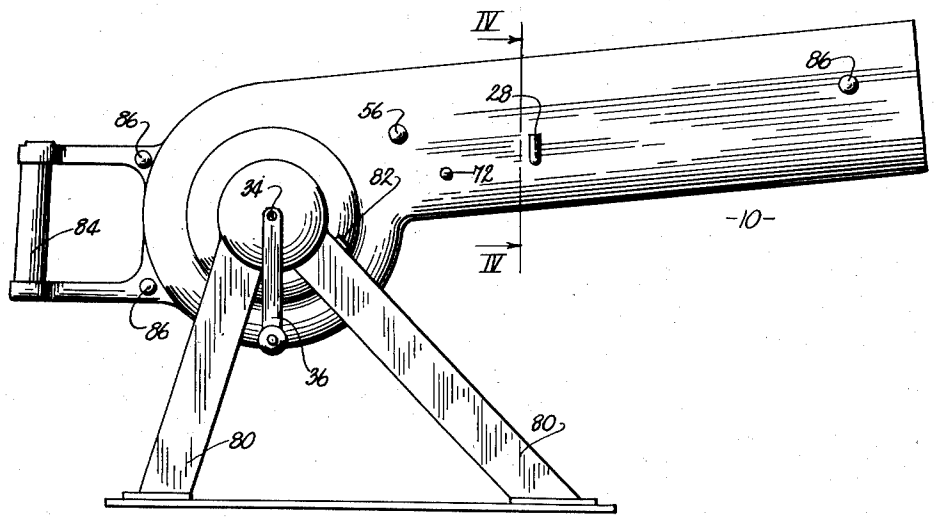


Fig. 1.

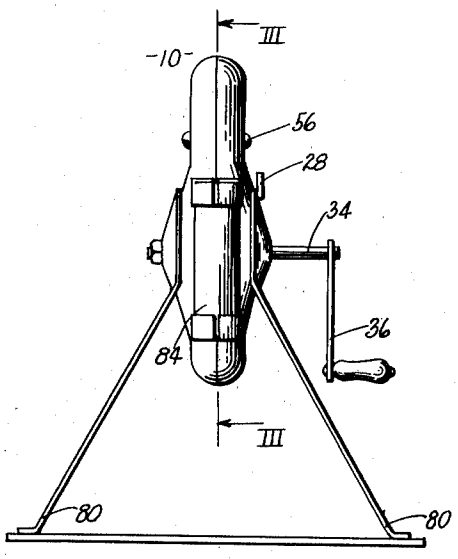


Fig. 2.

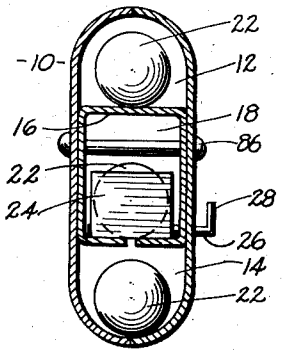


Fig. 4.

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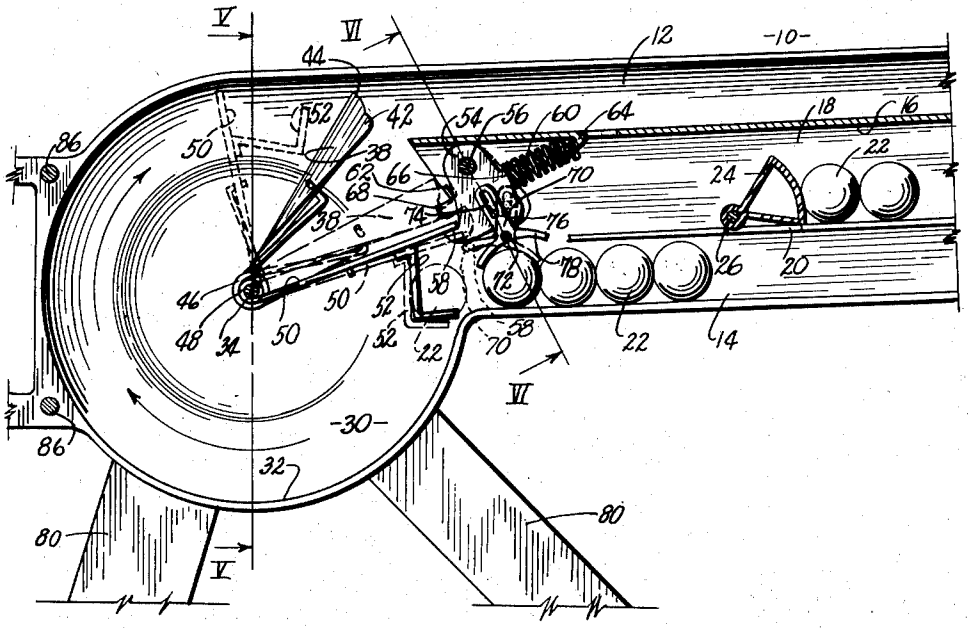


