Nov. 24, 1953 L. H. STRAYER 2,660,000

TOY SOUNDING FLASH GUN

Filed Aug. 10, 1950 2 Sheets-Sheet 1

FIG. 1

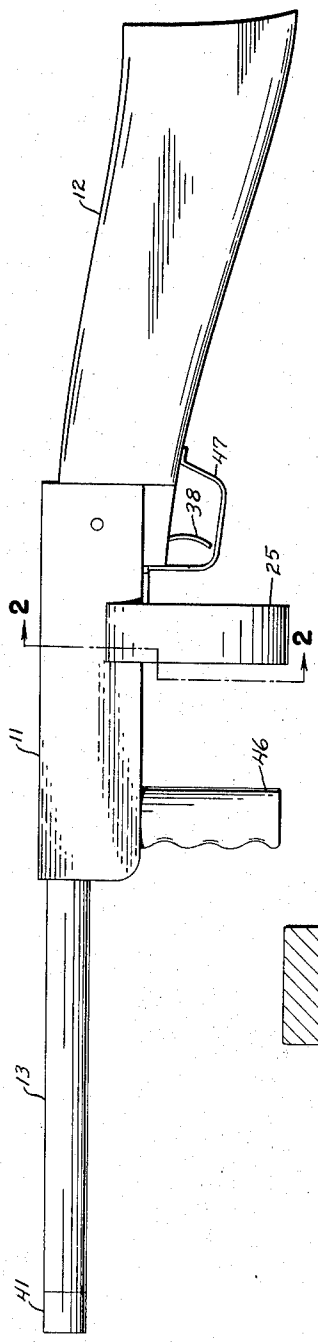
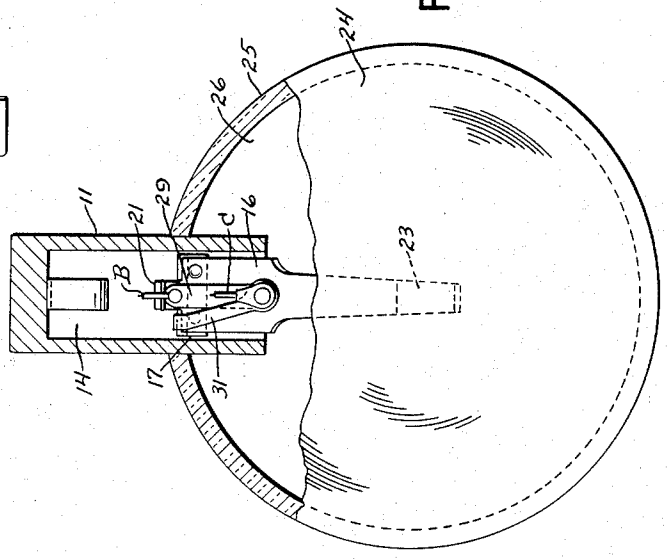


