July 3, 1923. 1,460,441

J. POPPER

TOY PISTOL

Filed Sept. 9, 1921

Fig. 2.

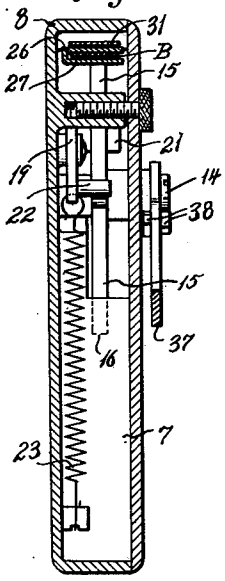


Fig. 1.

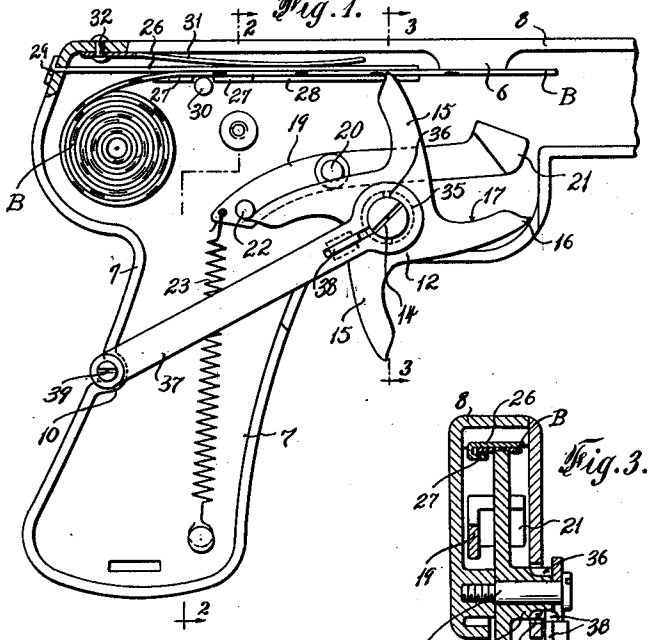


Fig. 3.

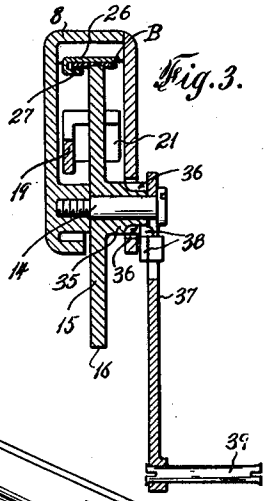
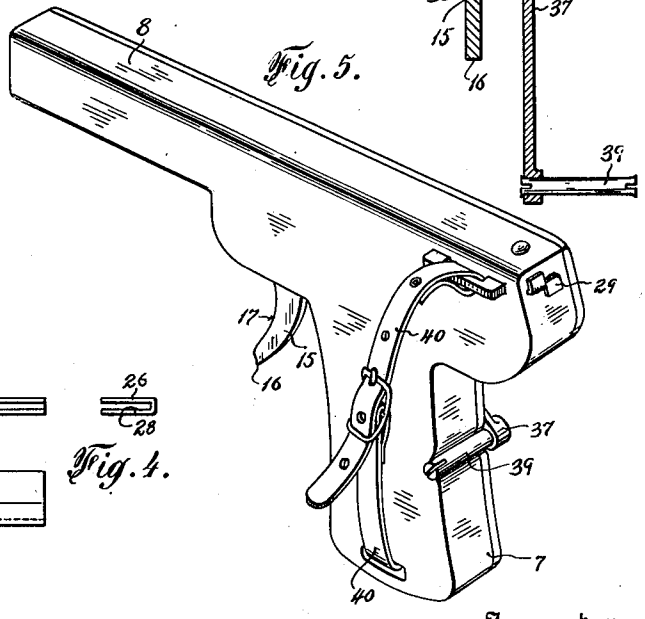


Fig. 5.



