

1,032,050.

Patented July 9, 1912.

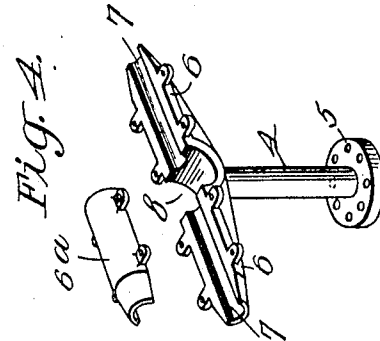
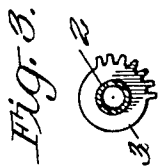
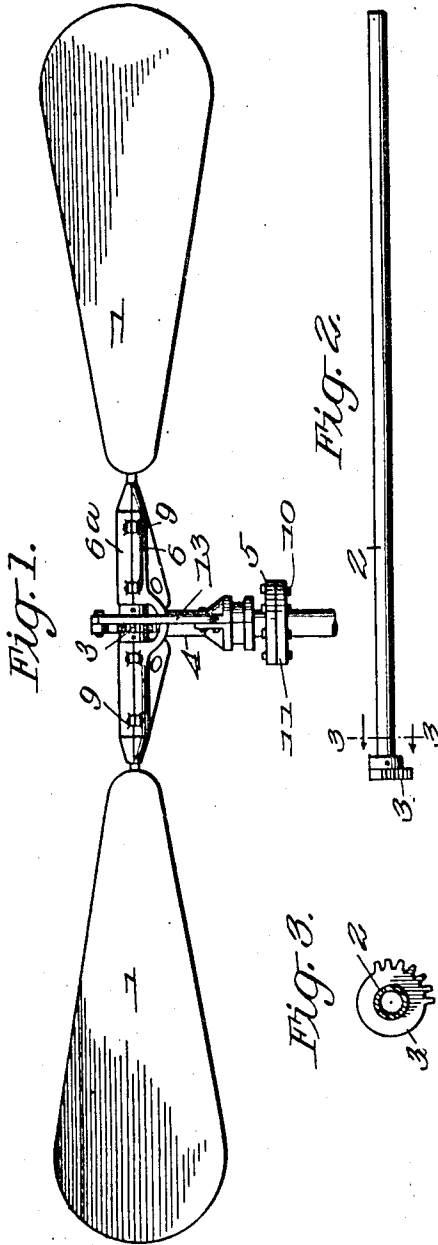


Fig. 6.

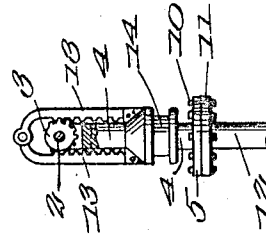
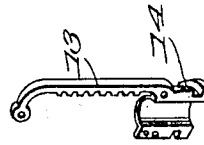


Fig. 5.



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HARRY HOULETTE ELLIOTT, OF LAWRENCE, KANSAS.

AERIAL PROPELLER.

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Specification of Letters Patent.

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Application filed August 12, 1911. Serial No. 643,802.

To all whom it may concern:

Be it known that I, HARRY HOULETTE ELLIOTT, a citizen of the United States, and a resident of Lawrence, in the county of Douglas and State of Kansas, have invented an Improvement in Aerial Propellers, of which the following is a specification.

My invention is an improvement in that type of so-called screw-propellers whose blades are rotatable on their axes in order that they may be set at different transverse angles relative to the plane of rotation of the propeller as a whole, whereby the pitch or lead of the blades may be varied to effect propulsion at different speeds.

My invention is particularly intended for aeroplanes, and the object is to provide an improved bearing and support for the blade shafts and gearing, whereby the construction is simplified, the weight reduced, and provision made for convenient and speedy assemblage and substitution of parts when required.

The details of construction, arrangement, and operation of parts are as hereinafter described, and illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation showing my invention in connection with a propeller proper. Fig. 2 is a side view of a propeller shaft with gear attached. Fig. 3 is a transverse section on the line 3—3 of Fig. 2. Fig. 4 is a perspective view of the T-shaped bearing and support for the propeller shafts and gearing. Fig. 5 is a perspective view of one of the halves or duplicate portions of the rack and sleeve by which the propeller blades are rotated and the pitch of the blades changed at will. Fig. 6 is a sectional view illustrating the connection and arrangement of the rack with the shaft gears.

In Fig. 1, the numeral 1 indicates the propeller blades, and in Fig. 2, the numeral 2 indicates a blade shaft having a mutilated gear 3 attached at one end. The body of the support and bearing for the blade shafts and gears is approximately T-shaped, as shown in Fig. 4, in which the numeral 4 indicates a post having a disk-like base 5, and 6 indicate arms arranged opposite each other and at right angles to the post and

provided with longitudinal grooves 7 to receive the blade shafts, a central recess 8 being formed between the grooved portions to accommodate the mutilated shaft gears 3. Each of the arms 6 is provided with a longitudinally grooved cap 6^a—see Fig. 4—and the same is provided with lugs which are secured by screws 9 to corresponding lugs on the arms, as shown in Fig. 1.

As shown in Fig. 1, the blade shafts 2 are in alinement, and it is obvious that, by rotating them, the pitch or lead of the blades may be varied as required. For this purpose, I employ a double rack and sleeve, the same being made of duplicate parts, one of which is represented in Fig. 5; that is to say, each of the duplicate parts is formed of a vertical rack 13 and a half sleeve 14, the upper end of the rack being curved inward and it and the half sleeve provided with holes for reception of bolts, by which the duplicate parts are secured together, as will be readily understood.

The sleeve is adapted to slide on the post 4 and it is obvious that, by adjusting the sleeve and double rack up or down, the blade shafts will be rotated in opposite directions and the pitch of the blades varied accordingly. Any suitable device may be connected with the sleeve for effecting such adjustment of the rack, and a forked lever may be employed for this purpose.

It will be seen that by my invention I provide a light yet strong support and bearing for the blade shafts and gears, and the means for changing the pitch of the blades; also that the construction is such that the parts may be quickly assembled in manufacture or disassociated from each other as required to facilitate transportation, storage, or repair.

What I claim is:—

1. The combination with propeller blades and alined shafts having gears applied to their adjacent inner ends, of a T-shaped bearing and support comprising a post, a head formed at right angles thereto and comprising alined grooved arms between which a recess is provided, detachable grooved caps for said arms, and a double rack and two-part sleeve whose parts are detachably con-

nected and adapted to engage the shaft gears and slide on the aforesaid post, substantially as described.

2. The combination with propeller blades
5 and shafts having mutilated gears applied to their abutting inner ends, and a bearing supporting the shafts and gears, of means for rotating the shafts, the same comprising

duplicate racks and a two-part sleeve, the parts being detachably bolted together and applied to the shaft bearing in the manner shown and described. 10

HARRY HOULETTE ELLIOTT.

Witnesses:

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