S. S. WHIPPS.

PROPELLER.

APPLICATION FILED MAY 29, 1918.

1,319,634.

Patented Oct. 21, 1919.

2 SHEETS—SHEET 1.

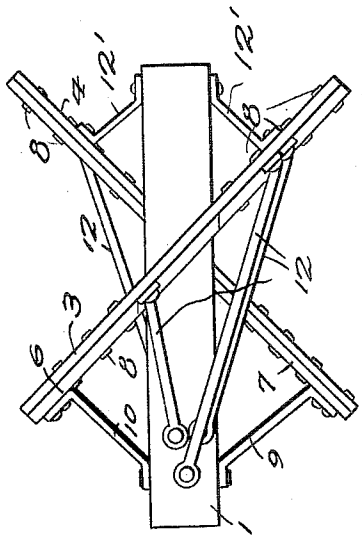


Fig. 2.

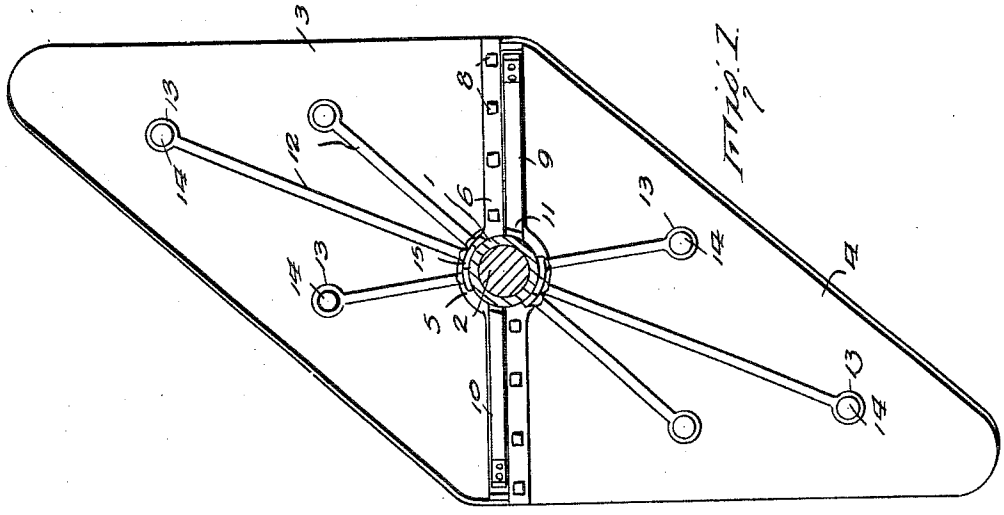


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 3.

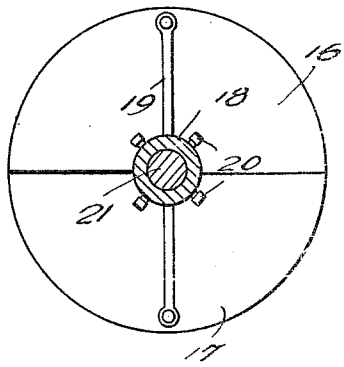


Fig. 5.

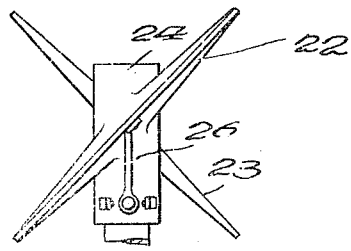


Fig. 6.

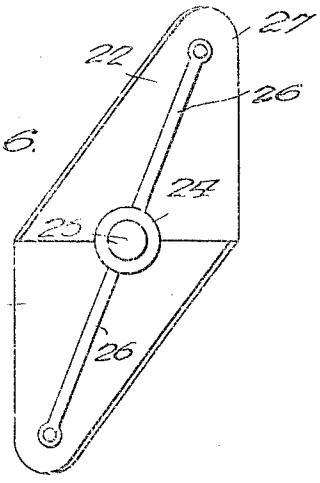


Fig. 4.

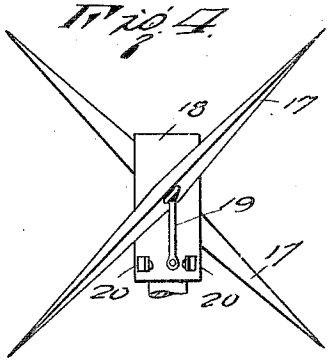
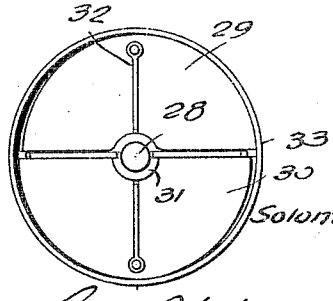


Fig. 7.



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PROPELLER.

1,319,634. Specification of Letters Patent. Patented Oct. 21, 1919.

Application filed May 29, 1918. Serial No. 237,246.

To all whom it may concern:

Be it known that I, SOLOMON S. WHIPPS, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Propellers, of which the following is a specification.

This invention relates to improvements in propellers and it is the principal object of the invention to provide a novelly constructed propeller for use in aerial or marine apparatus or as a driven element for use in connection with fluid motors.

