Nov. 29, 1927. 1.651,230

E. E. SCHUMAKER

PROPELLER

Filed Dec. 3, 1926

Fig. 1.

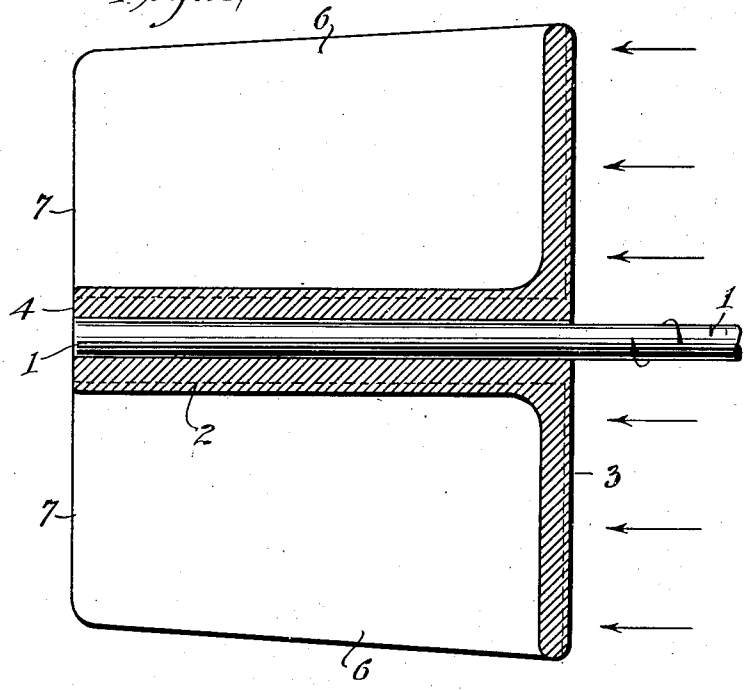
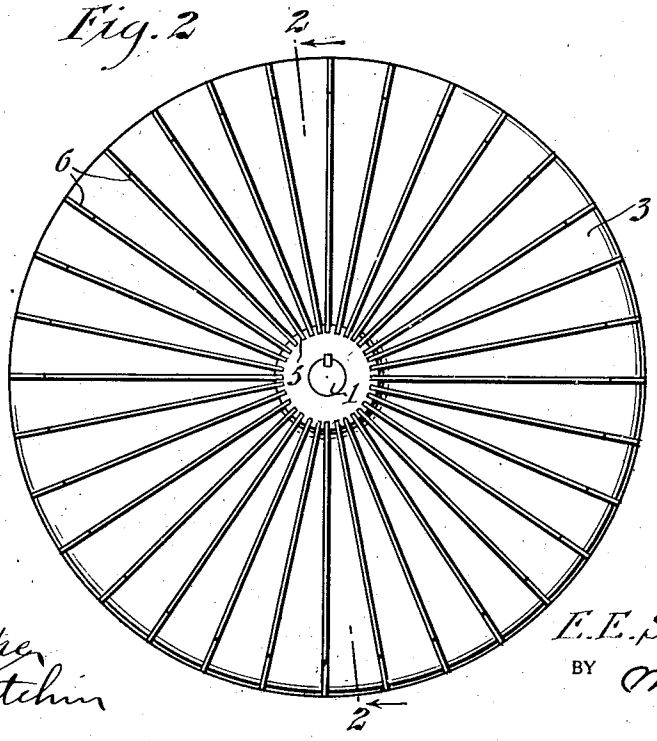


Fig. 2



WITNESSES

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Patented Nov. 29, 1927. 1,651,230

UNITED STATES PATENT OFFICE.

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PROPELLER.

Application filed December 3, 1926. Serial No. 152,409.

This invention relates to propellers and has for an object to provide an improved construction of propeller for rapidly moving vehicles, as for instance, aeroplanes, the object being to provide a structure whereby a maximum propulsion is secured for a single propeller.

Another object of the invention is to provide a propeller wherein the pressure of the air against a surface is utilized for propelling purposes.

A further object, more specifically, is to provide a propeller having a flange or disk-shaped section at right angles to the direction of travel, with blades parallel to the direction of travel positioned to force the air radially in order to cause a different air pressure on opposite sides of the propeller and thereby produce a forward urging or propelling action.

In the accompanying drawing—

Figure 1 is a longitudinal vertical sectional view through Figure 2 on line 1—1, the upper portion being shown in elevation.

Figure 2 is a front view of a propeller disclosing an embodiment of the invention.

Referring to the accompanying drawing by numerals, 1 indicates a driving shaft connected to the engine of an aeroplane or other vehicle and driven at any desired speed. Secured to the shaft 1 is the hub 2 of the propeller, said hub merging into what may be termed an abutment or flange 3 arranged in a plane at right angles to the axis of shaft 1, which shaft extends in the direction of travel. The flange or abutment 3 is positioned next adjacent the aeroplane while the end 4 faces in the direction of travel. The hub 2 is preferably provided with a number of slots 5, said slots merging into similar slots in the flange 3 whereby different blades 6 may be fitted into these slots and then welded or otherwise rigidly secured in place.

The blade 6 at one end is of the same height as the flange 3 but tapers toward the front so that the forward end 7 is approximately two-thirds as high as the end of the blade in the flange 3. In forming the propeller, substantially any number of blades 6 may be arranged in any given propeller, but preferably approximately thirty-two blades are used in a propeller having a flange 3 thirty-six inches in diameter. As the various blades 6 extend in a straight line from the front to the rear and extend radially, the propeller may be operated in either direction and will produce a forward urge to the shaft 1 and parts associated therewith. As the propeller is rotated rapidly, as is usual in an aeroplane propeller, the blades will press against the air on one side and will force the air radially outwardly and by this action produce a vacuum on the opposite face, said vacuum being more nearly a complete vacuum near the flange 3. If a complete vacuum was formed and the air pressure in which the propeller was located was ten pounds to the square inch, there would be a ten pound pressure against flange 3 forcing the same forwardly. By multiplying the number of square inches in the rear face of flange 3 by ten, the entire forward pull will be found, which gives a greater efficiency than where pressure of the blades against the air of the ordinary propeller is depended upon. As the propeller is continually rotating, the power of the engine is utilized in forcing the air radially outwardly and thereby utilized in forming the vacuum which in turn permits the pressure of the air of the atmosphere to urge the propeller of the aeroplane forwardly. It will thus be seen that a maximum percentage of the power of the engine is utilized in causing a forward movement of the aeroplane. When the propeller is rotated at a greater speed than necessary, little, if any, loss occurs, as a maximum vacuum is then secured and, consequently, a maximum pressure on the flange is attained while the speed of the blades is such that there is a reduced pressure of the air thereon.

What I claim is:

A propeller comprising a hub formed with a plurality of longitudinally positioned slots extending the full length of the hub, a flange connected with the hub at one end thereof and extending at right angles to the axis of the hub, said flange having radially positioned slots merging into the slots in said hub, said flange in diameter being approximately the same as the length of said hub, and a plurality of radiating blades carried by the hub with one edge fitted into the respective slots in the hub and one end fitted into the respective slots in said flange, each of said blades extending to the periphery of said flange at the flange end of the hub and at the opposite end extending for a less distance radially.

EDWARD E. SCHUMAKER.