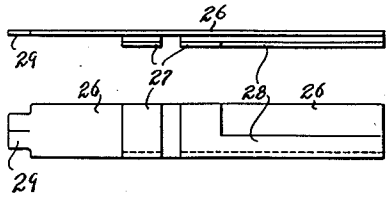


Fig. 4.

Inventor

Joseph Popper

By Attorney

James C. Ledbetter

Patented July 3, 1923. 1,460,441

UNITED STATES PATENT OFFICE.

JOSEPH POPPER, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO BAIRD-DANIELS COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK, AND ONE-HALF TO RUBY H. POPPER, OF BROOKLYN, NEW YORK.

TOY PISTOL.

Application filed September 9, 1921. Serial No. 499,552.

To all whom it may concern:

Be it known that I, JOSEPH POPPER, a citizen of the United States of America, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Toy Pistols, of which the following is a specification.

This invention relates to toy guns. More particularly the invention relates to a combination toy pistol and machine gun.

The primary object of this invention is to produce a combination toy pistol and rapid fire or machine gun which has means for quickly converting the toy into either a toy pistol capable of firing its ammunition through the agency of a step by step trigger detonating mechanism, or by firing its ammunition through a high speed detonating mechanism.

A further object of the invention is to produce a toy gun adapted to use paper cap ammunition preferably of the kind put up in tape or strip form, which tape is made into rolls by the manufacturer, and which rolls are readily placed in position in the frame of the gun to be rapidly fed through the detonating mechanism.

With various other objects in view it is a purpose to produce a toy gun of such simple design and construction as to be economical in the manufacture thereof, and which may be sold at a comparatively low price to fill an existing demand for a high-class, safe, and pleasing toy.

An embodiment of my invention is illustrated in the accompanying drawings, and though I have described and illustrated one preferred form of construction and operation, I claim a right of protection as to all such changes as may obviously come within the scope of my invention.

Figure 1 illustrates a side view of the toy gun with the cover plate removed from the frame thereof to expose the internal working parts.

Figure 2 illustrates a cross-sectional view taken on the line 2—2 through the handle thereof in Figure 1 looking towards the front end of the barrel to show the working mechanism.

Figure 3 illustrates a sectional view taken on the line 3—3 of Figure 1 to show in detail the design and arrangement of the convertible rapid fire detonating mechanism.

Figure 4 illustrates a cluster view of an ammunition tape guide, the said guide being shown from the edge, from the end, and from the underneath thereof.

Figure 5 shows a perspective view of a toy gun with particular reference to a novel loop handle into which the operator slips his hand when operating the gun at high speed to simulate rapid fire and machine gun action.

A toy gun constructed in accordance with the principles of my invention, consists of a frame which embodies a barrel and handle structure. As typical of toy pistols economically produced in quantities, the frame is preferably constructed in one piece, and may have a cover plate adapted to be clamped or quickly bolted into position so that the said plate may be removed for inserting a new supply of ammunition tape. The toy has a tape guide which directs the ammunition into the hammer, and a star wheel is utilized to perform the several functions of feeding the ammunition to the hammer, of operating the hammer to explode the ammunition, and is further utilized as a trigger by which the pistol is operated. An important feature of the invention resides in its dual capacity to function either as a toy pistol or a high speed machine gun, which greatly enhances the value of the toy; and this function is accomplished through the agency of a crank, which may be used at the will of the operator, for rotating the star wheel to produce a continuous high speed motion of the hammer which causes the gun to emit rapid fire detonations simulating drum fire. As the gun is fired, the used and exploded ammunition tape moves forwardly within the barrel and is discharged from the outer end thereof. This action of the toy gun increases the safety with which it may be used because no detonations occur near the operator's face and no expended ammunition tape comes into view at the rear end of the gun to detract from the pleasing appearance of the toy.

