

J. C. BOYD.
PROPELLER.

APPLICATION FILED NOV. 6, 1909.

950,990.

Patented Mar. 1, 1910.

Fig. 1.

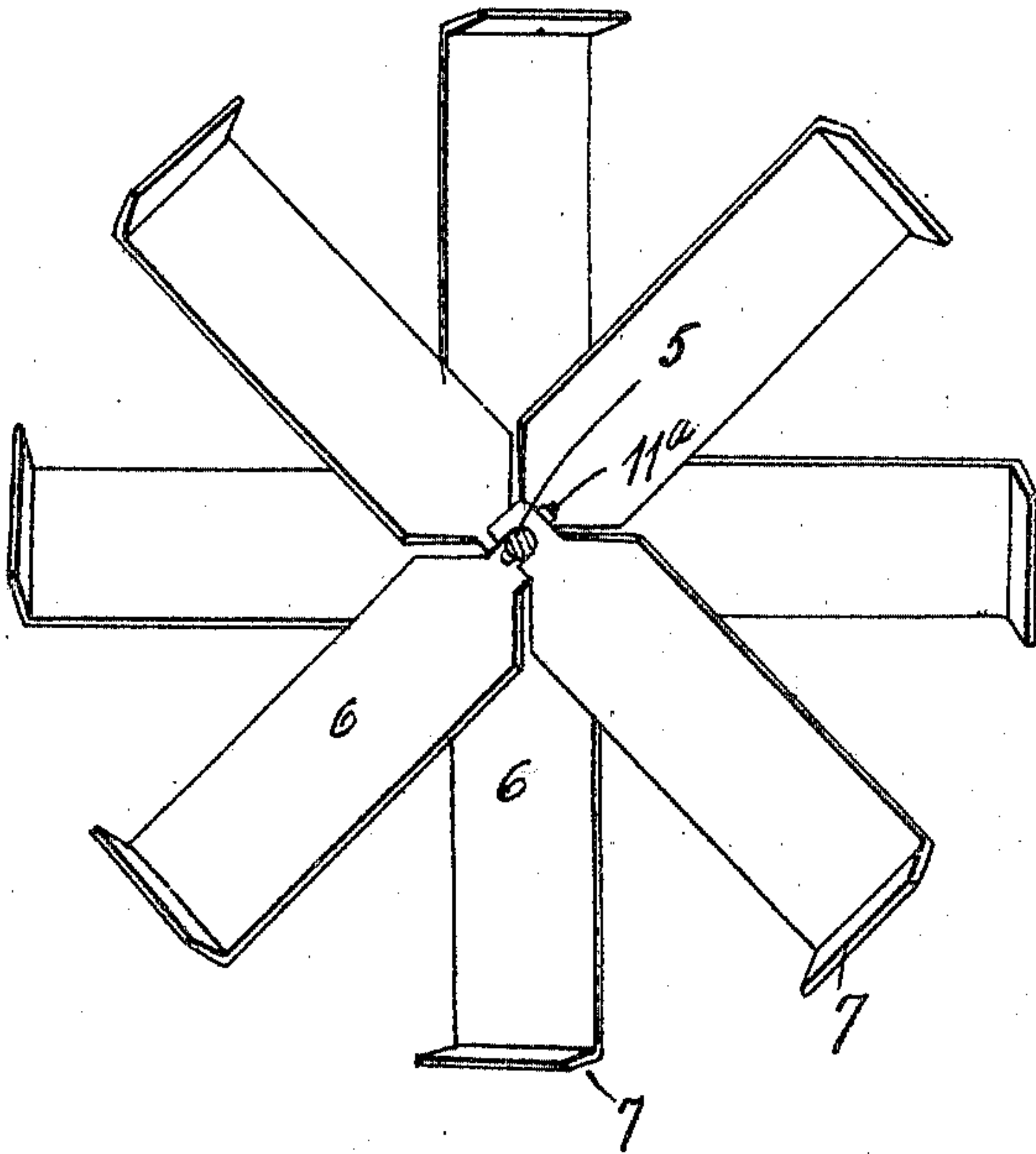


Fig. 2.

