

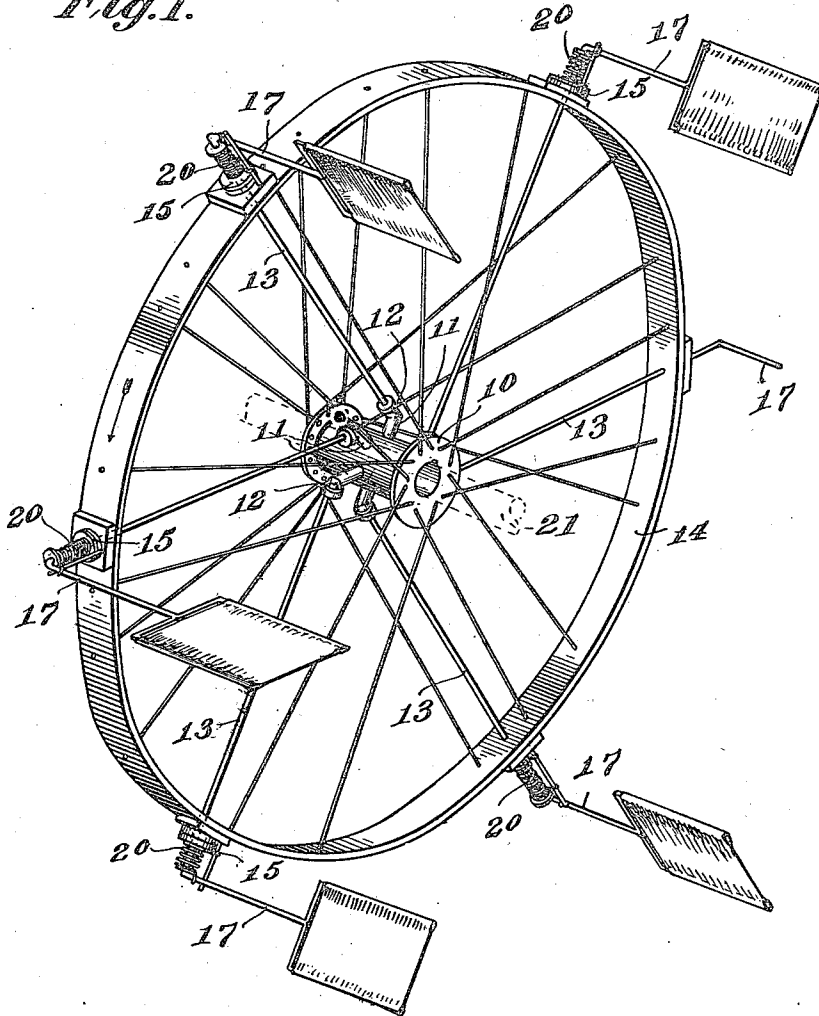
J. P. HOLMES.
PROPELLER WHEEL.
APPLICATION FILED JAN. 21, 1911.

997,819.

Patented July 11, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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Witnesses

