

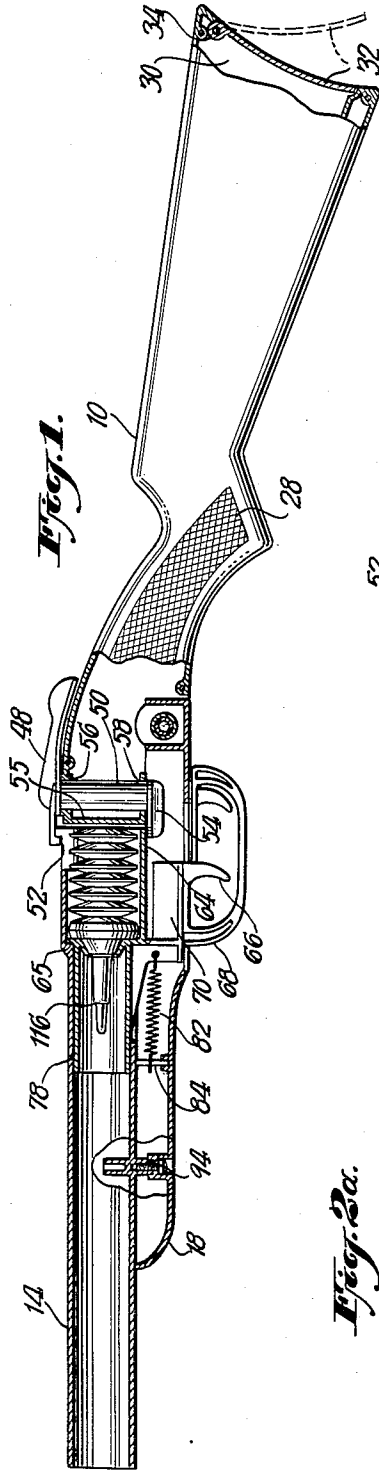
Feb. 27, 1962

E. BENKOE  
TOY GUNS

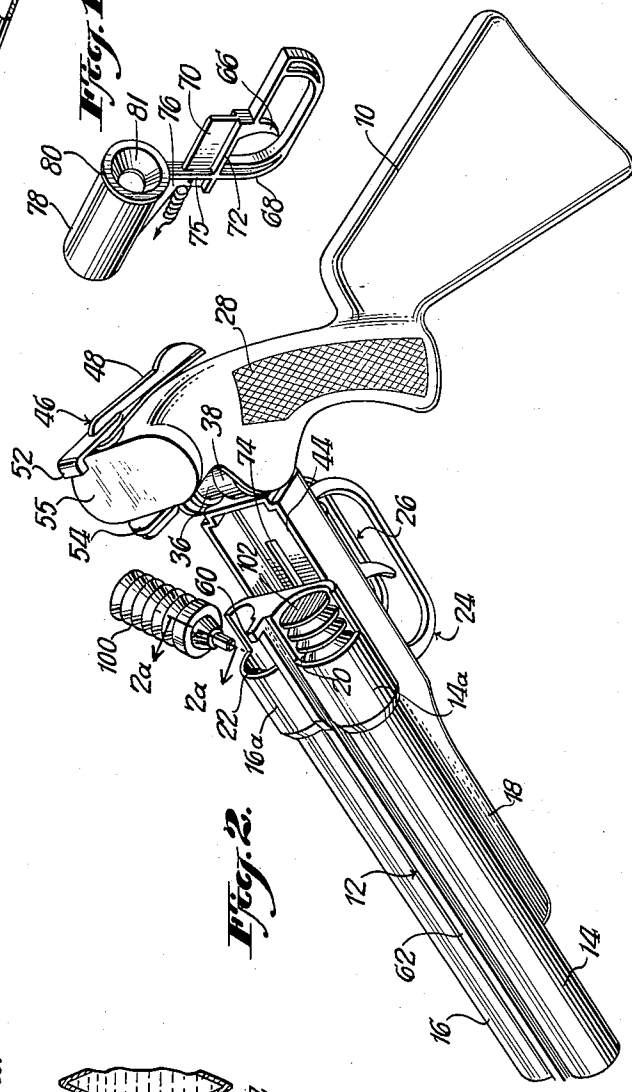
3,022,779

Filed June 14, 1960

2 Sheets-Sheet 1

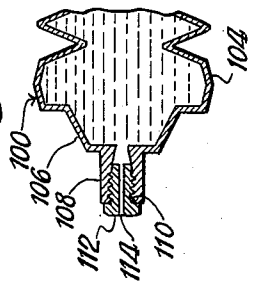


*Fig. 1a.*



*Fig. 2.*

*Fig. 2a.*