Fig. 3.

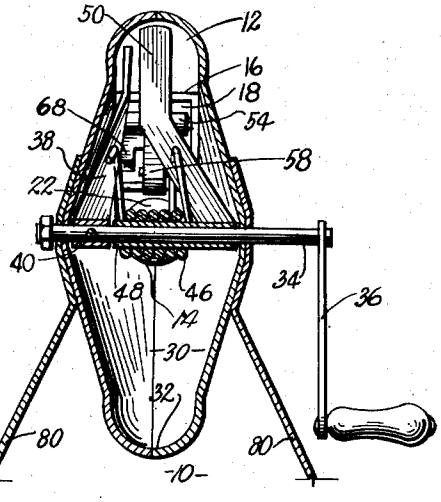


Fig. 5.

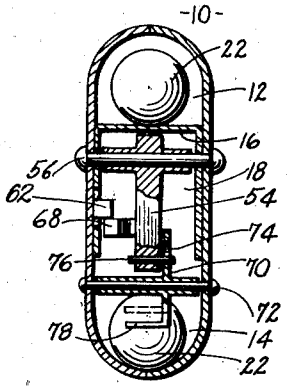


Fig. 6.

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TOY MACHINE GUN

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2 Claims. (Cl. 124—29)

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This invention relates to toy machine guns of the type capable of successively and automatically projecting small missiles and particularly to such toys having structure operable upon manual manipulation of the crank thereof, to drive said missiles by means of centrifugal force as the crank is actuated.

One of the primary objects of this invention is to provide a toy machine gun having a substantially parallel and normally horizontal barrel and missile magazine between which is disposed an annular way at the entrance whereof the missiles are automatically fed in singular succession by an escapement operable upon rotation of a shaft, said shaft being rotatable upon manual manipulation of the crank and having structure adjacent to said way that is likewise operable upon rotation of the shaft to discharge the missiles with force through the barrel.

Another important aim of this invention is to provide a toy machine gun having a main operating shaft rotatable upon manual manipulation of a crank and wherein the rotation of said shaft energizes a spring associated with a paddle mounted on the shaft and wherein the rotating shaft carries an arm into a position for releasing the paddle to receive the energy built up in the spring when the crank and shaft complete one revolution.

Another object is the provision of a toy machine gun of the character just set down wherein the rotation of the shaft causes the said arm to automatically actuate an escapement for feeding the missiles in singular succession from a magazine and into the path of travel of the paddle in timed relation to the release of said paddle for rotation about the axis of the shaft.

Other objects of this invention are to provide a toy machine gun including positively acting, rugged and relatively simple structure for transferring missiles from a magazine thereof to the gun barrel with force capable of projecting the missiles through the barrel as the said structure is manually manipulated by the operator through the medium of a crank forming a part of the gun assembly.

Other objects of the invention will appear during the course of the following specification referring to the accompanying drawings, wherein:

Fig. 1 is a side elevational view of a toy machine gun made in accordance with the present invention.

Fig. 2 is a rear end elevational view thereof.

