United States Patent [19]

Seefluth

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[45] **Nov. 6, 1973**

[54] **TOY AIRPLANE**

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[21] Appl. No.: **139,019**

[52] **U.S. Cl.** **244/154,** 46/75

[51] **Int. Cl.** **B64c 31/06**

[58] **Field of Search** ..... 244/153 R, 153 A, 244/154, 155 R; 46/74, 75

[56] **References Cited**

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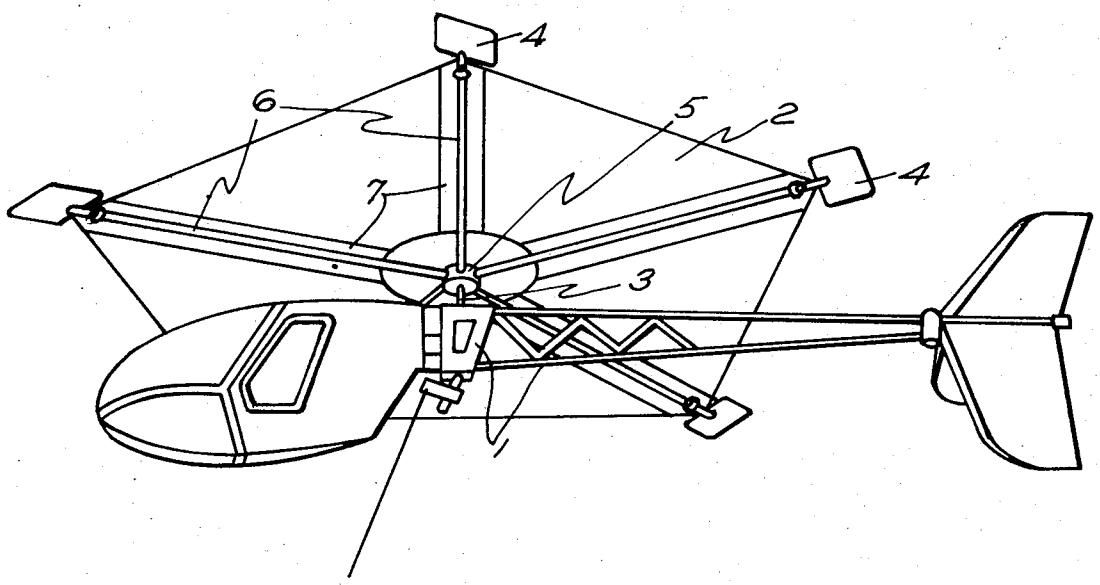
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Assistant Examiner—Paul E. Sauberer
Attorney—Salter & Michaelson

[57] **ABSTRACT**

A toy airplane simulating a helicopter having a rotating body which cooperates with air currents to keep the toy steadily floating in the air.

