April 17, 1951 F. A. LENNBERG, JR 2,548,984

TOY GUN

Filed Feb. 15, 1947

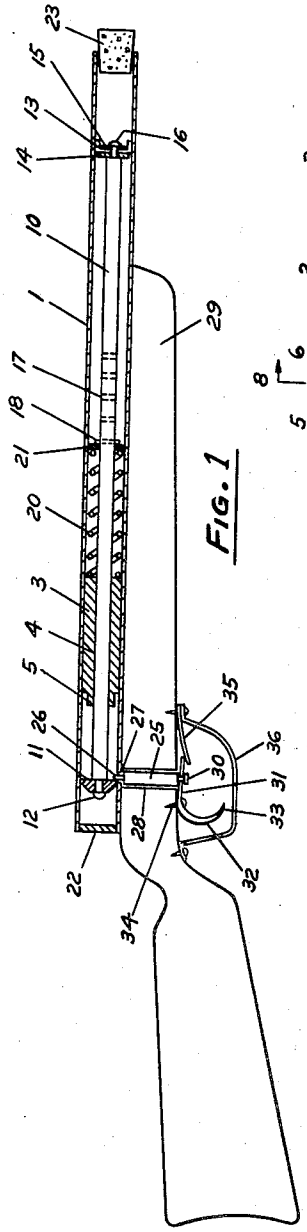


FIG. 1

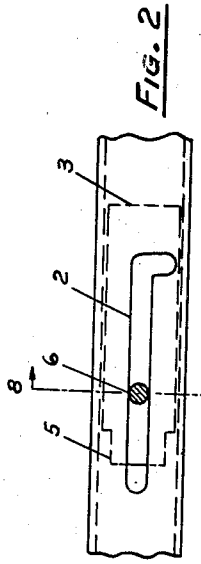


FIG. 2

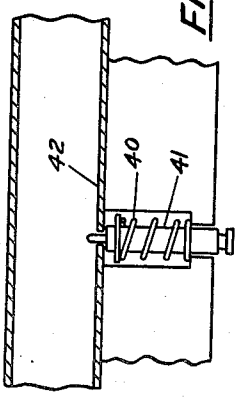


FIG. 3

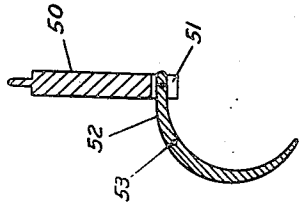


FIG. 4

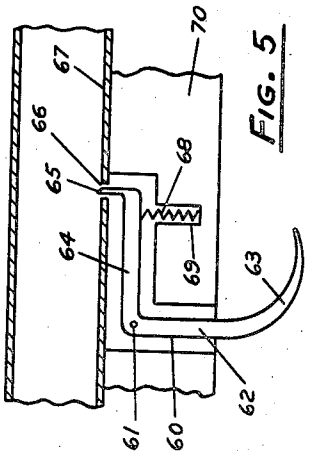


FIG. 5

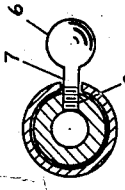


FIG. 8

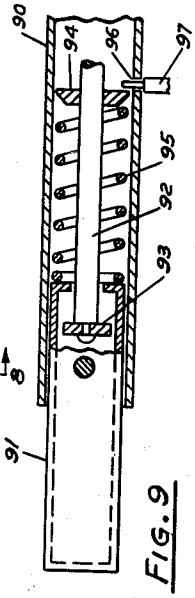


FIG. 9

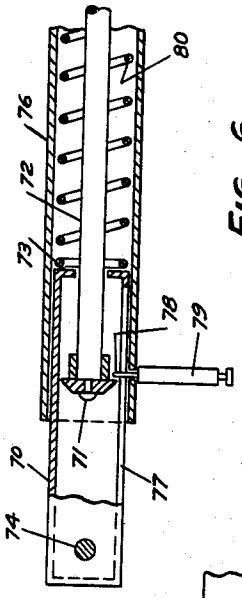


FIG. 6

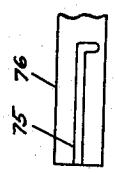


FIG. 7

INVENTOR.
FRANK A. LENNBERG, JR.
BY
Florian G. Miller
Atty.

Patented Apr. 17, 1951

2,548,984

UNITED STATES PATENT OFFICE

2,548,984

TOY GUN

Frank A. Lennberg, Jr., Summit Township, Erie County, Pa.