Fig. 3 is a fragmentary longitudinal sectional

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view on an enlarged scale taken on line III—III of Fig. 2.

Fig. 4 is a fragmentary enlarged cross sectional view taken on line IV—IV of Fig. 1.

Fig. 5 is a cross sectional view taken on line V—V of Fig. 3; and

Fig. 6 is a cross sectional view taken on line VI—VI of Fig. 3.

The employment of centrifugal force in a toy machine gun to project the missiles may be accomplished through the utilization of a member of different structures but since the device must be inexpensively manufactured and rugged, it is desirable to cause the individual parts constituting the assembly to perform in such fashion as to minimize the same as far as possible.

It has been found that the form of the invention illustrated will function satisfactorily and with such rapidity and force as to meet the requirements of the trade respecting toy machine guns.

The gun illustrated comprises a housing 10 wherein is formed an attenuated barrel 12 and magazine 14. The cross sectional contour of housing 10 as shown in Figs. 4 and 6 and said barrel 12 and magazine 14, are set off in the housing 10 by a partitioning member 16 within the forward portion whereof is provided an additional storage space 18 in communication with magazine 14 through the medium of door 20. This door 20 is clearly illustrated in Fig. 3 and the missiles 22 are retained in storage space 18 by a closure 24 for door 20. This closure is mounted upon transverse pintle 26 journaled in housing 10 and extending therebeyond at one end thereof. The extended end is up-turned as at 28 (Figs. 1, 2 and 4) and when it is desired to allow missiles 22 to pass from space 18 into magazine 14, closure 24 is elevated from the position shown in Fig. 3 to a place where door 20 is open.

Housing 10 is enlarged as at one end thereof to form an annular way 30 interconnecting magazine 14 and barrel 12. The way 30 is defined by the inner annular surface 32 of housing 10 concentric with transverse shaft 34 journaled in housing 10, as clearly shown in Fig. 5. Surface 32 is tangent to the upper inner surface of barrel 12 and extends below magazine 14. Crank 36 secured to the outer end of shaft 34 provides the means for manually operating this shaft and for rotating the same about its axis. An arm 38 pinned or otherwise secured to shaft 34 as at 40 projects radially from the shaft and has the free end thereof contoured, as clearly

shown in Fig. 3 to present a cam face of dual character; one portion 42 of this cam face is closer to shaft 34 than portion 44, all for the purpose as will be more fully hereinafter described.

Arm 38 is engaged by one end of a coil spring 46 wound about a sleeve 48 rigid with a radially disposed paddle 50 to which the opposite end of spring 46 is anchored as illustrated in Figs. 3 and 5. Paddle 50 is free to rotate about shaft 34 in that there is no direct connection between the paddle and shaft 50 and 34 respectively. A lateral bracket 52 on paddle 50 cooperates with a portion of the free end of this paddle 50 in forming a missile receiving pocket stationed with respect to magazine 14, as shown in full lines in Fig. 3 when the structure is at the beginning end of its path of travel.

A dog 54 swingably mounted upon tranverse pin 56 supported in housing 10 has a shoulder 58 thereon to serve as means for stopping paddle 50. Spring 60 exerts pressure against dog 54 to yieldably maintain the same against an ear 62 struck from housing 10. Spring 60 has one end thereof anchored to a portion of partition member 16 as at 64, while the opposite end is in circumscribing relation with ear 66 on dog 54. Thus, spring 60 is compressed between ear 66 and a small out-turned portion of partition member 16. Dog 54 has a lug 68 projecting therefrom into the path of travel of the free end of arm 38 where its outermost surface will be engaged by portions 42 and 44 of the cam-like end of this said arm 38.

An escapement 70 pivotally mounted on pin 72 carried by housing 10 is slotted as at 74 to receive the laterally extended end of stub shaft 76 mounted on dog 54. The free end of escapement 70 is arched and out-turned as at 78 to engage missiles 22 as oscillation of the escapement occurs, due to the swinging movement of dog 54.

