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2,561,849

TOY SMOKING GUN

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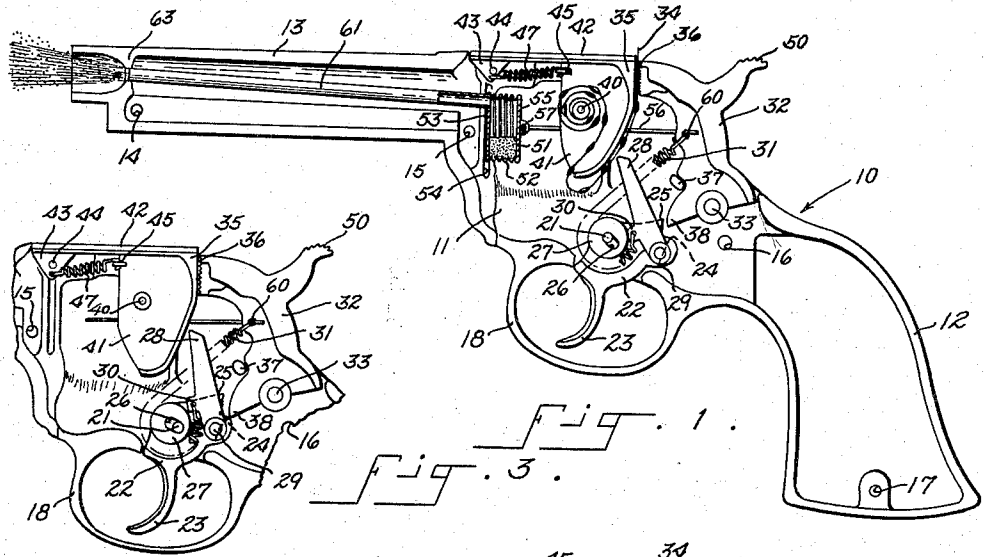


Fig. 1.

Fig. 3.

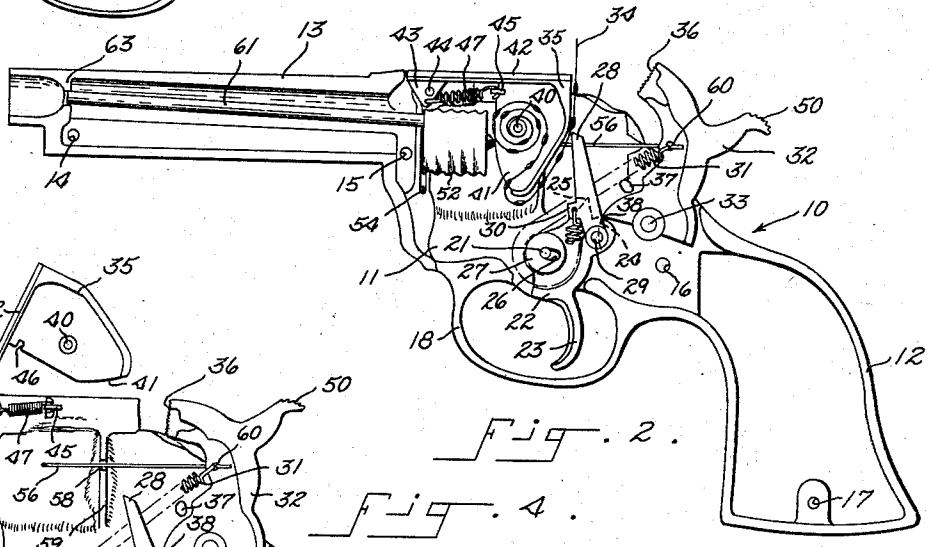


Fig. 2.

Fig. 4.

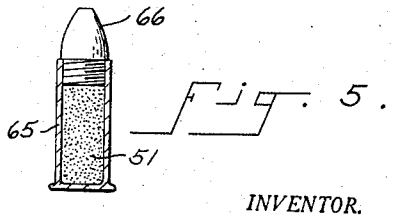


Fig. 5.