2 Claims, 11 Drawing Figures



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SHEET 1 OF 2

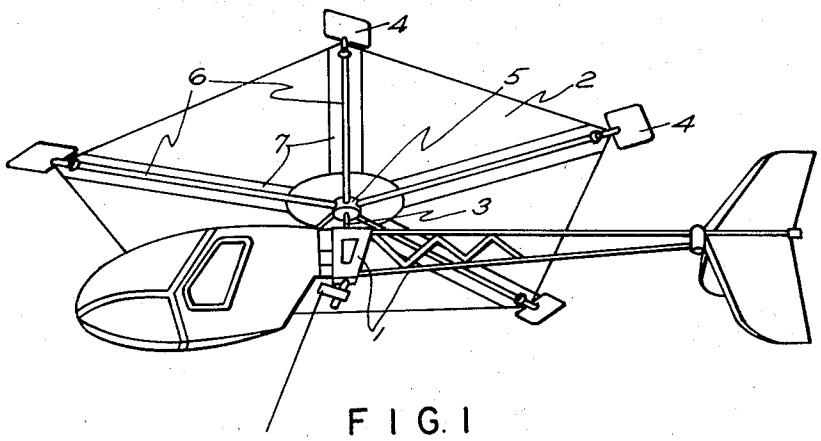


FIG. 1

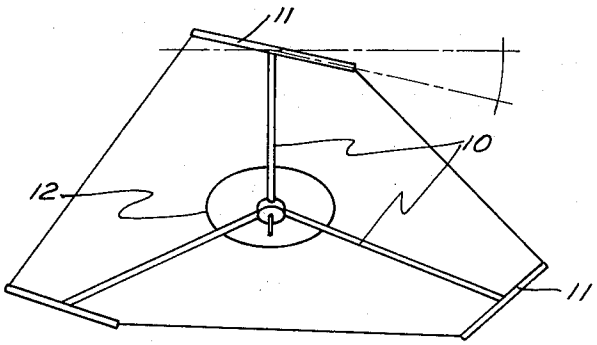


FIG. 2

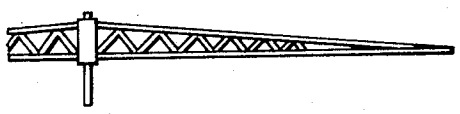


FIG. 2a

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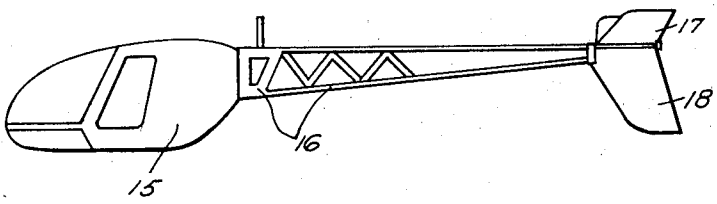


