Nov. 15, 1955 W. O. HERSEY 2,723,491

TOY GUN

Filed Feb. 14, 1952

Fig. 1.

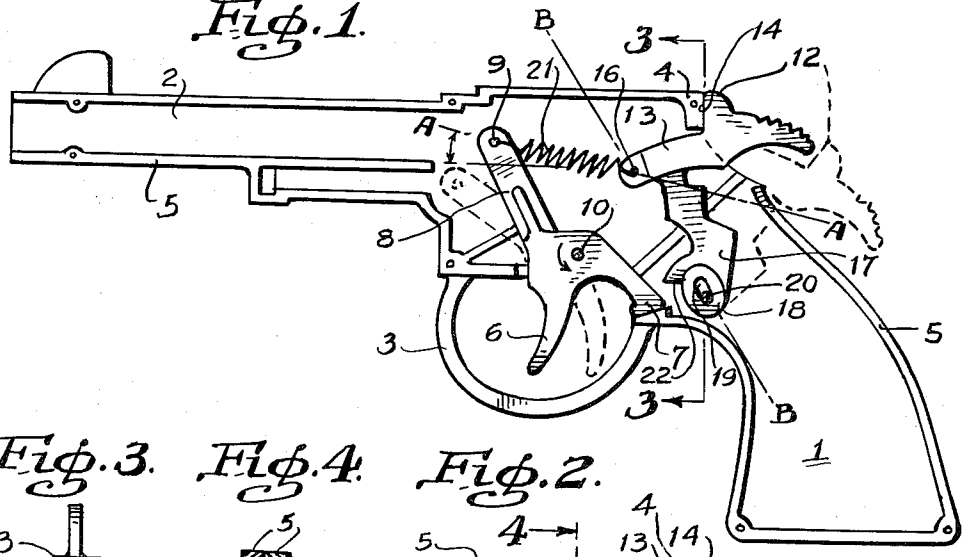


Fig. 3.

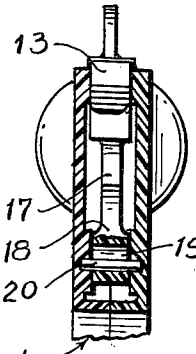


Fig. 4.

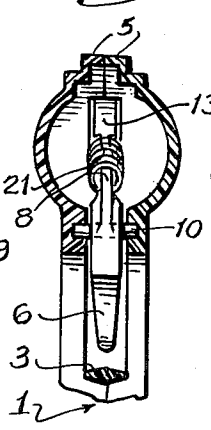


Fig. 2.

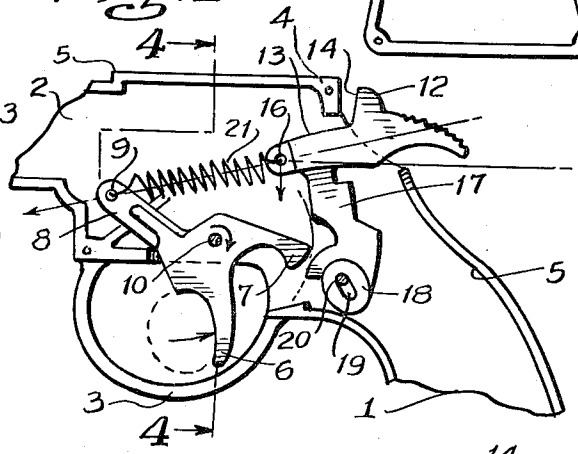


Fig. 5.

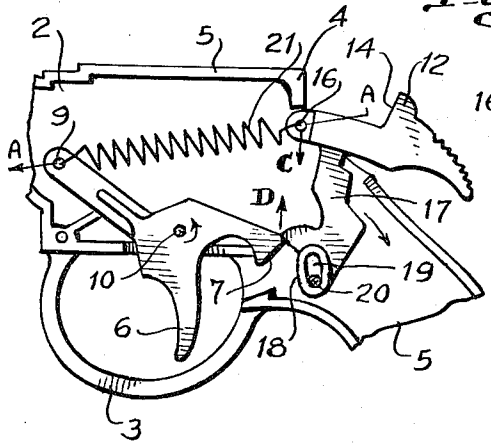


Fig. 6.

