June 8, 1943. J. J. GORA ET AL 2,321,077

PISTOL TYPE DART GUN

Filed March 25, 1940

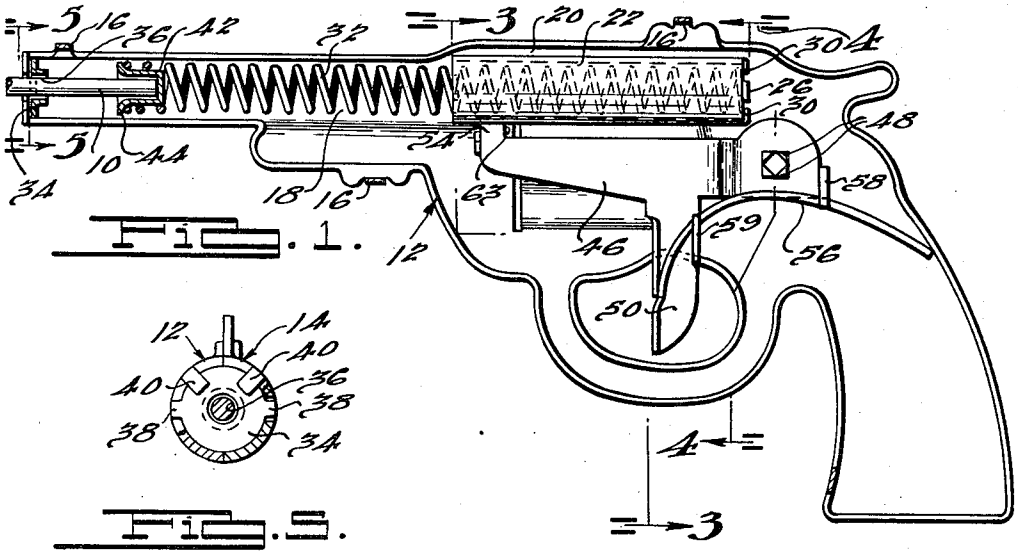


Fig. 1.

Fig. 5.

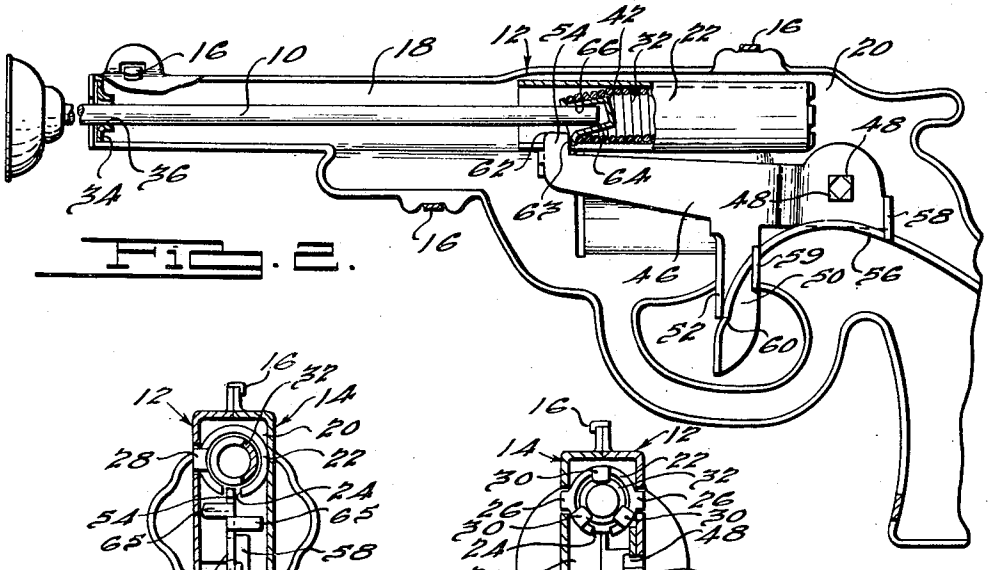


Fig. 2.

