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P. FOOT

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SCREW PROPELLER FOR FLYING MACHINES AND OTHER AERODYNAMICS APPARATUS

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Fig. 1

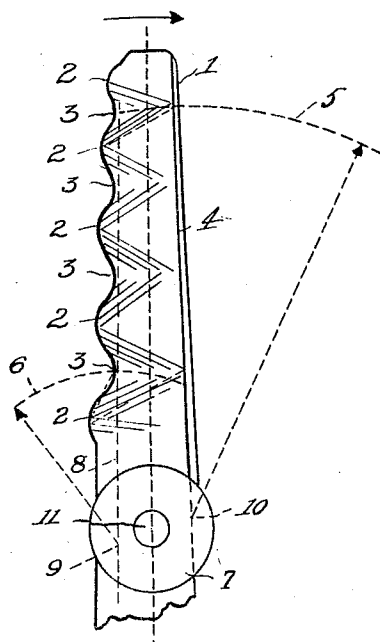
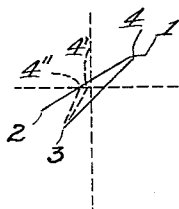


Fig. 2



Witnesses
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SCREW-PROPELLER FOR FLYING MACHINES AND OTHER AERODYNAMICS APPARATUS

Application filed June 19, 1931, Serial No. 545,509, and in Belgium August 18, 1930.

I have made foreign applications as follows: in Belgium, on August 18th, 1930, No. 372,767; in Germany, on April 20th, 1931.

My present invention relates to screw-propellers for flying machines and other aerodynamics apparatus and it has for its object to provide an improved screw-propeller of this type, that is one in which the wings are undulated or waved in the plane parallel to the axis of the propeller as well as at right angles to said axis.

A further object of my invention is to provide a screw-propeller of the type described, in which the axes of the wave troughs for the inner waves or undulations coincide with a circumference the center of which is located on the hub member of the propeller on the extension of the base line of the wave troughs, whilst for the outer wave troughs the axes of the troughs coincide with a circumference the center of which is located on the extension of the front edge line of the propeller wing.

Other objects and advantages of my invention will appear from the following disclosure taken in connection with the accompanying drawings showing by way of example one preferred embodiment of my invention and in which:

Fig. 1 is a front elevation of a screw-propeller having two alined wings.

Fig. 2 is a diagrammatical cross section thereof, showing the different pitches of the screw threads.

Referring more particularly to the drawings, my improved screw-propeller is constructed with two or more combined pitches. Each wing of the screw-propeller is limited on the side turned towards the wind by a straight line 1—4, whilst the rear edge 2—3 thereof is undulated or waved in the plane parallel to the axis 11 as well as at right angles thereto. The peaks or crests are designated by the numeral 2 and the troughs by the numeral 3. The wave troughs 3 are made of conical shape and the apexes thereof are turned towards the straight edge 1—4, that is towards the wind. The axes of these wave troughs correspond: for the inner waves or undulations to a circumference 6 the centre 9 of which is located on the cen-

tral portion or hub member 7 of the screw propeller on the extension of the base line 8, and for the outer wave troughs to a circumference 5 the centre 10 of which is located on the extension of the front wing edge 4. Owing to this particular arrangement the vacuum in front of the propeller wing will be highly increased, whereby an increase of the action of the pressure existing at the rear of the wing will be obtained.

Referring more particularly to Fig. 2 of the drawings, the section line 1—2, representing the primary pitch is invariable, whilst the section line 4—3 representing the secondary pitch of the screw propeller may be varied as at 4'—3, 4''—3, that is the conical surfaces (triangle 3—2—4) turned away from the centre 7 may be varied.

My improved screw-propeller construction enables me to obtain an increase of about 25% of the efficiency, as on one hand motive power will be saved and on the other hand the energy driving the screw wings forwardly will be reduced.

Minor details of the construction described and shown may be changed or modified as desired without departing from the scope of my invention.

I claim:

In a screw-propeller for flying machines and other aerodynamics apparatus having a plurality of wings, the combination with each wing body, of undulations or waves formed in said body parallel to the axis of the screw-propeller as well as at right angles thereto, the axes of the inner wave troughs coinciding with a circumference the centre of which is located on the central portion or hub member of the screw-propeller on the extension of the base line of said troughs, whilst the axes of the outer wave troughs coincide with a circumference the centre of which is located on the extension of the front straight edge line of the wing body, substantially as set forth.

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