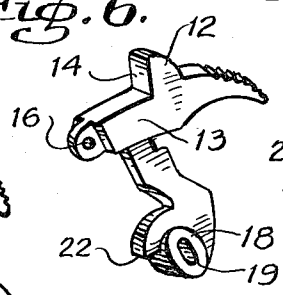
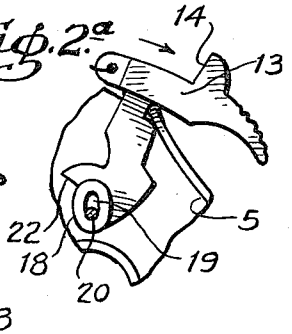


Fig. 2a



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TOY GUN

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Application February 14, 1952, Serial No. 271,526

2 Claims. (Cl. 46—191)

This invention relates to a noise-making toy gun, and particularly to the trigger and hammer mechanism for such gun.

The trigger and hammer mechanism of my invention is simple in that it has only two moving parts and may be mounted on two pins. The construction is rugged and produces a loud and realistic sound. While I have designed it for a toy gun, it will, as will be evident to those skilled in this art, be adaptable to a real gun.

My invention will be further described in connection with the drawing, in which

Fig. 1 is a half section of the gun showing the trigger and hammer mechanism in rest position or in the equivalent firing position;

Fig. 2 is a detail of the trigger and hammer, the hammer head approaching striking position;

Fig. 2*a* is a detail of the trigger in cocked position;

Fig. 3 is an irregular section taken on line 3—3 of Fig. 4;

Fig. 4 is an irregular section taken on line 4—4 of Fig. 2;

Fig. 5 is a detail section of Fig. 2, showing the hammer approaching the cocked position shown in Fig. 2*a*;

Fig. 6 is a perspective view of the hammer head.

The gun as illustrated is made in two molded halves, conveniently but not necessarily of plastic. The halves when assembled in the conventional manner make up a gun. Each half contains the handle **1**, the barrel **2**, the trigger guard **3**, and the anvil **4**. The halves carry a peripheral flange **5** which, when nested or abutted against the peripheral flange of the other half, complete the housing of the gun.

Nested between the two halves is the hammer and trigger mechanism. The trigger is cast or, if desired, forged to include a trigger finger **6**, a dog **7**, and a spring support rod **8** which carries a bore **9** near its end. The trigger is pivoted on pivot pin **10** passing through the two halves of the gun.

The hammer is composed of a hammer head **12** forming a part of the hammer head arm **13** which extends in a roughly perpendicular direction to the hammer face **14** of the hammer head **12**. At the extreme end of the arm **13** is a bore **16**. The radius arm **17** extends in an approximately perpendicular direction to the arm **13** and terminates in a hub **18** containing a slot **19**. The pin **20** passes through the slot and is fixed in each of the halves of the gun on assembly thereof. The radius arm carries a cam shoulder **22**. The length of the arm of the dog **7** from the pivot pin **10** is such as to intersect the cam shoulder **22**. The tension spring **21** is connected to the hammer and the trigger by positioning its ends in suitable spring supports, to wit, in the bores **9** and **16**.

