Nov. 18, 1924. 1,516,468

J. LOOSEN

BOAT PROPELLER

Filed Nov. 16, 1923

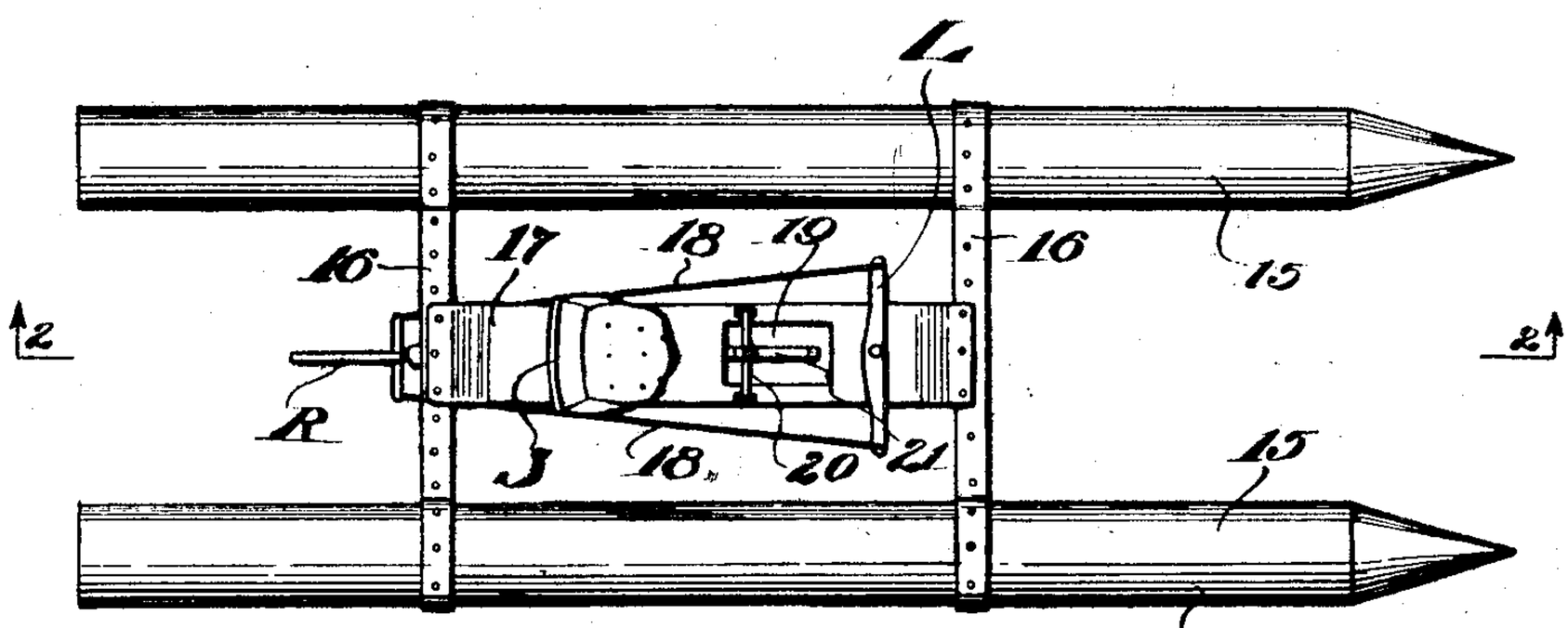

Fig. 1.