Application February 15, 1947, Serial No. 728,879

9 Claims. (Cl. 124—14)

1

This invention relates to toy guns for simulating the mechanical construction and operating motions of a rifle, and particularly bolt-action rifles.

All devices of this character made in accordance with the teachings of the prior art, and with which I am familiar, have been lever or pump action devices which in no way simulated the design and operation of a real rifle. No means has heretofore been provided to increase or decrease the amount of pressure set up in a toy gun so that the gun may be adjusted in accordance with the age, size and strength of the child operating the gun and in such a way as to be beyond the control of the child. No toy gun has heretofore provided a bolt slider within an imitation gun barrel to which is attached a bolt handle for the purpose of energizing the gun mechanism by the hand operation of the bolt and the action of a bolt type assembly simulating the operating motion and the appearance of the conventional type of bolt action sporting or military rifle.

It is, accordingly, an object of my invention to overcome the above and other defects in present toy guns and it is more particularly an object of my invention to provide a toy gun which is simple in construction, economical in cost, economical in manufacture, and easy and safe to operate.

Another object of my invention is to provide a bolt action toy gun.

Another object of my invention is to provide a novel toy gun having a unique trigger and sear mechanism.

Another object of my invention is to provide a novel plunger for a toy gun which has adjustable means for varying the spring tension and pressures set up in the gun beyond the control of the child.

Other objects of my invention will become evident from the following detailed description, taken in conjunction with the accompanying drawings, in which

Fig. 1 is a vertical cross-sectional view of a preferred embodiment of my novel popgun;

Fig. 2 is a fragmentary side-elevational view of the barrel showing the slot in my novel popgun;

Fig. 3 is a fragmentary sectional view showing a coil spring for urging the sear in my novel popgun in locking relationship;

Fig. 4 is a cross-sectional view in vertical plane showing another form of sear and trigger arrangement for my novel popgun;

Fig. 5 is a fragmentary sectional side-elevational view showing a combined sear and trigger mechanism for my novel popgun;

2

Fig. 6 is a fragmentary vertical sectional view of the breech end of a modified form of my novel popgun;

Fig. 7 is a fragmentary side-elevational view of the modified form of gun shown in Fig. 6;

Fig. 8 is a view taken on the line 8—8 of Fig. 2; and

Fig. 9 is a fragmentary vertical sectional view of the breech end of another modified form of my novel gun.

Referring now to the drawings, Figs. 1 and 2 show a tubular barrel 1 made of any suitable material and having an L-shaped slot 2 formed in the side thereof as shown in Fig. 2. Although I have shown the barrel 1 made in one piece, it will be evident that it may be made in two or more parts and assembled. A bolt slide 3 having a longitudinally extending bore 4 and a reduced end 5 moves in the barrel 1 and is rotated and pulled longitudinally by a bolt handle 6 having a threaded portion 7 which threadably engages threaded aperture 8 in the bolt slide 3. The bolt handle 6 moves in the slot 2. Although I have shown a bolt handle 6 to operate the slide 3, it will be evident that lever or pump or other well known actions may be utilized. A plunger 10 extends longitudinally of and concentrically of the barrel 1 through the bore 4 in the slide 3 and has a sear catch 11 attached to the breech end thereof by screw member 12, a washer 13 of leather or any other suitable material secured between washer plates 14 and 15 by screw member 16 on the muzzle end thereof, and diametrically extending apertures 17 intermediate thereof for receiving stop pin 18, the stop pin 18 being adapted for positioning in any one of the apertures 17. A coil spring 20 is disposed between the bolt slide 3 and the stop washer 21 which abuts against the pin 18. The breech end of the barrel 1 is closed by a closure member 22 and a cork 23 or any other suitable resilient projectile is disposed in the open muzzle end of the barrel 1 in preparing my novel toy gun for firing. A sear 25 having an upwardly projecting portion 26 extending through an aperture 27 in the bottom portion of the barrel 1 is disposed in an aperture 28 in stock 29. A headed end 30 is formed on the lower portion of the sear 25 and is engaged by the straight portion 31 of a trigger 32 having an arcuate shaped finger engaging portion 33. The trigger 32 is pivoted by a pin 34 at substantially the point of merger between the arcuate shaped finger engaging portion 33 and

the straight portion 31 of the trigger 32. A flat spring member 35 engages the outer end of the flat portion 31 of the trigger 32 to force the sear 25 upwardly into the path of the catch 11 on the plunger 10. A trigger guard 36 is attached to the stock 29 to protect the trigger 32.

