June 13, 1939. P. A. PETERSON 2,161,932

PROPELLER

Filed Sept. 29, 1937

Fig. 1.

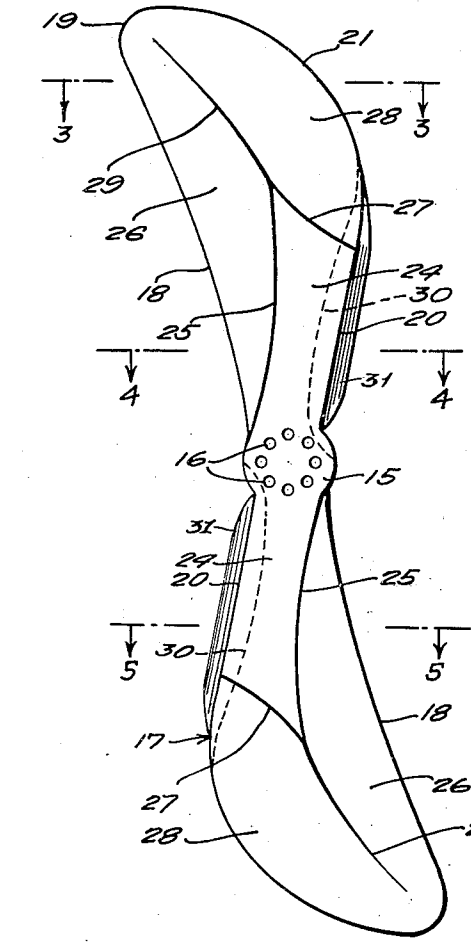


Fig. 2.

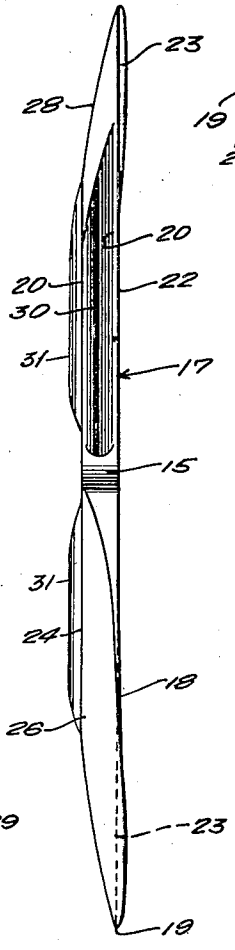


Fig. 3.

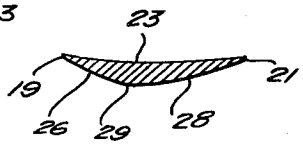
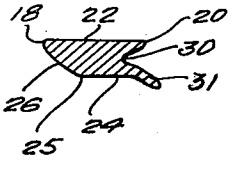


Fig. 4.



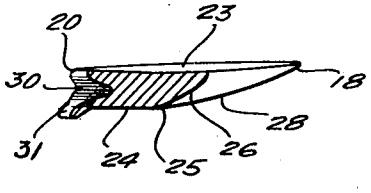


Fig. 5.

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Patented June 13, 1939

2,161,932

UNITED STATES PATENT OFFICE

2,161,932

PROPELLER

Per A. Peterson, New York, N. Y.

Application September 29, 1937, Serial No. 166,308

5 Claims. (Cl. 170—159)

This invention relates to propellers, and more particularly to that class of helically bladed propellers used for imparting motion to aircraft of various types provided with a power source.

An object of the invention is to provide a propeller having one or more blades so designed as to practically cause the propeller to rotate in the air in a manner somewhat similar to a screw moving in a nut.

A further feature is in the provision of a propeller blade of constantly varying cross section, its upper surface being stream-lined and its rear or trailing edge shaped to produce a feathering effect, the propeller provided with one or more blades, which upon rapid rotation causes a very considerable noise in the air, a desirable feature in toy construction.

Another purpose is to produce a propeller capable of being inexpensively constructed, readily finished and suited to be substituted for others of less modern type.

These and other advantageous objects, which will hereinafter appear, are accomplished by the novel design, construction and arrangement of parts hereinafter described and shown in the accompanying drawing, constituting an essential component of this disclosure, and in which:

Figure 1 is a front elevational view of an embodiment of the invention.

Figure 2 is an edge view of the same.

Figure 3 is a transverse sectional view taken near the propeller tip on line 3—3 of Fig. 1.

Figure 4 is a similar sectional view taken on line 4—4 of Fig. 1.

Figure 5 is another like sectional view taken on line 5—5 of Fig. 1.

Referring in greater detail to the drawing, which shows a pair of blades arranged in opposed relation in conventional manner, a hub 15, here indicated as being flat, but may be of any other preferred formation, is provided with attaching means, as at 16.

Extending radially from the hub are opposed blades, generally designated by the numeral 17, their advance or leading edges 18 curved concavely from the hub 15 to the rounded tip 19, at a large radius, approximately twice the overall length of the propeller.

The front or leading edges 18 and rear or trailing edges 20 are disposed at approximately the included angle of 20 degrees from the axis of their rotation, the rear edges being the full thickness of the blade, while the leading edges 18 are quite sharp.

The trailing edge 20 continues straight for about one half the length of the blade and is joined by a convex curve 21 blending into the curved tip 19, its radius substantially equal to one half the length of the blade and is approximately sharp.

The rear or underside of the blade is essentially flat and level for half its length, as at 22, its continuing end portion slightly concave, as at 23, the blades being twisted slightly to produce a helical, screwlike advance effect.

The front or outer side of each blade presents a flat surface 24, parallel with the under surface, and blending along line 25 into a convexly curved main portion 26 extending to the advance edge 18; another line 27 demarks the flat element 24 from a reversely curved, trailing element 28, blending at its highest portion, along line 29, into the element 26, the entire front surface of the blade presenting a streamline effect.

In the trailing edge 20, extending from the hub 15 partially into the curved edge 21, is a central longitudinal groove 30, forming a fork from which an outturned, rear reaching curved lip 31 extends from the front side of the blade.

Although the foregoing is generally descriptive of the best known embodiment of the invention, it will be understood that minor modifications may be made that come within the scope of the appended claims.

What is claimed as new and sought to secure by Letters Patent, is:

1. A propeller having helical blades the trailing edges grooved longitudinally.

2. A propeller having helical blades the trailing edge surfaces presenting continuous longitudinal grooves centrally therein.

3. A propeller blade having a substantially flat under surface disposed helically about the axis of rotation, a stream lined upper surface gradually tapering to its free end, a thin advance edge, and a longitudinally grooved trailing edge.

4. A propeller blade having a substantially flat under surface set at an angle to the axis of the propeller, a generally crowned upper surface parallel with the upper surface for a distance approximately one half the length of the blade, a thin advance edge, and a trailing edge having a lengthwise groove therein.

5. A propeller having radial blades slightly concave at their rear surfaces and stream-lined on the front surfaces, the front and rear edges of each blade diverging from the axis of rotation at included angles of approximately twenty degrees, the advance edge concavely curved and sharp edged, the trailing edge being the full width and containing a longitudinal groove, and a curved terminal thin edge portion united by a rounded apex to said advance edge.

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