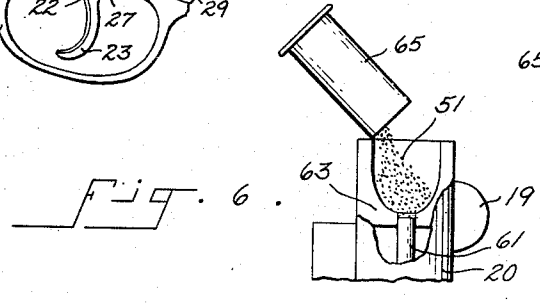


Fig. 6.

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TOY SMOKING GUN

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Application May 22, 1950, Serial No. 163,536

3 Claims. (Cl. 46—9)

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The present invention comprises a double-action gun particularly designed for the firing of percussion caps mounted in a tape of paper. One of the principal objects of the present invention is to provide a gun in which means are provided for propelling a small quantity of pulverulent material from the muzzle of the gun immediately following the explosion of the cap so as to produce the illusion of a smoking weapon.

One of the principal objects of the present invention is to provide a simplified double-action lock mechanism in which all parts are actuated by a single spring, thereby decreasing the number of parts and materially lessening the cost of fabrication and assembly of the mechanism.

A further object of the present invention is to provide an improved, rugged mechanism of the character described in which positive synchronization of the various movements is assured by the provision of a single train of mechanisms all actuated through a trigger and a single spring.

A further object of the present invention is to provide a simplified double-action mechanism of a novel type including a trigger mounted in the gun through the provision of pin-and-slot means permitting displacement of the trigger piece in addition to the usual pivotal movement thereof whereby the hammer may be retained at half-cock and the trigger mechanism may reset itself following each actuation of the hammer.

A further object of the present invention is to provide a gun in which a bellows is actuated by the lock mechanism to produce a discharge of smoke-simulating powder in synchronism with the explosion of the noise-producing element and in which the smoke-producing mechanism may be refilled with pulverulent material.

A further object of the present invention is to provide a mechanism of the foregoing character in which a single spring is so disposed as to actuate the hammer in its striking movement, to hold the hammer at half-cock, to propel a smoke-simulating charge of powder, to return the trigger to its normal position, and to bias a cap-feeding pawl to its operative position.

The foregoing and other objects and advantages of the present invention may be more readily ascertained from inspection of the following specification taken in connection with the accompanying drawing wherein like numerals refer to like parts throughout, while the features

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of novelty will be more distinctly pointed out in the appended claims.

In the drawing,

Fig. 1 is a view in elevation of the frame of the gun with the cover removed to expose the working mechanism, the view showing the relationship of the operating parts when a cap has been discharged, powder is being discharged from the muzzle to produce the illusion of smoke, and the trigger has returned to its normal position;

Fig. 2 is a view similar to Fig. 1 showing the mechanism immediately preceding a discharge, with the hammer raised to its limit of trigger-actuated movement and the trigger approaching its limit of operative movement;

Fig. 3 is a partial view of the mechanism after the hammer has fallen and the trigger is returning to its normal position;

Fig. 4 is a view similar to Fig. 3 showing the hammer retained at half-cock position and the cap magazine opened;

Fig. 5 is a vertical section through a simulated cartridge in which a charge of pulverulent material is retained; and

Fig. 6 is a partial view of the muzzle of the gun, with parts broken away, and showing the method of replenishing the powder charge in the smoke-producing apparatus.

The invention is herein illustrated as embodied in a toy gun simulating a double-action revolver and thus enhancing its attractiveness to children. The gun comprises a frame 10 including a central portion 11 which is preferably exteriorly shaped to simulate the cylinder and breech portion of a revolver, a handle portion 12 and a barrel portion 13. The gun is completed by means of a complementary cover (not shown) which may be retained by rivets or screws passing through suitable openings such as indicated at 14, 15, 16 and 17. The trigger guard 18 is mounted upon the frame part 10 and the front sight 19 is mounted upon the muzzle portion 20 of the cover which is partially illustrated in Fig. 6. It is to be appreciated that the trigger guard 18 and the front sight 19 are offset so as to lie along the centerline of the revolver when the two complementary parts are joined together.

