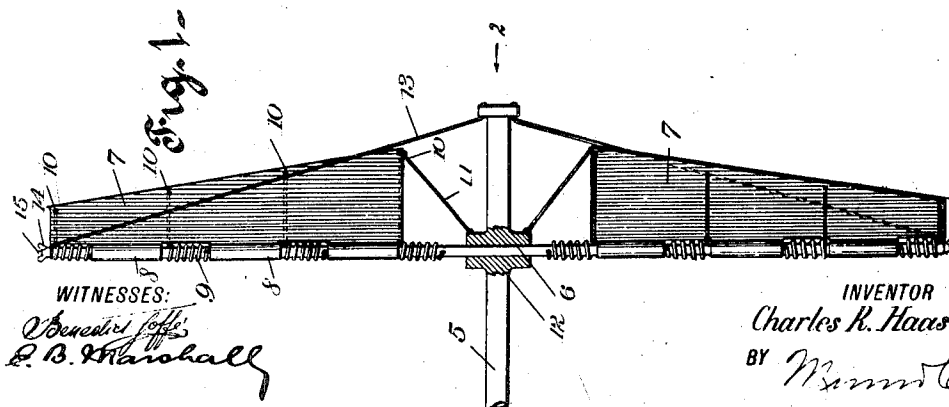
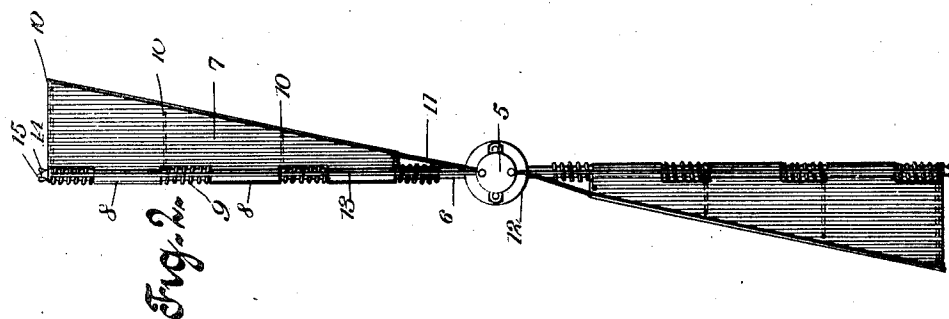
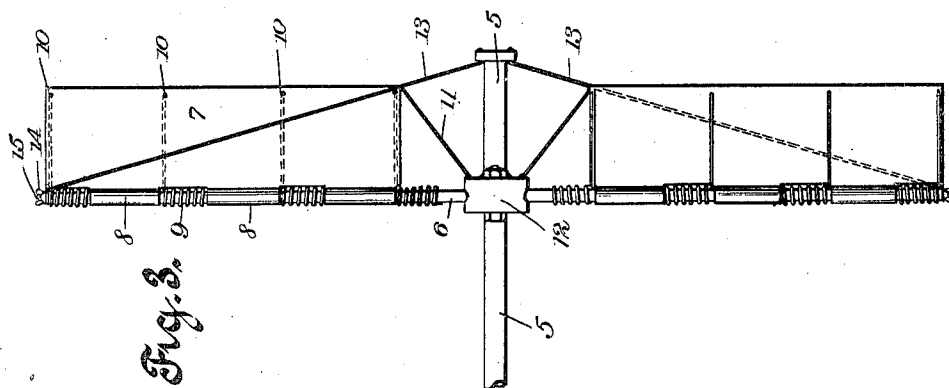


C. R. HAAS.
 PROPELLER.
 APPLICATION FILED SEPT. 7, 1911.

1,036,834.

Patented Aug. 27, 1912.



WITNESSES:
Charles R. Haas
R. B. Marshall

INVENTOR
Charles R. Haas
 BY *Wm. H. ...*
 ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES R. HAAS, OF BRIGHTWATER, BRITISH COLUMBIA, CANADA.

PROPELLER.

1,036,834.

Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed September 7, 1911. Serial No. 648,051.

To all whom it may concern:

Be it known that I, CHARLES R. HAAS, a subject of the King of Great Britain, and a resident of Brightwater, in the Province of British Columbia, Dominion of Canada, have invented a new and Improved Propeller, of which the following is a full, clear, and exact description.

My invention relates to propellers, and more particularly to propellers to be used in connection with air-ships, and has for its object to provide one with an arm to which the blades are pivoted, resilient means being provided for holding the blades in a predetermined position relatively to the arm.

Additional objects of the invention are set forth in the following specification, in which the preferred form of my invention is described.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a side elevation of the propeller, showing its position when in motion; Fig. 2 is an end view of the propeller, showing the position of the blades when in motion; and Fig. 3 is a side elevation showing the position of the blades when the propeller is at rest.

By referring to the drawings, it will be seen that a shaft 5 is provided to which is secured a radially disposed arm 6 extending in opposite directions from said shaft. Two resilient blades 7 are provided, the blades being preferably rectangular in shape, as shown in Fig. 3 of the drawings. Each of these blades 7 has a plurality of sleeves 8 spaced apart, the arm 6 being disposed in the said sleeves. On the arm 6 between the sleeves 8 there are disposed coiled springs 9, one terminal of each of these coiled springs being secured to the arm 6, the other terminals extending outwardly from the arm 6 and being secured to the blades at 10 at a distance from the arm 6. To the inner side of the blades, at a distance from the arm 6, are secured tie members 11, the other ends of these tie members

11 being secured to the hub 12 mounted on the shaft 5 to which the arm 6 is also secured. Some distance from the hub 12 brace members 13 are secured to the shaft 5, these brace members extending outwardly and being secured to the outer ends of the arm 6. Wing nuts 14 engage the threaded terminals 15 of the shaft 5, for preventing the blades 7 from slipping therefrom. When the propeller is not in use, the blades 7 are radially disposed with their flat faces lying substantially in the same plane, one at each side of the shaft 5. When the propeller is rotated, the springs 9 permit the blades to bend, but as the inner ends of the blades are secured by the tie members 11, the inner ends of the blades are permitted very little movement relatively to the arm 6, although the ends of the blades at a distance from the shaft 5 are permitted to move a relatively considerable distance. The brace members 13 act as a check for the blades and limit their movement by the springs 9.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a propeller, a shaft, a radially disposed arm secured to the shaft, a blade mounted to rotate on the arm, resilient means for moving the blade in one direction on the arm, and a brace member connecting the arm with the shaft and adapted to check the movement of the blade.

2. In a propeller, a shaft, a radially disposed arm secured to the shaft, a blade mounted to rotate on the arm, a tie member connecting the blade at a distance from the arm with the shaft, and resilient means for holding the blade in a predetermined position relatively to the arm.

3. In a propeller, a shaft, a radially disposed arm secured to the shaft, a resilient blade mounted to rotate on the arm, a tie member connecting the blade at a distance from the arm with the shaft, and a brace member connecting the arm with the shaft and adapted to check the movement of the blade.

4. In a propeller, a shaft, a radially-disposed arm secured to the shaft, a blade mounted to rotate on the arm, a tie mem-

ber connecting the blade at a distance from the arm with the shaft, resilient means for holding the blade in a predetermined position relatively to the arm, and a brace member connecting the arm with the shaft and adapted to check the movement of the blade. In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

CHARLES R. HAAS.

Witnesses:

G. WHITEHEAD,
JOHN KIRKPATRICK.