J. C. CALDWELL.

BOAT PROPELLING MECHANISM.

APPLICATION FILED APR. 13, 1915.

1,195,652.

Patented Aug. 22, 1916.

2 SHEETS—SHEET 1.

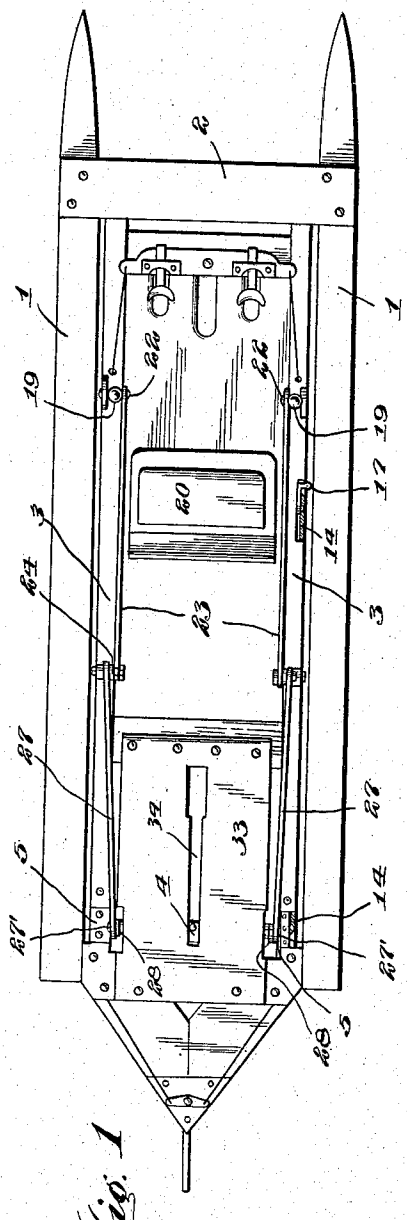


Fig. 1

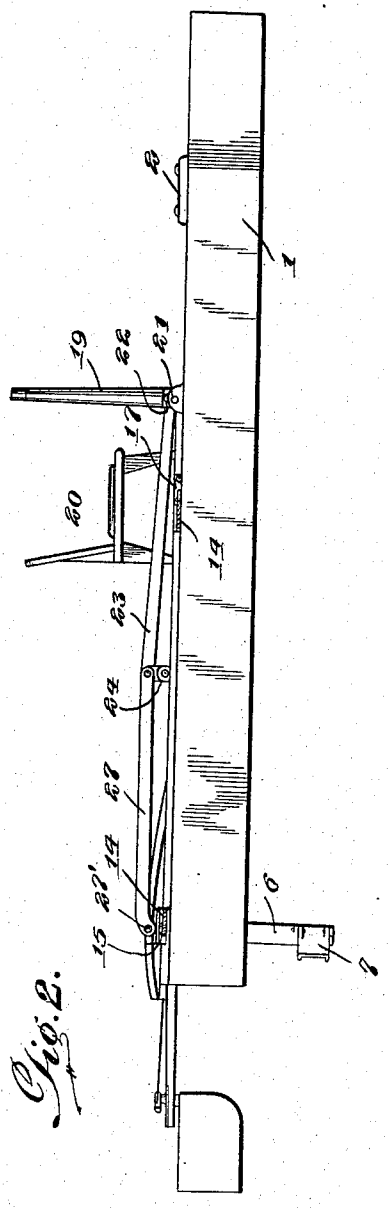


Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 8.

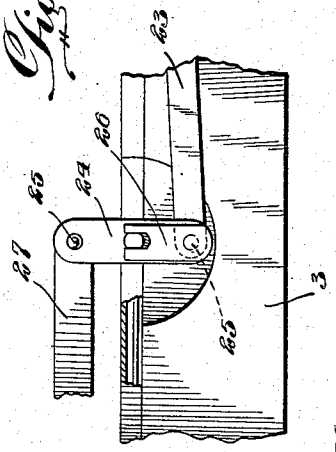


Fig. 5.