INVENTOR  
ERWIN BENKOE  
BY  
Sweedler and Zucker  
ATTORNEYS

Feb. 27, 1962

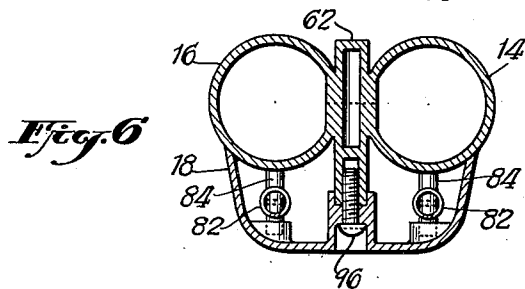
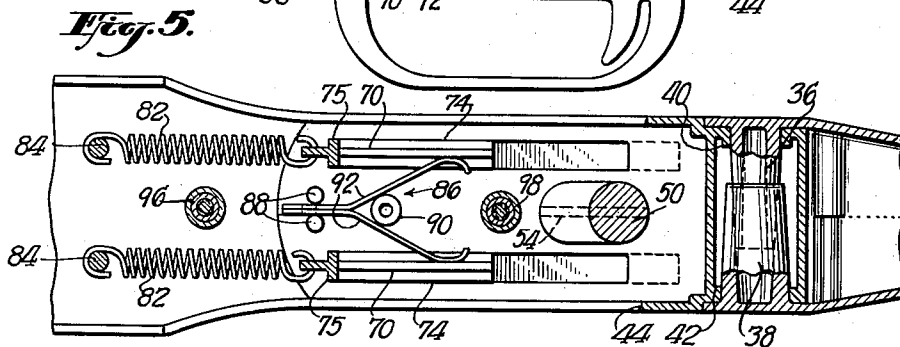
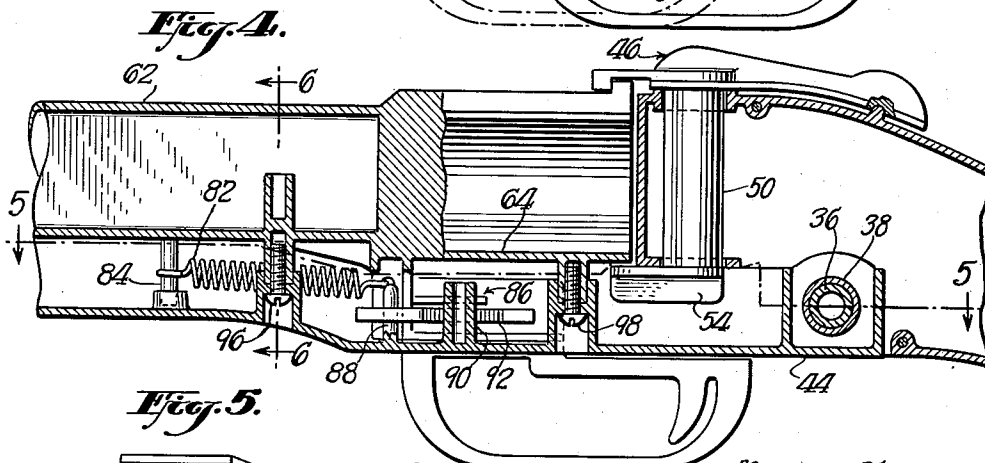
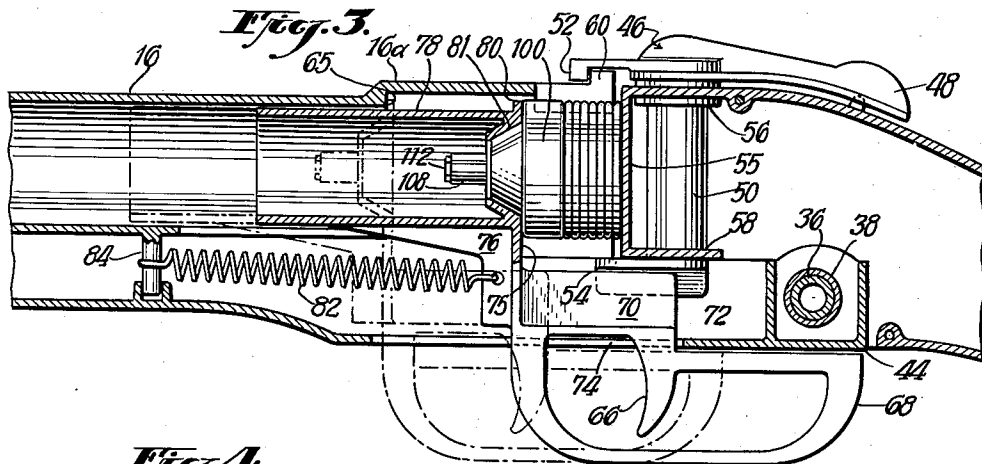
E. BENKOE