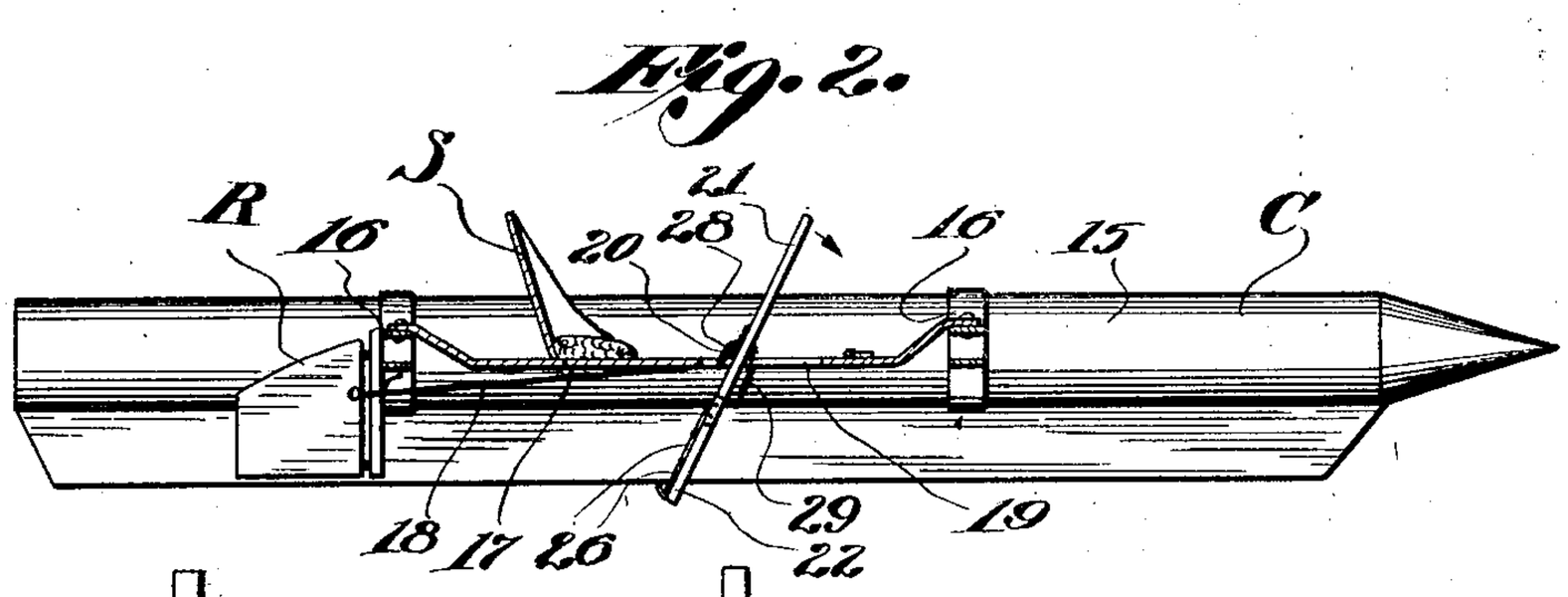

Fig. 2.

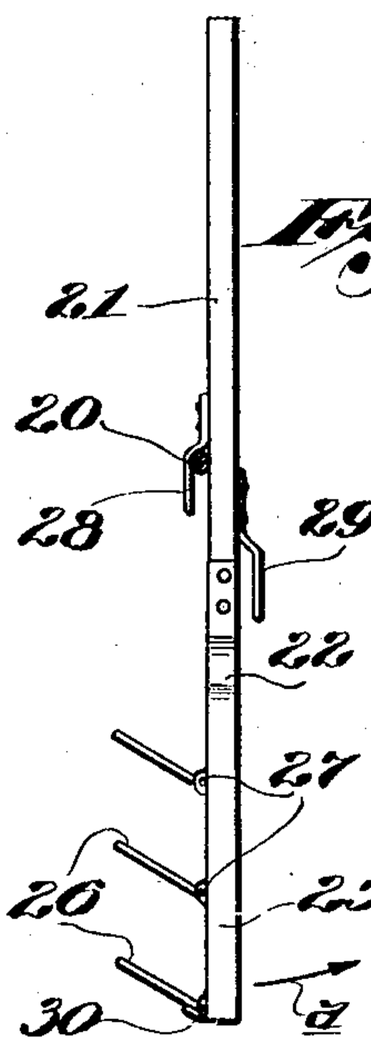

Fig. 3.