FIG. 2



INVENTOR.
LAWRENCE H. STRAYER
BY
William Cleland
ATTORNEY

Nov. 24, 1953 L. H. STRAYER 2,660,000

TOY SOUNDING FLASH GUN

Filed Aug. 10, 1950 2 Sheets-Sheet 2

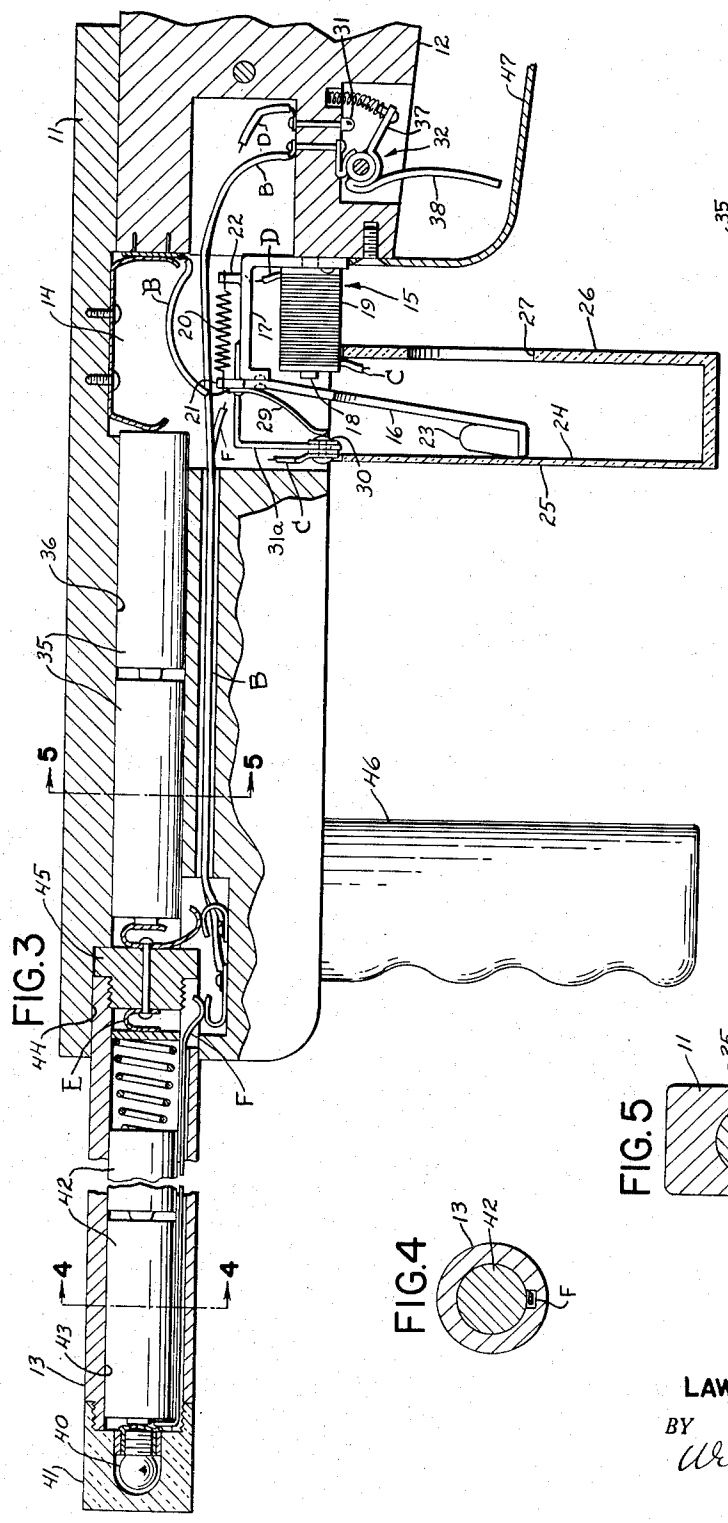


FIG. 3

FIG. 4

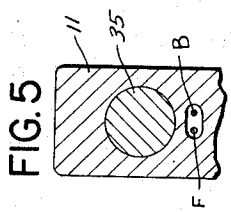


FIG. 5

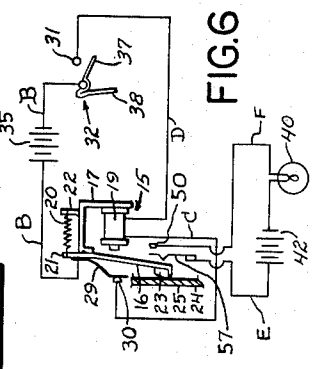


FIG. 6

INVENTOR.
LAWRENCE H. STRAYER
BY William Cleland
ATTORNEY

Patented Nov. 24, 1953

2,660,000

UNITED STATES PATENT OFFICE

2,660,000

TOY SOUNDING FLASH GUN

Lawrence H. Strayer, Kent, Ohio

Application August 10, 1950, Serial No. 178,615

3 Claims. (Cl. 46—175)

1

This invention relates to toys for amusement, and in particular relates to a toy gun.

One object of the invention is to provide a toy gun having incorporated therein a novel noise-making device operable in simulation of machine gun fire.

Other objects of the invention will be manifest from the following brief description and the accompanying drawings.