In operation, the bolt handle 6 which normally rests in the lower portion of the transverse portion of the slot 2 is rotated upwardly and drawn rearwardly to substantially the breech end of the longitudinally extending portion of the slot 2 wherein the catch 11 of the plunger 10 moving with the slide 3 is engaged by the sear 25 which is urged upwardly by spring 35. The bolt handle 6 is then pushed forwardly in the horizontal portion of the slot 2 and then rotated in the transverse portion of the slot 2 until it comes to rest in the lower end of the transverse portion of the slot 2. Inasmuch as the stop washer 21 has been drawn rearwardly several inches, the spring 20 will be compressed a predetermined amount when the bolt slide 3 is pushed forwardly and locked in position by the bolt handle 6 while the plunger 10 is in a fixed position. It will be evident that the further away the pin 18 is disposed in one of the apertures 17 in the plunger 10, the less will be the tension of the spring 20 and the less will be the force required to compress the spring 20 by means of the bolt handle 6; therefore, when a younger child of five or six is firing the gun, the pin 18 is placed in one of the apertures 17 near the muzzle end of the barrel 1, thereby requiring only a slight force to compress the spring. When a larger boy is firing the gun, the pin 18 is placed in the aperture 17 nearest the breech end of the gun, thereby compressing the spring 20 a maximum amount. The trigger 33 is then pulled by the finger, the sear 25 moves downwardly and the catch 11 of the plunger 10 is released, thereby forcing the cork 23 outwardly with considerable force and with a loud pop by spring action and compressed air.

Fig. 3 shows the use of a coil spring 40 to urge the sear 41 upwardly into the barrel 42 instead of using a flat spring 35 shown in Fig. 1. Fig. 4 is another modified form of sear and trigger connection in which sear 50 has a transversely extending aperture 51 through which is disposed and connected the end of trigger 52 which is pivoted at 53. A conventional spring is utilized in this device, although not shown, to force the sear 50 upwardly into a barrel (not shown) as in Figs. 1 and 3. Fig. 5 shows a combination sear and trigger which comprises a right-angled member 60 pivoted at 61 and having the vertically extending leg 62 thereof with arcuate shaped finger engaging portion 63 formed on the lower end thereof and the horizontally extending leg 64 with a right angled upwardly projecting portion 65 which extends through an aperture 66 in a barrel 67 to engage a sear catch (not shown). A coil spring 68 is shown in aperture 69 in the stock 70 for urging upwardly projecting portion 65 into the path of a sear catch on a plunger (not shown).

Fig. 6 is a modified form of my novel popgun in which the bolt slide 70 moves outwardly from the breech end of the barrel 76. The operation of the gun is exactly the same as the operation of the popgun shown in Fig. 1 and the only difference in construction is that the bolt slide 70 is hollow and has movable therein a catch 71 on the breech end of a plunger 72, the catch 71 engaging the inner end 73 of the bolt slide 70. The bolt handle 74 moves in the L-shaped slot 75 in the barrel 76 and is locked in the transversely extending portion of the slot 75 as has been heretofore described for the popgun shown in Fig. 1. The slide 70 has a slot 77 in the lower portion thereof for receiving the upper end 78 of a sear 79 in order that it may engage the catch 71 on the end of the plunger 72 to permit locking of the plunger and compression of the spring 80 in the barrel 76. It will be evident that the operation of this modified version of my novel popgun is exactly the same as the operation of the popgun described in Fig. 1 with the exception that the slide 70 moves out of the breech end of the barrel 76 to create an effect more nearly resembling an actual bolt action sporting or military rifle.

The form of popgun shown in Fig. 9 is of substantially the same construction as the gun shown in Fig. 6 except that the plunger 92 has a sear catch 94 intermediate thereof and a washer 93 on the breech end thereof disposed in and engageable with the bolt slide 91 movable in the barrel 90. A spring 95 is disposed between the bolt slide 91 and the sear catch 94. A sear 97 extends through aperture 96 in barrel 90 to engage the sear catch 94. The operation of this gun will be obvious in view of the description of the operation of the toy guns shown in Figs. 1 and 6.

Although I have shown the spring in the barrel ahead of the slide and the L-shaped slot with the transverse portion toward the muzzle end of the gun, it will be evident that the spring may be disposed on the breech end of the slide and the L-shaped slot reversed without departing from my invention. The spring may also be disposed with one end suitably anchored to the gun barrel rather than bearing against the bolt slide as shown in Fig. 1. My invention comprises the idea of varying the tension of the retracting spring by adjustable abutting means on the plunger and even though the other end of the spring is secured to the side of the barrel or held against a stationary abutting member. Furthermore, means for retracting the spring may take many different forms such as lever and pump actions without departing from my invention.

