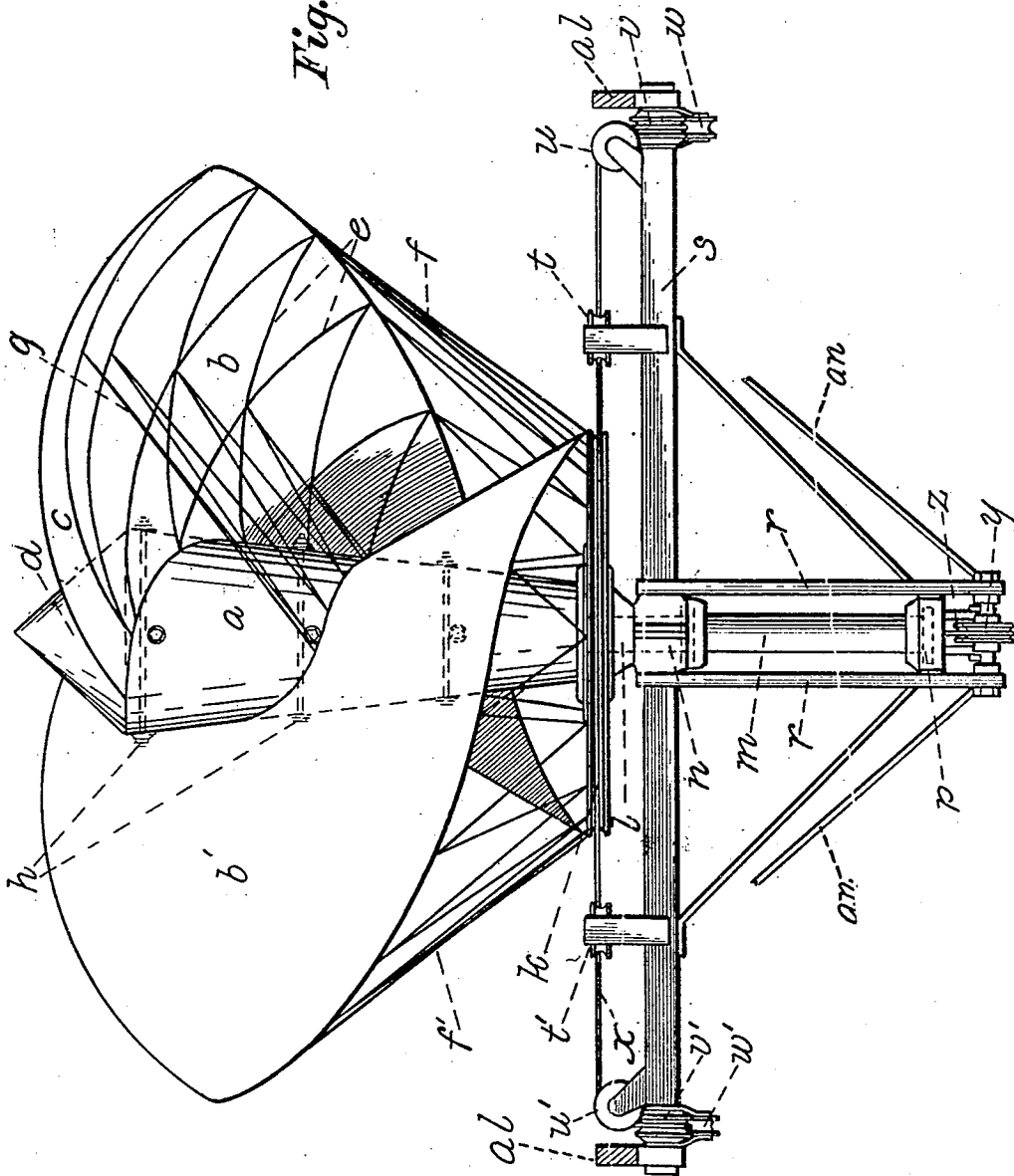


980,935.

