

Oct. 8, 1929.

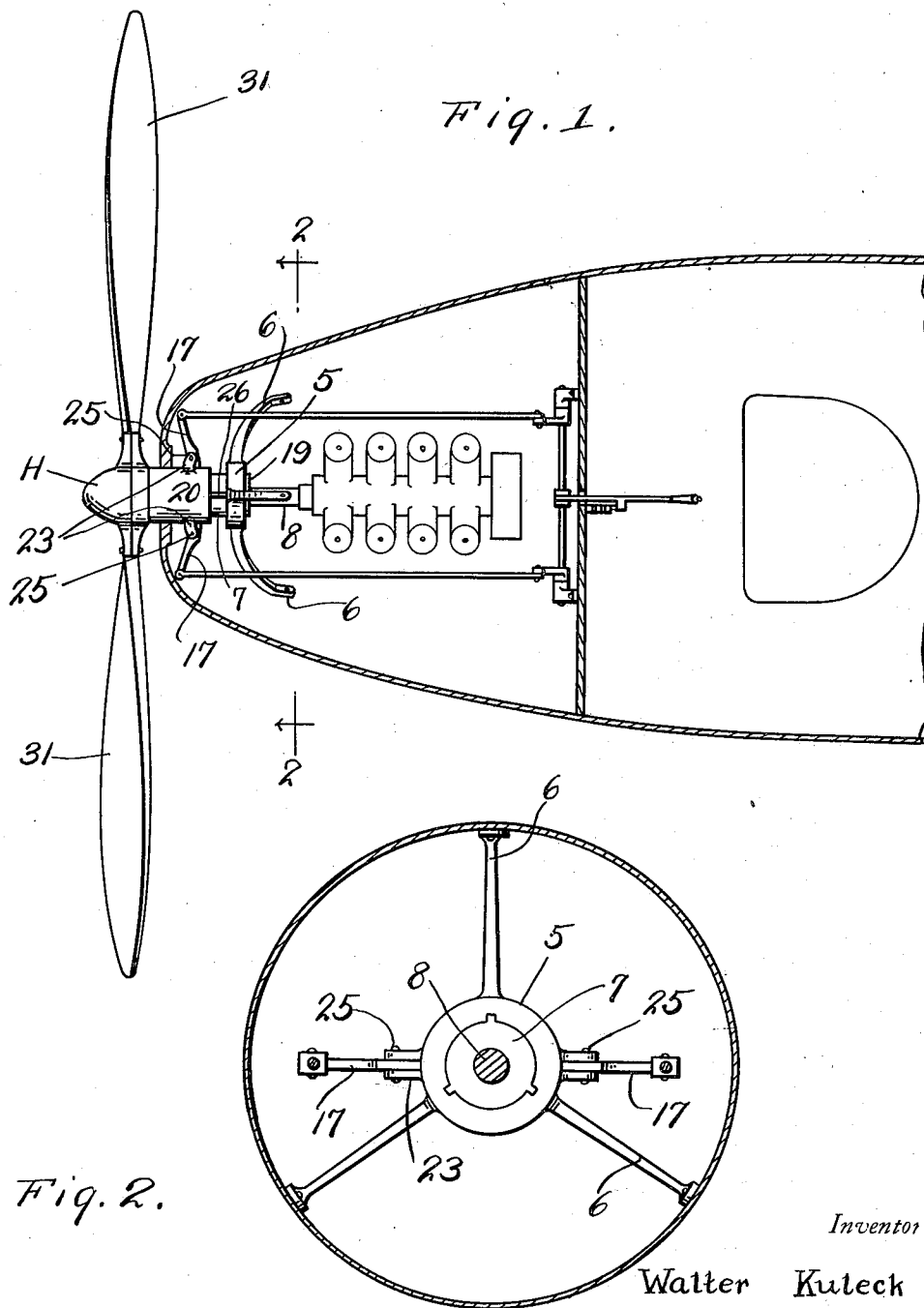
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AEROPLANE PROPELLER

Filed Oct. 26, 1927

2 Sheets-Sheet 1



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Fig. 3.

