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LOADING MECHANISM FOR CAP PISTOLS

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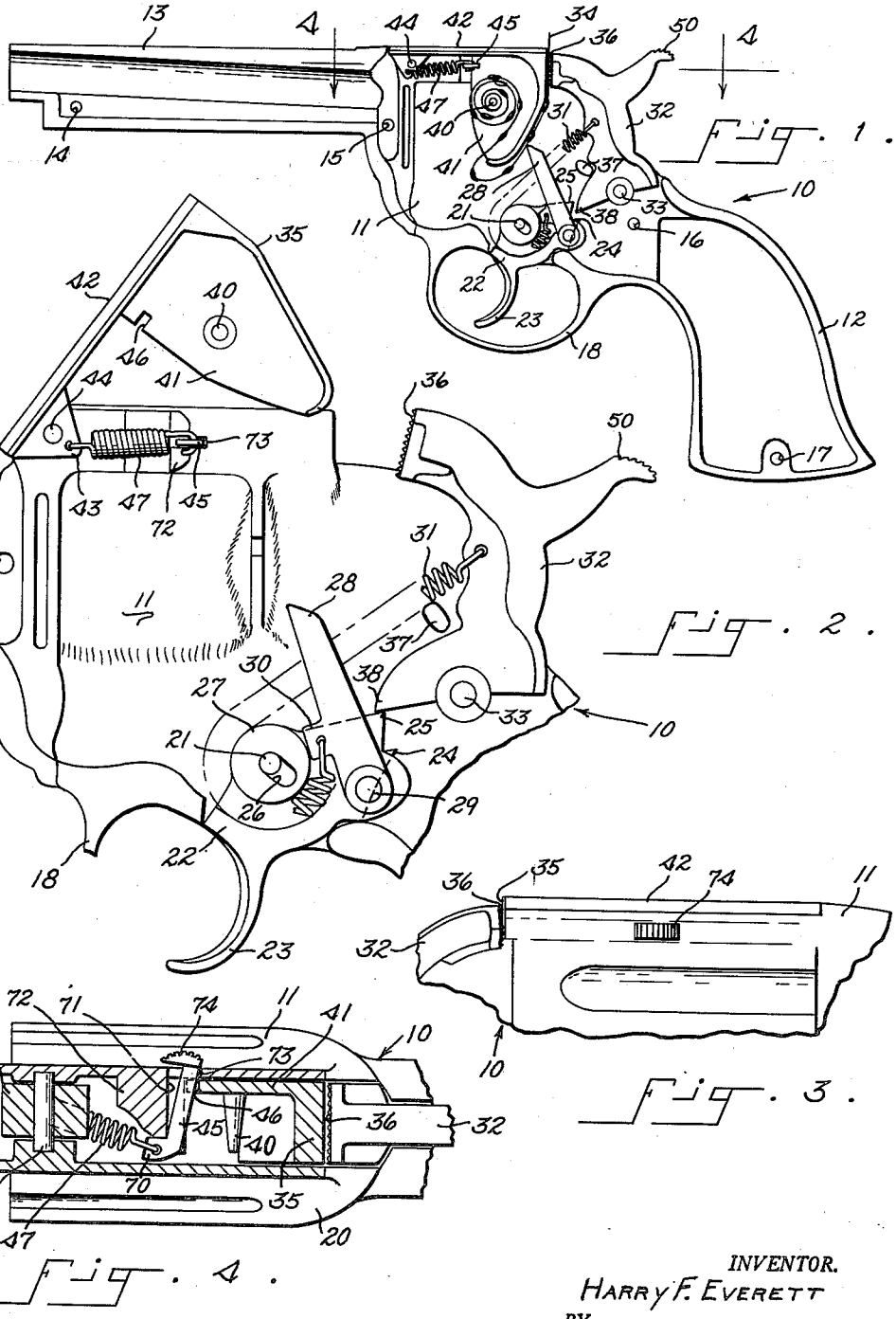


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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LOADING MECHANISM FOR CAP PISTOLS

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3 Claims. (Cl. 42—57)

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The present invention relates to cap magazine means for a toy gun. One of the principal objects of the present invention is to provide a gun into which a rolled strip of percussion caps may be inserted with reasonable assurance that accidental discharge of a cap while the fingers are close thereto may not occur.

A further object of the present invention is to provide a cap-holding magazine which may be automatically raised to a loading position upon release of a magazine-holding latch.

A further object of the present invention is to provide an improved, rugged mechanism of the character described made of a relatively few, sturdy, easily assembled parts.

The foregoing and other objects and advantages of the present invention may be more readily ascertained by inspection of the following specification taken in connection with the accompanying drawing wherein like numerals refer to like parts throughout, while the features of novelty will be more clearly 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 and the trigger has returned to its normal position;

Fig. 2 is an enlarged, partial view similar to Fig. 1 but showing the magazine in opened position and the trigger retained at half-cock for safety;

Fig. 3 is a partial view of the rear of the frame showing the magazine latch releasing member; and

Fig. 4 is a horizontal section, on an enlarged scale, taken substantially along the line 4—4 of Fig. 1.

The invention is herein illustrated as embodied in a toy gun simulating a double-action revolver. The gun comprises a frame 10 including a central portion 11, the exterior of which is 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 20 which is retained in place by rivets or screws passing through suitable openings in the cover (not shown) and in the frame, such as indicated at 14, 15, 16 and 17. The trigger guard 18 is mounted upon the frame 10 and the front sight (not shown) is mounted upon the muzzle portion of the cover 20, the arrangement being such that the trigger guard

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and front sight lie along the center-line of the revolver when the two complementary portions are joined together.