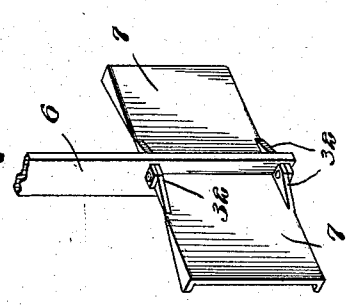
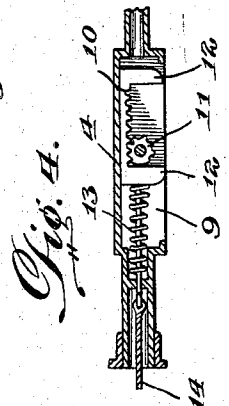
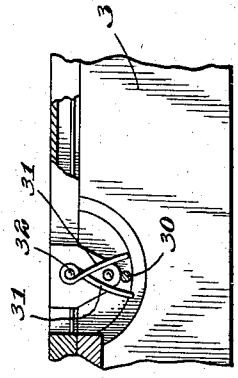


Fig. 4.





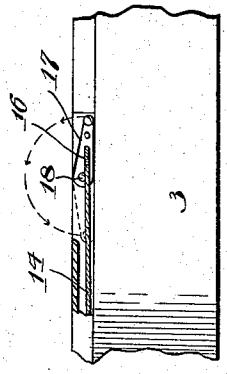


Fig. 7.

Fig. 3.

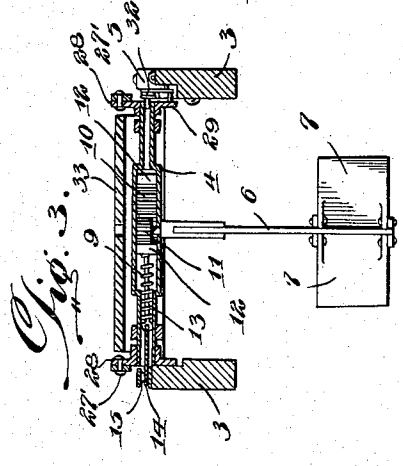


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOHN C. CALDWELL, OF MIAMI, FLORIDA.

BOAT-PROPELLING MECHANISM.

1,195,652. Specification of Letters Patent. Patented Aug. 22, 1916.

Original application filed June 27, 1914, Serial No. 847,670. Divided and this application filed April 13, 1915. Serial No. 21,056.

To all whom it may concern:

Be it known that I, JOHN C. CALDWELL, a citizen of the United States, residing at Miami, in the county of Dade and State of Florida, have invented new and useful Improvements in Boat-Propelling Mechanism, of which the following is a specification.

This invention relates to marine propelling mechanism, the object in view being to provide manually operable propelling mechanism for small water craft, the propeller itself being of the oscillatory feathering type and being combined with means whereby it may be reversed so as to propel the craft in either direction.

A further object of the invention is to provide in connection with a propeller of the class above referred to, a plurality of manually controlled levers together with connections between said levers and propeller whereby the propeller may be actuated for propelling the craft in either direction by moving said levers simultaneously in the same directions or simultaneously in opposite directions.

With the above and other objects in view, the invention consists in the novel construction, combination and arrangement of parts, as herein described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a plan view of a water craft to which the propelling mechanism of this invention is attached. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical cross section in line with the propeller shaft. Fig. 4 is a detail section taken longitudinally of the propeller shaft showing the reversing rack and pinion mechanism. Fig. 5 is a detail perspective view of the propeller. Fig. 6 is a detail section taken adjacent to and showing the propeller shaft spring. Fig. 7 is a detail vertical longitudinal section showing the propeller reversing lever in two positions. Fig. 8 is a detail view of one of the reverse motion yokes or transmission levers and connections.

The water craft as shown comprises a pair of floats 1 which are preferably parallel to each other and located at any suitable distance apart, the same being connected in rigid relation to each other by a cross bar 2 near the forward ends of the floats, which forward ends are pointed similarly to a boat. 3 designates a frame which is supported between the floats 1.

4 designates a horizontal oscillatory propeller shaft extending transversely of and supported by bearings 5 on the frame 3. Extending downwardly from the propeller shaft 4 in perpendicular relation thereto is a propeller arm 6 having pivotally connected thereto on opposite sides, feathering paddles 7 which in the forward or return movement of the propeller arm are adapted to fold toward each other in substantially parallel relation and in the reverse or working stroke, are supported in a position perpendicular to the direction of the stroke by means of shoulders 32 on said paddles which come in contact with opposite sides of the propeller arm 6. The paddles thus automatically feather themselves in the return stroke of the propeller arm.