A trigger pivot 21 is suitably mounted in transverse relation on the frame and a trigger 22 is pivotally mounted thereon and projects through

a notch in the frame 10 so that the finger portion 23 thereof lies within the trigger guard. The trigger extends inwardly beyond the pivot and the inner end thereof is provided with a pair of vertically spaced projections, the lower one of which constitutes a lock spur indicated at 24, and the upper one of which constitutes a sear indicated at 25. The trigger is provided with a generally fore and aft slot 26 into which the pivot 21 projects, the slot lying within a transverse, cylindrical boss 27 on the trigger piece. A cap feeding pawl 28 is pivotally mounted at 29 on the trigger piece immediately below the lock spur 24, the feed pawl extending forwardly above the boss 27. A projection 30 on the pawl engages the surface of the boss 27 so as to hold the feed pawl in a normal, inclined position illustrated in Fig. 1. A spiral spring 31 is attached at one end to the projection 30 and its opposite end is attached to the forward edge of a hammer 32 pivoted on the frame at 33. The spring is under tension and passes about the boss 27 in contact with the lower and forward surfaces thereof, then passes diagonally upward behind the pawl 28 to its point of attachment to the hammer 32. The arrangement is such that when the hammer is in its released position the spring exerts a rearward pull on the boss 27 of the trigger piece so as to hold the inner end of the trigger piece rearwardly with the forward end of slot 26 engaging the pin 21. The spring also urges the trigger forward about pivot 21, and returns the trigger when released. The trigger is retained at its normal position by a portion of the trigger engaging the forward end of the notch in the frame through which it projects. The spring 31 also holds the projection 30 against the boss 27 so that the feed pawl 28 is poised to engage a paper strip 34 having caps thereon, and caused to slide the strip upwardly across the surface of an anvil 35 when the trigger is actuated. The hammer 32 is also forced forwardly about its pivot 33 by spring 31 so that the striker portion 36 of the hammer may explode a cap positioned in alignment therewith by the feed pawl. A hammer limiting lug 37 projects from the frame in position to engage an abutment on the hammer and prevent further forward movement of the hammer if the trigger should be pulled while the anvil is raised as illustrated in Fig. 4.

The hammer is provided with a lock toe 38 extending radially forward from the pivot 33 to a point above the lock spur 24. When the trigger is rotated by pulling the finger piece 23 rearwardly the spur 24 engages the toe 38 to raise the hammer to the position illustrated in Fig. 2. As soon as the trigger passes beyond the position illustrated in Fig. 2 toward a limit position, as limited by the notch through which the trigger projects, the spur releases the toe and the spring 31, which has been increasingly tensioned, snaps the hammer forwardly to cause the striker portion thereof to discharge a cap positioned on the anvil, the hammer thereupon coming to rest in the position illustrated in Figs. 1 and 3. The lock spur is now above and overhanging the lock toe, but the trigger may return to its normal position under the influence of spring 31 because of the slot 26. As the trigger is released and begins to rotate forwardly about the pivot 21 the inner end thereof will be moved forwardly by the toe 38 so that the trigger pivot 21 becomes relatively positioned in the rear end of the slot 26 until the lock spur clears the lock toe, whereupon the spring 31 will return the trigger to its normal position illustrated in Fig. 1 in readiness for the next firing action.

The upper tip of the feed pawl 28 is normally spaced slightly from the lower surface of the anvil 35 so as to permit manual shifting of the strip 34 if the hammer should be slightly raised. However, when the trigger is pulled rearwardly the tip of the pawl engages the strip of caps and presses the same against the anvil. Continued movement of the trigger toward the rear causes the pawl to push the strip upwardly as illustrated in Fig. 2, the extent of feeding movement thereby accomplished being such as to position a fresh cap in alignment with the striker face. The striker face is preferably transversely ribbed so as frictionally to hold the strip in position during the first portion of the returning movement of the feed pawl.