As fully illustrated, described and claimed in my copending application Serial No. 163,536, filed concurrently herewith, now Patent No. 2,561,849, issued July 24, 1951, a trigger pivot 21 is mounted in a 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 part 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, cylindical 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 at an inclination above the boss 27. A projection 30 on the lower surface of the feed 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 the 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 in 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 lug 27 so that the feed pawl 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. 2.

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 in normal released position as shown in Fig. 1. When the trigger is rotated by pulling the finger piece 23 rearwardly the spur 24 engages the toe 38 to raise the hammer. As soon as the hammer has been raised to a considerable extent beyond the position illustrated in Fig. 2 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 Fig. 1. The lock spur is now above and overhanging the lock toe, but the trigger may return to its normal position under the influence of the spring 31 because of the lateral displacement thereof permitted by 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 across the face of the anvil, 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 ridged 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 in a magazine comprising 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 and normally closing the magazine opening, the mounting thereof comprising a triangular lug 43 depending from the front end of plate 42 and a pivot pin 44 mounted in suitable bearing bosses on the frame 10 and cover 20 and passing through the lug. A magazine latch bar 45 projects through the side of the frame and normally engages a latch notch 46 in the forward edge of flange 41, the outer end of the latch bar being accessible and so arranged that it may be manually shifted forward to release the magazine. The latch bar 45 is biased toward holding position by a coil spring 47 tensioned between the inner end of the latch bar and a point on the lug 43 beneath the pivot 44. When the latch bar is released the spring 47 contracts to swing the magazine upwardly about pivot 44 to its open position as illustrated in Fig. 2 so that a fresh roll of caps may be mounted thereon and trained across the anvil.

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. 2. 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 released position when the trigger has been pulled rearwardly to its limit position, thereby removing the sear and lock spur from the path of the lock toe.

The latch bar 45 comprises a narrow bar having a forwardly hooked inner end 70 with which the spring 47 is engaged. The intermediate portion of the latch bar rests in a rearwardly facing groove 71 in a lug 72 projecting laterally from the frame 10 and providing a fulcrum against which the angular inner end of the latch is held by the spring 47. The outer end of the latch bar 45 projects through a latch opening 73 in alignment with the groove 71, the opening being of sufficient length in the longitudinal direction as to permit the outer end of the latch bar to be swung rearwardly by the spring 47 to cause the latch bar to engage notch 46 in the flange 41. The outer tip of the latch bar 45 comprises a grooved finger portion 74 of such size that it may not be drawn through the opening 73. In assembling the mechanism the spring 47 is hooked to the lug 43 and the latch bar 45 inserted through the opening 73 and properly positioned in the groove 71. The free end of spring 47 may now be hooked to the tip 70 of the latch bar while the magazine is raised so that the spring is relatively untensioned. Thereafter the rear end of the magazine plate 42 may be depressed so that it enters the space provided between the frame 10 and the cover 20. The forward edge of the flange 41 engages the rear edge of the latch bar 45 and cams it forwardly into the groove 71 until the latch bar snaps into the locking notch 46, as illustrated in Fig. 4. The magazine will remain in closed position until the tip 74 of the latch bar is pushed forwardly to clear the latch bar from the notch 46, whereupon the spring 47 will contract and swing the magazine upwardly about pivot 44.

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, a magazine adapted to hold a roll of caps, a horizontal pivot connecting said magazine to said frame, a latch bar pivotally mounted on said frame and engage-

able with said magazine to hold the magazine closed, said frame having an opening through which said latch bar projects to permit manual release thereof, and a coil spring interconnecting said magazine and said latch bar, said spring urging said magazine to swing open about said pivot and also urging said latch bar to remain in latching engagement with said magazine.

2. A toy gun comprising a frame having a longitudinal magazine opening in the upper surface thereof and a latch opening in its side, a horizontal pivot spanning the forward end of said magazine opening, a magazine pivotally supported on said pivot, said magazine including a magazine plate adapted to close said opening, an anvil depending from the rear end of said plate and means depending from said plate to support a strip of caps adapted to be trained across said anvil, a latch bar pivotally mounted in said frame, said latch bar having a portion engageable with said magazine to hold the magazine in closed position and an outer end projecting through said latch opening, and a coil spring tensioned between a portion of said latch bar and a portion of said magazine, said spring biasing said latch bar into latching engagement with said magazine, said spring also urging said magazine to swing about said pivot in a direction to elevate said means above said frame whereby the magazine is automatically opened when said latch bar is released.

3. A toy gun comprising a frame having a longitudinal magazine opening in the upper surface thereof and a latch opening in its side, a horizontal pivot spanning said magazine opening forwardly of said latch opening, a magazine pivotally supported on said pivot, said magazine including a magazine plate adapted to close said opening, an anvil depending from the rear end of said plate, a cap strip mounting flange depending from said plate and means on said flange to support a strip of caps adapted to be trained

across said anvil, a latch bar extending transversely of said frame and engageable with said flange to hold the magazine in closed position, said latch bar projecting through said latch opening and having a manually engageable portion lying outside of said frame, said manually engageable portion being larger than said latch opening, said frame having means thereon providing a slot in which said latch bar is loosely positioned and defining a fulcrum about which the latch bar may pivot, said fulcrum lying forwardly of said latch opening and said slot being open rearwardly, and a coil spring tensioned between the inner end of said latch bar and a portion of said magazine beneath said pivot, said spring biasing said latch bar into latching engagement with said magazine and also urging said magazine to swing about said pivot in a direction to elevate said means above said frame whereby the magazine is automatically opened when said latch bar is released, said flange having a notch in its forward edge into which said latch bar projects when in latching engagement, and said flange comprising a forwardly facing cam portion below said notch engageable with an intermediate portion of said latch bar as the magazine is being returned to closed position in order to cam said latch bar into said notch.

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