Of the accompanying drawings:

Figure 1 is a side elevation of a toy gun embodying the features of the invention.

Figure 2 is an enlarged cross-section, taken substantially on the line 2—2 of Figure 1.

Figure 3 is an enlarged side view of the forward portion of the gun as shown in Figure 1, partly broken away and in section and with a portion of the light circuit of Fig. 6 omitted.

Figures 4 and 5 are cross-sections taken substantially on the lines 4—4 and 5—5 of Figure 3, respectively.

Figure 6 is a wiring diagram for electrical connections in the gun.

Referring to the drawings, in Figures 1 to 5 there is shown a toy gun simulating a machine gun, the same including an elongated stock or body 11, a shoulder piece 12 removably attached to one end of the stock, and a cylindrical barrel 13 removably mounted at the opposite end of said stock.

Secured to the inner end of the shoulder piece 12, to extend into a chamber 14 in the gun stock 11, may be an electrically operable vibrator unit 15 wherein an armature arm 16 is pivoted on a bracket 17 to be attracted to a fixed core 18 of an electromagnetic coil 19, against the action of a tension spring 20 arranged between an extension 21 of the arm and a lug 22 on bracket 17, when the coil is electrically energized. Arm 16 has a weighted head 23 at its free end to be within striking distance from a sounding board 24 of glass, hard plastic, wood, or similar material capable of producing a sharp noise when struck with a hard object, such as head 23. The sounding board may constitute one wall of a circular sound-amplifying box 25 which is secured to the stock 11 in simulation of a shell magazine of the gun. A wall 26 of the box 25, in spaced relation to board 24, is centrally apertured at 27 to provide the requisite tone quality of sound emanating from the box when the board 24 is struck by the vibrating armature arm.

The armature arm 16 may be of suitable electro-magnetic material, such as soft iron, and in the normal inoperative position thereof shown in

2

Figures 3 and 6 is held with the head 23 against sounding board 24 by the spring 20. In this position, however, a flexible leaf spring 29 of electro-conductive material, extending freely from the pivot end of the arm, is in yielding engagement with a contact point 30 on a clip 31a secured to bracket 17. As best shown in Figure 3, contact 30, through a line C, coil 19, and a line D electrically connects with a contact 31 of a trigger operated switch 32 mounted in the stock 11, while the leaf spring 29 connects the other side of switch 32 through a line B, and a plurality of dry-cell batteries 35, 35, arranged in series in line B, within a cylindrical bore 36 through the stock 11. Switch 32 includes a pivoted contact member 37, normally spring-pressed out of engagement with contact 31, and having constant connection to the line B, the switch being closed by yieldingly pressing with a finger an angular trigger extension 38 on the member until it engages contact 31. This arrangement is such that by pulling trigger extension 38 to close switch 32 and electrical circuit is completed through the batteries 35 to energize coil 19, which immediately draws arm 16 away from the sounding-board 24. At the same time leaf spring 29 is drawn out of engagement with contact 30 to open said circuit and de-energize the coil, thereby allowing spring 20 to move arm 16 back to its original position and in so doing to strike the head 23 sharply against the sounding board. As long as switch 32 is thus held closed, this hammer action of the arm 16 will be repeated with a vibratory effect producing a rapid succession of staccato sounds on the board 24, as amplified by the sound box 25.

If desired for more realistic effect, a small lamp 40 may be suitably mounted within a cap 41 of transparent material, such as glass, synthetic resin plastics, etc., threaded onto the outer end of the barrel. For this purpose the lamp may be directly connected in the make-and-break circuit described above, or it may be connected, as shown in Figure 6, in a separate circuit, one line F of which extends from one side of the lamp to a relatively fixed contact 50, and another line E, including dry-cell batteries 42, 42, extends to a movable contact 57, which in turn is moved by the hammer 16 to provide make-and-break engagement with contact 50. The flashing of light is the same as before, although it is stronger because the current is not drained by operation of the coil 19. The dry-cell batteries 42, 42 are removably mounted in a cylindrical bore 43 of barrel 13, as shown in Figure 3. In either instance the lamp 40 will flash through the transparent cap 41, si-

multaneously with the hammering action of the head **23**, as long as the switch **32** is held closed. The cap **45** and pin extending therethrough are non-conductive.

