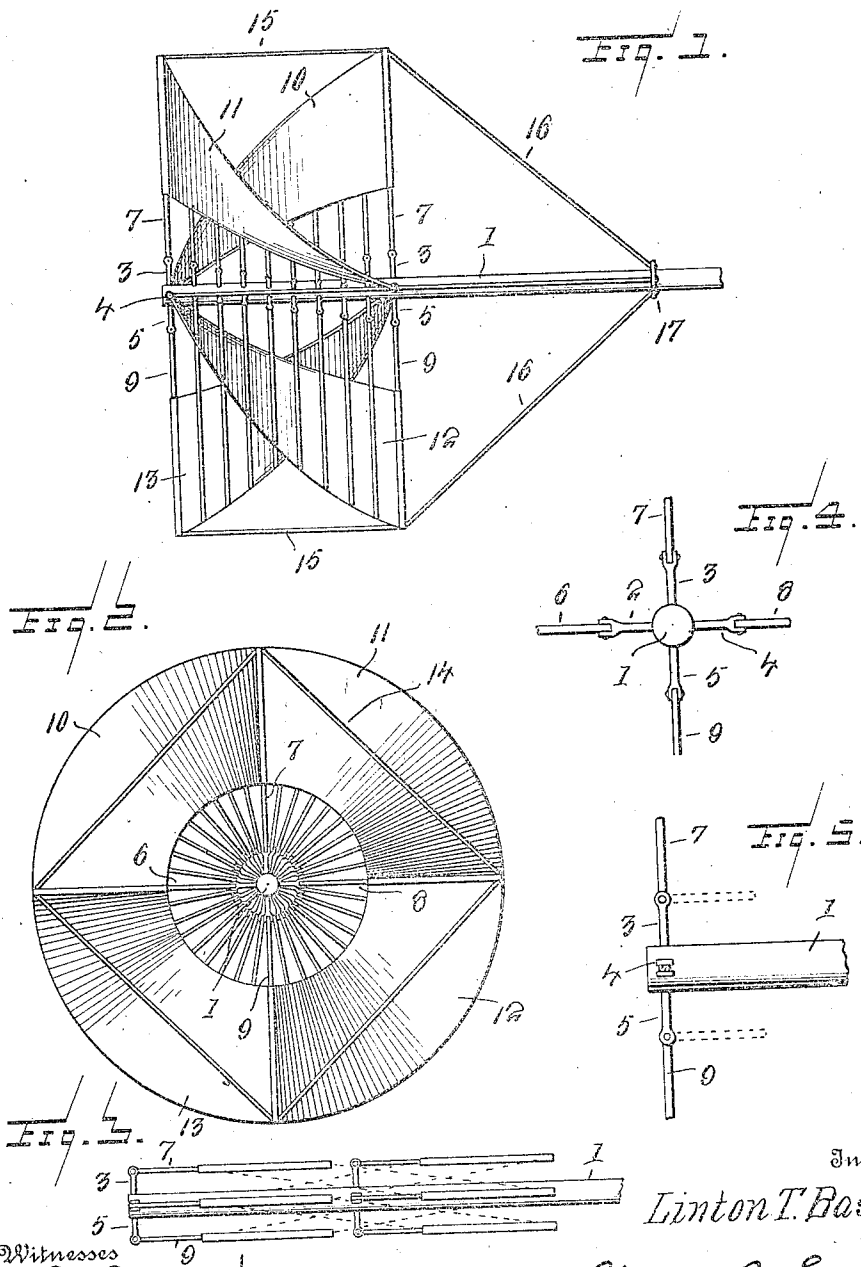


L. T. BASSETT.
AERIAL PROPELLER.
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1,046,372.

Patented Dec. 3, 1912.



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AERIAL PROPELLER.

1,046,372.

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To all whom it may concern:

Be it known that I, LINTON T. BASSETT, a citizen of the United States, residing at Newburgh, in the county of Orange and State of New York, have invented new and useful Improvements in Aerial Propellers, of which the following is a specification.

My invention relates to aerial propellers for air craft and the like, and its object is to provide a propeller which is simple of construction, which embodies a maximum spread or amount of propelling surface within a properly restricted diameter, which is adapted to develop maximum propulsive energy, and which is capable of being folded in close compass for storage or transportation and of opening up automatically when set into action.