The strip 34 is supplied in a roll which may be mounted upon a tapered pin 40 projecting inwardly from a roll mounting flange 41 affixed to the anvil 35 and to a magazine plate 42 pivotally mounted in the frame, the mounting thereof comprising a triangular lug 43 depending from the front end of plate 42 and a pivot pin 44 mounted on the frame and passing through the lug. A magazine latch 45 projects through the side of the frame and normally engages a latch notch 46 in the edge of flange 41, the outer end of the latch (not shown) being manually displaceable to release the magazine. The latch 45 is biased toward holding position by a coil spring 47 tensioned between the latch and a point on the lug 43 beneath the pivot 44. When the latch is released the spring 47 contracts to swing the magazine upwardly about pivot 44 to its open position so that a fresh roll of caps may be mounted thereon. Details of the magazine, magazine latch and magazine spring not herein illustrated are fully disclosed and claimed in the copending application of Harry F. Everett, Serial No. 163,537, filed concurrently herewith.

In order to increase the simulation of a real revolver and to eliminate the danger of an accidental discharge while loading a fresh strip of caps, the striker face 36 may be held rearwardly from the anvil 35 by moving the hammer to half-cock position. For this purpose the hammer is provided with a cocking spur 50 projecting rearwardly in position to be engaged by the thumb. Upon pulling the hammer rearwardly by means of the cocking spur the lock toe 38 engages the rear face of the sear 25 on the inner end of the trigger, and moves the trigger forwardly as permitted by the slot 26 until the toe clears the sear, whereupon the spring 31 will snap the trigger rearwardly to position the sear beneath the toe. Upon releasing the hammer the toe will engage the upper surface of the sear to hold the hammer at half-cock as illustrated in Fig. 4. The hammer may be released from the half-cock position by pulling the trigger, whereupon the lock toe will first drop onto the lock spur 24 and thereafter will be fully raised and released in the usual manner, or the hammer may be held back by means of the cocking spur and lowered gently to its release position when the trigger has been pulled rearwardly to the limit position beyond the position illustrated in Fig. 2. The arrangement of the sear 25 and lock spur 24 is such that the trigger will be entirely removed from the path of the lock toe when the finger piece of the trigger is held at its rear limit position, thereby increasing the attractiveness of the toy by permitting actuation of the hammer by manipula-

tion of the cocking spur in the manner known as "fanning." Of course, when the hammer is "fanned" and the trigger is held rearwardly, no feeding action of fresh caps can occur, but the smoking action will continue, as will appear.

In order to produce the discharge of a puff of smoke at each actuation of the hammer, means are provided to retain a charge of talcum powder or other suitable pulverulent material indicated at **51**, such means comprising a flexible bellows **52**. The bellows preferably comprises a corrugated, cylindrical sleeve of suitable flexible material and having its end fixed to rigid discs. The front disc **53** is held stationary as by means of slipping its edge into a vertical slot **54** in the frame **10** and a complementary slot (not shown) in the cover portion. The rear disc **55** is reciprocated at each action of the hammer by means comprising a stiff wire **56** having its front end bent transversely of the frame and passed through an ear **57** mounted centrally of the disc **55**. The wire passes rearwardly through a notch **58** in a flange **59** against which the magazine flange **41** rests when in normal position. The rear end of the wire is bent forwardly and hooked through an opening **60** in the hammer **32** into which the upper end of spring **31** is also hooked. When the hammer is drawn rearwardly to the raised position indicated in Fig. 2 the bellows **52** is expanded, and when the hammer snaps forwardly the bellows is rapidly collapsed, thus stirring up the powder charge and expelling air which has been drawn into the expanding bellows through a small tube **61** communicating with the bellows through the upper edge of disc **53** and extending through the barrel to a point near the muzzle of the gun. The rapidly discharged air entrains a small quantity of the pulverulent material to produce a puff of artificial smoke at the muzzle immediately following the sound of the exploding cap. The tube **61** preferably extends upwardly at a slight inclination so as to discharge the powder in a somewhat upwardly direction.

