Oct. 28, 1952 D. W. MAIN 2,615,281

FLYING TOY

Filed March 18, 1950

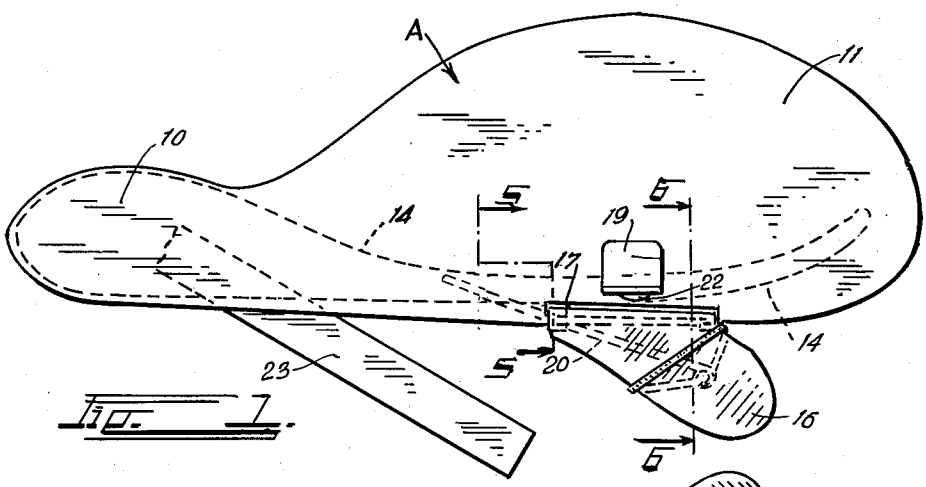



Fig. 1.

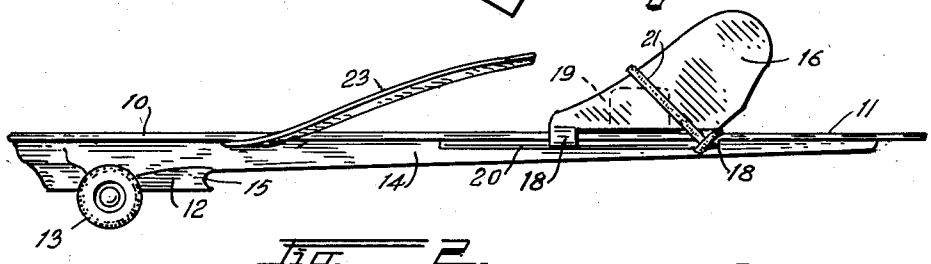



Fig. 2.

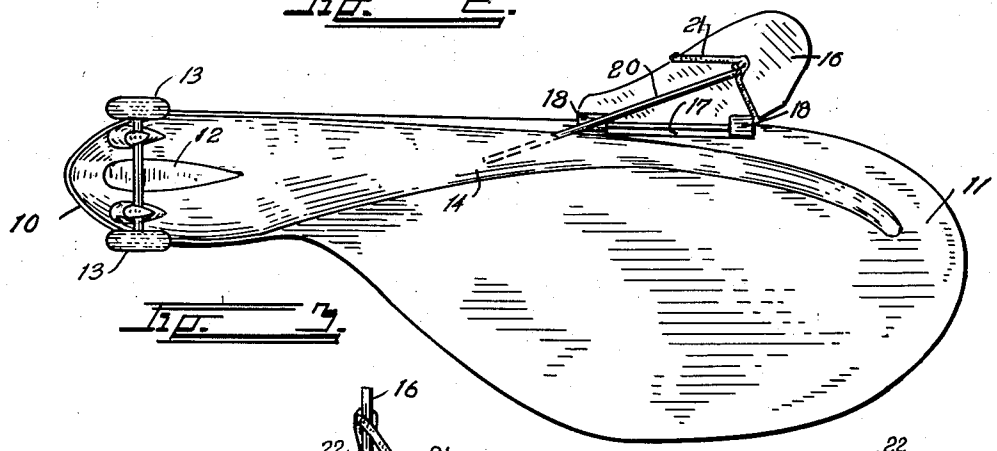



Fig. 3.