Referring now more in particular to the drawings for a detailed construction of one practical form of toy gun built after the

principles of this invention, there is shown a frame embodying a handle 7 and barrel 8. The frame may be constructed in two half sections and joined together, or the frame may consist of a one piece casting with a cover plate 9 fastened on the open side thereof with a screw, a clamp, or other suitable means. At the lower portion of the frame where the handle and barrel structure join together, the bottom edge wall thereof is left open, or made with a slot through which a trigger mechanism or trigger star wheel turns, as later described. In one edge of the handle, preferably the back edge thereof, there is made an indentation 10 which produces a groove or slot formed in the wall of the handle for the reception of a movable crank handle as later noted. The frame is cast with a slightly raised portion in the form of an anvil 6, and the ammunition tape is fed over this anvil and struck by the hammer to produce the rapid fire detonations.

A combination trigger and feeding device 12, constructed in the form of a star wheel, is journaled on a pin or screw 14 anchored in the frame. This star wheel has a plurality of equi-distantly spaced trigger pieces 15 which radiate from the hub thereof. Each trigger piece terminates in a point 16, which point positively pierces and engages the ammunition tape to feed it through the hammer as later described. The radiating finger pieces 15 are preferably built so as to bear the resemblance of trigger construction in ordinary guns; and in this connection, it is to be noted that the forward edge 17 is formed on a curve, or made arcuate so as to conveniently fit the shape of the operator's finger which presses against this forward arcuate trigger edge to rotate the star wheel.

A hammer 19 is pivoted on a pin 20, which pin is anchored in the frame, and the forward end of the hammer is made with a head 21 which strikes the detonators contained in the ammunition tape. A lug 22 is fixed to the rear end of the hammer 19. A coil spring 23 has one end thereof attached to the rear end of the hammer and the other end thereof anchored to the frame down in the handle part 7. The coil spring 23 acts to keep the hammer head 21 in contact with the raised anvil portion 6. When the hammer 19 is in normal position, with the head 21 in contact against the anvil 6 or against the ammunition tape, the aforesaid lug 22 is then held in concentric alignment with the outer tip of the triggers 15; and due to this arrangement, the outer end of each trigger engages the lug 22 and thereby actuates the hammer 19 which draws the head 21 away from the anvil. When the trigger 15 is pressed rearwardly, the end thereof which picks up the lug 22, drops off of the lug, whereupon thes pring 23 causes the hammer to return the head against the anvil with sufficient striking force to explode the detonator contained in the ammunition tape. Upon each firing operation, the trigger part 15, just ahead of the one being pressed, picks up the lug 22 and moves the head 21 downwardly away from the anvil until the travel of the lug and the travel of the trigger have become sufficient to cause the disengagement between these two parts, which disengagement causes the hammer to strike the anvil each time the trigger is pulled; and in Figure 1, the trigger wheel is shown as having lifted the hammer and is in the act of disengaging the lug to allow the hammer to strike the anvil.

A guiding means is provided to direct the movement of the ammunition tape between the anvil and the hammer. To this end, a guide consists of an upper plate 26 and a lower plate 27 having a slight space left therebetween just sufficient to allow the tape to readily move therethrough. The guide 26 is made from a single piece of light strip material bent in the center as will be understood from an examination of the cluster view Figure 4. The upper plate is preferably made comparatively long reaching from the back edge wall of the pistol frame forwardly where it terminates close to the anvil 6, and the lower plate 27 of the guide is made comparatively short, with a narrow extension 28 extending forward terminating even with the upper plate 26. The lower guide 27 is reduced in width, as indicated by the numeral 28, for the purpose of allowing the pointed star wheel to move against the tape confined in the guide; and in the drawings the point of the star wheel is shown slightly piercing the ammunition tape and moving the same forward as the head 21 is being retracted from the anvil. A small portion of the guide plate 27 is cut out which leaves a gap or space in the plate 27, and a supporting pin fits into this space as later described. The guide 26 is supported on the rear end thereof by passing it through a slot formed in the frame and bending the ends 29 down on the frame to hold the guide against longitudinal movement. A pin 30 is anchored in the frame and acts as a support on which the guide 26—27 rests, and the said pin is positioned within the gap or space which is left in the lower guide plate 27. A pressure leaf or plate spring 31 has one end thereof anchored to the frame, as by a rivet 32 or other suitable means, and the free end of the spring is resiliently and yieldably rested on the back side of the guide. This construction and arrangement of the parts causes the guide to be held in positive position on the pin 30 secure against longitudinal motion, and acts to direct the ammunition tape over the anvil

6, but allows the guide to yield, flex, or move upwardly under the slight displacing action of the trigger finger 15 each time the said trigger engages the tape.