The forward end of the tube **61** is retained in a tightly fitting cylindrical opening in the outer end of the barrel produced by an internal flange **63** in the frame **10** and a complementary flange (not shown) on the cover, the flanges being spaced inwardly from the muzzle opening to define the inner end of a chamber into which powder may be poured. The outer surfaces of the flanges are preferably rounded inwardly from the muzzle to produce a bell-shaped mouth in which a small charge of powder may be deposited, as illustrated in Fig. 6, when the barrel is held vertically with the muzzle upward. If the powder is deposited in the muzzle portion when the hammer is down and the bellows collapsed, the charge may be sucked into the bellows when the hammer is drawn back to expand the bellows. This is preferably accomplished by manually raising the hammer by engaging the cocking spur **50**.

Preferably the gun is sold in combination with a number of dummy cartridges such as indicated in Figs. 5 and 6, each comprising a shell-simulating container **65** having a bullet-simulating plug **66** which may be screwed into or otherwise suitably retained in the open end of the shell to retain a load of powder.

Having illustrated and described a preferred embodiment of my invention, it should be apparent to those skilled in the art that the invention permits of modification in arrangement

and detail. I claim as my invention all such modifications as come within the true spirit and scope of the appended claims.

I claim:

1. A toy gun comprising a frame including a barrel, a hammer pivotally mounted in said frame, means to actuate said hammer including a spring arranged to snap the hammer, a bellows mounted forwardly of the hammer, means anchoring the forward end of said bellows in said frame, a rigid member linking the rear end of said bellows to said hammer whereby cocking the hammer expands said bellows and snapping the hammer rapidly collapses said bellows, a tube extending through the barrel of the gun and communicating with the interior of said bellows, and flange means internally of said muzzle embracing the forward end of said tube and retaining the free end of said tube in said barrel inwardly from the muzzle thereof, there being a short section of the barrel of the gun between the muzzle thereof and said flange of larger internal diameter than said tube.

2. A toy gun comprising a frame including a barrel and a hollow, cylinder-simulating portion, a hammer pivotally mounted in said frame, means to actuate said hammer comprising a trigger and spring mechanism, a bellows comprising a forward end disk, a rear end disk and a flexible sleeve having its ends connected to said disks in bellows-forming relationship, means near the forward end of said hollow, cylinder-simulating portion to retain said forward end disk in relatively fixed relation to said frame, a rigid link connecting said rear end disk to said hammer whereby raising said hammer causes expansion of said bellows and lowering said hammer causes collapse of said bellows, a tube extending through said barrel to a point near the muzzle thereof, said forward end disk having an opening therethrough through which said tube extends in tightly fitting relation, and flange means internally of said barrel near the muzzle thereof embracing the forward end of of said tube and forming with the muzzle of said barrel an open chamber capable of holding a small charge of pulverulent material.

3. A toy gun comprising a frame including a hollow barrel, a hammer pivotally mounted in said frame, means to actuate said hammer including a spring operatively associated therewith, a bellows mounted forwardly of the hammer, cooperative means on said bellows and frame anchoring the forward end of said bellows in said frame, the remainder of said bellows being freely positioned within said frame and having expansive movement in a rearward direction, a link having one end connected to the rear end of said bellows and its opposite end connected to said hammer whereby drawing the hammer rearwardly expands said bellows and movement of the hammer forwardly collapses said bellows, a tube of smaller diameter than the interior diameter of the barrel communicating with said bellows through the forward end thereof and extending forwardly through said barrel, and means retaining the free end of said tube in said barrel comprising a flange in said barrel spaced inwardly from the muzzle thereof and forming with the forward portion of said barrel an open chamber in which pulverulent material may be placed, said flange embracing the free end of said tube.

HARRY F. EVERETT.

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