It will be evident from the foregoing description that I have provided a novel toy gun which simulates the action of a sporting or military rifle without exposing the children operating the toy to any danger inherent in the mechanism itself and which has an adjustable retracting spring.

Various changes may be made in the specific embodiment of my invention without departing from the spirit thereof or from the scope of the appended claims.

What I claim is:

1. A toy gun comprising a barrel, a bolt slide longitudinally movable in said barrel, an externally extending bolt on said slide for moving it in said barrel, a plunger rod extending through said slide and having a sear catch on the breech end thereof, a washer on the muzzle end thereof and a stop intermediate thereof, a spring between said stop and said slide, a sear for engaging said sear catch on said plunger, said spring being compressed between said intermediate stop and said slide upon forward longitudinal movement of said slide, and a spring urged trigger for releasing said sear catch on said plunger whereby pressure is set up in the muzzle end of said barrel

by the washer on said plunger rod to force a projectile therefrom.

2. A toy gun as set forth in claim 1 wherein said intermediate stop may be disposed at different longitudinal points on said plunger rod.

3. A toy gun comprising a barrel, a slide movable in said barrel, a plunger extending into said slide and having a stop washer interiorly of said slide, a sear catch on said plunger, and a washer on the muzzle end of said plunger, a spring for urging said plunger towards the muzzle end of said barrel, means for moving said slide longitudinally in the barrel thereof, and a sear for engaging the sear catch on said plunger.

4. A toy gun as set forth in claim 3 wherein said means for sliding and locking said slide in said barrel comprises a bolt handle movable in an L-shaped slot in the side of said barrel.

5. A toy gun comprising a barrel, a slide movable in said barrel, a plunger having a sear catch slidably carried by said slide and being slidably movable relative thereto, a washer on the muzzle end of said plunger, a stop member on said plunger intermediate said washer and the front end of said slide, a spring surrounding said plunger disposed between said stop member and the front of said slide for constantly urging said plunger towards the muzzle end of said barrel, an externally extending bolt for moving said slide, means for locking said bolt in a predetermined longitudinal position on said barrel, a spring-urged sear for engaging the sear catch on said plunger, and a trigger for releasing said sear catch and said sear.

6. A toy gun as set forth in claim 5 wherein said plunger has longitudinally spaced, diametrically extending apertures for engaging an intermediate stop member to vary the tension of said spring and the resulting pressure set up in said muzzle end of said barrel.

7. A toy gun comprising a tubular member having an L-shaped slot therein, a bolt slide having a longitudinally extending aperture longitudinally movable in said tubular member, a plunger rod slidably mounted in the longitudinally extending aperture in said bolt slide movable with said

bolt slide and relative thereto, a sear catch on the breech end of said plunger rod, a cylindrical washer secured to the muzzle end of said plunger rod, a stop member on said plunger rod intermediate said washer and the front end of said slide, a spring surrounding said rod between said stop member and the front end of said slide constantly urging said plunger forward in said barrel, a bolt handle connected to said slide movable in said L-shaped slot in said barrel for moving said slide longitudinally in said barrel and locking said slide against longitudinal movement, a sear for engaging the sear catch on the breech end of said plunger, and means for releasing said sear.

8. A toy gun as set forth in claim 7 wherein abutting means are provided on the breech end of said slide for engagement by said sear catch on said rod when said sear catch is released and said rod moves forwardly relative to said slide.

9. A toy gun as set forth in claim 7 wherein said stop member is longitudinally movable on said plunger rod to vary the tension of said spring and the resulting pressure set up in the muzzle end of said barrel.

FRANK A. LENNBERG, JR.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
194,690	Kirkbride	Aug. 28, 1877
937,078	Laudermilch et al.	Oct. 19, 1909
1,205,668	Sandage	Nov. 21, 1916
1,229,129	Peacock	June 5, 1917
1,730,201	Foss	Oct. 1, 1929
1,990,302	Morche	Feb. 5, 1935
2,172,036	Schmeisser	Sept. 5, 1939
2,313,721	Borth	Mar. 16, 1943

FOREIGN PATENTS

Number	Country	Date
693,809	France	Sept. 2, 1930
507,487	Germany	Sept. 17, 1930