The back end of the frame or barrel is suitably constructed to act as a receiver to hold a roll of ammunition tape B, and the roll of tape is confined on a pin. In the drawings the roll of ammunition tape B is unwound with the end thereof passed through the guide 26—27 and under the hammer head 21.

The above description covers the essential points of the toy pistol when used as a pistol only. Facilities are provided for readily and quickly converting the pistol into a rapid fire gun. To this end, the star wheel 12 is made with an integral hub 35, which has slots 36 formed therein, and these slots are adapted to receive a locking key as later described. A crank 37 is made with bearing to fit over the hub 35, and the star wheel hub 35 rotates within the crank bearing at the time the hub and crank is not locked. A locking key 38 is slidably confined in a slot made in the crank and the key is adapted to move forward into engagement with the slot 36 thereby locking the crank 37 to the star wheel 12. The outer free end of this crank 37 has a handle piece 39 slidably connected therewith, the arrangement being such that the round handle piece 39 may be shoved through the crank 37 and made to lie in a partly concealed and flush position within the indentation 10 made in the pistol frame. When, however, the crank is to be rotated, the handle piece 39 is pushed out so as to expose it on the operator's grasp.

A loop handle 40 is attached to the pistol frame on the side opposite the crank. This loop is preferably made of leather or other flexible material with one end attached to the top edge of the frame and the other end attached to the lower end of the handle. In this manner the loop handle readily admits the operator's hand so that he may slip his palm through the loop along side the pistol frame and retain his grasp on the pistol, yet remove his thumb from the handle thereof in order that the crank may be rapidly turned by the operator's other hand.

In the operation of this character of toy gun, the ammunition tape is mounted to roll on the pin, and the unrolled end thereof is threaded through the guide and placed on the anvil under the hammer head. As the operator presses the star wheel triggers one after the other, the tape is fed step by step to the hammer, and the hammer is periodically raised to strike the detonator in the tape. The timing of the hammer lifting operation and the forward movement of the tape is such that the hammer is retracted from the anvil at a time slightly in advance of the engagement of the tape by the point 16 so that the tape will feed straight through the anvil and hammer without crumpling or bending. The points 16, as they engage the tape, pierce the paper thereof and secure a positive hold on the tape whereby it is moved forwardly, subsequently to the hammer having exploded the forward detonator near or in the barrel so as to produce the flash and detonation in the barrel. This device offers a very pleasing toy in the form of a pistol fired under the operation of the step by step movement of the star wheel. The toy gun is instantly converted into a machine gun, much to the enjoyment of the operator, by first sliding the key 38 forward to engage the hub 35, and then by pulling the handle piece 39 outwardly where the operator may grasp it for subjecting the star wheel to high speed rotation. In this latter mode of operation, the toy gun produces extraordinary rapid fire simulating the action of a machine gun which so rapidly feeds the ammunition through the detonating mechanism that the roll of caps is quickly used up.

When the crank is not in use, it lies in parallel proximity to the pistol handle frame so as not to interfere with the use of the top as an ordinary pistol when the operator desires to fire by pressing the triggers.

It is to be noted that the star wheel 12 performs the several functions of feeding the ammunition tape through the detonating mechanism, operating the hammer, and acting as a trigger by which the pistol is fired. This is an important and novel feature of my invention for it is new in the art to use a single piece structure to perform the several functions named, so as to avoid the customary ratchet mechanism and multiplicity of parts used in toy guns now on the market.

Finally it is an additional important and novel feature to produce a toy gun which may be either used as a pistol or as a machine gun, and novel means of converting the gun to the two uses may be varied in accordance with the scope of the invention.

I claim—

1. A toy gun comprising in combination, means for feeding detonators, a hammer for exploding the detonators, a trigger wheel adapted to drive the feeding means and operate the hammer, a crank which may be used at will to revolve the trigger wheel, and means for rendering inoperative the said crank when not in use.