One of the important and novel features of my trigger and cocking mechanism is the simplicity of the mechanism whereby the single movement of the trigger both cocks and trips the hammer. As will be observed, the point of support of the spring on the hammer, i. e., bore **16**, and the point of support of the spring on the trigger, i. e., **9**, is such that the axis A—A of the spring makes an acute angle with the horizontal. The length of the arm **8** and the radius arm **17** are such that at this position, with the trigger **6** in the uncocked position of Fig. 1, the spring is in tension. The resultant of this tension force, applying the simple principle of the resolution of forces, is a component of force along the axis of the slot, tending to pull the hammer upward in the direction of the arrow on B—B and holding the pin **20** against the base of the slot **19**, as shown in Fig. 1. As the trigger **6** is pulled counterclockwise, the arm **8** and the dog **7** pivot counterclockwise about the pin **10**. The bore **9** moves to a position below the horizontal (see Fig. 5) so that the axis of the spring A—A now makes a reflex angle with the horizontal. The resultant of the tension force axially of the spring i. e., along the axis A—A, is a downward push on the radius rod **17** (arrow C). However, the dog **7**, abutting against the cam shoulder **22** as the trigger rotates counterclockwise during the cocking motion, creates a pressure in a tangential and upward direction (arrow D) sufficient to overcome the downward force represented by arrow C. The result is that during the counterclockwise rotation of the trigger, the radius arm **17** and the hammer are rotated clockwise with the pivot pin **20** in the lower end of the slot **18**. As the trigger completes its counterclockwise rotation it clears the cam shoulder. The upward force imposed on the cam shoulder by the dog **7** (arrow D) is released and the downward force (arrow C), resulting from the positioning of the spring axis A—A at a reflex angle to the horizontal, snaps the hammer **12** and radius arm **17** downward so that the pin **20** is now in the upper end of the slot **19** (see Fig. 2). At the same time the tension of the spring will pull the hammer head forward so that the face of the hammer head **12** slaps against the anvil **4** with a loud bang.

It will be observed that the axis of the slot **19** in Fig. 2 is inclined to the vertical at an acute angle in a counterclockwise direction, so that as the radius arm moves down in taking the position shown in Fig. 2, with the hammer against the anvil, the extreme edge of the cam shoulder has moved to the right, that is, the radius of the end of the cam shoulder about the pin **20** has shortened. Thus, when the trigger is released the spring tension moves the trigger to its rest position (see Fig. 1), the trigger rotates clockwise and the extreme end of the dog **7** clears the end of the cam shoulder. Now, however, the spring and arm **8** are above the horizontal, as in Fig. 1, and the resultant of the force causes the radius arm to be raised and the pin to move to the bottom of the slot, thus completing the cycle.

While I have described a particular embodiment of my invention for the purpose of illustration, it should be understood that various modifications and adaptations thereof may be made within the spirit of the invention as set forth in the appended claims.

I claim:

1. A pistol comprising a barrel, an anvil, a hammer carrying a hammer head, a radius rod, said hammer being mounted on said radius rod, a pivot pin, a slot in said radius rod, the axis of said slot being at an acute angle to a vertical to the axis of said barrel, said pivot pin being positioned in said slot and said hammer head being in striking relation to said anvil on rotation of said radius rod about said pin, a trigger, a second pivot pin, said trigger being pivotally mounted on said second pivot pin, an arm connected to said trigger, a spring connected to said arm and to said hammer, normally holding said radius rod in a raised position with its pivot pin disposed in the lower end of said slot, a dog connected to said trigger, and a cam shoulder on said radius rod cooperating with said dog under the force of said spring so that when

the trigger is operated the hammer is first rotated to cocked position, the radius rod is moved to the position with the pivot pin disposed in the upper end of the slot, and to return the hammer to normal position with a hammer blow against the anvil.

2. A pistol comprising a barrel, an anvil, a hammer carrying a hammer head, a radius rod, said hammer being mounted on said radius rod, a pivot pin, a slot in said radius rod, said pivot pin being positioned in said slot and said hammer head being in striking relation to said anvil on rotation of said radius rod about said pin, a trigger, a second pivot pin, said trigger being pivotally mounted on said second pivot pin, an arm connected to said trigger, a spring connected to said arm and said hammer, the point of connection of said spring to said arm being above a line parallel to the axis of said barrel

and passing through the point of connection of said spring to said hammer and normally holding said radius rod in a raised position with its pivot pin disposed in the lower end of said slot, a dog connected to said trigger, and a cam shoulder on said radius rod cooperating with said dog under the force of said spring so that when the trigger is operated the hammer is first rotated to cocked position, the radius rod is moved to the position with the pivot pin disposed in the upper end of the slot, and to return the hammer to normal position with a hammer blow against the anvil.

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