Shaft 34 is carried by a supporting pedestal 80 formed of two opposed sections, one on each side of housing 10, as clearly shown in Figs. 2 and 5. As pedestal 80 supports shaft 34 and all structure associated therewith, housing 10 may be moved about the axis of shaft 34 to dispose barrel 12 at a desired angle of inclination for the purpose of directing missiles 22 through a selected trajectory path. The angle of inclination of the forward portion of housing 10 wherein is formed barrel 12 and magazine 14, is normally maintained at a slight angle to the horizontal where the free outer ends of these members 12 and 14 are high enough to preclude movement of missiles therealong through the action of gravity.

A stop 82 on housing 10 engages pedestal 80 to so maintain housing 10 in the desired position just defined.

A handle 84 is provided on housing 10 to be grasped by the operator for the purpose of steadying the housing 10 as crank 36 is manipulated. Housing 10 is formed of a pair of symmetrical sections secured together by rivets 86.

During the normal operation of the toy machine gun and assuming the parts to be shown in full line in Fig. 3, a number of missiles are housed in magazine 14 with an auxiliary number of said missiles 22 disposed in storage space 18 if such be the desire of the operator. When crank 36 is turned a short distance, the first action is to transmit a force to swing dog 54 in one direction and against the force of spring 60 to compress the latter. This swinging movement is imparted to dog 54 by portion 44 of the cam face

on the free end of arm 38 coming into engagement with lug 68. The swinging movement of dog 54 is extensive enough to release paddle 50 from shoulder 58 which, under the influence of spring 46, will snap around shaft 34 to carry a missile 22 in the pocket formed by bracket 52 and the end of paddle 50. As paddle 50 travels in the direction of the arrows shown in Fig. 3 and beyond the zone of juncture between barrel 12 and annular way 30, centrifugal force will cause the missile 22 to travel outwardly along barrel 12 and be driven therefrom with a sufficient amount of force to carry the missile an appreciable distance beyond the outer end of housing 10. Just before dog 54 is swung in a manner just set down and to compress spring 60, escapement 70 will be pivoted about its support 72 through the medium of stub shaft 76 to swing to a position where the next succeding missile 22 in magazine 14 cannot enter way 30. As this position of escapement 70 is assumed, it will feed the missile 22 into a place below the outer end of paddle 50 and upon bracket 52. This action on the part of escapement 70 occurs when portion 42 of the cam face at the outer end of arm 38 comes into engagement with lug 68. In this condition (shown in full lines of Fig. 3), paddle 50 rests upon shoulder 58 and the parts are in a "set" position to proceed through their path as above set forth. Rapid rotation of shaft 34 will therefore, cause missiles 22 to be fed into annular way 30 in front of the motivating paddle 50 in timed relation and singly. So long as there is a supply, missiles 22 in magazine 14 will be projected from barrel 12 by the movement of crank 36.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a toy machine gun, a barrel; a spring-loaded shiftable member disposed adjacent one end of said barrel to forcibly direct missiles through the barrel; movable means for energizing the spring of said member; a movable element for holding said member against shifting as said spring is being energized; structure forming a part of said means for automatically moving said element as the spring becomes energized; and a swingable device for feeding said missiles singly into the path of travel of said member, said element having means for actuating said device as the element is being moved.

2. In a toy machine gun, a magazine for missiles; a barrel for directing the missiles outwardly from the gun; a hollow body joining the magazine and the barrel; a rotatable shaft carried by the body; a spring on said shaft; a paddle rotatably mounted on said shaft, said spring interconnecting the shaft and the paddle; a swingable, spring-loaded dog mounted in said magazine, said dog having parts normally disposed in the path of travel of said paddle for holding the latter whereby rotation of the shaft will energize the spring on the latter; an escapement operably connected to said dog for feeding the missiles singly from the magazine into the path of travel of said paddle when said parts are swung from their normal position; and an arm on said shaft, engageable with said dog upon rotation of the shaft and operable to impart swinging movement to the dog, said arm being disposed to actuate the dog after the spring on the shaft is energized.

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