Patented Jan. 10, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

Mary Sholderer
William H. Kaye

Thomas Fahey

INVENTOR

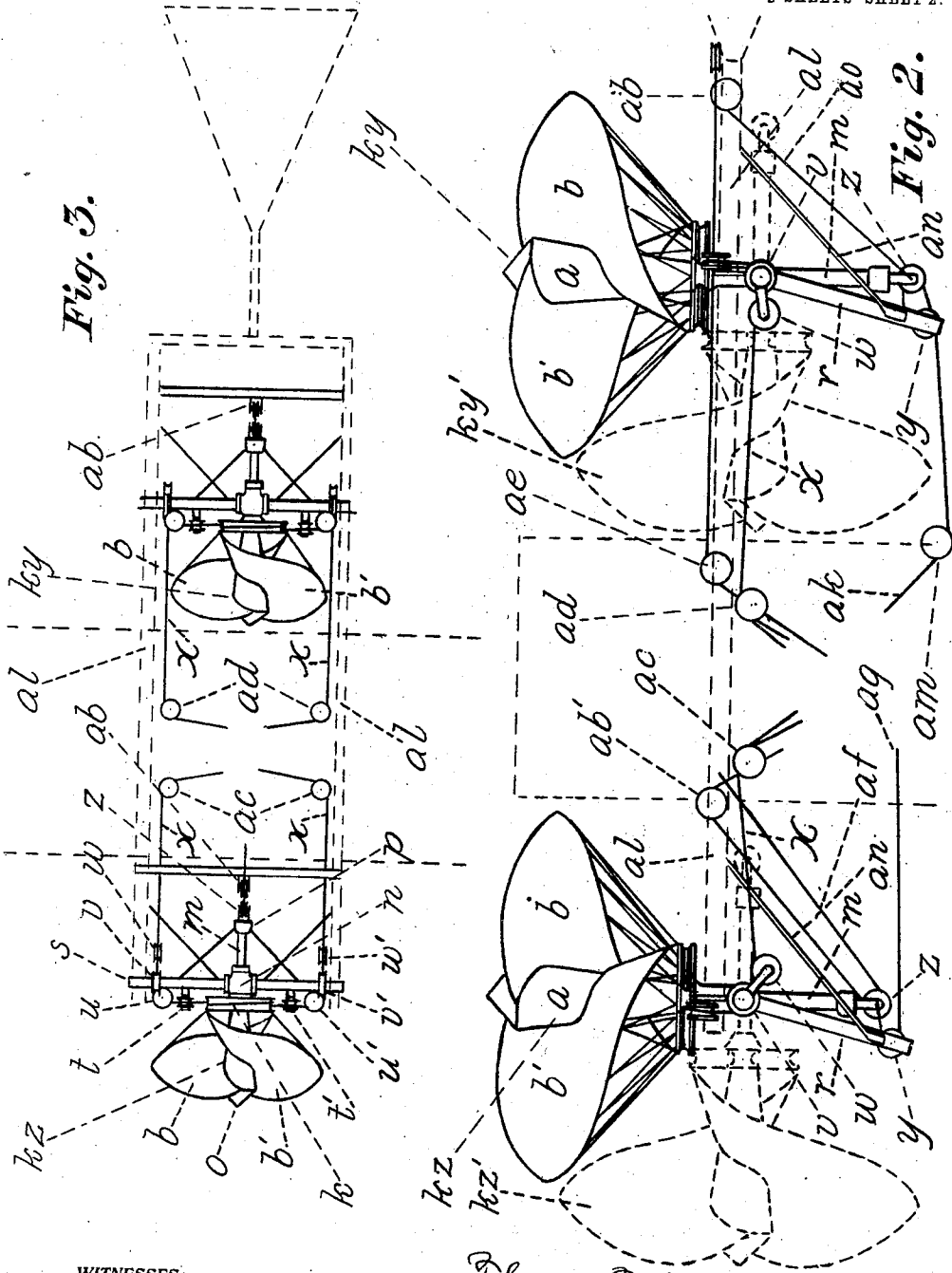
BY

L. L. Westfall *his* ATTORNEY

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2 SHEETS—SHEET 2.



WITNESSES:

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Thomas Fahey INVENTOR

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UNITED STATES PATENT OFFICE.

THOMAS FAHEY, OF SPOKANE, WASHINGTON.

AERIAL PROPELLER.

980,935.

Specification of Letters Patent.

Patented Jan. 10, 1911.

Application filed June 29, 1910. Serial No. 569,519.

To all whom it may concern:

Be it known that I, THOMAS FAHEY, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Aerial Propellers, of which the following is a specification.

This invention pertains to propellers for aeroplanes, biplanes and other heavier than air, air craft.

The object of the invention is to provide a specially constructed propeller, so connected up with the air craft that it will be capable of adjustment at any point from the horizontal to the perpendicular, or to a position any where within 90 degrees of a circle.

In the drawings, Figure 1, is an enlarged elevation of the propeller together with the mechanism operating immediately therewith, Fig. 2, is a side elevation of two of the propellers and the mechanism immediately connected therewith, together with an outline of an air craft frame work, showing the adaptability of the propellers to the art, and Fig. 3, is a plan view of the propellers and the parts operating immediately therewith, and an outline of an air craft illustrating the application of the propeller to the art.