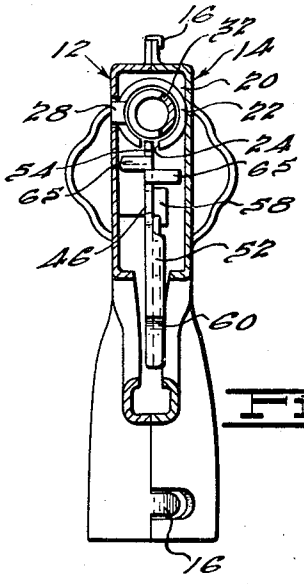


Fig. 3.

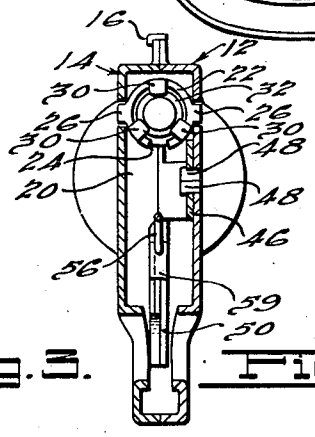


Fig. 4.

INVENTORS.
John J. Gora,
Edward J. Wyrick.
BY
Harness, Dickey & Pierce.
ATTORNEYS.

Patented June 8, 1943

2,321,077

UNITED STATES PATENT OFFICE

2,321,077

PISTOL TYPE DART GUN

John J. Gora, River Rouge, and Edward J. Wyrick, Wyandotte, Mich., assignors to All Metal Products Company, Wyandotte, Mich., a corporation of Delaware

Application March 25, 1940, Serial No. 325,752

5 Claims. (Cl. 124—16)

The present invention relates to toy guns and particularly relates to a type of toy guns adapted to shoot darts.

One of the primary objects of the present invention is to provide an improved gun of the type mentioned in which simple and improved means are provided for keeping the dart from falling out of the gun when such gun is loaded.

Another object of the invention is to provide an improved means for cooperation with the dart in the loading or cocking of the gun by which the life of the gun is materially increased.

A more specific object of the invention is to provide an improved cup arrangement which is associated with the spring and in which the cup is engaged by the dart in loading the gun, instead of direct engagement with the in-bent end of the spring by the dart as in prior constructions, thereby eliminating breakage of such in-bent end and materially increasing the life of the gun.

A more detailed object of the invention is to provide an improved washer construction at the point of the gun barrel which cooperates with the cup in holding the dart in the gun, when such gun is loaded, and which also serves as a guide for the dart as such dart leaves the gun.

Another object of the invention is to provide an improved mounting for the spring within the sheet metal casing in the form of a short tube aligned with the barrel formed by the casing, thereby effecting economy of manufacture.

Other objects of the invention will become apparent from the following specification, the drawing relating thereto, and from the claims hereinafter set forth.

In the drawing, in which like numerals are used to designate like parts in the several views throughout:

Figure 1 is a longitudinal section, with parts in elevation, illustrating a toy pistol embodying features of the present invention, and showing the elements of the structure in partially cocked or loaded position;

Fig. 2 is a view similar to Fig. 1 illustrating the elements when the spring is fully cocked and the dart is loaded for firing;

Fig. 3 is a cross-sectional view taken substantially along the line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view taken substantially along the line 4—4 of Fig. 1; and,

Fig. 5 is an elevational and cross-sectional view taken substantially along the line 5—5 of Fig. 1.

Referring to the drawing, a toy gun construction is illustrated which is adapted to shoot darts indicated at 10. The darts 10 may be of any desired form and in the embodiment here illustrated comprise a stem of uniform circular cross-section throughout their length with a suction cup attached to the leading end thereof. The gun casing comprises two complementary sheet metal halves generally indicated at 12 and 14, which are shaped to simulate a pistol when the two halves are fixed together. The two halves are formed with inner engaging lugs 16 for securing the halves together, and the lugs on the top of the barrel may be arranged to simulate the sights if desired. When the halves are assembled, they provide a cylindrical barrel portion 18 and a frame portion 20, which, in the embodiment illustrated, are shaped to simulate similar portions of a revolver type pistol.

A member 22 is shaped in the form of a tube with a longitudinally extending slot 24 provided at the bottom thereof and is disposed within the casing in the frame portion 20 thereof. Such member 22 is fixed to the casing by means of outwardly disposed tabs 26 formed at the sides of the rear end thereof and an outwardly disposed tab 28 formed in the side at one side of the front end thereof, such tabs extending through cooperating openings formed in the adjacent walls of the casing sections. It will thus be seen that the member 22 may be readily assembled in that the tab 28 and the tab 26 on the same side of the member 22 may be disposed through their corresponding openings in the section 12 and the tab 26 will then project through its opening in section 14 when such section is assembled.