3,022,779

TOY GUNS

Filed June 14, 1960

2 Sheets-Sheet 2



INVENTOR  
ERWIN BENKOE  
BY  
Sweadler and Zucker  
ATTORNEYS

1

3,022,779  
TOY GUNS

Erwin Benkoe, New Hyde Park, N.Y., assignor to Transogram Company, Inc., New York, N.Y., a corporation of Pennsylvania

Filed June 14, 1960, Ser. No. 36,020  
5 Claims. (Cl. 124-11)

This invention relates to a toy gun, and more particularly to such a gun capable of acting as a multiple shot water gun.

One of the objects of this invention is to provide a toy water gun which will spray multiple streams of water in response to several squeezes of an actuating trigger, without necessitating complicated fluid reservoirs or requiring reloading of the gun.

Another of the objects of the present invention is to provide a toy gun which will interchangeably spray water or other liquid and fire toy bullets or other projectiles, which gun is simply constructed, easily operated and is a harmless toy.

Other objects and advantages of the invention will appear hereinafter from the following description and the attached drawings illustrating one embodiment thereof.

The toy gun includes a stock having at least one gun barrel connected therewith, a loading chamber connected to the barrel, a compressible bellows which seats within the chamber for spraying water or other liquid therefrom, and a trigger assembly mounted in association with the barrel, which assembly includes a trigger, a bellows compressing means for compressing the bellows within the loading chamber, and resilient means urging the bellows compressing means away from the loading chamber, the trigger effecting either gradual or sudden motion of the bellows compressing means through the loading chamber against the force exerted by the resilient means in order to gradually or rapidly compress the bellows and thus facilitate spraying either multiple bursts or a single stream of water from the gun barrel. The toy gun preferably also includes an additional bellows for seating and projecting a toy bullet or other projectile therefrom, which additional bellows is individually seated within the loading chamber and is squeezed by the compressing means to propel the toy bullet from the bellows through the barrel and out of the gun.

In the accompanying drawings forming a part of this specification and showing, for purposes of exemplification, a preferred form of this invention, without limiting the claimed invention to such illustrative form:

FIGURE 1 is an elevation, partially in section, of a toy double barrel shot gun embodying the present invention;

FIGURE 1a is a perspective view of one of the trigger assemblies of the toy shot gun;

FIGURE 2 is a perspective view of the gun with the stock broken down showing the manner of loading the compressible bellows within the loading chambers;

FIGURE 2a is a fragmentary section through one of the compressible bellows, taken in the plane of the line 2a-2a in FIGURE 2;

FIGURE 3 is an enlarged fragmentary longitudinal section through one of the barrels of the shot gun showing a trigger assembly in the position for discharging the gun in solid line, and in the position prior to discharge in broken line;

FIGURE 4 is an enlarged fragmentary longitudinal section taken between the barrels of the shot gun;

FIGURE 5 is a fragmentary horizontal section taken in the plane of the line 5-5 in FIGURE 4; and

FIGURE 6 is a vertical section taken in the plane of the line 6-6 in FIGURE 4.