It is proposed that for practical purposes two of these propellers would be used upon a craft, one *kz* at the front thereof and one *ky* near the rear thereof. We have shown the propellers in a perpendicular position but by means of the construction and the use of cables operating over sheaves and manipulated by drums or other mechanism, the same can be thrown forward to the horizontal as shown by the dotted lines *kz'* and *ky'*. Of course the propellers may be thrown to any intermediate position. If it is desired that the craft shall be elevated perpendicularly then the propellers would be used in the position shown in the drawings, while if it is desired to move straight ahead, it might be desirable to throw them in the position of the dotted lines as indicated and for a forward and upward movement of the craft, some position intermediate of the two extremes would be chosen for the propeller, and future adjustment thereof be governed by the needs from time to time as to whether it is desired to move upward, forward or both. A specially constructed base A is provided for the wings *b* and *b'* of the propeller, the base A being of greater diameter

as it reaches outward from the hub L. The wings *b* and *b'* have their greatest diameter at the outer ends thereof and their least diameter at the inner ends, there being a gradual taper from one extreme to the other and are wrapped about the base A from the outer end thereof to a position near the hub L, each wing extending about half way around the base A. Strengthening webs *c* extend from the dome *d* of the base A to points on the wings *b* and *b'* near their greatest diameter, while braces *e*, *f* and *g* serve to hold the wings *b* and *b'* in position.

The propellers *kz* and *ky* are adapted to rotate with the shaft *m* and base A. The hub L of the base A is provided with a sheave *k* for a cable, and sheaves *t*, *u*, *v* and *w* are mounted upon the shaft *s*. An endless cable *x* reaching from the source of power passes over the sheaves *w*, *v*, *u* and *t* thence around the sheave *k*, thence over the sheaves *t'*, *u'*, *v'* and *w'* and back to the source of power, by means of which the propellers *kz* and *ky* are rotated. To the frame *al* are connected the standards *r* by means of the rods *an* to the lower ends of which standards are secured the sheaves *y*. To the frame *al* are also secured sheaves *ab*, *ac*, *ad*, *ae* and *ab'*. To the bottom of the shafts *m* are secured the sheaves *z*. To the frame *al* also are secured the sheaves *am*. By means of the cable *af* operating over sheaves *ab'* and *z* the propeller *kz* is tipped to the position of the dotted lines *kz'* or any intermediate position, the cable *ag* serving as an assistant in holding the same steady and to a final resting position. By means of the cable *ao* operating over the sheaves *ab* and *z* the propeller *ky* is tipped to the position of the dotted lines *ky'* or to any intermediate position, the cable *ak* operating over sheaves Y and Z and AM serving to steady the same and help hold the same in final position. The shaft M extends through the shaft *s* and the boxing *n* and is connected with the base A so that the wings *b* and *b'* the base A and shaft *m* rotate together. The shaft *m* has a bearing in the boxing P.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. In an aerial propeller, a base connected to the end of a shaft, such base being frusto conical in form, the greatest diameter being at the far end and the smallest diameter at the near end, and the end of largest diameter

ter being capped by a dome fixed thereto and such base being encircled by two tapering wings with their greatest diameter secured to the outer end of the base and their smallest diameter to the inner end thereof, each wing encircling such base in diagonal form and practically half way around the same, strengthening webs extending from the dome of the base along the outer edges of the wings across their greatest diameter, braces supporting the wings in their positions, the hub of the base provided with a sheave, and the shaft to which the base is secured adapted to rotate in a boxing secured to the frame work of the air craft, substantially as described.

2. In an aerial propeller, a base connected to the end of a shaft, such base being frusto conical in form, the greatest diameter being at the far end and the smallest diameter at the near end, and the end of largest diameter being capped by a dome fixed thereto and such base being encircled by two tapering wings with their greatest diameter secured to the outer end of the base and their smallest diameter to the inner end thereof, each wing encircling such base in diagonal form

and practically half way around the same, strengthening webs extending from the dome of the base along the outer edges of the wings across their greatest diameter, braces supporting the wings in their positions, the hub of the base provided with a sheave, a shaft transversely arranged connected at its center to a boxing and at its ends to the frame work of an air craft, standards reaching from such transverse shaft and secured to the frame work of an air craft, and extending substantially vertically and perpendicular to the shaft to which the propeller base is secured, both such standards and the last named shaft being provided with sheaves at their lower ends, sheaves secured to the outer ends of the transverse shafts, the sheaves adapted to receive cables connected with a moving mechanism radiating from a source of power, substantially as described.

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

THOMAS FAHEY.

Witnesses:

MARY SHOLDERER,
WILLIAM H. KAYE.