April 14, 1936. R. J. A. DUNCANSON 2,037,313

GUN

Filed Aug. 27, 1934 2 Sheets-Sheet 1

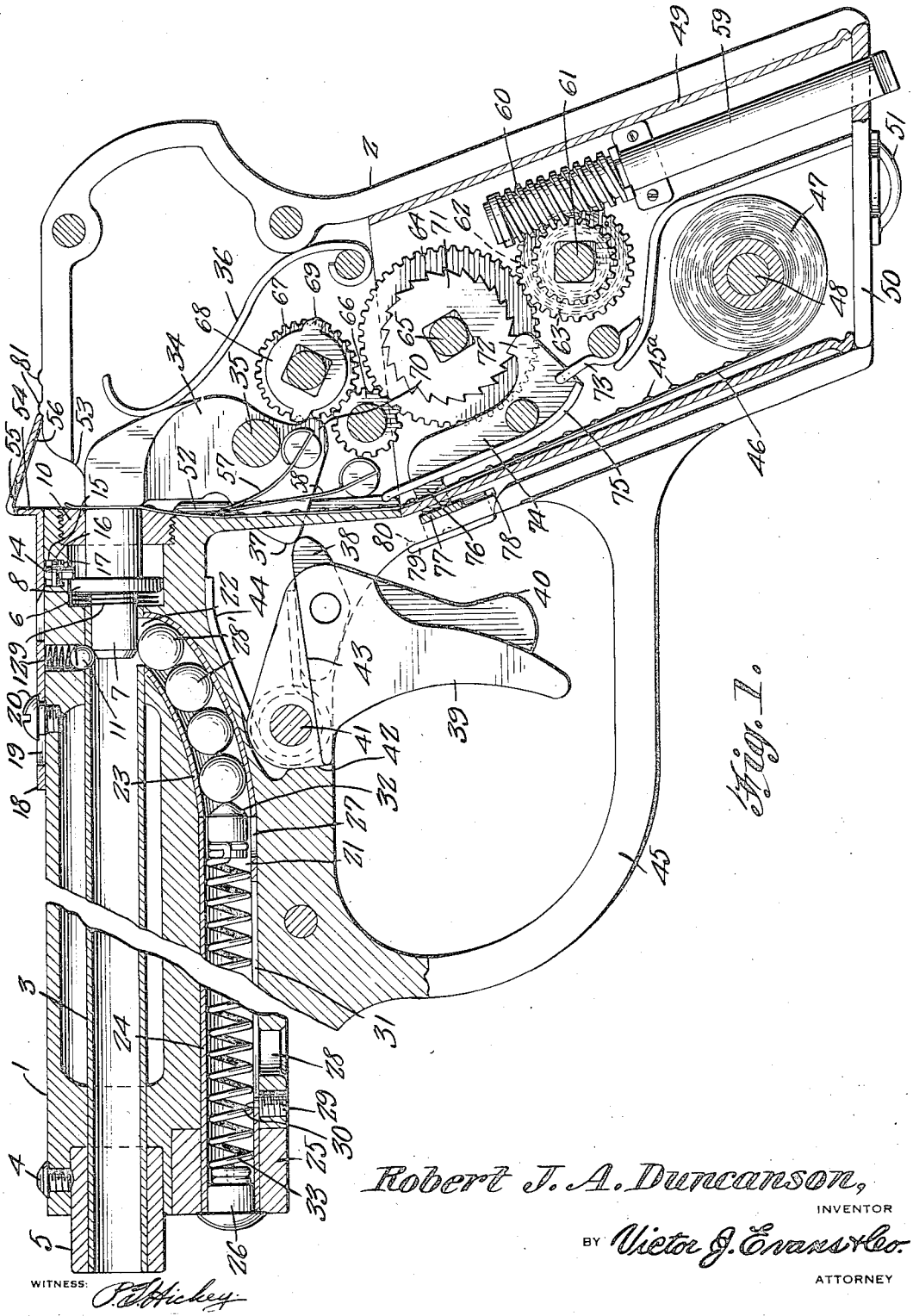


Fig. 1.

