

(No Model.)

C. G. STEVENS.
BOOMERANG.

No. 482,852.

Patented Sept. 20, 1892.

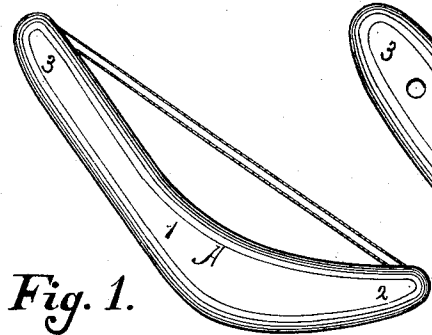


Fig. 1.

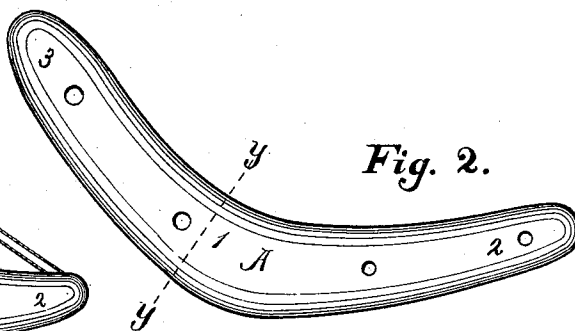


Fig. 2.

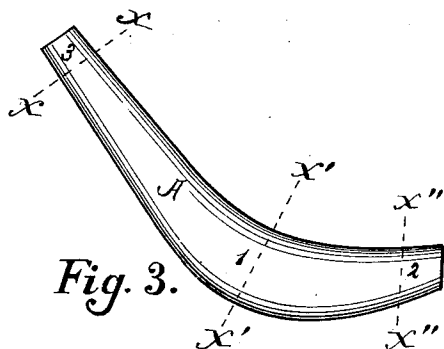


Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.

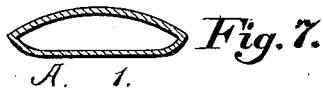


Fig. 7.



Fig. 8.

WITNESSES:

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UNITED STATES PATENT OFFICE.

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BOOMERANG.

SPECIFICATION forming part of Letters Patent No. 482,852, dated September 20, 1892.

Application filed May 4, 1891. Serial No. 391,587. (No model.)

To all whom it may concern:

Be it known that I, CALVIN GAY STEVENS, of Watertown, in the county of Jefferson, in the State of New York, have invented new and useful Improvements in Boomerangs and Apparatus for Throwing the Same, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to toys and games, and particularly to that kind or class which are thrown away from the person with a rotating motion and which after reaching the apex of their flight will return to the operator, preserving said rotating motion till they return in approximately the same plane as that of their upward flight or at substantially the same angle above a horizontal plane as their upward flight.

My object is to produce a toy missile, to which when thrown a rotating motion is imparted which continues during the whole upward and forward and downward and backward flight, the downward flight being in approximately the same plane as that of the upward flight, or in such a plane as will cause the missile to return to or approximately to the thrower, and such missile being of an angular form, more or less flattened on one side and convexities upon the other, with beveled or sharpened edges, and having a portion thickened and the arms thereof reduced in thickness, and said missile being constructed from wood or compressed pulp, with or without cement, or from paper hardened, or metal, rubber, celluloid, or from analogous materials, and being made solid or in two longitudinal concavo-convex sections having their edges secured together, and having its ends open or closed, or one open and the other closed, and being also, if desired, perforated, with one or more holes or slits or bearing vibrating strings or clips to produce sounds by its rotating motion through the air, and in which the body is widened and thickened (more or less) adjacent to the point where the arms meet, which is substantially the axis of rotation, to give the missile more supporting-surface and a larger bearing upon the atmosphere when so thrown and rotated and to hold it steady in its flight without wobbling, and such flight being created and ob-

tained by an impulse mechanically imparted to the missile by means of an elastic or spring-actuated thrower, to which it is detachably connected.

My invention consists in the several novel features of construction and operation hereinafter described, and which are specifically set forth in the claims hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan of my missile. Fig. 2 is a plan view of a missile with hollow body and perforations opening into the cavity therein. Fig. 3 is a plan view of the missile with squared ends. Fig. 4 is a section thereof on line $x x$. Fig. 5 is a like view on line $x' x'$. Fig. 6 is a like view on line $x'' x''$. Fig. 7 is a like view of line $y y$, Fig. 2, showing the lower side flat. Fig. 8 is a like view on same line as when both sides are convex.

