

[54] SLINGSHOT-TYPE DEVICE WITH ELASTIC PROPULSION MEANS

[76] Inventor: Edward Lewis Burghardt, P.O. Box 130, Vernal, Utah 84078

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[58] Field of Search ..... 124/35 R, 27, 28, 29, 17, 124/20 R, 20 B, 41, 22; 43/6, 19

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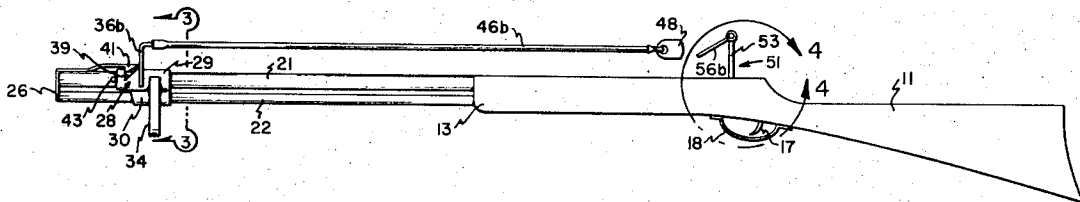
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Primary Examiner—George J. Marlo.  
Assistant Examiner—William R. Browne  
Attorney, Agent, or Firm—Robert E. Krebs

[57] ABSTRACT

A slingshot type device for projecting shots or arrows. The device has a carriage which has the ends of two elastic members attached thereto. The carriage is manually moved forwardly on guide rails, during which time the elastic members are stretched. While the carriage is being moved forwardly the opposite ends of the elastic members are attached to a gate member. The carriage is moved forwardly until it becomes locked to the forward end of the device. A trigger is operated on to permit the gate member to pivot and release the tensioned elastic members to project a projectile.

8 Claims, 6 Drawing Figures



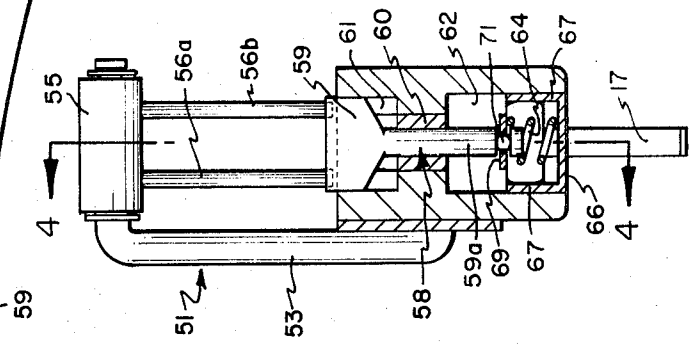
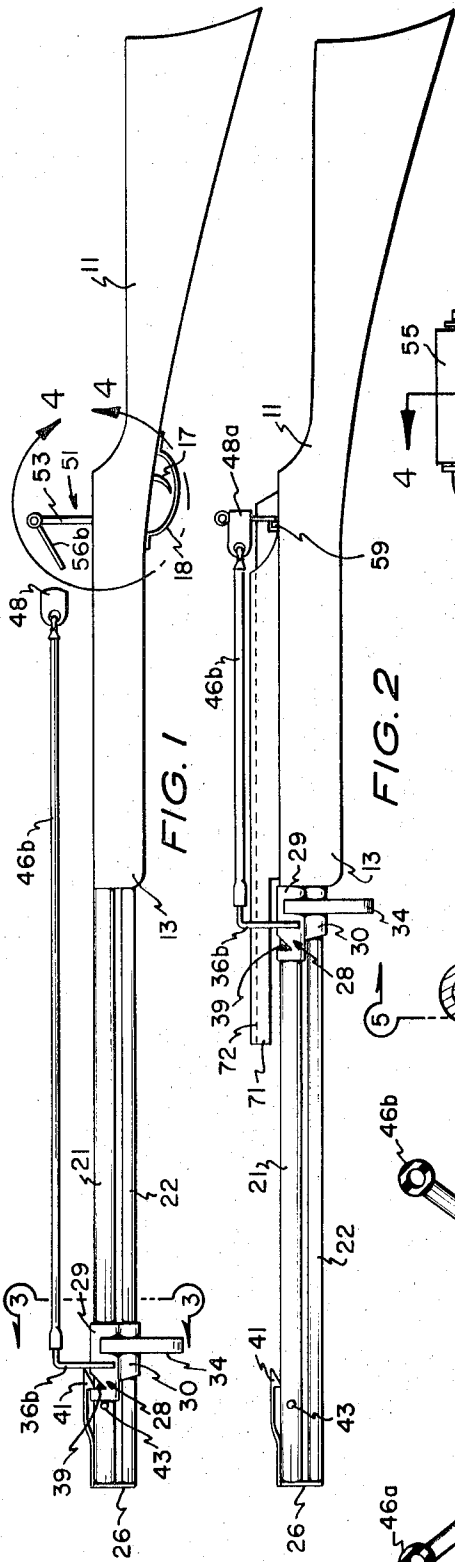