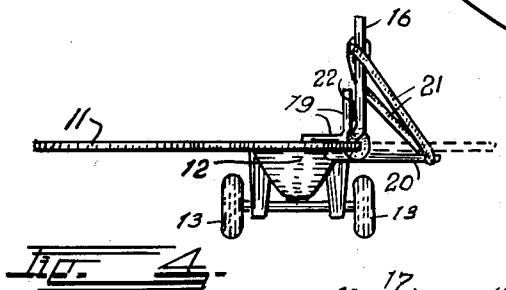



Fig. 4.

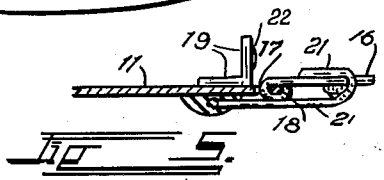



Fig. 5.

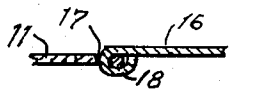



Fig. 6.

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## FLYING TOY

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6 Claims. (Cl. 46—74)

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This invention relates to a flying toy and has for its principal object, the provision of an attractive toy which can be shot vertically into the air and, when its maximum height is reached, will automatically convert itself into a whirling parachute and slowly return to the earth.

Another object of the invention is to provide a whirling toy which will simulate the action of certain tree seeds of the locust variety which are easily carried by the wind and which act in the nature of whirling parachutes or Autogiros.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a top view of the improved flying toy as it would appear when descending;

Fig. 2 is a side view thereof illustrating it arranged for ascending;

Fig. 3 is a bottom view of the toy of Fig. 1;

Fig. 4 is a front view of the toy of Fig. 2; and

Figs. 5 and 6 are detail cross sections taken on the lines 5—5 and 6—6, respectively, Fig. 1.

The improved whirling toy consists of a flat wing section formed from relatively thin plastic or similar relatively stiff material. The wing section has a relatively narrow fuselage end 10 and a relatively wide wing portion 11, the two portions being shaped to form a relatively straight leading edge and an arcuate trailing edge. A moulded plastic body is cemented below the fuselage portion and is designed to simulate a fuselage 12 provided with landing wheels 13. An arcuate longéron portion 14 extends rearwardly from the fuselage 12 beneath wing portion 11 to act as a stiffener for the latter. The rear of the fuselage 12 is provided with an indented notch 15 for receiving a rubber band or other propelling device whereby the entire toy may be propelled or shot into the air.

If the toy, as thus far described, is released in the air, it will whirl in the direction of the arrow A in Fig. 1, about the fuselage portion 12 as an axis, and slowly descend. However, if the toy, as thus far described, is propelled or shot into the air it will immediately whirl and exert a parachute-like retarding action so that no altitude can be gained. Therefore, means must

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be provided to prevent the device from whirling as it ascends and allow it to freely whirl as it descends.

The desired ascending and descending actions are attained in the present invention by means of a hinged aileron 16. One side edge of the aileron 16 is passed through an elongated slot 17 formed in the wing portion parallel and adjacent to the leading edge thereof and is rolled back upon itself, as indicated at 18, to provide a hinge which will allow the aileron 16 to swing freely with reference to the wing portion 11.

An angle stop member 19 is cemented or otherwise secured to the top of wing portion 11 and extends vertically at the side of the slot 17 to stop the upward swinging of the aileron 16. A wire or rod 20 is mounted in the longéron 14 and extends horizontally beneath the aileron 16 to stop the downward movement of the latter.

A resilient band 21 of rubber or similar elastic material is secured to the extremity of the rod 20 and slipped over the aileron 16 to constantly urge the latter into the plane of the wing portion 11. A lump of sticky wax or similar material 22 is placed on the vertical face of the angle stop member 19 so that when the aileron is pressed thereagainst, it will adhere temporarily. After a time interval the aileron will be released by the wax so that it may be snapped against the rod 20 by action of the resilient band 21.