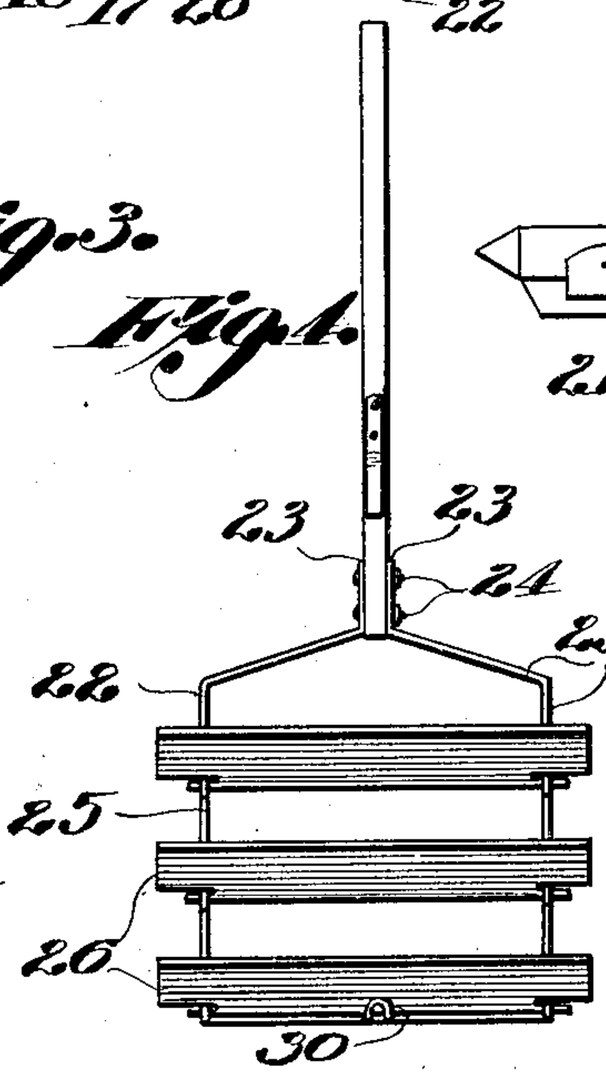

Fig. 4.

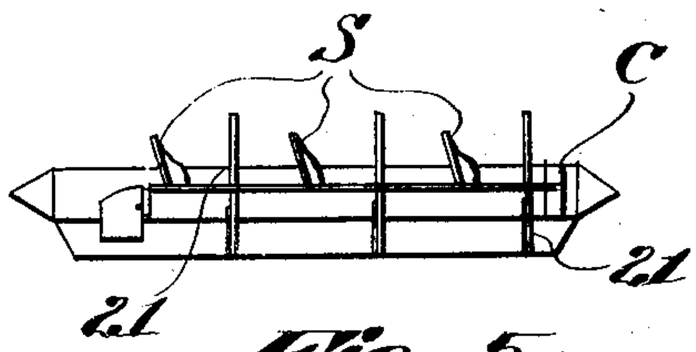

Fig. 5.

Inventor

J. Loosen

by Hazard and Miller

Attys

Patented Nov. 18, 1924. 1,516,468

UNITED STATES PATENT OFFICE.

JACOB LOOSEN, OF LONG BEACH, CALIFORNIA.

BOAT PROPELLER.

Application filed November 16, 1923. Serial No. 675,105.

To all whom it may concern:

Be it known that I, JACOB LOOSEN, a citizen of the United States, residing at Long Beach, in the county of Los Angeles and State of California, have invented new and useful Improvements in Boat Propellers, of which the following is a specification.

My invention relates to propellers for boats and more particularly to oars.

One object of my invention is to provide an oar which when oscillated beneath the water by a boatman, will engage a maximum surface with the water in one direction and a minimum surface in the opposite direction, without requiring the handle of the oar to be rotated about a longitudinal axis by the boatman, as is necessary in using common oars.

Another object is to provide a novel propelling means for a catamaran or boat which is operable in such a compact area that it may be mounted in the center of such vessel.

A further object is the provision of a propelling means for a boat which may be quickly reversed so as to urge the boat in the opposite direction when oscillated.

Other objects will be made manifest in the following specification of an embodiment of the invention illustrated in the accompanying drawings, in which—

Fig. 1 is a plan view showing a catamaran provided with my novel boat propeller.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1, in which the propeller is shown during a propulsion stroke, the shutters thereof being closed.

Fig. 3 is a side elevational view of my improved propeller shown during an idle stroke.

Fig. 4 is a rear elevational view of a propeller in the same position as shown in Fig. 3.

Fig. 5 is a diagrammatic view illustrating a catamaran provided with a plurality of tandem seats, and a propeller conveniently disposed for operation by the occupant of each seat.