FIG. 5

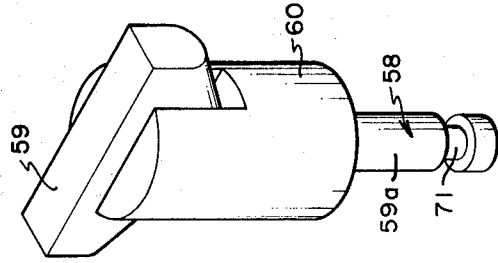


FIG. 6

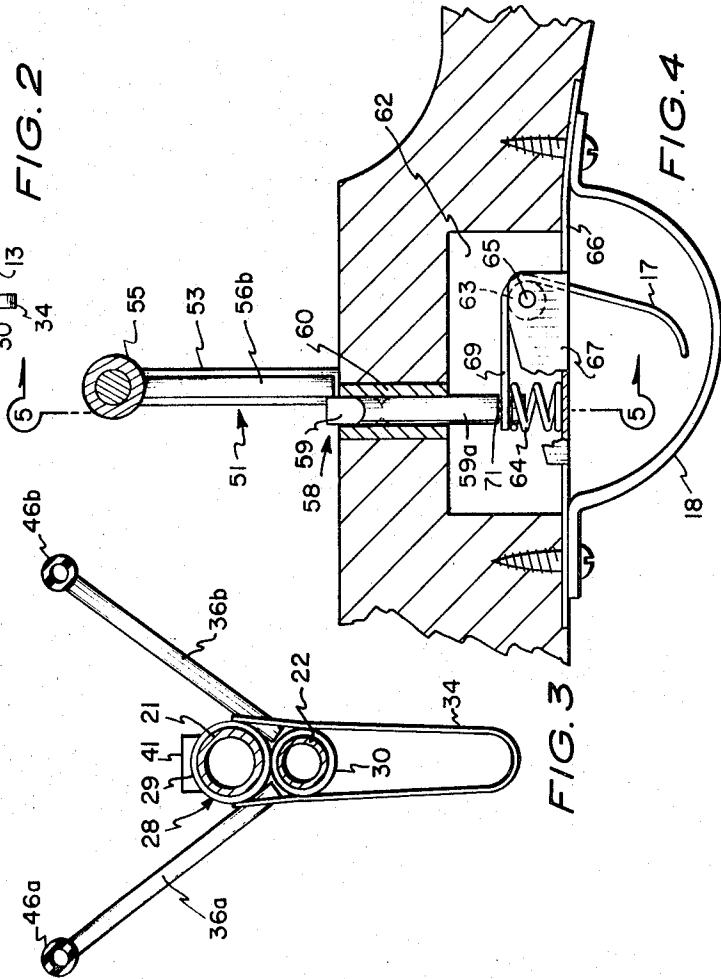


FIG. 3

FIG. 4

## SLINGSHOT-TYPE DEVICE WITH ELASTIC PROPULSION MEANS

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

This invention generally relates to a slingshot type device for shooting small shot and, more particularly, to such a device which is cocked and then selectively released:

#### 2. Introduction to the Invention

My invention provides a novel and improved slingshot-like device which is both powerful and safe. It is intended primarily as a hunting weapon for small game such as squirrels and the like, but it can also be used for target shooting.