In-struck tabs 30 are formed at the rear end of the member 22 for a purpose that will be described in detail hereinafter. The forward end of member 22 is aligned with the barrel portion 18 and, in effect, forms a continuation thereof.

A spiral spring 32 is disposed within the casing, is received within the tubular member 22 and is movable longitudinally of the barrel portion 18.

The tip of the barrel portion of the gun is open, and a disc-shaped member 34, having an inwardly flanged central opening 36 therethrough, is disposed within the barrel portion adjacent the open end thereof. Such member 34 may be fixed to the casing sections by means of outwardly extending lugs 38 which project through cooperating openings formed in the casing sections 12 and 14 at diametrically opposed points. The casing sections 12 and 14 are formed with inwardly struck tabs 40 at the forward end thereof which are adapted to bear against the forward surface

of the member 34 and assist in maintaining the member 34 in its proper fixed position within the casing.

A cup-shaped member 42, having a flared peripheral flange 44 formed on the open edge thereof, is adapted to be positioned within the casing. The member 42 need not be fixed to the spring 32, but is of such a shape and has such dimensions that the base portion thereof is adapted to be loosely received within the forward end of spiral spring 32, with the peripheral flange 44 abutting against the forwardmost convolution of spring 32.

As stated above, the structure of the present invention is adapted to shoot darts 10 and the gun is loaded by inserting the shaft of the dart through the central opening 36. The inner end of the shaft thus seats within the cup-shaped member 42, as indicated in Fig. 1. As the dart is pressed into the gun, the spring 32 is compressed due to the abutting engagement of the flange 44 with the forwardmost convolution thereof. The spring is thus compressed from the position shown in Fig. 1 to that shown in Fig. 2, when the spring is entirely received within the tubular member 22 with the innermost convolution of the spring abutting against inbent tabs 30.

In order to releasably hold the spring in its loaded position until it is desired to shoot the gun, a trigger member 46 is provided, which is pivotally mounted on the inturned lugs 48 formed in casing section 12, as best shown in Fig. 4 which form a pivot for the trigger. The trigger 46 includes a depending finger engaging portion 50 having a flange 52 formed along the forward edge thereof. An upwardly extending projection 54 is formed on the forward end of the trigger and such end is resiliently urged to its uppermost position about its pivot on the casing by means of a spring wire 56. One end of the spring 56 bears against the inside wall of casing section 12 and is trained over tabs 58 and 59 with the other end bearing against the flange 52 immediately above an in-struck portion 60. The under edge of tab 58 and the top edge of tab 59 are preferably slotted to receive the wire therein so as to prevent accidental displacement of the wire 56.

The top edge of the projection 54 is provided with a rounded front corner 62 with the back edge forming a shoulder 63. The top edge is of a length greater than the distance between adjacent convolutions of the spring 32 when the spring is extended, so that such projecting end will not project between the spring convolutions as the spring slides thereover. The forward end of the trigger 46 is formed with oppositely directed tabs 65 which are adapted to bear against the sides, the casing sections serving as guides which keep the trigger and projection 54 in proper alignment.

When the spring 32 has been compressed to its fully loaded position, as shown in Fig. 2, the projection 62 extends upwardly through the slot 24, and the shoulder 63 engages the flange 44 of cup member 42.

The cup member 42 is thus tilted to the position shown in Fig. 2, and it will be seen that the inner end of the shaft of dart 10 is resiliently engaged by the cup 42 at points 64 and 66. The forward end of the shaft is pressed downwardly against the flange 36 of washer 34, as shown in Fig. 2. It will thus be seen that the dart 10 is resiliently engaged by the cup 42, due to the resilient action of the spring 32 thereon in tilting the cup and in cooperation with the projection 54 of the trigger, so that the dart 10 cannot fall out of the gun.

When, however, the trigger 46 is pulled, the projection 54 is disengaged from the cup 42 so that the cup is instantly righted with respect to the dart, and the dart is ejected from the gun through the action of spring 32.