The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a side elevation of my improved propeller showing it opened for operation. Fig. 2 is a front elevation of the same. Fig. 3 is a fragmentary side elevation showing the propeller folded, parts being omitted for greater clearness of illustration. Fig. 4 is a front elevation of the propeller shaft, showing the arrangement of the fixed and pivoted arms at the forward end of the shaft. Fig. 5 is a sectional side elevation of the same.

Referring to the drawing, 1 designates the propeller shaft which may be driven in any suitable manner from the driving motor. This shaft is provided with longitudinal series of laterally extending short fixed arms 2, 3, 4 and 5, to which are pivotally connected, respectively, series of relatively movable or folding arms or rods 6, 7, 8 and 9. The short arms 2, 3, 4 and 5 of each series extend spirally about the shaft from the front end to the rear arm of each series, and the short arms of the several series are arranged at regular distances apart and in radial relation to each other, with the front and rear arms of each spirally disposed series arranged at an angle of 90°, more or less, with relation to each other around the surface of the shaft.

The respective series of pivoted arms or rods 6, 7, 8 and 9 carry and support a series of flexible blades or vanes 10, 11, 12 and 13,

formed of canvas or other fabric or suitable flexible material. Each of said blades or vanes is of oblong rectangular contour and is attached at its front and rear edges to the front and rear folding rods or arms by which it is carried and supported, and at points intermediate of its length is secured along one of its broad sides to the remaining or intermediate arms of the series. By this construction and arrangement each flexible blade or vane when spread for action is given a spiral curvature on an arc of 90° between its lead and trail edges. The blades are thus properly pitched for compressing the air and exerting a backward thrust thereon to secure a powerful tractive or pulling thrust upon the spiral banks of compressed air formed thereby, on which the blades or vanes travel for a propulsive action. The front and rear folding or pivoted arms of the series are coupled by flexible stays or guys 14, whereby they are mutually held and reinforced against lateral displacement, while the front and rear rods of the series are connected by similar flexible stays or guys 15, whereby they are mutually held and reinforced against undue forward motion under wind pressure when the propeller is in action. To further reinforce the propeller structure flexible stays or guys 16 are provided and connect the rear folding or pivoted arms of the series with a flange or collar 17 on the shaft. It will be observed that by the described form and arrangement of the blades or vanes a space or opening is provided between their forward edges for the rearward passage of the air between their compression surfaces, and proper clearance is afforded between such surfaces for the rearward travel of the air without backlash and with a minimum degree of slippage.

When the propeller is out of action the parts thereof are free to be folded rearwardly and spirally about the shaft and secured in any suitable manner, so that the propeller may be compactly packed for storage or shipment. When the propeller is set into action, the parts thereof are thrown outward by centrifugal force and the blades or vanes maintained in working position by the pressure of the air, whereby maximum efficiency is obtained. Owing to the described construction a propeller of light weight but of maximum strength is pro-

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vided and which is advantageous in affording a maximum spread or amount of propelling surface within a minimum working diameter.

5 It will, of course, be understood that the number of blades may be varied within reasonable limits.

Having thus described the invention, what I claim as new is:

10 An aerial propeller comprising a shaft, a plurality of longitudinal series of lateral arms fixed to and extending around the shaft, each series of lateral arms being arranged spirally about the shaft, a collar
15 upon the shaft in rear of said series of fixed arms, a corresponding number of series of folding arms pivoted to the spirally arranged series of fixed arms to fold rearwardly in a plane parallel with and spirally about the
20 shaft, flexible oblong rectangular blades secured to each series of pivoted arms, said blades being adapted to assume a spiral

curvature when in working condition and the series of blades to form an air channel between the shaft and their compression surfaces, flexible stays connecting the front
25 pivoted arms of the several series, flexible stays connecting the rear pivoted arms of the several series, flexible longitudinal stays connecting the front pivoted arm of one
30 series with the rear pivoted arm of another series in line therewith, and flexible stays connecting the rear pivoted arms with the collar, whereby said flexible blades are
35 adapted to be folded inwardly and spirally about the shaft and are securely sustained in working position.

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

LINTON T. BASSETT.

Witnesses:

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