The barrel **13** is shown removably inserted in a socket **44** in the outer end of the stock **11** for ready replacement of the batteries **35**. The batteries **42** in the barrel are similarly easily removed by unscrewing a cap **45** on the inner end thereof while the barrel is removed from the stock **11**. Suitable spring contact connections are provided in the wiring circuit as best shown in Figure 3, to facilitate removal of the various parts and the batteries as described.

For holding or supporting the gun a hand grip **46** is secured to the bottom of the stock **11**, forwardly of the sound box **26**, and a trigger guard **47** is provided on the bottom of the stock, under the trigger.

In use of the toy gun it is supported by a child in the manner of a machine gun as with the shoulder piece held against a shoulder or hip, by the child grasping hand grip **46** in one hand while a finger of the other hand is inserted forwardly of the trigger extension **38**, within the trigger guard **47**. Upon depressing the trigger extension **38** with said finger, contact **32** is closed to energize the coil **19**, thereby to vibrate the armature arm **16**. The resulting hammering action of the head **23** on the sounding board produces, through the amplifying box **25**, a series of staccato sounds in simulation of the firing of a machine gun.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. A toy gun comprising a stock, a sounding board mounted on said stock, an arm swingably mounted and having a weighted head at a free end thereof in striking relation to said sounding board, and battery operated vibratory means operable to swing said arm with vibratory action and thereby strike said head thereof against said sounding board in successive noise-making blows, said gun having a barrel mounted on said stock, a lamp mounted in said barrel at the free end thereof, and battery operated electrical means operable by said vibratory means in synchronization with said vibratory action of said arm for intermittently lighting said lamp.

2. A toy gun comprising a stock, a sounding board mounted on said stock, an arm swingably mounted to extend freely to have a weighted head at a free end thereof in striking relation to said sounding board, and actuating means operable to swing said arm with vibrating action and thereby strike said head thereof against said sounding board in successive noise-making blows, said actuating means including an electro-

magnet in which said arm constitutes a movable armature thereof, a source of electrical current, a manually operable switch, an electrical circuit connecting said current source to said electro-magnet through said switch, a second switch in said circuit operable by said arm, resilient means on said arm normally holding said second switch closed, said second switch being intermittently opened while said manually operable switch is held closed to open said circuit by attraction of said arm to said electro-magnet each time the second switch is closed by said resilient means, said gun having a barrel mounted on said stock, a lamp mounted in said barrel at the free end thereof, and electrical connections from said lamp to said circuit intermittently to light said lamp in coordination with said vibratory action of said arm.

3. A toy gun comprising a stock, a sound-amplifying box mounted on said stock, one wall of said box constituting a sounding board and another wall spaced therefrom having an aperture therein for improving the tone of sound emanating from the box, an arm swingably mounted to extend freely within the box in the direction of the plane of said sounding board and having a weighted head at a free end thereof for striking said sounding board, and actuating means operable to swing said arm with vibratory action and thereby strike said head thereof against said sounding board in successive noise-making blows, said actuating means including an electro-magnet in which said arm constitutes a movable armature thereof, a source of electrical current, a manually operable switch, an electrical circuit connecting said current source to said electro-magnet through said switch, a second switch in said circuit operable by said arm, resilient means on said arm normally holding said second switch closed, said second switch being intermittently opened while said manually operable switch is held closed to open said circuit by attraction of said arm to said electro-magnet each time the second switch is closed by said resilient means, said manually operable switch including electrical contact means in said circuit and a spring-pressed pivoted element simulating a finger trigger on the gun stock, said trigger having a portion operable with movement thereof to close said contact means.

LAWRENCE H. STRAYER.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
876,088	Pfeil	Jan. 7, 1908
1,272,353	Appell	July 16, 1918
2,208,313	Schmidt	July 16, 1940
2,420,076	Goodwin et al.	May 6, 1947