2

Referring first to FIGURES 1 and 2, the toy shot gun comprises a stock 10 pivotably joined to double barrel assembly 12 comprising a pair of barrels 14 and 16 and a supporting grip 18. Associated with the barrels 14 and 16 are the respective cylindrical loading chambers 20 and 22 and trigger assemblies 24 and 26.

The stock 10, which is desirably of a light weight plastic material, is provided with a knurled design 28 or other suitable ornamentation to simulate an actual shot gun. The stock is additionally provided with a hollow butt chamber 30 closed by a cover 32 pivoting on a hinge 34, for storing spare toy bullets or projectiles.

The stock is pivoted to the supporting grip 18 by a pair of telescoping frusto-conically shaped tubes 36 and 38, best shown in FIGURES 2 and 5. These tubes slidably fit through apertures 40 and 42, respectively, in a frame member 44 of the supporting grip 18 and form a rigid member about which the frame member is pivoted, permitting access to the loading chambers 20 and 22. The stock 10 and the double barrel assembly 12 are held in assembled position by a clamp 46 (see FIGURE 3) having a handle 48, a leg portion 50 and, at the respective ends of the leg portion and extending perpendicularly thereto, detents 52 and 54. The clamp is engaged in the stock 10 behind a loading chamber wall 55 with the leg portion 50 extending between apertures 56 and 58 in the stock walls and the detents 52 and 54 protruding outward for engagement with the double barrel assembly 12.

With the shot gun assembled for firing, the detent 52 engages a ledge 60 located at the end of a rib 62 extending between the barrels 14 and 16, and the detent 54 catches below the base 64 of the loading chambers 20 and 22. The stock is broken down, as shown in FIGURE 2, by pivoting the handle 48, thus disengaging the detents 52 and 54 from the barrel assembly 12 and facilitating pivotal movement of the stock relative to the barrel assembly, to thus provide access to the loading chambers 20 and 22.

The loading chambers are defined by the base 64 and a pair of expanded cylindrical barrel walls 14a and 16a; the loading chambers terminate in apertured end walls or faces 65 (see FIGURES 1 and 3) adjacent the extended barrels 14 and 16. The loading chambers are closed by locking the barrel assembly 12 and the stock 10 together with the clamp 46, as described hereinabove, with the loading chamber wall 55 closing the chambers.

The construction of the trigger assemblies 24 and 26 is best shown in FIGURES 1a and 3. Each such trigger assembly includes a trigger 66 and an integral trigger guard 68 attached to an upstanding rib 70 having a supporting flange 72 which slides in a slot 74 (see FIGURE 2) in the frame member 44 of the supporting grip. The upstanding rib 70, in turn, is connected by a flange 75 to a rib extension 76 which supports a hollow cylindrical compressing member 78. The compressing member has one end open and is provided with, at its opposite end, a flanged or shouldered end wall 80 having an apertured spherical segment or zone 81, whose concave surface faces outward of the compressing member.

The compressing members 78 of the trigger assemblies 24 and 26 are housed within the barrels 14 and 16, respectively, with the shouldered end walls 80 extending into the respective loading chambers 20 and 22 and seating against the apertured end faces 65 of the expanded barrel walls 14a and 16a. Ordinarily, the end walls 80 of the compressing members are biased away from the loading chambers against the end faces 65 of the barrel walls by means of resilient coil springs 82 which are attached to the rib extensions 76 and are supported at their forward ends by mounting pins 84, housed within the supporting grip 18. On squeezing the triggers 66 (to the right view-

ing FIGURE 3, for example), the compressing members 78 are moved against the pressure of the springs 82 into the loading chambers and effect compression of the bellows therein, as will be described hereinafter.

