

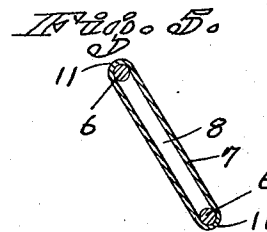
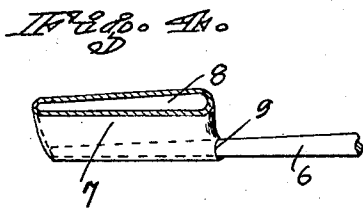
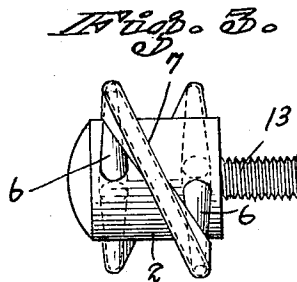
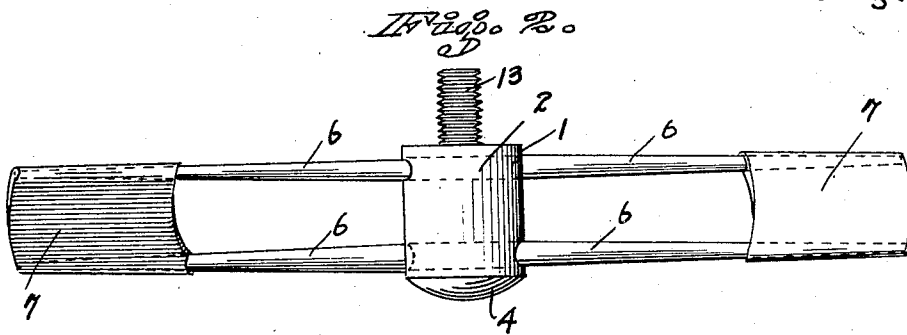
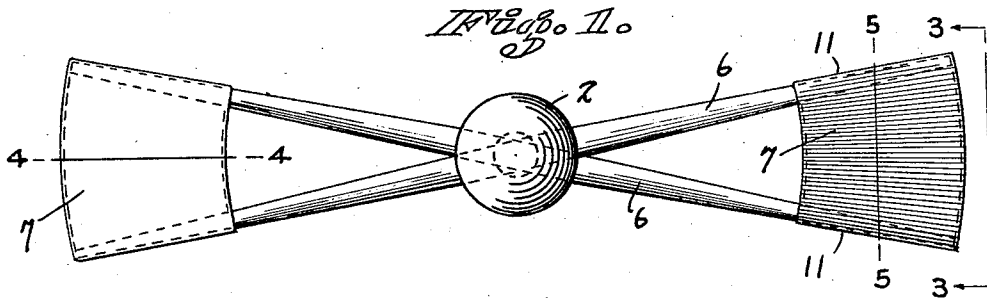
Oct. 2, 1928.

1,686,214

R. N. KYLE

PROPELLER

Filed March 8, 1927



INVENTOR
ROYAL N. KYLE

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ROYAL N. KYLE, OF GARDNERVILLE, NEVADA.

PROPELLER.

Application filed March 8, 1927. Serial No. 173,694.

The present invention relates to improvements in propellers and has particular reference to an airplane propeller, altho the principles embodied therein may be used in connection with other propellers. The principal object of the present invention is to provide a propeller of open construction in which the active propeller blades are arranged at a distance from the hub and are supported relative thereto by means of arms or rods, which offer little resistance to the air passing therethrough. It is further proposed to arrange the arms relative to the hub in such a manner that the ends thereof lie in a helical curve of which the axis of the hub forms the center line.

It is further proposed to provide a propeller of the character described that is very simple in construction and economical to manufacture.

Further objects and advantages of my propeller will appear as the specification proceeds.

The preferred form of my propeller is illustrated in the accompanying drawing, in which

Figure 1 shows a front view of my propeller;

Figure 2 a top plan view;

Figure 3 a side view as seen from line 3—3 of Figure 1;

Figure 4 a sectional view taken along line 4—4 of Figure 1;

Figure 5 a sectional view taken along line 5—5 of Figure 1.

While I have shown only the preferred form of my invention, it should be understood that various changes or modifications may be made within the scope of the claims hereto attached without departing from the spirit of the invention.

My propeller 1 includes a hub 2 which by means of a screw 13, or by other means, may be fastened to the end of a crank shaft driven by an engine, not shown in the drawing. From the hub which is preferably cy-

lindrical in form and round at the front as shown at 4, extend two sets of radial arms 6, the two sets being arranged in parallel transverse planes and arranged at an angle to one another so that the ends of the coordinate arms lie substantially in the curve of a helix at a distance from the axis of the hub. The two opposing arms are aligned and may be made in one piece extending through the hub, as illustrated in the drawing.

Blades 7 are fastened to the ends of each two coordinate arms at a distance from the hub, the blades being formed along the lines of a screw propeller so as to substantially lie in a helical plane. The blades may be made hollow, as shown at 8, and formed with perforations 9 at the inner ends thereof through which the arms 6 may enter. The latter arms are sufficiently resilient to be sprung into the perforations and preferably extend throughout the blades as illustrated in the drawing. The blades are tapered toward the axis as shown at 11, the front and rear edges of each blade running substantially in radial direction and parallel to the arms 6. It will be noted that when the blades are slipped over two arms they are locked in place by their tapered form.

It will be noted that in a propeller of this character little resistance is offered to the air around the hub since the blades do not extend inwardly to the hub but are spaced therefrom by the arms 6, while at the same time the blades are effective at a point away from the center where in the solid blade of a propeller the principal part of the work is done.

I claim:

In a propeller of the character described, a hub, rods extending radially therefrom so as to lie substantially in a helical curve, and a blade cored longitudinally and sprung on the extremities of the rods.

ROYAL N. KYLE.