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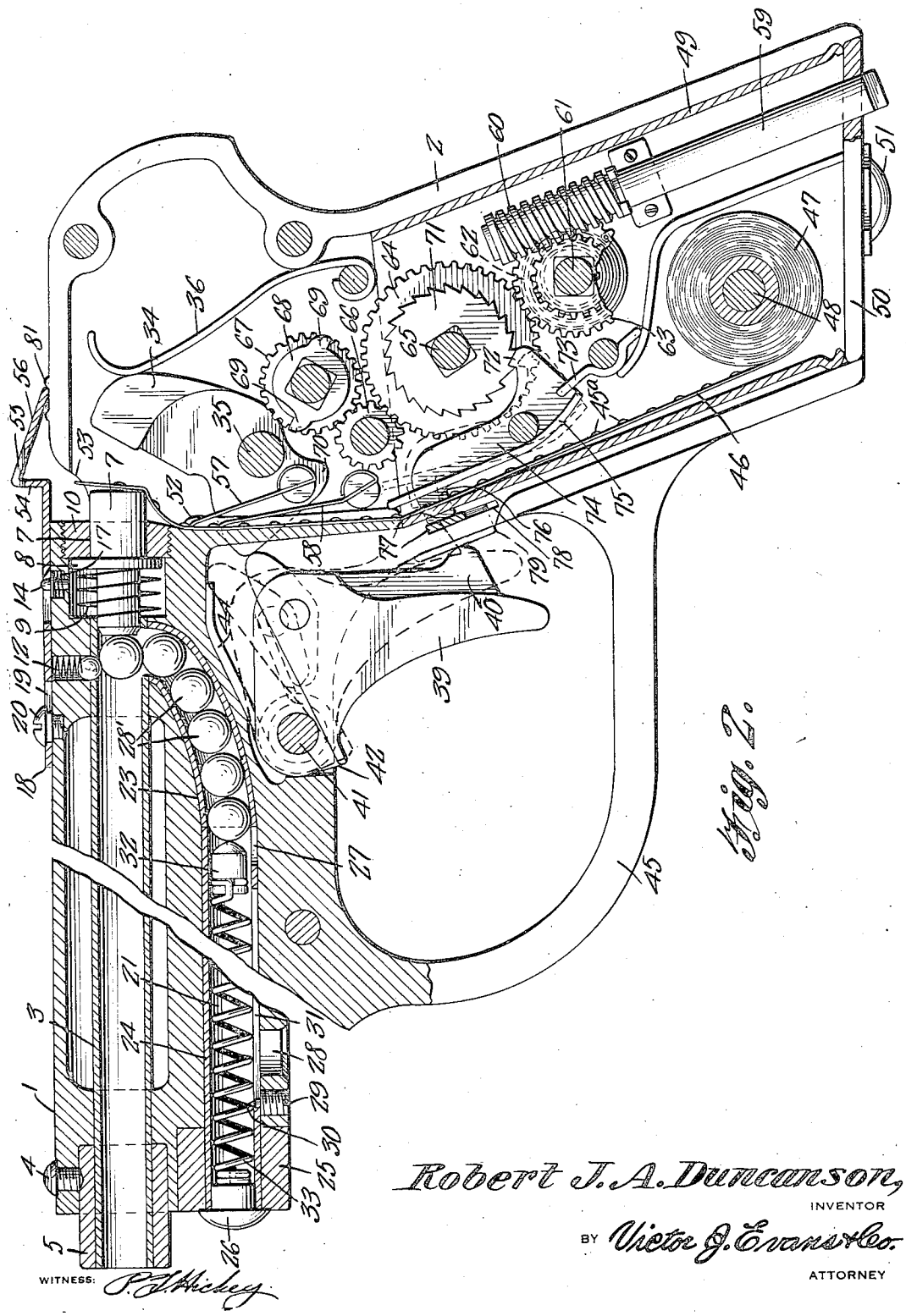


Fig. 2.