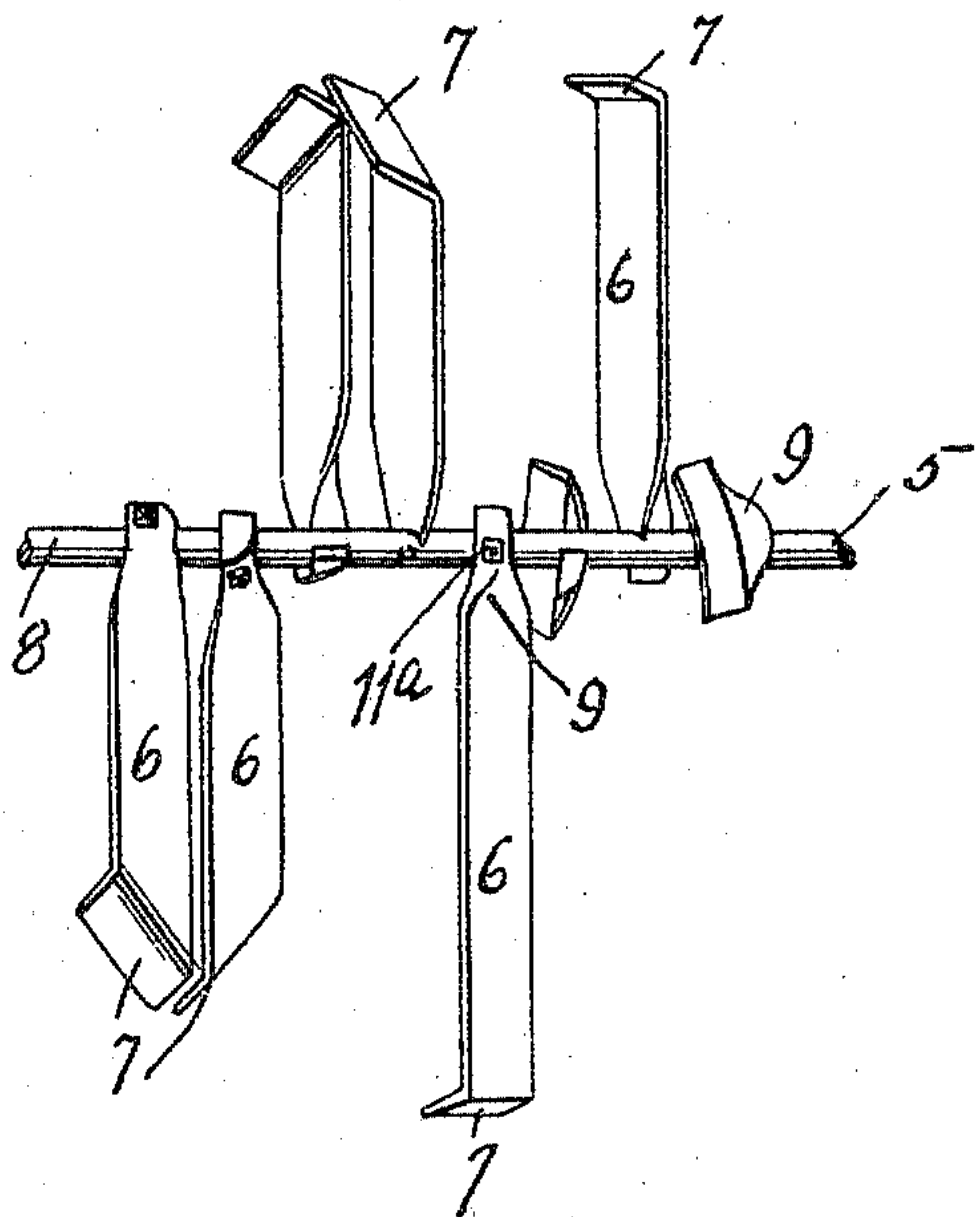


Fig. 3.