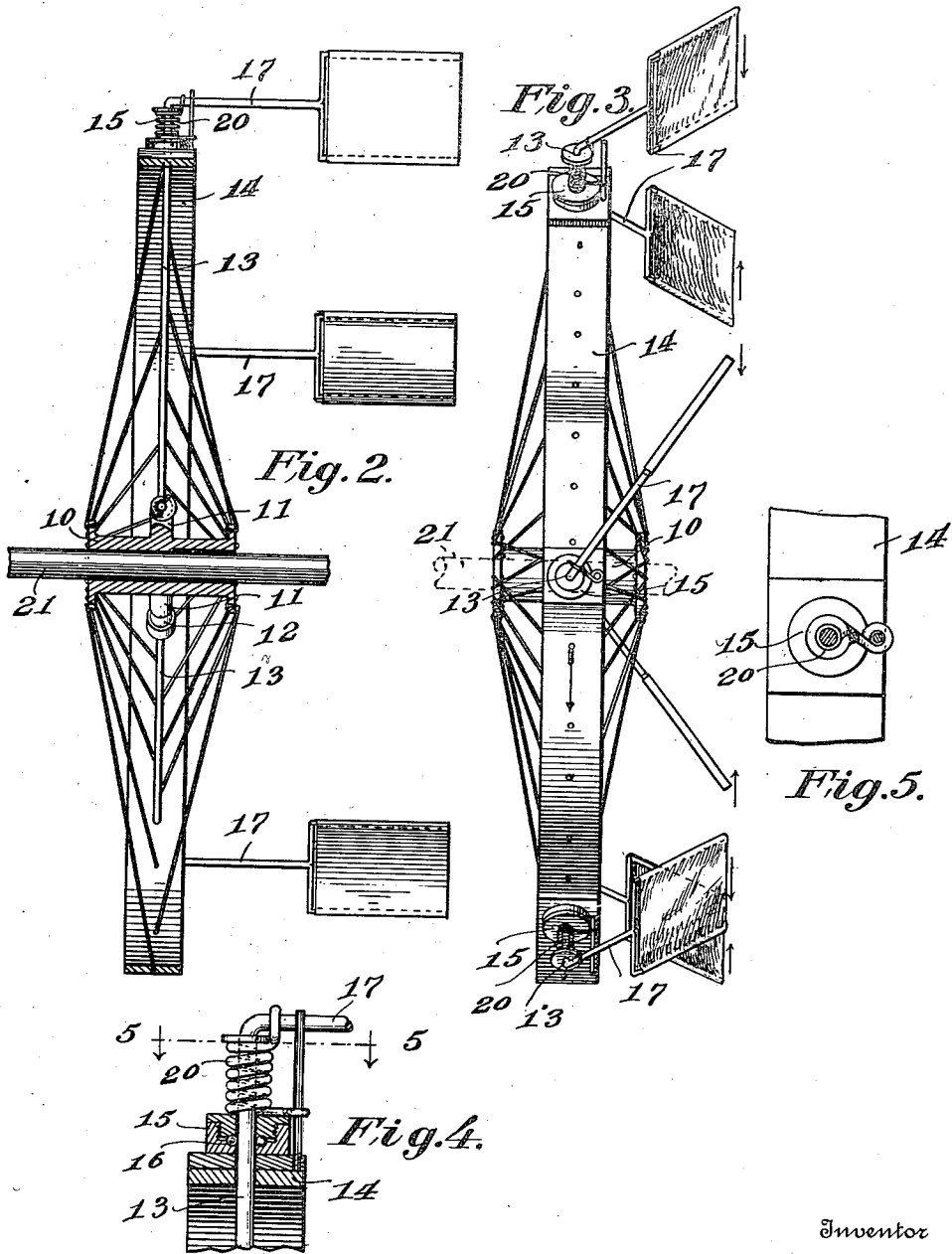
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2 SHEETS—SHEET 2.



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JOHN P. HOLMES, OF OAK VALLEY, KANSAS.

PROPELLER-WHEEL.

997,819.

Specification of Letters Patent. Patented July 11, 1911.

Application filed January 21, 1911. Serial No. 603,871.

To all whom it may concern:

Be it known that I, JOHN P. HOLMES, a citizen of the United States, residing at Oak Valley, in the county of Elk and State of Kansas, have invented new and useful Improvements in Propeller-Wheels, of which the following is a specification.

The invention relates to a propeller, and more particularly to the class of bladed driving propeller wheels.

The primary object of the invention is the provision of a propeller in which the blades when inactive upon air currents will lie in a plane parallel to the axis of motion of the said wheel, and when active will be disposed under tension at varying angles with respect to the axis of movement and the plane of such wheel, so as to increase the propelling power of the same.

Another object of the invention is the provision of a propeller in which the pulling force thereof is materially increased, thereby assuring uniform and greater speed to the vehicle carrying the same, thus the least possible driving energy from its motor will be required for propulsion and the cost of fuel for the running of the motor will be reduced to a minimum.

A further object of the invention is the provision of a propeller in which the blades thereof may each be readily and easily detached for repair or replacement of a new one in lieu thereof, the wheel being light in weight, strong and durable.