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2,037,313

UNITED STATES PATENT OFFICE

2,037,313

GUN

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Application August 27, 1934, Serial No. 741,694

2 Claims. (Cl. 124—13)

This invention relates to guns and has for its object the provision of a toy which can be fired to simulate the action of a machine gun and which may be caused to eject pellets or to explode caps. It is also an object to provide a toy of the stated type which will resemble a magazine pistol in appearance and which will be substantial but inexpensive in construction. These stated objects and other objects which will appear incidentally in the course of the following description are attained in such a device as is illustrated in the accompanying drawings, and the invention resides in certain novel features which will be particularly defined in the appended claims.

In the accompanying drawings:

Figure 1 is a longitudinal section of a toy gun embodying the invention and arranged to explode caps.

Figure 2 is a similar view showing the parts arranged to discharge a pellet.

The body of the gun comprises a forward tubular portion 1 and a rear frame or stock 2, the stock being hollow. A brass barrel 3 is disposed longitudinally in the forward portion of the body and is held in place by a set screw 4 mounted in the body and engaging in a collar 5 fitted securely upon the muzzle end of the barrel and seating in a recess provided therefor in the body, as shown. The set screw also forms a sight. The rear end of the body has its bore enlarged to form a chamber 6 in which is slidably mounted a plunger 7, the front end of the plunger being somewhat less in diameter than its rear end in order to enter the rear end of the barrel and impinge upon a pellet or projectile therein. The rear end of the plunger is plain and smooth so that it may serve as an anvil against which caps may be exploded, and between its ends an annular rib or shoulder 8 is formed on the plunger, an expansion coiled spring 9 being disposed in the chamber 6 between the rib and the front end of the chamber to press the plunger rearwardly. A plug 10 closes the rear end of the chamber and the impact of the rib 8 upon the plug prevents the plunger being ejected by the spring while a detent 11 limits the forward movement of the plunger from a blow by the hammer. The detent 11 is shown as a ball mounted in an opening 12 and yieldingly held in lowered position by a spring 13 in the opening resting on the ball. The ball rests in a seat provided therefor in the top of the barrel and projects through the seat into the path of the plunger a sufficient distance to arrest the movement of the plunger, as shown in Figure 1 and as will be understood. A locking pin 14 is mounted slidably in a recess 15 in the top of the body over the chamber 6 and its lower end may project through the bottom of the recess to engage behind the rib 8, as shown in Figure 1, to thereby hold the plunger in its forward position against the influence of the spring 9. An annular shoulder 16 is provided on the pin 14 and a spring 17, disposed between said shoulder and the bottom of the recess 15, tends constantly to lift the pin from its engagement with the plunger. To hold the pin depressed, a locking plate 18 is slidably mounted on top of the tubular forward portion of the body to extend over the pin and prevent its upward movement. It will be readily noted that a longitudinal slot 19 is formed in the locking plate so that when the plate is shifted to bring the slot over the locking pin, the pin may rise under the influence of its spring 17 but the width of the slot is such that the end of the pin may enter the slot but the shoulder 16 cannot enter. The pin, consequently, cannot be ejected and lost. It will also be noted that the rear end wall of the slot is beveled so that if the plate be in its rear position, shown in Figure 2, and be moved forward it will ride easily over the locking pin and depress the same. The locking plate also prevents the ejection and loss of the spring 12, and it is held in place by a set screw 20 inserted through the slot into the gun body, the head of the screw spanning the slot and resting upon the plate, said plate constituting a rear sight.