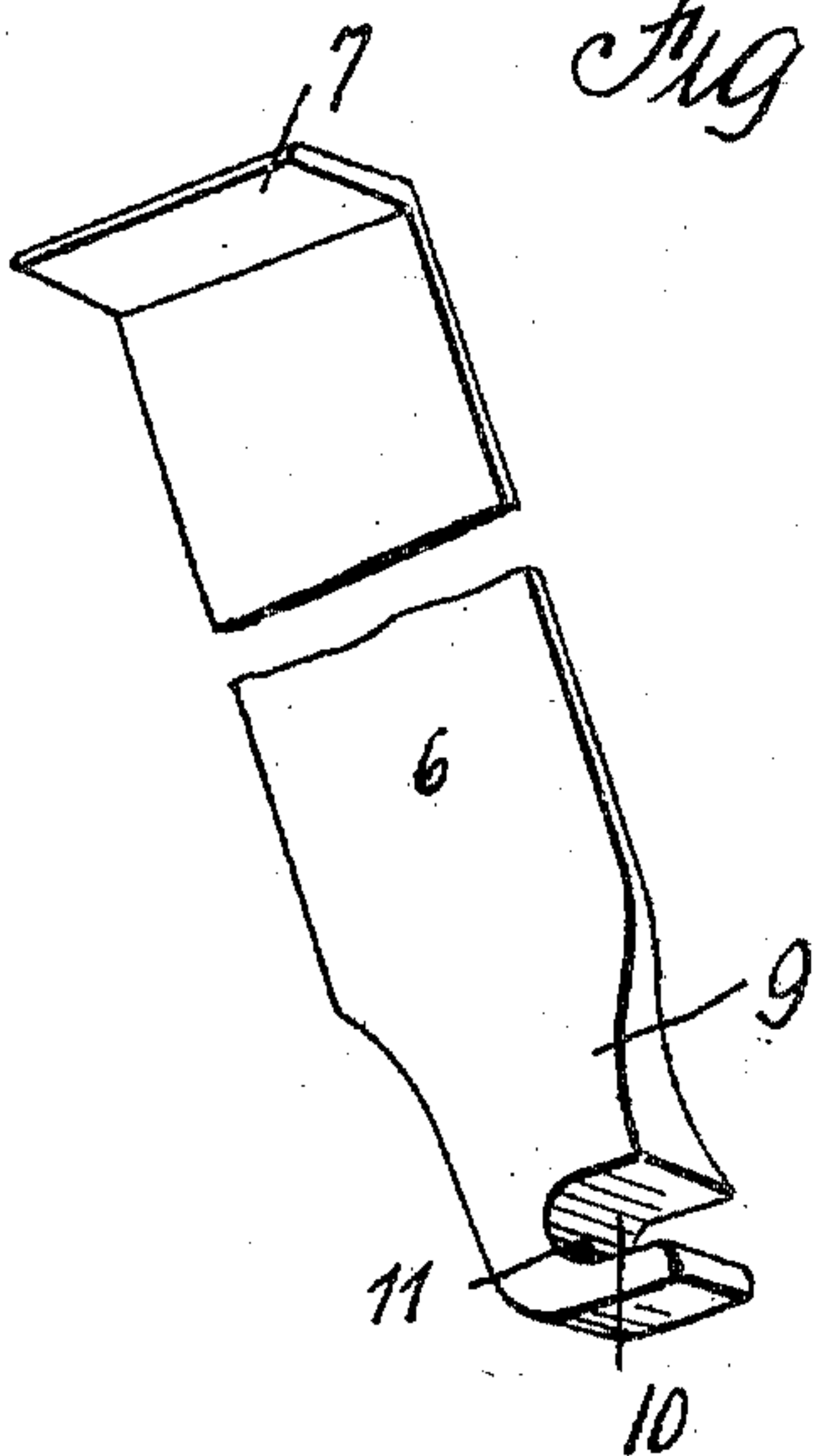
