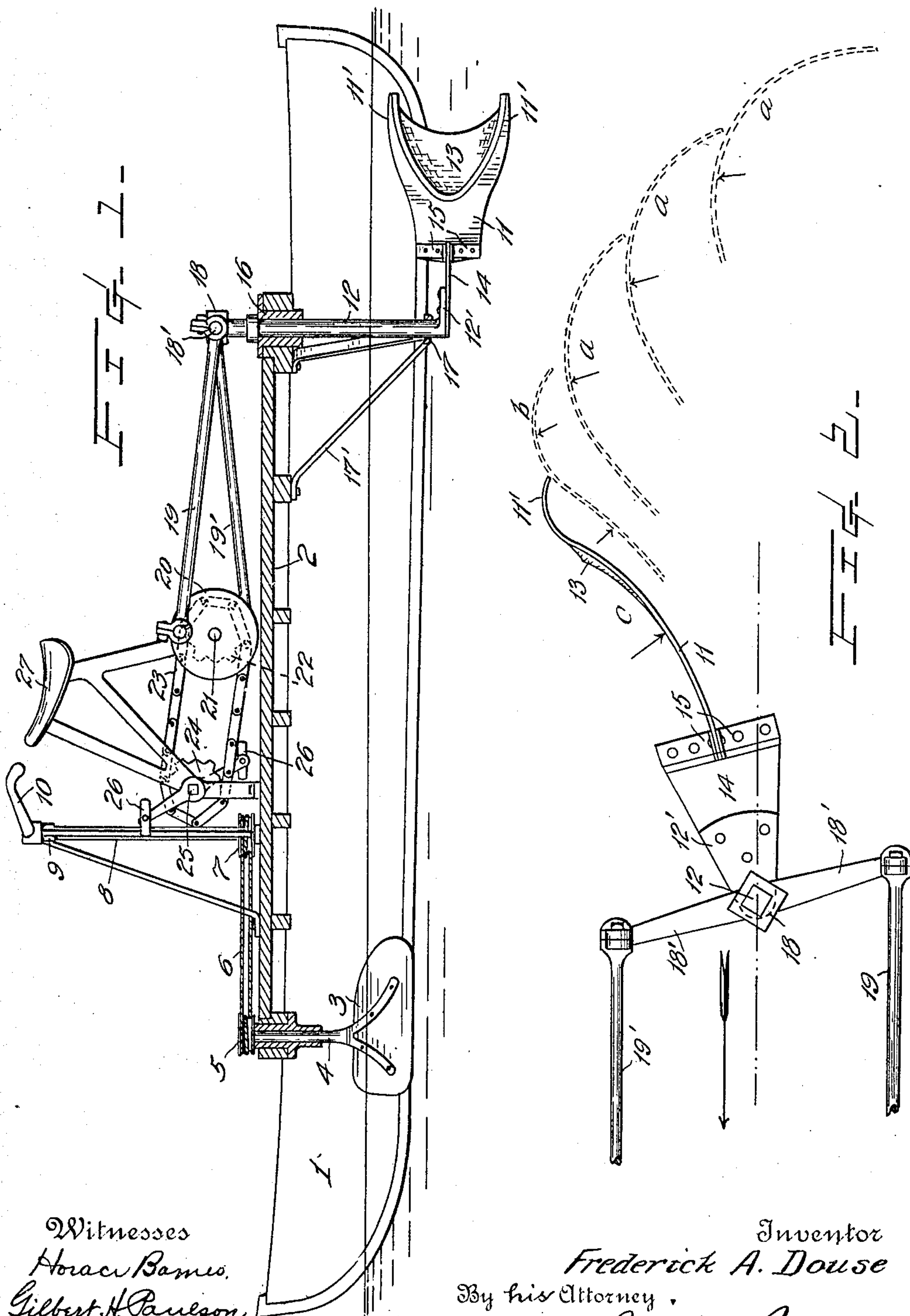


No. 871,059.

PATENTED NOV. 12, 1907.

F. A. DOUSE.
PROPELLER.

APPLICATION FILED SEPT. 4, 1906.



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK A. DOUSE, OF SEATTLE, WASHINGTON.

PROPELLER.

No. 871,059.

Specification of Letters Patent.

Patented Nov. 12, 1907.

Application filed September 4, 1906. Serial No. 333,091.

To all whom it may concern:

Be it known that I, FREDERICK A. DOUSE, a citizen of the United States of America, residing at Seattle, in the county of King and State of Washington, 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 the propulsion of marine or aerial vessels; and its object is the provision of devices of this character which will be of simple and inexpensive construction and which are capable of propelling a vessel at a high rate of speed with a relatively small consumption of power.