A is the missile comprising a body or center 1 and arms or wings 2 3, integral therewith, and together forming an obtuse angle. As shown in Fig. 11, this body is flat, or substantially so, upon its lower face, and the upper face is convex, or, as shown in Fig. 8, both sides are convex, and the arms are of the like form; but while the center is widened out as well as thickened the arms are reduced in width as well as thickness, and such reduction is graduated from the center toward and to the ends of said arms. This center is thus widened in order to give a greater and broader bearing and to increase its supporting area at and adjacent to the axis of rotation of the missile when thrown, as hereinafter described. The sides of the body and arms are beveled down to quite a sharp edge.

In Figs. 2, 7, and 8 I show the missile as hollow and constructed from two concavo-convex pieces having their sides secured together, and I also show holes 4 through one or both of the plates and opening into the concavity within the missile. When these holes are used, the swift rotary motion of the missile will produce a musical effect similar to whistling.

In throwing this missile I grasp the handle 5 with the left hand, insert one of the arms between the bight at the free end of the rubber band 6, its outer end being secured to the

handle, then grasp the bight of the band and the arm placed therein, with the flattened side down between the thumb and forefinger of the right hand, and then pull back with
 5 this hand until the desired tension is produced, and then quickly let go with the thumb and finger, and the quick retraction of the band imparts an impulse to the missile, and the fact that this impulse is first imparted to
 10 the end of one arm of the missile together cause the missile to rotate, and when (for illustration) the missile is held at an angle of forty-five degrees to the horizon and it is so
 15 thrown its rotation and momentum combined will cause it to travel forward and upward, floating upon the flat side until its momentum is overcome, when it will stop its forward and upward flight, but not its rotation, and then it will return to or toward the operator
 20 in substantially or nearly the same plane as that of its upward flight. When thrown at a given angle to the horizon, the missile will return to the feet of the operator, and when thrown at a greater angle thereto it will return
 25 over the head of the operator and fall behind, and when thrown at a less angle thereto it will fall short of the operator. In all cases it will maintain its rotation until it strikes the ground. When it is held so that
 30 the free arm is higher than the one in the thrower, it will rise in a diagonal flight, curving around to the right, describing substantially a parabola. When the free end is lower than the other, it will describe a like parabola to the left.

To increase or vary the musical effects and produce sounds similar to those of an Æolian harp, I stretch tense strings or wires between the ends of the arms, as shown by the dotted
 40 lines in Fig. 1, varying their number as desired, the motion of the missile creating and causing musical vibrations of the threads and covering the whole octave when eight wires are used and varying in intensity of tone in
 45 proportion to the speed of flight and rotation.

In Fig. 4 I show the band reinforced and rendered non-elastic in the grip to prevent it

from binding upon the missile, and also rendered non-adhesive by securing a piece of strong cloth 7 or tape in the bight. In Fig. 5
 50 I show the same result produced by tying a piece of tape on the bight of the band.

In Fig. 6 I show a loop 8 of cloth or tape provided with a wire or stiffener inserted therein (see dotted lines) and operating to
 55 hold the sides apart.

In Figs. 7 and 8 I show a spring-gun for throwing the missile, comprising a spring-plunger 9 in a barrel 10, the head of the plunger engaging with the trigger 11 when drawn
 60 back, a post 12, erected in the head and traversing in a slot in the top of the barrel, a table 13, upon which the missile is placed, substantially as shown, and a spring-clamp 14 for holding the missile thereon, all constructed
 65 so that when the trigger is pulled the post will strike the free end of the missile and propel it.

It will be seen from the above that the thrower is in reality a part of the toy, and I
 70 have shown these several types of propelling mechanisms; but do not limit myself to the use of only these styles, as there are many analogous forms known to me which will perform the same act.

What I claim as my invention, and desire
 75 to secure by Letters Patent, is—

1. A toy missile having a bent body provided with a flat lower face and a slightly-convexed upper face with beveled edges, said
 80 faces being unbroken.

2. A toy missile comprising a bent body having a flattened lower face and convex upper face and provided with vibrating strings
 85 secured to the arms.

3. A toy missile having a hollow bent body and beveled edges, the outer faces of said body being provided with perforations.

In witness whereof I have hereunto set my hand this 8th day of April, 1891.

CALVIN GAY STEVENS.

In presence of—

ERNEST W. SMITH,
 F. B. PITCHER.