Slingshots and similar resilient-action devices are very old in the art of weaponry. However, little effort has been made towards improvement by using modern materials to provide novel devices which are safe, lightweight and more powerful.

### BRIEF DESCRIPTION OF THE DRAWINGS

Further advantages of my invention may be readily understood by referring to the following description and appended illustrations, which are offered by way of example only and not in limitation of the invention, whose scope is defined by the appended claims and equivalents, and not by any preceding description. In the drawings:

FIG. 1 is a side view of a device according to my invention,

FIG. 2 is a side view of a particular modification of the device of FIG. 1;

FIG. 3 is a sectional detail taken along the line 3—3 in FIG. 1 viewed in the directions of the arrows and enlarged for clarity;

FIG. 4 is a detail view, partially cutaway and enlarged for clarity, of the portion of the device encompassed by the curved arrows 4—4 in FIG. 1 which illustrates another position of the components of the device.

FIG. 5 is a sectional detail taken along the line 5—5 in FIG. 4, viewed in the direction of the arrows; and

FIG. 6 is a perspective view, enlarged for clarity of a particular component of the device of FIG. 1.

In the drawings, components are given a unique reference number which they keep no matter how many views the component are shown in, thereby to assist the reader in understanding the detail views.

### DETAILED DESCRIPTION

My device, as shown in FIG. 1, generally resembles a rifle. It includes a shoulder-piece 11 with an integral forearm 13 which serves as a frame for fixedly supporting two forwardly extending, parallel members 21 and 22. The members 21 and 22 are tubes (see FIG. 3) and, although they may have any cross-sectional shape, they are shown as being circular in cross-section. The tubes are made of a strong, lightweight material, such as aircraft tubing. A closure member 26 caps the ends of the tubes and holds them spaced apart.

A carriage, generally designated 28, slides back-and-forth the length of the tubes. The carriage 28 comprises a pair of cylindrical members 29 and 30 which are externally fixed together and which slidably embrace the respective tubes 21 and 22. A lever member 34 extends substantially below and perpendicular to the lower cy-

lindrical member 30. The carriage 28 also comprises a pair of ears 36a and 36b which fixedly extend upward and outward from the upper cylindrical member 29. When viewed from the rear of the device, the ears form a y shape with the lever 34 (see FIG. 3).

The carriage 28—comprising the tubular members 29 and 30, the ears 36a and 36b, and the lever 34—is releasably caught at the forward end of the guide tubes 21 and 22 by a catch member 41. The catch member 41 is a resilient arm whose one end is connected to the cap 26 and whose other end is barbed to ride up onto the forward end of the carriage. The carriage has a slot 39 at its forward end into which the barb drops and a peg 43 is fixed to one of the tubes to stop the forward movement of the carriage after the barb has seated in the carriage.

A pair of elastic members 46a and 46b are fitted over the ends of the ears 36a and 36b. The elastics may, for example, be surgical-type rubber tubing. In the preferred embodiment, the ends of the ears 36a and 36b are bent back and the tubing is slipped thereover; in such an arrangement, the resilient tubing holds to the ears even when stretched—somewhat in the manner of a Chinese finger puzzle. The other ends of the two elastics are connected to a pouch 48 which holds shot or the like and which is typical with slingshots.

A gate, generally designated 51, is provided to selectively retain a shot-containing pouch when the elastics 46a and 46b are stretched. The gate includes a vertical support member 53 whose lower end is fixed to the stock 11 and whose upper end is bent cross-wise over the stock. A bushing 55 is rotatably mounted on the cross-wise end of the support and a pair of parallel rods 56a and 56b fixedly extend from the bushing to swing on the support above the stock. (FIG. 1 shows the rods 56a and 56b swinging forward.) The rods are spaced apart so that the pouch can be pulled therethrough when it is doubled-over empty but not when it holds shot.

