

G. H. LEE.
TOY BOOMERANG.
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1,040,702.

Patented Oct. 8, 1912.

Fig. 1.

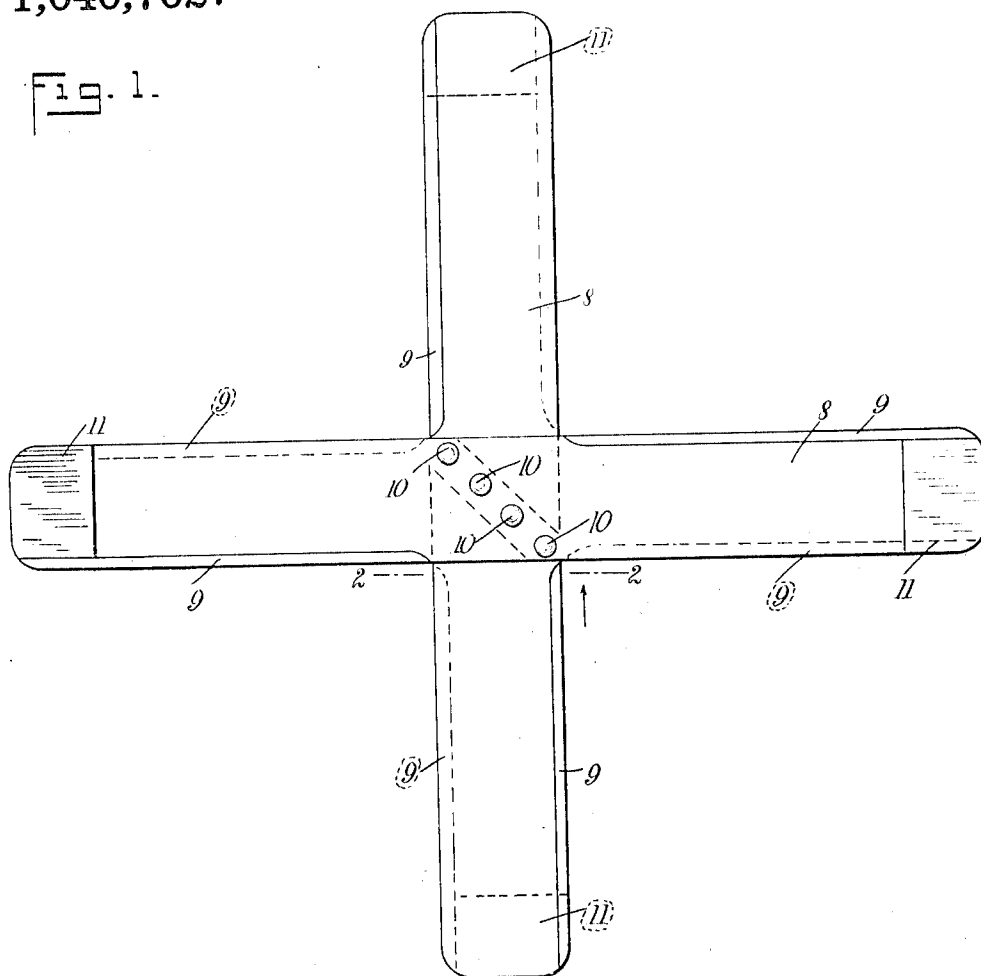


Fig. 2.

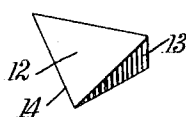
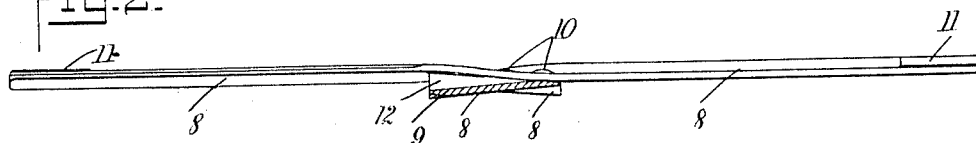


Fig. 3.

WITNESSES

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GEORGE H. LEE, OF OMAHA, NEBRASKA.

TOY BOOMERANG.