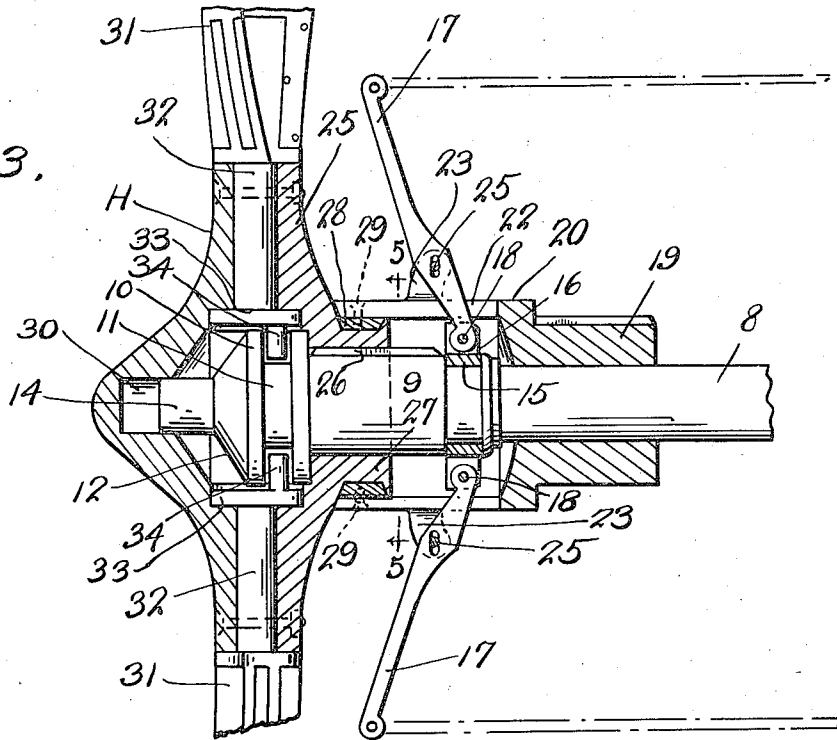


Fig. 4.

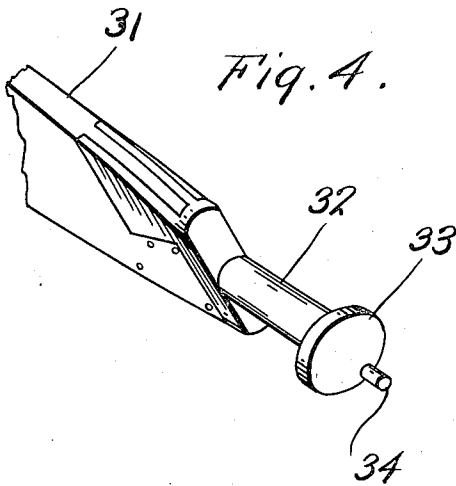
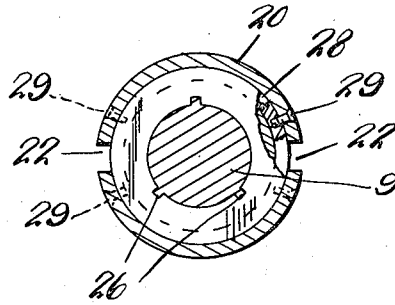


Fig. 5.



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UNITED STATES PATENT OFFICE

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AEROPLANE PROPELLER

Application filed October 26, 1927. Serial No. 228,834.

The present invention relates to a propeller for an aeroplane and has for its prime object to provide means whereby the blades of the propeller may be adjusted to different pitches.