A means 58 is mounted on the stock and is activated by the trigger 17 to selectively stop the rods from swinging forward. The illustrated stop means includes a member having a broadened chisel-shaped upper end 59 and a stem 59a. The means 58 is normally biased upward so that the broadened upper end interferes with the swinging of the rods 56a and 56b. The lower end of the stem 58 is connected to the trigger 17 so that pulling the trigger causes the stop means 58 to move downward and, thereby, release the rods 36a and 36b to swing forward under the urging of the elastic members. More particularly, the stem and broadened portions of the stop means 58 are slidably retained by a bushing member 60 (see FIG. 6) which is fixed into an appropriately stepped aperture in the stock 11. The bushing has a reduced-diameter portion which fits the stem 58 and enlarged-diameter portion including a rectangular, transversely-extending slot 61 which maintains the broadened end of the stop means lengthwise across the stock 11. In other words, the stop means is kept in a position such that, when raised, it will stop the swinging of the gate.

In the illustrated embodiment, the trigger 17 comprises a generally L-shaped lever into whose apex is fixed a bushing 63 which, in turn, is rotatably mounted on an axle 65. The axle is fixed between a pair of flanges 67 which are fixed into a cavity 62 formed in the stock 11. The forwardly extending end 69 of the

trigger 17 engages a circumferential slot 71 formed in the stem 59a of the stop means 58 so that the stem follows the trigger 17 and visa-versa.

In the illustrated embodiment, a coil spring 64 is mounted so as to normally urge the stem upward, thereby pivoting the trigger clockwise. Accordingly, when the trigger is pulled, the spring is placed in compression and the stop piece is pulled downward, thereby releasing the gate 51.

It should be clearly understood, however, that many arrangements could be devised whereby the trigger could activate the gate stop means, and that the afore-described linkage is exemplary only.

FIG. 2 illustrates an embodiment wherein the device of FIG. 1 is modified for shooting arrows. An arrow guide member 71, comprising an elongated piece having an arrow-holding groove 72 formed lengthwise along its upper surface, is fixed to the top of the forearm 13. The illustrated arrow guide member has a forward end which extends forward through the spaced-apart ears 36a and 36b thereby to offer further guidance to an arrow. The rearward end of the arrow-guide member 71 may extend back past the gate 51 so long as clearance is provided for the rods 56a and 56b to swing and, also, so long as a slot is provided for the stop means 58 to rise to contact the rods. Also, in this modification, the afore-mentioned pouch is replaced by a bowstring 48a which is fixed at opposite ends to the elastics 46a and 46b.

In operation of the device of FIG. 1, a shot is placed in the doubled-over pouch 48 and the gate is swung clockwise so that the rods 56a and 56b pinch the pouch therebetween, thereby holding the shot in the pouch. Then the trigger is relaxed so that the stop means is biased upward stopping the rods from swinging forward therepast (see FIG. 5). Then the carriage is moved forward by pressure on the lever 34 until the carriage is caught by the catch means 41, thereby placing the elastics in tension and cocking the device. The force on the lever 34 is easily applied by foot. It should be noted that when foot pressure is applied against the lever, the device will normally be pointed downward so that, should it unexpectedly release, the shot will be propelled downward; in other words, the device is quite safe to cock.

The cocking procedure for the embodiment of FIG. 2 is exactly the same, except that the bowstring 48a, which replaces the pouch 48, is slipped around the two rods 56a and 56b. Furthermore, the arrow is set in the groove 72 in the arrow guide 71 only after the device has been cocked.

Thereafter, the device can be aimed and fired. That is, the trigger is pulled to lower the stop means, thereby to release the gate means 51 to allow the rods 56a and 56b to swing forward. The elastics 46a and 46b will then snap forward propelling the shot at the target. In this connection, it should be noted that the preferred dimensions of the device comprise an important safety feature. To wit, the length of the stock 11 (i.e., the distance from the butt end to the gate 51) should exceed the relaxed length of the elastic members 46a and 46b; consequently, if the elastics should break before the device is fired, they will not snap back far enough to injure the shooter's face.