A still further object of the invention is the provision of a propeller which is simple in construction, reliable and efficient in operation, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a perspective view of the propeller wheel when in inactive position, and constructed in accordance with the invention. Fig. 2 is a vertical longitudinal sectional view thereof. Fig. 3 is a front elevation of the wheel when active against air currents. Fig. 4 is an enlarged fragmentary view through the rim of the wheel. Fig. 5 is a sectional view on the line 5-5 of Fig. 4.

Similar reference characters indicate cor-

responding parts throughout the several views of the drawings.

Referring to the drawings by numerals, the propeller wheel comprises a hub 10 which is constructed from any suitable material, and is of the required shape to satisfy the demand therefor. Suitably connected in the hub 10 and projecting outwardly radially therefrom are studs 11, the same being formed at their free ends with nipples 12 at right angles thereto, with which are revolubly engaged the inner ends of rotatable spokes 13, the inner ends of each of the latter being eccentrically disposed relative to the hub 10 and are passed through a rim 14 concentric to the hub, the rim being provided with suitable openings receiving the spokes 13 which protrude the required distance beyond the same.

Fixed to the rim 14 at the outer periphery thereof and arranged circumferentially of the spokes 13 are ball retaining cones 15, in which are loosely confined bearing balls 16, that are designed to work against the spokes 13 to reduce friction between the same and the rim 14 of the wheel. These spokes, beyond the rim 14, are bent to provide outturned extensions or arms 17, the outer end portions of which are split and bent to provide open end frames 18 of any desired size alining with the said spokes 13. These frames 18 carry fabric or metal sheets 19 forming blades, the sheets being secured thereto in any ordinary manner, and are adapted to receive the air current impacts during the rotation of the wheel designed for propelling purposes. Surrounding the spokes 13 between the rim 14 and the extensions or arms 17 are coiled tensioning springs 20, the same being connected at their outer ends to the said arms or extensions 17, while the inner ends thereof are secured to the rim 14, whereby the said springs will normally hold the outturned arms or extensions 17 at right angles to the plane of the wheel when the latter is inactive.

The hub 10 of the propeller wheel is securely fixed to a driving shaft 21 of any suitable motor (not shown).

In operation, when the motor is in action on the rotation of the drive shaft 21, it being understood that the blades are parallel with the said shaft, the air currents will strike the said blades, thus it will be manifest that the latter will be turned at

some angle between the axis of movement of the drive shaft 21 and the plane of the propeller wheel, and the springs 20 will exert pressure upon the blades, so that if the wheel is revolving at a sufficient speed, the resistance of the air currents will cause the blades to remain in their turned position.

It is evident that the propeller wheel will when active possess the maximum pulling power with the least possible resistance to the air currents and requires a minimum amount of force of motive power for driving said wheel, thereby materially reducing the cost of fuel for this purpose. Furthermore, it is to be understood that the propeller wheel is to be used for various purposes, and is especially adapted for aerial navigation.

From the foregoing, it is thought that the construction and operation of the invention will be clear and apprehensive, and therefore a more extended explanation has been omitted.

What is claimed is:

1. A propeller of the class described, comprising a wheel-like structure adapted for rotation, rotatable spokes arranged tangentially with relation to the hub of the said wheel-like structure and supported by the latter, outturned arms formed at the outer free ends of the said spokes, blades carried by the said arms, and means acting upon the said arms to normally sustain the same in alinement with the axis of rotation of the

wheel-like structure and adapted to tension the said arms when swung at an angle with respect to their normal position.

2. A propeller comprising a wheel-like frame adapted for rotation, rotatable arms disposed at an angle to the plane of the frame and supported thereby, blades carried at the free ends of the said arms, and means acting upon the arms to normally sustain the same in alinement with the axis of movement of the frame and to tension them when swung at an angle relative to the normal position thereof.

3. A propeller comprising a rotatable open wheel-like structure having a central hub, substantially L-shaped nipples mounted in the hub, rotatable spokes carried by the said structure and engaged in the nipples, arms arranged on and disposed at right angles to the said spokes, blades carried by the arms, and coiled springs surrounding the spokes and acting upon the arms to normally sustain the blades in alinement with the axis of movement of the wheel-like structure and adapted to exert tension upon the arms when angularly retracted from their normal position.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN P. HOLMES.

Witnesses:

H. D. PALMER,
J. M. SMITH.