F. H. SCHULTZ.

FLYING TOY.

APPLICATION FILED OCT. 9, 1920.

1,382,559. Patented June 21, 1921.

Fig. 7

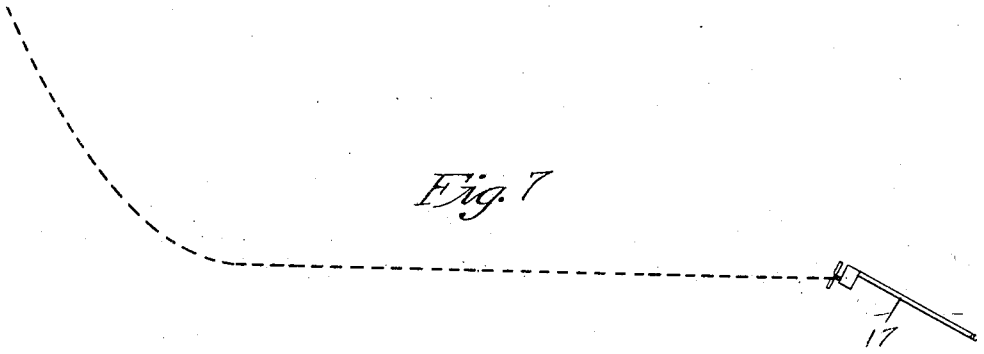


Fig. 6

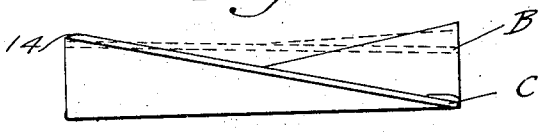


Fig. 5

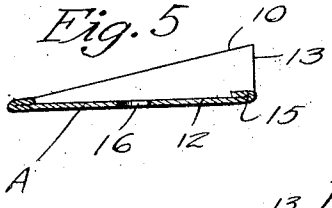


Fig. 4

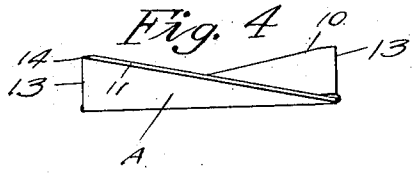


Fig. 3

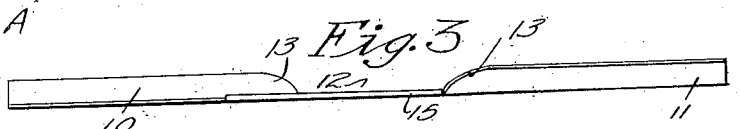


Fig. 2

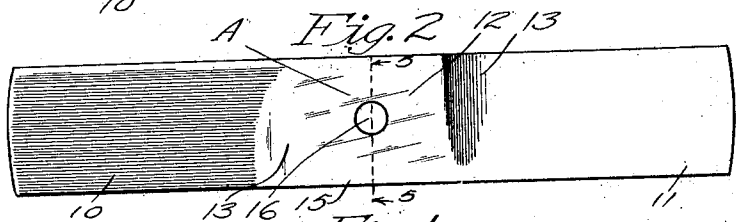
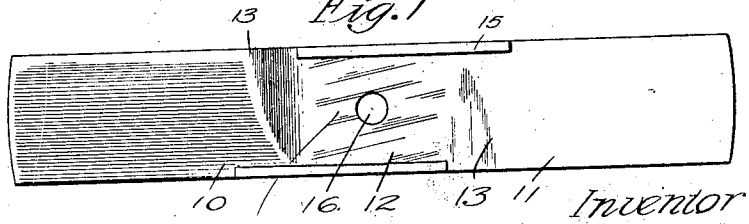


Fig. 1



Witness

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FERDINAND H. SCHULTZ, OF TREYNOR, IOWA.

FLYING TOY.

1,382,559. Specification of Letters Patent. Patented June 21, 1921.

Application filed October 9, 1920. Serial No. 415,730.

To all whom it may concern:

Be it known that I, FERDINAND H. SCHULTZ, a citizen of the United States, and a resident of Treynor, in the county of Pottawattamie and State of Iowa, have invented a certain new and useful Flying Toy, of which the following is a specification.

The object of my invention is to provide a flying toy of extremely simple and inexpensive construction.

More particularly it is my object to provide a flying toy adapted to be projected into the air with a whirling movement, which is so constructed and arranged that it will fly substantially on a level for a considerable distance and will then rise higher in the air before starting on its downward course.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a plan view of a flying toy, embodying my invention.

Fig. 2 shows an inverted plan view of the same.

Fig. 3 shows a front elevation of the device shown in Figs. 1 and 2.

Fig. 4 shows an end elevation.

Fig. 5 shows a detail, sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is an enlarged end elevation, the dotted lines being diagrammatic illustrations of the positions taken by the wings in flying; and

Fig. 7 shows a diagrammatic view of a portion of the flight of the toy.