2. A toy embodying a pistol and rapid fire gun in combination, comprising a frame and barrel structure, means for holding a roll of toy gun ammunition tape, a hammer pivoted in the frame and adapted to detonate the ammunition tape, a dual trigger and tape feeder which may be actuated by the operator to feed the tape to the hammer, a crank connected with the dual trigger and

tape feeder to rapidly fire the gun, and means related with the crank rendering it inoperative by the operator so that either the aforesaid trigger or the crank may be used to fire the gun.

3. A toy embodying a pistol and rapid fire gun in combination, comprising a frame and barrel structure, an ammunition tape guide, a hammer to detonate the ammunition as it is fed from the guide, a star wheel having points which engages the ammunition tape and feeds it through the guide to the trigger, and the said star wheel points being constructed suitably in the form of a trigger and moving outwardly beyond the frame into an exposed position accessible to the operator's fingers, a crank mounted outside the frame to work the star wheel, the said crank being disposed substantially parallel beside the handle whereby it conveniently forms a part of the handle when not in use, and a movable handle piece carried by the crank, the said movable handle piece being adapted to engage the pistol handle and hold the crank in fixed position when not in use.

4. A toy pistol comprising in combination a frame embodying a handle and barrel structure, ammunition feeding means, a detonating mechanism, a crank to rapidly operate the detonating mechanism, and a loop secured to the handle of the toy gun into which the operator slips his hand to grip the gun while operating the crank, whereby the fingers and thumb are protected from the revolving crank.

5. A top gun comprising in combination a barrel and handle structure, the said handle adapted to be gripped between the thumb and the hand of the operator, an ammunition feeding means, a hammer for detonating the ammunition, a crank mounted on the side of the frame to operate the detonating mechanism, and a strap attached to the handle of the gun into which the operator slips his hand so as to remove his thumb and fingers away from the crank.

6. A toy gun comprising in combination a frame embodying a barrel and handle structure, ammunition feeding means contained in the frame, a detonating mechanism to explode the ammunition, a crank mounted on one side of the frame for operating the mechanism, and a loop strap fixed to the frame and carried on the side thereof opposite to the aforesaid crank whereby the operator holds the gun in position by slipping one hand into the loop strap which embraces the fingers and operates the crank with the other hand.

7. A toy pistol comprising in combination, a finger trigger firing mechanism, a crank, and a catch device cooperating with the crank to engage the firing mechanism.

8. A toy pistol comprising in combination, a finger trigger firing mechanism and a crank, and means cooperating with the said mechanism for removing the crank from operative connection with mechanism.

9. A toy gun embodying a frame with a handle and barrel structure, a cap retaining means disposed in the frame by which toy ammunition is held in firing position, a firing hammer to explode the caps, a trigger to operate the hammer in a slow firing manner, a crank to operate the hammer in a rapid firing action, one end of the crank made with a handle by which it is revolved, the other end of the crank being carried upon the frame in an operative position to work the aforesaid hammer, means forming a part of the said last named end of the crank by which said crank is disconnected from the toy gun and rendered removable from said operative position, and means related with the handle and barrel structure into which the operator thrusts his hand in a manner to embrace the fingers and thumb thereof causing the operator to remove his hand from the vicinity of the rotating crank during the time it is carried upon the gun in operative position and thereby guarding the operator's hand from danger of the said rotating crank.

10. A combination toy machine gun and single shot pistol comprising a frame embodying a handle and barrel structure, means for feeding caps through the barrel and frame, a plurality of rotating triggers adapted to work the said means, a device for successively exploding the caps as in a single shot pistol as by actuating the triggers, a crank to rapidly actuate the device for producing toy machine gun fire, and an engaging means by which the crank is fixed to rotate the exploding device when in use on the toy and by which it is disconnected when not in use.

In testimony whereof, I have hereunto set my hand this 7th day of Sept., 1921, in the city of New York, borough of Manhattan, county of New York, and State of New York.

JOSEPH POPPER.