To fly the toy the aileron 16 is pressed against the wax 22, a rubber band or other propelling device is fitted into the notch 15 and the entire toy is shot vertically into the air. Any tendency to whirl, while ascending, is resisted by the aileron 16 which extends at right angles to a normal plane of rotation of the wing portion 11. At some point along the vertical flight, the wax 22 will release the aileron allowing it to snap into the plane of rotation of the wing portion 11, as shown in Figs. 1 and 3 and in broken line in Fig. 4. This allows the entire toy to rotate freely about the axis of the fuselage so that it will descend slowly with a whirling parachute-like action.

It has been found that the attractiveness of the toy can be increased by cementing a ribbon 23 of flexible material between the fuselage 12 and the fuselage portion 10 of the wing so that the ribbon will project outwardly at an angle as indicated in Fig. 1. This flexible ribbon creates a whirring noise as it whips in the air during the ascent of the toy and also creates an attractive animated effect as the toy descends.

While a specific form of the improvement has

been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A whirling toy comprising: a relatively thin flat wing section having a narrowed fuselage portion and a relatively wide wing portion; a fuselage secured below the fuselage portion; a stiffening longéron extending from said fuselage portion along the leading edge of the wing portion and acting to stiffen the latter; an aileron member hinged to and extending from the leading edge of said wing portion; a first stop means acting to stop said aileron member at right angles to said wing portion; and a second stop means adapted to stop said aileron member in the plane of said wing portion.

2. A whirling toy comprising: a relatively thin flat wing section having a narrowed fuselage portion and a relatively wide wing portion; a fuselage secured below the fuselage portion; a stiffening longéron extending from said fuselage portion along the leading edge of the wing portion and acting to stiffen the latter; an aileron member hinged to and extending from the leading edge of said wing portion; a first stop means acting to stop said aileron member at right angles to said wing portion; a second stop means adapted to stop said aileron member in the plane of said wing portion; and resilient means urging said aileron member into the plane of said wing portion.

3. A whirling toy comprising: a relatively thin flat wing section having a narrowed fuselage portion and a relatively wide wing portion; a fuselage secured below the fuselage portion; a stiffening longéron extending from said fuselage portion along the leading edge of the wing portion and acting to stiffen the latter; an aileron member hinged to and extending from the leading edge of said wing portion; a first stop means acting to stop said aileron member at right angles to said wing portion; a second stop means adapted to stop said aileron member in the plane of said wing portion; resilient means urging said aileron member into the plane of said wing portion; and temporarily acting holding means holding said aileron member at right angles to the plane of said wing portion against the action of said resilient means.



4. A whirling toy comprising: a relatively thin flat wing portion having a narrowed fuselage portion and a relatively wide wing portion; a fuselage secured below the fuselage portion; an aileron member extending at right angles to the surface of said wing portion and along the leading edge of the latter to resist rotation of the latter; and means for bringing said aileron member into the plane of said wing portion after a time interval has elapsed.

5. A whirling toy comprising: a relatively thin flat wing section having a narrowed fuselage portion and a relatively wide wing portion; a fuselage secured below the fuselage portion; an aileron member hinged to and extending from the leading edge of said wing portion; a first stop means acting to stop said aileron member at right angles to said wing portion; a second stop means adapted to stop said aileron member in the plane of said wing portion; resilient means urging said aileron member into the plane of said wing portion; and temporarily acting holding means holding said aileron member at right angles to the plane of said wing portion against the action of said resilient means.

6. A whirling toy comprising: a relatively thin, flat wing section having a narrowed fuselage portion and a relatively wide wing portion; a fuselage secured below the fuselage portion; an aileron member hinged to and extending from the leading edge of said wing portion; a stop means acting to stop said aileron member at right angles to said wing portion; resilient means urging said aileron member into the plane of said wing portion; and temporarily acting holding means holding said aileron member at right angles to the plane of said wing portion against the action of said resilient means.

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