The foregoing description is illustrative only and many other modifications of the aforedescribed device, in addition to those already mentioned, will readily sug-

gest themselves to a person skilled in the art without departing from the scope of the following claims.

I claim:

1. A sling-shot type device comprising:

- a. a frame;
- b. a guide having a free end and being fixedly connected to said frame and extending from said frame;
- c. a carriage means adapted to slide forwardly along the guide while tensioning elastic members anchored thereto so as to project a projectile, said carriage means includes an integral lever member for use in pressing said carriage toward the free end of said guide and a pair of bifurcated members fixedly connected to the carriage means and which extend outwardly from said carriage means;
- d. catch means connected to said free end of said guide and adapted to selectively catch and hold said carriage near said free end;
- e. a pair of elongated elastic members, each of which is connected at one end to a corresponding one of said bifurcated members;
- f. means flexibly connecting the other ends of said elastic members together;
- g. gate means mounted on said frame for selectively and directly holding said connecting means when said carriage means is slid towards and caught at said free end of said guide thereby to place said elastic members in tension and for selectively releasing said elastic members through a pivotal movement thereof under bias of the elastic members to permit disengagement of the connecting means from said gate means; and
- h. trigger means mounted on said frame and operatively connected to said gate means to release the same by moving said trigger means.

2. A device according to claim 1 wherein said guide comprise a pair of spaced-apart parallel members.

3. A device according to claim 1 wherein said gate means comprises a parallel pair of spaced-apart rods, which are mounted to swing about an axis which is fixed transversely to the direction of the motion of said carriage means and spaced thereabove, said rods being spaced apart enough to hold said connecting means therebetween when said connecting means encompasses a shot.

4. Advice according to claim 3 wherein said gate means further includes means actuated by said trigger means to selectively restrain said spaced-apart rods from swinging below said axis.

5. A device according to claim 4 wherein said means actuated by said trigger means comprises a member mounted for reciprocative motion according to the position of said trigger means and which, in one position, interferes with the swinging of said rods and, in another position, frees said rods to swing.

6. A device according to claim 1 which further includes a member mounted on said frame, said member having an open-topped groove formed therein which extends parallel to the direction of contractive motion of said elastic member which is positioned to hold an arrow to be propelled by said elastic members.

7. A device according to claim 1 wherein said frame includes a shoulder piece for holding said device in a rifle-like fashion and the length of said shoulder piece from its end to said gate means exceeds the natural length of said elastic members.

- 8. A sling-shot type device comprising:
  - a. a frame including a shoulder stock to be held in a rifle-like fashion;
  - b. a pair of parallel, spaced-apart guide members fixedly extending from said frame; 5
  - c. a carriage means which is slidably disposed on said guide members and which includes an integral lever member for use in pressing said carriage toward the free end of said guide members and a pair of bifurcated ears which fixedly extend outwardly from said carriage; 10
  - d. catch means connected to said free ends of said guide members and adapted to selectively catch and hold said carriage near said free end;
  - e. a pair of elongated elastic members, each of which is connected at one end to a corresponding end of said bifurcated ears; 15
  - f. means flexibly connecting the outer ends of said elastic members together;
  - g. gate means mounted on said frame for directly en- 20

gaging said connecting means and for selectively releasing and holding said connecting means after said carriage means is slid towards and caught and held at the free end of said guide members thereby to place said elastic members in tension, said gate means including a parallel pair of spaced-apart rods which are mounted to swing on a shaft which is fixed transversely to the direction of motion of said carriage so that said rods hang downward therefrom, said rods being spaced apart sufficiently to hold said connecting means therebetween when said connecting means encompasses a shot;

h. trigger means mounted on said frame and operatively connected to said gate means to release the same by moving said trigger, said trigger means including a member operatively connected thereto to selectively prevent the rods from swinging therepast.

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