The propeller is reversible for the purpose of propelling the machine either in a forward or backward direction by the following means. At its upper end the propeller arm 6 passes through the propeller shaft 4 and is journaled therein, said propeller shaft having its central portion enlarged and formed with a cavity 9 in which is a slidable rack bar 10 which meshes with a pinion 11 fast on the propeller arm, the rack bar being provided with stop shoulders 12 in spaced relation to each other so as to arrest the turning movement of the propeller arm when the blades are facing forwardly or rearwardly. The rack bar is held toward one end of its movement by means of a coiled expansion spring 13 and is moved to its limit in the opposite direction by means of a flexible connection 14 which passes around a sheave 15 and forward to a link 16 on a propeller reversing lever 17 fulcrumed at 18 on the frame 3, the relation of the cord and the link 16 and the lever 17 being such in relation to the pivot point 18 that when the lever 17 lies horizontally and points in a rearward direction, the propeller arm 6 will be set, for example, in position to propel the machine in a forward direction and when said lever 17 is turned through an arc of approximately 180 degrees, the propeller will be set to propel the craft in the opposite direction, the tension of the cord on the link 16 serving to sustain the lever 17 in either of its two useful positions.

The means for oscillating the propeller shaft 4 consists, in the preferred embodi-

ment of the invention, of two hand levers 19 arranged in convenient relation to the operator's chair designated generally at 20. Each lever is pivotally connected at its lower end at 21 to the frame 3 and has pivotally attached thereto at the point 22 above the pivot 21 a rearwardly extending rod 23 the rear end of which is attached pivotally to a centrally pivoted yoke or transmission lever 24 on the frame 3. The lever or yoke 24 is provided at the extremities of its arms with studs 25 either one of which is adapted to fit an eye in the rear end of the rod 23 which enables said rod to be adjusted to either arm of said lever where it is held in engagement with the adjacent stud 25 by means of a latch or detent 26. Another rod 27 extends from the transmission lever or yoke 24 rearwardly and is pivotally connected at 27′ to an operating arm 28 adjacent to one end of the propeller shaft 4. It will be understood that two sets of connections of the character just described are employed to connect the two hand levers 19 with the propeller shaft 4 and it will now be seen that by shifting the point of connection between one of the rods 23 and said transmission lever or yoke, the hand levers 19 may be arranged to operate simultaneously in the same or opposite directions as may be found desirable by the operator. The propeller shaft 4 is also provided with other arms 29 extending downwardly therefrom and carrying pins 30 which engage the divergent arms 31 of springs 32 which serve to assist in the back and forth movements of the propeller arm 6. The propeller operates under the rear platform 33 and said platform is provided with a slot 34 of suitable size and shape to permit the propeller arm and propeller paddles to be swung upwardly through the platform for examination and repair purposes by disengaging the rods 27 from the operating arms on the propeller shaft.

The subject matter hereinabove set forth constitutes a division of my application filed June 27, 1914, Serial No. 847,670, allowed October 1, 1914.

What I claim is:—

1. A water craft comprising a floating structure, and propelling mechanism therefor comprising an oscillatory horizontal propeller shaft extending at a right angle to the path of the craft, a propeller arm perpendicular to said shaft, feathering paddles having a jointed attachment to said arm, means for oscillating said shaft, rack and pinion mechanism for turning said arm on its major axis to reverse the working position of the propeller so that the latter will drive the craft in the opposite direction, and a manually operable element remote from and connected with said rack and pinion mechanism for operating the latter.

2. A water craft comprising a floating structure, and propelling mechanism therefor comprising an oscillatory propeller shaft, a propeller arm perpendicular to said shaft, feathering paddles having a jointed attachment to said arm, means for oscillating said shaft embodying a pair of operating arms fast on said propeller shaft, a pair of hand levers, two-armed direction reversing yokes pivotally supported between their ends, rods extending from said hand levers each adapted to be connected to either arm of its respective yoke, and other rods extending from yokes to the operating arms on the propeller shaft.

3. A water craft comprising a floating structure, and propelling mechanism therefor comprising an oscillatory propeller shaft, a propeller arm perpendicular to said shaft, feathering paddles having a jointed attachment to said arm, means for oscillating said shaft embodying operating arms on said propeller shaft, a pair of hand levers, pivotally mounted direction reversing yokes, rods extending from said hand levers to said yokes, and other rods extending from yokes to the operating arms on the propeller shaft, one of said rods being shiftable to opposite sides of the pivotal center of the respective yoke.

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

JOHN C. CALDWELL.

Witnesses:

SAMUEL FILER,

R. WELBORN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."