5 A further important object of the invention resides in the provision of a propeller of this nature which is exceedingly simple in its construction, inexpensive to manufacture, strong and durable, thoroughly efficient and reliable in operation and use, and otherwise well adapted to the purpose for which it is designed.

10 With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:

20 Figure 1 is a fragmentary horizontal longitudinal section through the nose portion of the fuselage of an aeroplane showing my improved propeller structure mounted therein.

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1,

Figure 3 is an enlarged detail section through the hub portion of the propeller,

Figure 4 is a perspective view of the inner end of one of the blades, and

30 Figure 5 is a sectional view taken substantially on the line 5—5 of Figure 3.

Referring to the drawing in detail it will be seen that the numeral 5 denotes a bearing having arms 6 radiating therefrom with their 35 extremities secured to the inside of the fuselage. A bushing 7 is disposed in the bearing and rotatably receives the engine shaft 8. The end of the shaft 8 is enlarged to provide the portion 9 which at its forward end has a 40 further enlargement 10 with an annular groove 11 formed therein. The enlargement 10 tapers as at 12 and terminates in a reduced extension 14. A collar 15 is disposed about the shaft 8 adjacent the rear end of the enlarged section 9 and is formed with two pairs 45 of ears 16 diametrically disposed in respect to each other. Levers 17 are pivoted as at 18 between the ears 16. A sleeve 19 is slidable and rotatable over the shaft 8 and has an enlarged portion 20 extending over the enlarged

section 9 in spaced relation thereto. The enlarged portion 20 is provided with longitudinally extending slots 22 through which the levers 17 extend. Lugs 23 project from the enlarged portion 20 and have pin and slot connections 25 with the levers 17. A hub H 55 comprises a front section 24 and a rear section 25. The rear section 25 has an opening keyed as at 26 splined on the large portion or section 9 and is formed with an external groove 27 in which extends a band 28 fixed inside the enlarged portion 20 by screws 29 or in any other suitable or preferred manner. It will thus be seen that by rocking the levers 17 the hub H may rotate with the shaft 8 and at the same time slide longitudinally thereof. 60 The front section 24 is provided with a recess 30 for receiving the reduced extension 14.

A pair of blades 31 are formed with reduced shanks 32 rotatable in the hub H between sections 24 and 25 and terminates in 70 wheels 33 having off center pins 34 extending into the annular groove or channel 11 so that when the hub H is shifted longitudinally as heretofore explained the shank 32 and the blades 31 are moved to adjust the pitches of the blade. 75

It is thought that the construction, operation and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof. 80 The present embodiment of the invention has been disclosed in detail merely by way of example since in actual practice it attains the features of advantage enumerated 85 as desirable in the statement of the invention and the above description. It will be apparent that changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing 90 from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

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

1. In a propeller structure of the class described, a shaft having one end thereof enlarged to provide a relatively large section, a head on the relatively large section formed with an annular groove and a reduced extension 100

- sion on the head, a hub splined on the relatively large section having a recess to receive the head and a recess to receive the reduced extension, blades having shanks rotatable on the hub, wheels on the inner ends of the shanks having off center pins extending in the groove, and means for shifting the hub so that the shank may be rotated to change the pitch of the blades.
2. In a propeller structure of the class described, a shaft having one end thereof enlarged to provide a relatively large section, a head on the relatively large section formed with an annular groove and a reduced extension on the head, a hub splined on the relatively large section having a recess to receive the head and a recess to receive the reduced extension, blades having shanks rotatable on the hub, wheels on the inner ends of the shanks having off center pins extending in the groove, a sleeve rotatable and slidable on the shaft and having an enlarged portion over the relatively large section of the shaft, said sleeve formed with slots, a collar on the shaft, levers pivoted on the collar and disposed through said slots, pin and slot connections between the levers and the sleeve, said hub being formed with a groove, and a ring on the interior of the enlarged portion of the sleeve and positioned in said groove.

In testimony whereof I affix my signature.

WALTER KULECK.