FIG. 3

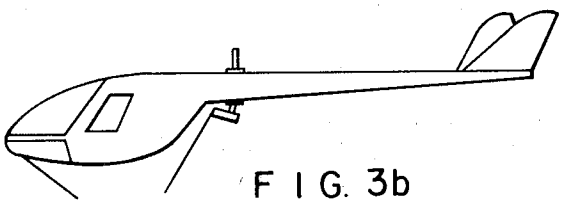


FIG. 3b

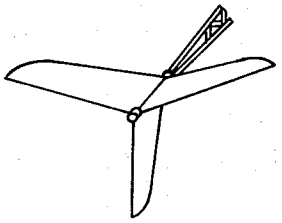


FIG. 3a

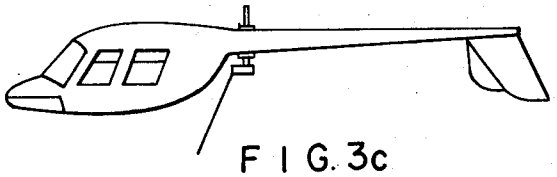


FIG. 3c

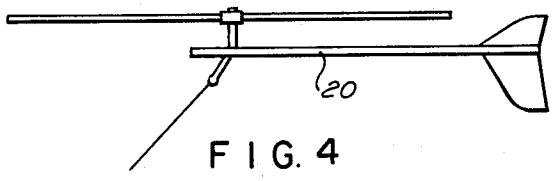


FIG. 4

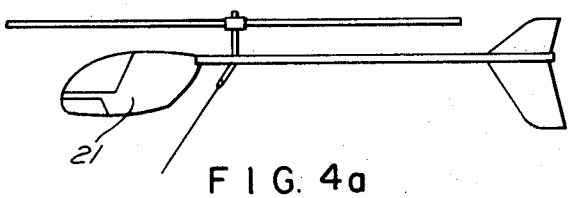


FIG. 4a

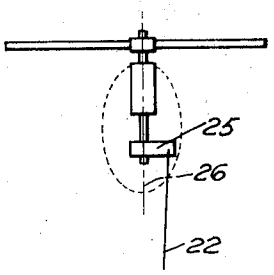


FIG. 5a

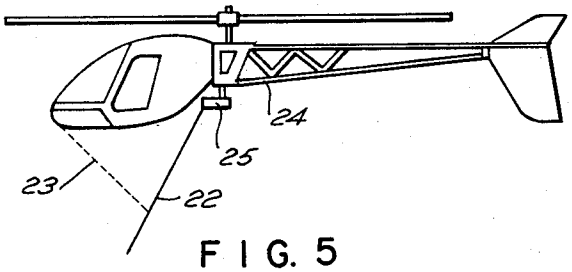


FIG. 5

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TOY AIRPLANE

BACKGROUND OF THE INVENTION

This invention is a helicopter toy which has a rotating body, which will be kept in the air through the air currents.

It is desirable that this toy be kept steadily floating in the air without any mishap, even in strong winds.

Helicopter toys are already known in the prior art. Principally, there are two kinds. First there is the type shown in U. S. Pat. Nos. 3,079,116 and 3,194,521. Secondly, there is the kite type of helicopter shown in German Patent No. 829,412 and U. S. Pat. No. 3,086,738. In principal, this type has round discs which have openings and diagonal parts which are supported to work while the toy floats in the air.

These prior helicopter toys were not successful since they could not solve the problem of keeping the toy in the air. The reason for this failure is that the wings of the helicopter did not keep the toy in the air in heavy winds.

Therefore, my invention serves the purpose of constructing a strong helicopter toy of this type with the least possible manufacturing effort which will be stable in the air and at the same time assure a steady performance. This is accomplished by making a flat surface in a kite-like design with a long body to which a cord will be attached, the resulting construction having an aerodynamic axle which stabilizes the toy.

Contrary to all prior known toys of this kind which have a rotating axle, my invention stabilizes the toy mostly through the combination of rotor and body, whereby the body has a built-in construction to stabilize the height as well as the side movements. In order to make this toy in mass production, it is possible to relocate the string with respect to the body, in order to have the flow of the toy in the air adjustable to the necessary point of resistance. This minimizes the tolerance of the mass produced toys.

Other objects, features and advantages of the invention shall become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

DESCRIPTION OF THE DRAWING

In the drawing which illustrates the best mode presently contemplated for carrying out the present invention:

FIG. 1 is a side view of a toy embodying my invention;

FIG. 2 shows a modified form of rotating member;

FIG. 2A is a cross view of the elongated body;

FIGS. 3–3C show various samples of the body construction;

FIGS. 4 and 4A show modified body construction and;

FIGS. 5 and 5A show side and crossviews of the movable bar assembly.

DESCRIPTION OF THE INVENTION

In FIG. 1, the elongated body 1, rotatably carries rotating member 2 by means of shaft 3. The rotating body 2 is, in this figure shown as being five sided, but it is also possible to make this of triangular configuration or with as many sides as wished. In this case, refer to elements 4 in figure 1, which comprise small diagonal parts or paddles which when hit by the wind make the rotor

work. Note that these parts if attached to the under side of member 2 serve the purpose of promoting rotation to a much greater extent than if attached to the top side.

The member 2 (FIG. 1) is preferably made out of thin artificial material like foil. In order to hold this surface flat, I have rods 6 made either out of wood or plastic extending outwardly from nut 5. The surface may be held on these rods by means of eyes and hooks. In order to avoid air balloons in this surface, we attach this material below the rods. The body 1 (FIG. 1) can be made either in halves, or in combination of halves and chicken wire, made out of any material. The body has a construction for height and side, which in the best way could be attached to the back part of the long shell. A special feature of my construction is that the material for 2 in FIG. 1 consists of clear material. In order, to simulate a flying helicopter with the rotating blades, portions 7 are printed on surface 2 adjacent rods 6 and the effect will be that it looks like a moving rotating helicopter in the air.