The nature of the invention more explicitly set forth may be stated to reside in the provision of a propeller including a pair of plates or blades adapted to be connected to a driven shaft and arranged at relatively opposite angles thus presenting a plurality of engaging and propelling surfaces.

Other objects will be in part obvious and in part pointed out hereinafter.

The improvements in the details and arrangement of parts will be apparent from an inspection of the accompanying drawings, when considered in connection with the specific description hereinafter contained and wherein the preferred embodiment of the invention is disclosed for the purpose of imparting a full understanding of the present improvements.

In the drawings:

Figure 1 is a transverse section through a driving shaft provided with my improved propeller, the blades thereof being shown in elevation,

Fig. 2 is a top plan view of the same,

Fig. 3 is an end elevation showing a slightly modified form of blades for the propeller,

Fig. 4 is a top plan view thereof,

Fig. 5 is an end elevation of a form of the invention when used in connection with a fluid motor.

Fig. 6 is an end elevation of the same, and

Fig. 7 is an end elevation of a form of the invention when employed as the driven element for a current or fluid motor.

Having more particular reference to the drawings, in connection with which like reference characters will designate corresponding parts throughout the several views, 1 represents the sleeve of the propeller, which as will be understood is adapted to be arranged about and engaged with a driving shaft 2 connected to a suitable source of power, not shown, blades 3 and 4 substantially triangular in shape are provided and have portions thereof recessed as at 5 and adapted to be engaged over the opposite sides of said sleeve 1; reinforcing strips 6 and 7 being secured to the adjacent marginal portions of the blades by bolts or other suitable fastening devices 8 to rigidify the blades and to permit the connection of bracing arms 9 and 10 thereto, the remaining ends of said arms being connected to portions of the sleeve 1 as indicated at 11. Other bracing arms generally indicated by the numeral 12 are provided and as will be noted are varied in length, the outer ends of said arms being formed with eyes 13 to permit the passage of rivets 14 or other fastening devices therethrough into engagement with the adjacent portions of the several blades 3 and 4, while the inner ends thereof are offset and formed with eyes 15 to permit the passage of rivets therethrough into engagement with the adjacent portions of the sleeve 1. Still other bracing arms 12′ of less length than the arms 12 are engaged with the opposite sides of the blades 3 and 4 and with portions of the sleeve 1; these braces, of course, being formed with eyes at their opposite ends whereby to permit the passage of bolts or other suitable fastening devices therethrough into engagement with said blades and the adjacent portion of the sleeve. Obviously, by engaging the blades at different points with the bracing arms 12 and 12′ the same will be braced throughout and consequently afford substantially rigid engaging or propelling surfaces.

The blades 3 and 4 are arranged in relatively opposite angles on the opposite sides of the sleeve 1, thus producing a plurality of engaging or propelling surfaces whereby to effect the desired propulsion of a vehicle provided therewith.

If desired, the blades forming the improved propeller can be formed semi-circular instead of triangular in shape, as indicated in the Figs. 3 and 4, said blades in this particular embodiment being designated by the numerals 16 and 17 and having portions thereof recessed and engaged over the opposite sides of the sleeve 18 carrying the same and also being arranged in relatively opposite angles. Arms 19 are provided and have eyes formed in their opposite ends to permit the securing of the same to portions

of the sleeve and of the several blades. Set-screws or similar clamping devices 20 are turned into engagement with the sleeve 18 and serve to connect the same to the driving shaft 21.

In instances where the blades of the propeller are not subjected to great stress, the same may be constructed as illustrated in the Figs. 5 and 6, these particular blades 22 and 23 being triangular in shape and having portions thereof recessed for engagement over the opposite sides of the sleeve 24 arranged on the driving shaft 25 and being disposed at relatively opposite angles. To connect the blades 22 and 23 to the sleeves 24 I employ arms 26 the opposite ends of which are formed with eyes 27 whereby the same can be connected to the adjacent portions of said blades and said sleeves.

Yet another modified form of the propeller is disclosed in the Fig. 7, this particular embodiment being designed for use in connection with fluid or current motors as the driven element thereof. The driven shaft 28 has semi-circular blades 29 and 30 arranged on the opposite sides, portions of said blades being apertured to permit the same to be engaged over the adjacent sides of the sleeve 31 connected to said driven shaft. Arms 32 having the opposite ends thereof apertured are provided and are connected to portions of said blades 29 and 30 and to portions of the sleeve 31 by suitable fastening devices. About the blades there is arranged a tubular casing 33, which casing, obviously, serves to direct the fluid into engagement with the same, thus effecting rotation thereof.

It is to be understood, as hereinbefore stated, that my improved propellers can be used in connection with aerial or marine apparatus or upon current or fluid motors or various other mechanism, such as conditions or preference may dictate.

Manifestly, the construction shown is capable of considerable modification and such modification as is within the scope of my claim, I consider within the spirit of my invention.

I claim:

In a propeller, a sleeve, a pair of straight blades having portions thereof recessed and received over the opposite sides of said sleeve, and arranged reversely diagonally to the longitudinal axis of the sleeve and at right angles to each other, reinforcing strips arranged along the adjacent marginal portions of said blades, arms engaged with the blades adjacent said reinforcing strips and with said sleeve, and other arms at different lengths connected with the blades and with said sleeve.

In testimony whereof, I affix my signature hereto.

SOLOMON S. WHIPPS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."