In the lower portion of the body is formed a loading passage 21, the rear end of which curves upwardly and registers with a hole 22 in the barrel at the rear end of the latter, the curved portion of the passage having a metal lining 23. In the straight forward portion of the passage 21 is slidably fitted a magazine tube 24 equipped at its front end with a knurled knob 25 whereby it may be easily grasped and manipulated, and a plug 26 closes the front end of the tube but its rear end is open. In the bottom of the tube, at its rear end, is a notch 27 which will register with a filling opening 28 in the bottom of the body, when the tube is drawn forward, to admit the pellets or other missiles 28. A set screw 29 is mounted in the body and has a projection 30 on its inner end engaging in a bayonet slot 31 in the tube. When the tube is inserted, the set screw is engaged in the lateral portion of the slot so that the tube cannot be accidentally dislodged. To withdraw the tube to permit refilling of the magazine, the tube is first rotated to bring the longitudinal branch of the slot into alinement with the screw and the tube is then drawn straight for-

ward. Reverse movements will return the tube to the position shown in the drawings. An ejector **32** is housed in the tube **24** and carried by one end of a spring **33**, the opposite end of the spring being fitted to the plug **26**. When the magazine is loaded, the spring will be compressed but will tend constantly to expand and drive the missiles into the barrel. If the plunger be in its forward position, it will extend across the end of the magazine and will prevent movement of the missiles into the barrel, as shown in Figure 1. If the plunger be retracted, a single missile may enter the barrel in front of the plunger and will be retained by the detent **11** until the gun is fired, rolling of the missile from the barrel when the gun is carried muzzle down being thus prevented.

The hammer **34** is arranged at the rear of the barrel and is pivoted in the frame **2** at a point **35** below the barrel, a spring **36** in the frame bearing upon the hammer to swing it forcibly against the anvil or rear end of the plunger. The hammer extends below its pivot and has a projecting corner **37** on its front edge to be engaged by the trigger cam **38** in the act of firing. Said cam is a substantially elliptical block pivoted between ends upon the trigger **39** and having its rear end normally projecting under the corner **37** of the hammer. The trigger is of a general triangular formation with a rear projection **40** near its lower end, the trigger being pivoted at its upper forward corner to the body, as shown at **41**, and having a short straight surface **42** at the front and below the pivot to abut a similar surface or shoulder on the body to prevent the trigger swinging so far as to lose its operative relation to the hammer. The trigger is formed, near its upper end, with a lateral shoulder or rib **43** against the under side of which the upper edge of the trigger cam bears and upon the top of which the trigger-return spring **44** bears. A trigger guard **45** of the usual or any preferred form is formed on or secured to the body and the stock.

When pressure is applied to the trigger, it will be rocked rearwardly and upwardly, as shown in Figure 2, and the movement will be transmitted through the trigger cam to the hammer which will be rocked into cocked position. If the pressure upon the trigger be continued, it will be rocked to the upper position shown by dotted lines and the trigger cam will clear the hammer which will thereupon be swung forcibly against the end of the plunger by the hammer spring **36**. When the parts are arranged as in Figure 1, the impact of the hammer will explode a cap, and when the plunger is set with its rear end projecting, as in Figure 2, the impact of the hammer will drive the plunger forward and eject the missile resting against the front end of the plunger. When the pressure upon the trigger is released, the spring **44** will at once return it to the initial position, the cam **38** turning on its pivot to yield to and pass the corner of the hammer and then resuming its normal position to engage under the hammer.

The caps **45a** are formed on a narrow strip **46** of paper or other cheap material and formed into a roll **47** which is fitted over a stud or similar support **48** in a box or case **49** which may be slid into the hollow stock, said case being provided with a closed end **50**, having an eye **51** secured thereto, to be engaged by a ring or other suspending device. At the upper end of the box or case **49**, a vertical guide channel or plate **52** is provided on the rear end of the tubular body and the strip of caps passes through this guide to a position against the anvil or end of the plunger, passing out through an opening at **53** in the frame. It will be noted that the slide **18** extends beyond the body to rest at its rear end upon the frame, being formed with an upstanding portion **54** which provides a convenient finger hold for adjusting the slide. At the upper end of the finger hold is an opening **55** for the escape of the fumes produced by the explosion, and the plate extends downwardly and rearwardly from the finger hold to form a shield **56** guarding a child's eyes from the flash of the explosion and from possible burning scraps of paper.