1,040,702.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE H. LEE, a citizen of the United States, and a resident of Omaha, in the county of Douglas and State of Nebraska, have invented a new and Improved Toy Boomerang, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide a missile which when properly thrown has a trajectory similar to that of a boomerang, returning to or near the thrower; to provide a missile of the character mentioned the trajectory of the flight whereof is spiral; and to construct a toy of the character mentioned in the simplest, most economical and durable form.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings forming a part of this specification, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1, is a side view of a boomerang of the character mentioned, constructed and arranged in accordance with the present invention; Fig. 2 is a section taken on the line 2—2 in Fig. 1; and Fig. 3 is a detail view in perspective of one of the shaping blocks employed for shaping the blades of the toy.

As seen in the accompanying drawings, the blades 8, 8 are provided with a chamfered edge 9, and are disposed in mutually perpendicular relation, as seen in Fig. 1 of the drawings. The blades 8, 8 are fastened together with rivets 10, 10. The ends of each blade 8 are protected by a suitable reinforcing strip 11, which strip is preferably glued to the blade. The strips 11, 11 are used when the material from which the blades 8 are constructed is wood.

To twist the blades 8, 8 to shape the same as propellers I have provided two shaping blocks 12. As seen in Fig. 3 of the drawings the blocks 12 are triangular and are chamfered from the edge 13 to the edge 14. These blocks when disposed between the blades at the crossed section thereof, and on opposite ends of one of the triangles of the said cross section, as seen in Fig. 1, separate the edges of the said blades in line with the edge 13 of each of the blocks 12. The blades 8 are held together at the edges 14 of the blocks 12 by the rivets 10. This arrangement results in producing in each blade at the opposite edge of the oppo-

site faces of the blades, like separation from the other blades, while at the opposite ends of the diagonal of the crossed blades, and substantially in line with the rivets 10, the edges of the blades are closely approximated. This arrangement produces in each blade a similar twist, tilting the blade extensions slightly from the common plane of the longitudinal median line of each of the blades. The edges 9, 9 are chamfered, as shown, to form cutting edges to avoid the resistance of the air when the device is thrown therethrough. In throwing the device as hereinafter described it is twirled on its central axis.

In throwing the toy boomerang constructed and arranged as above described, and as shown in the accompanying drawings, the operator may deliver the missile from his hand in a substantially horizontal position. Preferably the missile is "snapped" backward as it is delivered, causing the same to whirl rapidly on an axis centrally located in the missile. The inclination of the blade extensions forms inclined under surfaces which maintain in part the levitation of the missile and form a resistance or friction of the air on the missile exerted largest on the side where the direction of rotation coincides with the direction of progression. The slight retardation induced by this friction produces a trajectory in the horizontal plane curved slightly toward the side at which the resistance mentioned is imparted. The inclined position of the blade extensions produces on the missile a slightly greater lift on the side thereof above referred to as retarded. The lift rocks the missile on its center to change the plane thereof from the horizontal to the vertical, and this coincident with the period of time during which the trajectory of the missile is curved by the retardation of the blade extensions on one side of the axis. The total result of this action is that the missile, when delivered in the horizontal position, forms a spiral trajectory, returning to the operator at the falling end of the upward flight. If, on the other hand, the missile be initially delivered in a vertical plane, the return of the missile to the operator will be in the horizontal plane.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A toy boomerang having a plurality

of blades each reversely inclined at its opposite ends, said blades rigidly united at their common center; and a plurality of wedge-shaped members inserted between
5 said blades to separate the edges thereof at opposite sides of the said common center.

2. A toy boomerang having a plurality of blades superposed at their median sections to form a rectangular overlapping section;
10 means for structurally uniting said blades disposed in line with a diagonal diameter of said rectangular section; and means for wedging the edges of said blades apart at the ends of the diagonal diameter perpen-
15 dicular to the first mentioned diameter.

3. A toy boomerang having a plurality of blades superposed at their median sections to form a rectangular overlapping section; means for structurally uniting said blades
20 disposed in line with a diagonal diameter of said rectangular section; and a plurality of wedge-shaped blocks for insertion between the said blades to separate the edges thereof

at the extremes of the diagonal diameter perpendicular to the first mentioned di- 25
ameter.

4. A toy boomerang having a plurality of blades superposed at their median section to form a rectangular overlapping section; means for structurally uniting said
30 blades disposed in line with a diagonal diameter of said rectangular section; and a plurality of wedge-shaped right angle triangular blocks the wedged edge whereof is the hypotenuse of the triangle, said blocks
35 being disposed between said blades on the opposite sides of the fastening means therefor.

In testimony whereof I have signed my name to this specification in the presence of 40
two subscribing witnesses.

GEORGE H. LEE.

Witnesses:

HELEN M. DAILEY,
R. O'NEIL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."