To these ends the invention consists of a flexible blade which is adapted to be swept from side to side and to act against the buoyant fluid to propel the vessel through a succession of reacting impulses.

The invention further consists in the novel construction and adaptation of parts as will be hereinafter described and claimed.

In the accompanying drawings, of an application of my improved propeller to a marine vessel, Figure 1 is a longitudinal vertical section of a catamaran with an embodiment of the invention shown therewith, in elevation; and Fig. 2 is an enlarged plan view of the propeller to show the preferred construction thereof, and likewise illustrating, diagrammatically, its action.

In the drawings, the reference numeral 1 designates one of the twin hull-members of a catamaran which is connected to the other such member by a framed deck 2, as common. In applying my invention to such a vessel the propeller is positioned at the after end while the rudder may advantageously be located toward the forward end of the boat. This rudder 3 is desirably of the "equipose" type having its stock 4 extended upwardly through the deck and provided thereabove with a sheave 5 about which is wound the tiller-line 6 leading from a sheave 7 upon an upright spindle 8. The spindle is suitably supported, as by a step bearing below and a braced collar bearing 9 near its upper end, and is provided with steering handle 10 within convenient reach of the operator.

The propeller consists of a flexible blade 11 secured at its front end to a vibratory post 12 extending upwardly through the deck. This blade is desirably bifurcated to provide converging lobes 11' between which is stretched a web, or membrane, 13 to effect an increased efficiency, though not essential to the action of the propeller. The connection between the blade and the post may advantageously be made by forming a rearwardly protruding foot 12' upon the latter, whereto is secured a plate 14 arranged perpendicular to the

blade and to the after end of which the blade 11 is affixed, as by knees 15. The post extends upwardly through a deck-bushing 16, and in proximity of its lower end is a collar-bearing 17 rigidly held in position by diagonal braces 17'. Vibratory motion may be imparted to the propeller blade by oscillating the post from suitable power devices, preferably manual power and through transmission devices, such as is illustrated in Fig. 1. According to which I provide a head 18 upon the top end of the post 12 with oppositely directed arms 18' which are respectively connected by rods 19 and 19' with crank pins upon disks, such as 20, upon each end of a transversely arranged shaft 21 which is journaled in standard-boxes secured to the vessel deck or to a frame.

Fixedly mounted to the shaft 21 is a sprocket wheel 22 which is driven by a chain 23 from a like wheel 24 upon a shaft 25 having pedals 26, whereby the propelling mechanism is actuated by the operator from a superposed saddle 27.

The action of the propeller blade may be said to be analogous to that of a caudal fin of a fish combining a sweeping with a bending action, and, in this instance, the latter action is attained through the flexure of the blade encountering its greatest resistance at the back end farthest from the axis of gyration, thus causing it to pass through the water in an inclined curved plane, so to speak, and effect during each lateral stroke a forward impulse to the boat, as will be clearly understood from an inspection of diagrams *a* in Fig. 2. At the termination of a stroke and during the reversal thereof, as represented by *b* and *c*, the elasticity of the blade asserts itself to give a further rearward impulse to the water. The web 13 meanwhile is distended to form a concavity through which the water is directed toward the axis of the blade and is cast off longitudinally in its sweeping movement, and has also a tendency to cause the fluid to be less broken than would otherwise be the case.

In driving with my propeller the strokes of the blade would occur with such frequency that a substantially uniform motion would be imparted to the vessel, while the latter may be retarded by operating the blade at a slow rate of speed, whereupon it would act as a drag.

The action of the propeller is exceedingly efficient in marine propulsion, and it is believed will be equally valuable in aerial navigation.

Having described my invention, what I claim, is—

1. In a device of the class described, a supporting body, a vertical post mounted upon said body, means carried by said body for oscillating said post, an arm comprising a horizontal plate extending rearwardly of said post and increasing in width towards its rear end, a flexible blade extending rearwardly of said arm, means for rigidly con-

necting said blade to said arm at its free end, said blade being bifurcated at its free end to form spaced lobes, and a flexible membrane connecting said lobes.

5 2. In a device of the class described, a supporting body, a vertical post carried by said body and provided with a rearwardly extending bracket at its lower end, means carried by said body for oscillating said post, a plate connected to said bracket and increasing in width at its free end, a flexible vertical blade rigidly connected at one end

to said plate and bifurcated to form spaced lobes at its free end, and a flexible membrane extending between said lobes. 10

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

FREDERICK A. DOUSE.

Witnesses:

PIERRE BARNES,
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