A clicker mechanism, indicated generally at 86 in FIGURES 4 and 5, is mounted in the frame member 44 of the supporting grip 18 between pins 88 and a fulcrum 90. The clicker comprises a pair of light leaf springs 92 which are biased against the upstanding ribs 70 of the trigger assemblies 24 and 26. Upon moving either or both of the trigger assemblies to the right, viewing FIGURES 4 and 5 (viz. by pulling the triggers 66), one or both of the flanges 75 contact and bend one or both of the corresponding leaf springs 92 about the fulcrum 90, producing familiar click-like sounds, simulating the firing of a weapon.

The barrel assembly 12 is secured by screws 94 and 96 (FIGURES 1 and 4-6) which are received in the supporting grip 18 and thread into the rib 62 extending between the barrels 14 and 16. The rib is suitably secured to the barrels, as by cementing. A screw 98 secures the supporting grip 18 to the base 64 of the loading chambers 20 and 22, thus providing a stable unitary barrel assembly.

A pair of compressible bellows 100 and 102 are arranged for insertion within the loading chambers 20 and 22, as shown in FIGURE 2. Each such bellows comprises (FIGURE 2a) a thin walled, corrugated, generally cylindrical body 104, desirably of an elastomeric material such as polyethylene, and having a frusto-conically shaped neck 106 opening into a projecting tubular outlet 108 having a relative large diameter aperture 110. A threaded nozzle 112 having a relatively small diameter escape channel or passageway 114 is threaded into the aperture 110 in the tubular outlet of the bellows 100. No threaded nozzle is inserted within the aperture 110 in the tubular outlet 108 of the bellows 102; rather, a toy bullet 116, desirably of plastic, is removably mounted (FIGURE 1) atop the tubular outlet for ejection therefrom.

In operation, the bellows 102 with a toy bullet 116 mounted thereon is inserted within the loading chamber 20 in the open position of FIGURE 2, with the toy bullet extending through the aperture in the end wall of the compressing member 78 and into the barrel 14, as shown in FIGURE 1. The bellows 100, filled with water, is then inserted within the loading chamber 22 with the tubular outlet 108 similarly extending into the barrel 16 (see FIGURES 2 and 3). It will be understood, of course, that the two bellows inserted within the loading chambers may each be loaded with water or may each support a toy bullet. Alternatively, only one chamber need be loaded at any time to facilitate operation of the toy gun.

As shown in FIGURE 3, the toy gun operates as a water gun when the trigger 66 of the trigger assembly 26 is pulled, and the compressing member 78 moves from its dotted line position to the full line position depicted, thereby gradually compressing the bellows 100 and forcing the water contained therein out through the nozzle 112 and the barrel 16 in a fine stream. At the same time, as the trigger is squeezed, the rib 70 and the flange 75 slide along the slot 74 and the flange contacts and actuates the clicker mechanism 86 to produce a clicking sound concomitantly with the spray of water. The relatively small diameter passageway 114 in the bellows 100 facilitates the production of a fine, prolonged water spray upon the squeezing action of the compressing member 78. The water spray may be produced in the form of repeated bursts by sequentially pulling and releasing the trigger 66, or in the form of one continuous stream by squeezing the trigger slowly and continuously until the compressing member 78 reaches the full line position of FIGURE 3, in which position substantially all of the water has been squeezed from the compressed bellows 100.

Similarly, when the trigger 66 of the trigger assembly

24 is pulled, the increased air pressure produced by the compression of the bellows 102 by the corresponding compressing member 78, ejects the toy bullet 116 from the toy gun through the barrel 14. At the same time, the clicker is actuated as described above, and a simulated shot is heard. The relatively large diameter aperture 110 in the bellows 102 produces relatively large forces behind the toy bullet 116, sufficient to propel the bullet from the gun.