FIG. 2 shows a birds' view of the invention. The body is made as a triangle with cut-off corners. The rods 10 go to the centers of the cut off portions. In order to increase the tightness of the rotating surface the material can be wrapped around rods 11 and glued on. These rods 11 can also be round or in any other form. In order to increase the function of the air, I propose to make an opening 12 in the middle, preferably in a circle. The opening should have a minimum of one-eighth of the diameter of the body. In the drawing it will be seen that the rods 11 are slightly uneven which will result in rotation of the toy through the force of the wind.

FIG. 2A shows a cross view of the frame attached to the nut of the body. The frame consists of 2 elongated pieces, between the two of which is some kind of chicken wire, which will prevent bending of the bolt while encountering heavy winds. This effect could also be reached if the bolt were made in a T configuration. This invention could also be made by making the body round, in which case, additional parts have to be added in order to reach the circular effect. It is also of advantage to have the material 2 made out of separate pieces, using the rods 6 as joining points.

FIG. 3 shows a side view of the body wherein the front part 15 is made out of blow-mold or vacuum form material which will be attached to the back part 16 either by glue or a press-tight fit. Part 16 consists of the design which should be molded or stamped in one piece. The tail end consists of parts 17 and 18. I show this again in FIG. 3A in cross view, where it can be seen that this part has a V form. This form acts to stabilize the movement of the toy. FIG. 3B shows the tail as a positive V. FIG. 3C shows the same as a negative V. Refering to drawings 3–3C it will be noted that these parts can be made bendable and adjustable.

FIGS. 4 and 4A show a simplified form of the body. FIG. 4 shows only a straight rod or flat piece 20 to which the rotor will be attached. FIG. 4A shows a side view of the same which has, in the front, an imitation of a helicopter front 21 which should be made as a flat surface in order to avoid uneven performance of the toy in the air.

FIG. 5 shows a side view of the toy with the cord 22 attached. The body 24 has a movable arm 25 at the end of which the cord is attached. This movable arm serves two purposes. First, it prevents the cord from rubbing

against the body and, second, it stabilizes any instability which could occur when the material 2 is not completely even.

Normally, the attachment of the cord 22 is sufficient at one point but in order to prevent any rough movement which could be caused by very heavy winds, the cord can have a fork-like extension 23 which can be attached to the front part of the body.

FIG. 5A shows again in cross view the attachment of the cord to the arm 25 which is turned to the right in order to be outside the center line 26 of the body.

In summarizing, it is stated that the most important facts of my invention are that with this simple construction I have made a helicopter toy with a completely stabilized performance. Contrary to the prior known types, the expense of making my invention is very low and my toy operates perfectly even with very weak winds. Furthermore, the rotation is very slow and the wings remain visible in the air and animate a real helicopter.

What is claimed is:

1. A toy airplane simulating a helicopter comprising means for maintaining said toy airplane in the air and in a floating position by virtue of the air currents, said means comprising an elongated body having a string attached thereto, and a substantially horizontally disposed rotating member rotatably mounted to and above said body, said rotating member being of substantially flat, kite-like construction, and having a centrally disposed opening permitting air currents to flow

therethrough from below to above said member, thereby minimizing the buffeting effects of said air currents and effective greater stabilization of the toy in the air, said rotating member having radially extending struts, and paddle members at the ends of at least some of said struts cooperating with said air currents to effect rotation of said member.

2. A toy airplane simulating a helicopter comprising means for maintaining said toy airplane in the air and in a floating position by virtue of the air currents, said means comprising an elongated body having a string attached thereto, and a substantially horizontally disposed rotating member rotatably mounted to and above said body, said rotating member being of substantially flat, kite-like construction, and having a centrally disposed opening permitting air currents to flow therethrough from below to above said member, thereby minimizing the buffeting effects of said air currents and effecting greater stabilization of the toy in the air, said rotating member having radially extending struts, rod members secured to the ends of at least some of said struts to define a generally T-shaped configuration, said rod members being tilted somewhat out of the plane of said rotating member, the material spanning said rotating member being attached to said struct and rod members whereby to provide slightly twisted portions which cooperate with said air currents to effect rotation of said member.

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