My improved flying toy is made of a substantially rectangular strip of somewhat resilient material, preferably spring brass or the like.

The strip is represented generally by the reference character A and has its blades indicated by the reference numerals 10 and 11 at its ends, and a central portion 12, as illustrated.

The forward edge of each blade from the central portion to the end of the blade is bent upwardly from the central portion 12, as illustrated at 13. The immediate forward edge of each blade is sharpened somewhat, as at 14.

The side edges of the central portion 12 have flanges 15 folded over on the upper side of the strip, as shown for instance in Fig. 2, said folded over portions extending beyond the central portion for a portion of the length of the rear edge of the blade. The rear edge of the blade is normally straight and parallel with the folded over portion 15, as illustrated at 16 in Fig. 3.

By bending the forward part of the blade upwardly, as at 13, the forward edge is stiffened, so that it will not bend as easily as the rear edge of the blade.

The central portion 12 is provided with a central opening or hole 16.

The flying toy is given a rapid whirling movement by means of a gun or the like 17, shown in Fig. 7, whereupon it will fly into the air and will follow a substantially horizontal path after leaving the gun for a short distance, and will thereafter, toward the end of its flight curve upwardly in the air for a considerable distance before starting down.

The toy will fly a considerable distance, and if given rapid rotation will fly from eighty to two hundred yards, while the length of the flying toy is preferably only from five to six inches.

I have shown in Figs. 1 and 2 an actual size in which the toy may be made.

The peculiar path followed by the toy is taken for the following reasons:

During the first part of the flying movement and while the rotation of the toy is very rapid, the raised portions of the front edges of the blades, which are on opposite sides of the blade, tend to give the toy a climbing movement or to cause it to climb in the air. The force of gravity, of course, tends to pull the toy down, and the resistance of the air against the under side of the back of the blade tends to spring the back of the blade upwardly on acccount of its resiliency and construction, and on account also of the slight twisting movement given to the blades through the center of the device.

The back edges of the blade tend to spring upwardly into or toward the plane of the forward edges, as illustrated by dotted lines in Fig. 6, or the lines B illustrate the posi-

tion assumed by the rear edge and end part of the blade shown at C.

When the speed of rotation becomes reduced, the resiliency of the back of the blades is sufficient to overcome the air pressure, and the back edges of the blades assume their normal position, whereupon the steeper pitch of the blades will cause a sharper climbing movement of the toy causing the toy during the latter part of its flight to climb higher into the air from the horizontal path, which it has heretofore taken.

A large number of experiments with the toy herein described show that it will fly along for a substantial distance and will then fly upwardly before descending on its downward flight.

By using the folded over reinforcing strips 15 and having them project part of the distance along the back edge of the blade, it will be seen that it is the back outer portion of the blade, which is sprung upwardly during the very rapid rotation of the toy, so that during said rotation both edges of the outer ends of the blade will stand slightly above the plane of the central part 12.

On its downward finishing flight, the toy will swing around in a curve back toward the starting point.

While some changes may be made in the construction and arrangement of my flying toy, I believe the construction and shape of the blades should be substantially that shown herein, and described, but it is my intention to cover by my claims, any slight modifications, which may come within their scope and within the real spirit of my invention for accomplishing the purposes hereinbefore set forth.

I claim as my invention:

1. A flying toy comprising a resilient strip, having a flat central portion and having blades projecting in opposite directions therefrom, said central portion having reinforcing parts at its side edges, one reinforcing portion being arranged to overlap a part of one edge of one blade, and the other reinforcing portion being arranged to overlap a part of one edge of the other blade.

2. A flying toy comprising a strip of somewhat resilient material, having a flat central portion and oppositely extending blades, the inner edge of each blade being stiffened for a portion of its length adjacent to the central portion of the toy.

3. A flying toy comprising a strip of somewhat resilient material, having a flat central portion and having blade portions projecting in opposite directions therefrom, the opposite forward edges of said blade portions being curved upwardly from the central portion, so that the forward edges of the blades are raised with relation to the central portion and the back edges of the blades, and are curved near the central portion and are substantially straight near their outer ends, said central portion having reinforced parts at its side edges overlapping portions of the back edges of the blades, said blade portions being capable of being sprung from their normal positions during the flight of the toy.

4. A flying toy comprising a strip of somewhat resilient material, having a flat central portion and having blade portions projecting in opposite directions therefrom, the opposite forward edges of said blade portions being curved upwardly from the central portion, so that the forward edges of the blades are raised with relation to the central portion, and the forward edges of the blades are curved near the central portion and are substantially straight near their outer ends, the rear edges of said blades being arranged substantially in straight lines and in the same plane as that of the central portion, said central portion having at its side edges reinforcing parts overlapping the portions of the back edges of the blades, said blade portions being capable of being sprung from their normal positions during the flight of the toy.

Des Moines, Iowa, September 28, 1920.

FERDINAND H. SCHULTZ.