The relatively large size aperture 110, which has a diameter of about  $\frac{1}{8}$  inch, is approximately three to six times, and preferably about four times, the size of the diameter of the passageway 114. By thus relating the two openings, the bellows 100 and 102 eject water and propel toy bullets, respectively, at maximum velocities and with maximum efficiencies.

It will be noted that the difference in the size of the apertures in the two bellows, coupled with the difference in density between the water and the air contained therein, facilitates the production of either the prolonged spray of water or the relatively instantaneous ejection of a toy bullet from the respective bellows, while utilizing the trigger mechanism of the toy gun of this invention. The application of a given force to each of bellows 100 and 102 will effect a greater displacement of the lesser density air through the larger aperture 110 than of the greater density water through the smaller aperture or channel 114. Thus, the larger volume of air required to eject a toy bullet is produced with the same trigger squeeze necessary to produce a fine stream or spray of water. Additionally, the water spray through the relatively small channel 114 may be prolonged, or several jets or bursts of water may be fired, prior to exhausting the water from the bellows in which it is loaded, whereas the air is quickly emptied from its bellows container.

While only a single embodiment taking the form of a toy double barrel shot gun has been described, it will be noted that it is within the scope of this invention to provide, for example, multiple barrel or single barrel toy guns, either with or without elongated barrels, and which guns include the simple construction, easy operation, and entertaining features of the present invention.

Accordingly, since different embodiments may be made without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A toy shot gun comprising, in combination, a stock pivotably connected to a barrel assembly, said barrel assembly including a barrel communicating with an adjacent enlarged loading chamber, a compressible bellows having a generally cylindrical corrugated body and a tubular outlet projecting therefrom, said bellows positionable in said loading chamber with said outlet projecting into said barrel, and a trigger assembly including a cylindrical hollow tube housed within said barrel having an apertured flanged end face of generally hemispherical shape projecting into said loading chamber, a spring means associated with said tube urging said flanged end face into engagement with the wall between said barrel and said loading chamber, and a trigger actuating said tube to move it through said loading chamber in opposition to said spring means and press said apertured end face against said bellows.

2. A toy gun comprising, in combination, a stock having a barrel assembly connected therewith, said barrel assembly including a barrel communicating with an adjacent loading chamber, a compressible hollow bellows within said loading chamber having an outlet projecting into said barrel, and a trigger assembly mounted in association with said barrel, said trigger assembly including a hollow tube housed within said barrel having an aper-

5

tured end within said loading chamber, a spring associated with said tube urging said tube toward said barrel, and a trigger connected to said tube for effecting movement thereof through said loading chamber in opposition to said spring to press said apertured end against said bellows.

3. The toy gun defined in claim 2, in which said barrel assembly includes a pair of barrels, a pair of loading chambers, each of which is adjacent one of said pair of barrels, and a pair of said trigger assemblies, each of which is mounted in association with one of said pair of barrels, and in which a pair of compressible bellows are positionable within said loading chambers.

4. The toy gun defined in claim 3, in which one of said pair of bellows has a relatively small aperture in the elongated outlet thereof and contains water for spraying therefrom, and the other of said pair of bellows has a relatively large aperture in the elongated outlet thereof, the last mentioned elongated outlet being adapted to seat

6

a toy bullet thereon to effect propulsion of said bullet through the barrel associated with said other bellows.

5. The toy gun defined in claim 3, including a pair of flexible leaf springs pivotable about a fulcrum, each of said leaf springs mated with one of said trigger assemblies and adapted to be pivoted about said fulcrum upon movement of said one trigger assembly for producing a click-like sound simulating the firing of a weapon.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

1,223,655	Arden -----	Apr. 24, 1917
1,513,552	Iadarola -----	Oct. 28, 1924
1,880,354	Mueller -----	Oct. 4, 1932
1,979,014	Schlieff -----	Oct. 30, 1934
2,302,963	Lefever -----	Nov. 24, 1942

##### FOREIGN PATENTS

810,643	France -----	Dec. 28, 1936
---------	--------------	---------------