Secured to and projecting upwardly and forwardly from the lower end of the hammer is a feeder **57**, preferably in the form of a spring finger which is arranged to engage below the successive caps and feed them to the anvil step by step as the hammer rocks. When the hammer turns to cocked position, the feeder finger moves upwardly and feeds the caps forwardly, the finger receding as the hammer swings to the anvil. A dog **58**, similar to the feeding finger, is secured in the frame below the hammer and engages the caps to prevent retrograde movement when the feeding finger is retracted. It will be understood that the spacing of the caps corresponds to the throw of the hammer so that the successive caps wil be properly centered against the anvil.

A worm shaft **59** is suitably journaled in the box **49** adjacent and parallel with the rear side of the box, the lower end of the shaft projecting through the closure **50** and constructed to be engaged by a turning key. A worm gear **60** meshes with the worm of the shaft **59** and is fixed upon a winding shaft **61** journaled in the case, a coiled spring **62** having one end secured to said shaft and its opposite end secured to a driving gear **63** which is held loosely on the shaft. The gear **63** meshes with an intermediate gear **64** carried by a shaft **65** in the upper part of the box, said gear **64** meshing with a transmission pinion **66** which in turn meshes with a gear **67** immediately at the rear of the lower end of the hammer. A disk **68** having peripheral cam lugs **69** is fixed to the side of the gear **67** and when the gear train is set in motion, the lugs **69** will impinge upon a rear nose **70** of the hammer to rock the latter. A ratchet **71** is fixed to the side of the gear **64** and is engaged by a pawl **72** which normally restrains the gear train, being yieldably held to the ratchet by a spring **73**, as will be understood. The pawl is extended upwardly beyond its pivot, as shown at **74**, and its forward edge lies close to the front side of the case to guard against movement of the cap strip from the prescribed path. To further maintain the strip in the proper path, a flange **75** is formed along the forward edge of the pawl, as shown. At the upper extremity of the pawl extension is a push button **76** which extends through an opening, provided therefor in the casing, in position to be engaged by the lug **40** on the trigger. When the push button is subjected to pressure from the trigger, the pawl will be rocked out of engagement with the ratchet whereupon the spring **62** will set the train of gears in motion to effect rapid firing of the caps as long as the pawl is held inactive or until the spring runs down. Rewinding of the spring is accomplished by rotating the worm shaft **59**.

A safety plate **77** is slidably mounted in slots **78** in the sides of the frame and is adapted to extend across the end of the push button and

prevent its engagement by the trigger when continuous rapid firing of the caps is not desired. The caps may then be fired singly and at longer intervals by operation of the trigger in the usual manner. If the safety plate be slid downwardly, the button will be exposed and the pawl may be released. To facilitate shifting, the plate is provided with side flanges **79** having lugs **80** at their upper ends to seat in notches provided therefor in the frame so as to hold the plate in a set position.

On top of the frame are spaced projections **81** against which the end of the slide rests in its respective set positions.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that I have provided a toy gun which may be safely used and by which caps may be exploded or missiles projected, or caps exploded as missiles are projected, the flexibility of the cap strip permitting it to be trained past the plunger when the plunger is set rearwardly, as in Figure 2. The missiles may be beans, peas or small balls of putty, clay or other material.

Having described my invention, what I claim is:

1. A gun having a tubular body with an enlarged bore at its rear end, a barrel in the body, a plunger in the barrel extending into the enlarged bore of the body, mean yieldably moving the plunger rearwardly, means to limit the movement of the plunger, a rib on the plunger, a stop pin in the body adapted to engage behind the rib to lock the plunger in its forward position, a spring on the pin tending constantly to release said plunger, and a slotted slide on the body extending across the pin to hold it in engagement with the plunger, the pin being released when a slot in the slide is presented thereto.

2. A gun having a barrel, an anvil at the rear end of the barrel, means for exploding caps on the anvil, a slide forming a flame shield above the anvil, and having the sides open to the atmosphere, the slide being formed with an upstanding rear portion forming a finger hold for adjusting the slide and provided at the top with a notch forming a rear sight, and stops on the gun engaging the rear end of the slide for holding the slide in adjusted positions.

ROBERT J. A. DUNCANSON.