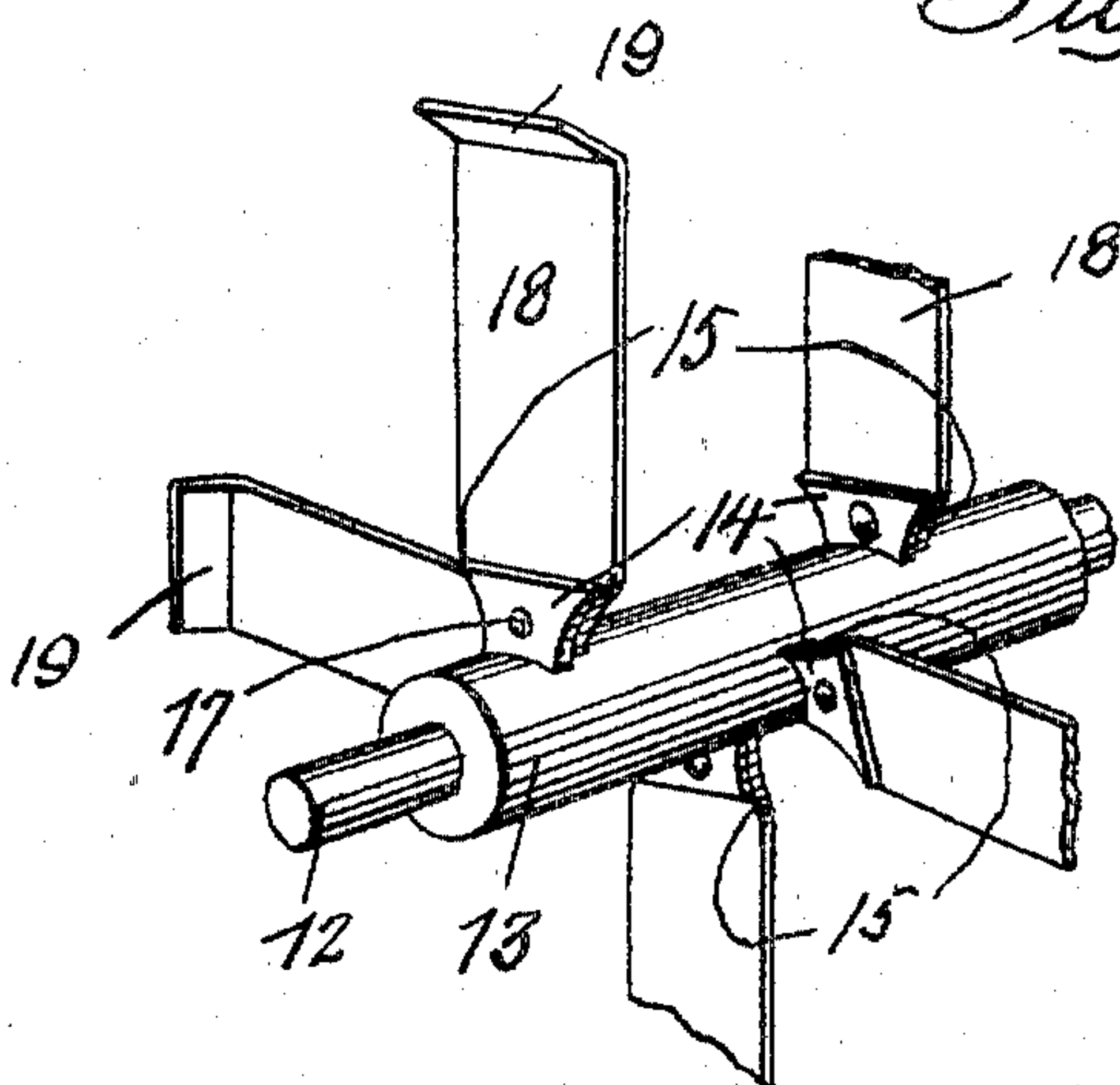