Referring now more specifically to the drawings in which similar reference characters refer to similar parts, I have shown for the convenient illustration of the use of my novel propeller, a catamaran C composed of floats 15 joined by built-up connecting braces 16, a longitudinal body member 17 joining the braces 16 medially. Upon the body member 17 is provided a seat S. While sitting in this seat the operator of the catamaran C may rest his feet upon a foot lever L mounted pivotally at its center and provided with cables 18 which control a rudder R provided upon the rear connecting brace 16. In the present instance the body member 17 is shown as provided with an opening 19 through which my propeller may be operated. A transverse shaft 20 is fixedly mounted upon the member 17 at one end of the opening 19.

Referring now to Figs. 3 and 4, my propeller comprises a lever arm 21 provided at its lower end with a frame 22. This frame in the present instance is shown as substantially rectangular in shape and of one piece of material, the ends of which terminate in ears 23 which are secured by bolts 24 at the lower end of the lever arm 21. Hingedly mounted upon the vertical arms 25 of the frame 22 are shutters 26 which are so constructed as to be buoyed upward from their hinges 27 when immersed without movement thereof in water. As it is desired to produce a propulsion of the boat or catamaran equipped with my propeller by an oscillation of the lever arm 21, hooks 28 and 29 secured to the lever arm 21 provide demountable bearings on which the lever arm 21 may be oscillated about the shaft 20. As will be understood, this oscillation, in the present instance, is imparted manually by the gripping of the upper end of the lever 21 by the occupant of the seat S. When the lever arm is being rocked forward, as indicated in Fig. 2, it will be clearly seen that the shutters 26, having floated upward at the beginning of such movement, will be held against the frame 22, as shown, offering a large area of resistance to the movement backward of the frame 22 through the water. At the completion of the stroke shown in Fig. 2, the return stroke illustrated in its middle position in the side elevation shown in Fig. 3, is commenced. As the frame 22 moves in the direction of the arrow *a* (Fig. 3) through the water, the shutters 26 are caused by the water to trail out from their hinges 27, as illustrated in Figs. 3 and 4, thus offering a minimum of resistance to the recovery stroke of the lever 21. It has been found advantageous to provide a stop 30 upon the lower cross bar of the frame 22 positioned so as to prevent

the lowermost of shutters 26 from rocking about its hinge 27 below a position perpendicular from the frame sides 25. This is to prevent the lowermost shutter 26 from doubling under as I have found it is sometimes in danger of doing.

The hook 28 is normally employed to engage the shaft 20 in effecting the forward movement of the catamaran C. If it is desired to reverse this direction, the hook 28 may be readily lifted from the shaft 20, the propeller rotated 180 degrees, and the hook 29 engaged with the shaft 20. Oscillation of the lever arm 21 with the propeller in reverse position will cause rearward movement of the catamaran C, as will be readily understood.

By referring to Fig. 3, it may be seen that the hook 28 divides the distance from the upper end of the lever 21 to the frame 22 in a different ratio than the hook 29, thus substitution of the hook 29 for the hook 28 as a mounting upon the shaft 20 for the propeller without the reversing thereof, will effect a variation in the leverage obtainable in manually oscillating the lever 21 and forcing the shutters 26 against the resistance of the water in the power stroke illustrated in Fig. 2.

Further embodiments, modifications and changes may be resorted to within the spirit of the invention as here claimed.

What I claim is:

1. A propeller adapted to operate by oscillation while submerged in a liquid and comprising an operating lever provided with a frame, shutters hingedly mounted on the frame, the shutters being relatively free to present a minimum of resistance to the passage of the liquid during oscillation in one direction, but adapted to float into and maintain a position of maximum resistance during oscillation in the opposite direction, said operating lever being provided with means for detachably mounting the propeller upon a fixed support disposed transversely to the plane of oscillation of the propeller, said means comprising hooks so positioned on the lever as to provide for change of the ratio of movement between the frame and the opposite end of the lever.

2. A propeller adapted to operate by oscillation while submerged in a liquid and comprising an operating lever provided with a frame, shutters hingedly mounted on the frame, the shutters being relatively free to present a minimum of resistance to the passage of the liquid during oscillation in one direction, but adapted to float into and maintain a position of maximum resistance during oscillation in the opposite direction, said operating lever being provided with means for detachably mounting the propeller upon a fixed support disposed transversely to the plane of oscillation of the propeller, said means being so positioned on the lever as to provide for change of the ratio of movement between the frame and the opposite end of the lever.

In testimony whereof I have signed my name to this specification.

JACOB LOOSEN.