Formal changes may be made in the specific embodiment of the invention described without departing from the spirit and substance of the invention, the scope of which is commensurate with the appended claims.

What is claimed is:

1. In a toy spring gun adapted for shooting darts, a sheet metal casing formed to simulate a gun having a barrel portion, a spring within said casing movable longitudinally of said barrel portion, means within said casing forming a seat for said spring, a cup-shaped member having a peripheral flange slidably disposed within said casing and engageable with said spring, the construction and arrangement of said member with respect to said spring being such that the base of said member is loosely received within the forward end of said spring and the peripheral flange abuts against the forward convolution of said spring when said member is engaged by the dart to compress the spring to loaded position, and means releasably engaging said flange at one point when said spring is loaded, to thereby tilt said cup-shaped member so that said cup-shaped member resiliently bears against the shaft of said dart to keep said dart from falling out of said gun.

2. In a toy spring gun adapted for shooting darts, a sheet metal casing formed to simulate a gun having a barrel portion, a spiral spring within said casing movable longitudinally of said barrel portion, means within said casing forming a seat for said spring, a cup-shaped member having a peripheral flange slidably disposed within said casing and engageable with said spring, the construction and arrangement of said member with respect to said spring being such that the base of said member is loosely received within the forward end of said spring and the peripheral flange abuts against the forward convolution of said spring when said member is engaged by the dart to compress the spring to loaded position, and a trigger member resiliently urged into releasable engagement with said flange when said spring is loaded, the construction of said trigger member being such that said flange is engaged by said trigger member at one point to thereby tilt said cup-shaped member so that said cup-shaped member resiliently bears against the shaft of said dart to keep said dart from falling out of said gun.

3. In a toy spring gun adapted for shooting darts, a sheet metal casing formed to simulate a gun having a barrel portion and a frame portion, a tubular member fixedly disposed within the frame portion of said casing, said tubular member being aligned with said barrel portion and having a slot formed therein, a spiral spring disposed within said casing, said spiral spring being received within said tubular member and movable longitudinally of said barrel portion, a cup-shaped member having a peripheral flange slidably disposed within said casing and engageable with said spring, the construction and arrangement of said cup-shaped member with respect to said spring being such that the base of said member is loosely received in the forward end of said spring and the peripheral flange

abuts against the forward convolution of said spring when said member is engaged by the dart to compress the spring to loaded position, and a trigger member having a portion which projects through the slot in said tubular member and releasably engages said flange at one point when said spring is loaded, to thereby tilt said cup-shaped member so that said cup-shaped member resiliently bears against the shaft of said dart to keep said dart from falling out of said gun.

4. In a toy spring gun adapted for shooting darts, a sheet metal casing formed to simulate a gun having a barrel portion, a spiral spring disposed within said casing movable longitudinally of said barrel portion, means within said casing forming a seat for said spring, a cup-shaped member having a peripheral flange slidably disposed within said casing and engageable with said spring, the construction and arrangement of said member with respect to said spring being such that the base of said member is loosely received in the forward end of said spring and the peripheral flange abuts against the forward convolution of said spring when said member is engaged by the dart to compress the spring to loaded position, a disc-shaped member having a flanged central opening therethrough fixedly secured within the barrel portion of said casing adjacent the tip of said gun, and a trigger member having a portion which releasably engages said flange at one point when said spring is loaded, to thereby tilt said cup-shaped member so that said cup-shaped member resiliently bears against the shaft of said dart and said dart bears against the flanged opening of said disc-shaped member to keep said dart from falling out of said gun.

5. In a toy spring gun adapted for shooting darts, a sheet metal casing formed to simulate a gun having a barrel portion, a spring within said casing movable longitudinally of said barrel portion, means within said casing forming a seat for said spring, a cup-shaped member having a base and having a projecting portion which projects outwardly beyond the wall of said member, said member being slidably disposed within said casing and engageable within said spring, means located adjacent the point of the barrel portion to align said dart with said member and to retain said member within the casing, the construction and arrangement of said member with respect to said spring being such that the base of said member is received within the forward end of said spring and the projecting portion abuts against said spring when said member is engaged by the dart to compress the spring to loaded position, and means releasably engaging said member when said spring is loaded.

JOHN J. GORA.
EDWARD J. WYRICK.