Fig. 4.



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UNITED STATES PATENT OFFICE

JAMES C. BOYD, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
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PROPELLER.

950,990.

Specification of Letters Patent.

Patented Mar. 1, 1910.

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To all whom it may concern:

Be it known that I, JAMES C. BOYD, a citizen of the United States of America, residing at S. S. Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Propellers, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a propeller, for use in connection with motor boats, turbine driven vessels, aeroplanes and for any other purpose wherein it is found applicable and the object thereof is to provide a propeller in a manner as hereinafter set forth and claimed whereby the agitation or churning of the water or air during the operation of the propeller will be reduced to a minimum and furthermore whereby the water or air will be deflected from one blade to the other, starting in at one end of the propeller, so as to facilitate the driving power thereof.

Further objects of the invention are to provide a propeller in a manner as hereinafter set forth and claimed which shall be comparatively simple in its construction and arrangement, strong, durable, efficient in its use, readily set up in operative position, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter set forth, and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views: Figure 1 is an end view of a propeller in accordance with this invention. Fig. 2 is a side elevation thereof. Fig. 3 is a perspective view of one of the blades, broken away at its center, and, Fig. 4 is a perspective view broken away of a modified form.

Referring to Figs. 1, 2 and 3, a propeller in accordance with this invention includes a shaft 5 and a series of blades staggeredly arranged upon the shaft 5 with respect to each other, radially disposed with respect to the shaft 5 and angularly disposed with respect to the longitudinal axis of the shaft

5. Each of the blades consists of a flat body portion 6 which terminates at one end in an angularly-disposed wing 7 which forms what may be termed a pocket at the end of the blade and the wing projects toward the outer end 8 of the shaft 5. The other end of the body-portion 6 terminates in a thickened and tapering shank 9, which is formed with a U-shaped slot 10 extending at right angles with respect to the side edges of the blade. The shank 9 is furthermore formed with a screw-threaded opening 11 projecting at right angles with respect to the direction in which the slot 10 extends. When the blades are positioned upon the shaft, the latter extends through the slots 10, as well as engages the inner walls of the slots. The means for retaining the blades in position upon the shaft 5 consists of set screws 11^a, which extends through the openings 11 and through the shaft.

By setting up the blades in the manner set forth and by the providing of the blades with the wings 7, the water or air will be deflected from one blade to the other, starting in at one end of the set of blades to the other end of the set, whereby the driving power of the propeller will be facilitated. Furthermore the arrangement and construction of the blades will, during the operation of the propeller, reduce the churning or agitation of the water or air to a minimum.

The modification shown in Fig. 4 resides solely in the manner of construction of the blade shank and the connection between the blades and propeller shaft. The latter which is indicated at 12, has mounted thereon a sleeve 13 provided with radially-disposed lugs 14. The shanks of the blades are indicated at 15, and said shanks are connected to the radially-disposed lugs 14 by holdfast devices 17 extending through the shanks and the lugs for coupling the blades to the sleeves. The body portion of each blade is indicated by the reference numeral 18 and the blade wing at 19.

What I claim is:

1. A propeller comprising a shaft, a series of blades each having an angularly-disposed wing at its outer terminus and a slotted shank at its inner terminus straddling said shaft, said blades staggeredly arranged with respect to each other and radially-disposed with respect to the shaft and further angularly-disposed with respect to the longitudinal

nal axis of the shaft, and means extending through the shank and shaft for securing the blades in position.

2. A propeller comprising a shaft, a series
5 of flat blades staggeredly arranged with respect to each other and radially-disposed with respect to and mounted upon the shaft, each of said blades having its outer terminus formed with an angularly-extending
10 wing and its inner terminus provided with a slotted shank, and means extending through

the slotted shanks for securing the blades in position, said blades further angularly-disposed with respect to the longitudinal axis of the shaft.

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

JAMES C. BOYD.

Witnesses:

MAX H. SROLOVITZ,
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