

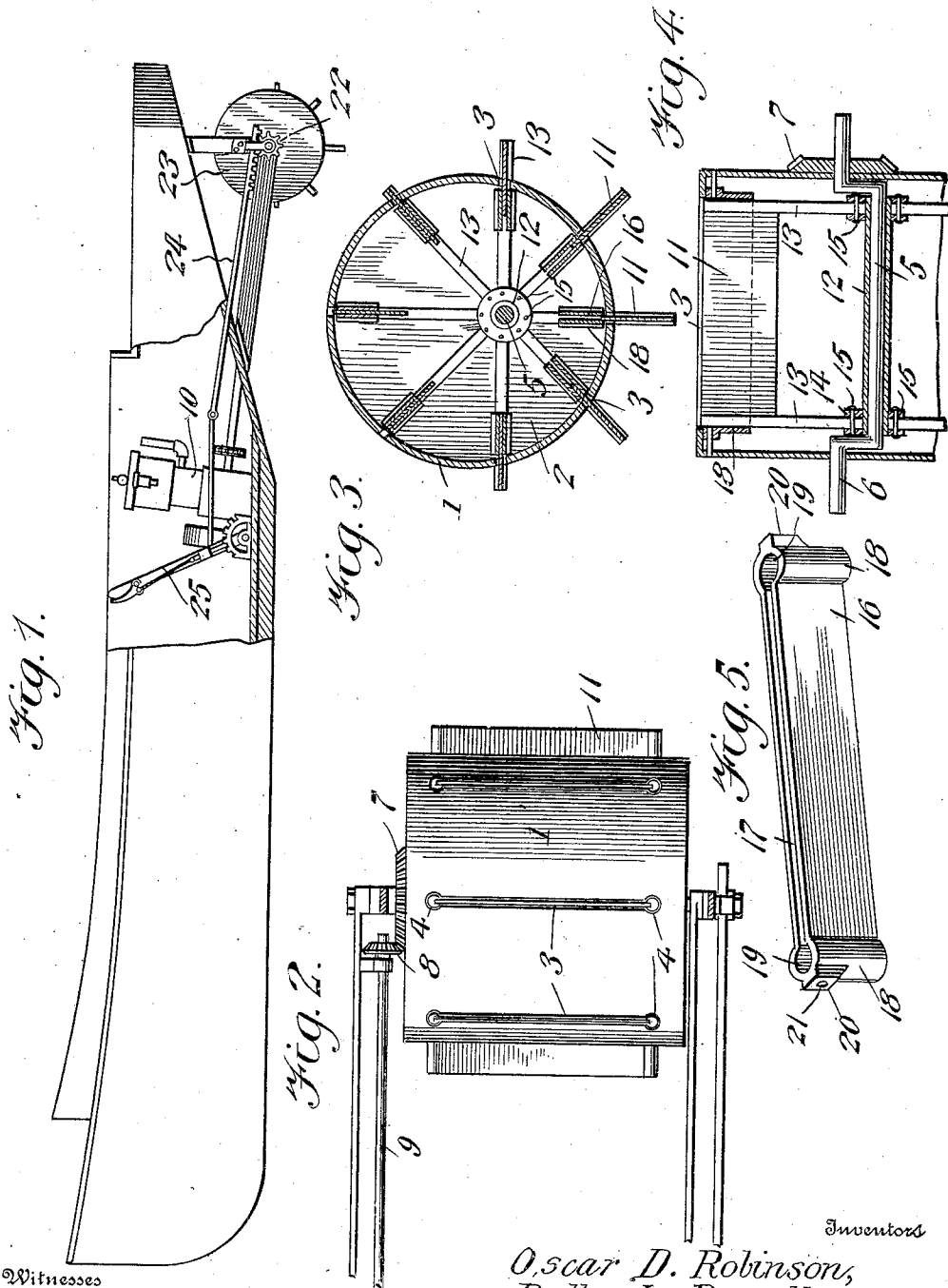
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O. D. ROBINSON & R. L. BENNETT.

MARINE PROPELLER.

APPLICATION FILED MAY 23, 1906.



Witnesses

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MARINE PROPELLER.

No. 858,215.

Specification of Letters Patent.

Patented June 25, 1907.

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To all whom it may concern:

Be it known that we, OSCAR D. ROBINSON and ROLLO L. BENNETT, citizens of the United States, residing at Olivet, in the county of Eaton and State of Michigan, have invented new and useful Improvements in Marine Propellers, of which the following is a specification.

This invention relates to marine propellers, the object of the invention being to provide what may be termed a feathering blade propelling wheel especially designed for use in connection with boats and also adapted for use in connection with current motors and the like.

A further object of the invention is to provide a bladed propeller of such construction that it is adapted to operate entirely beneath the surface of the water or, in other words, to be submerged, and in connection with such propelling wheel, mechanism is provided for shifting the blades or paddles thereof in such manner as to reverse the action of the wheel or, in other words, cause the same to propel the boat backward instead of forward, the adjustment being effected by means of a reversing lever.

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

In the accompanying drawings, Figure 1 is a sectional elevation of a boat, showing the propelling mechanism applied thereto. Fig. 2 is an enlarged plan view of the propeller. Fig. 3 is a vertical cross section through the same. Fig. 4 is a vertical section taken in line with the shaft of the propeller. Fig. 5 is an enlarged perspective view of one of the pivoted guides through which the blades work.

The propeller contemplated in this invention comprises essentially a drum 1 of cylindrical shape and closed by the ends or heads 2, the periphery of the drum being provided at intervals with slots 3 extending lengthwise of the drum through which the paddles or blades work. The opposite ends of the slots 3 are enlarged as shown at 4, to receive and admit of the movement of the spokes by which the blades or paddles are carried.

The drum 1 is mounted on a shaft 5 which extends centrally through the same and is provided with cranked end portions 6 by which the central portion of the shaft is offset

from the axis of movement of the drum 1, as clearly shown in Figs. 3 and 4, the drum being journaled on the cranked end portions 6 of said shaft and being driven by providing the drum at one end with a bevel gear wheel 7 which is fast on the drum and meshes with the bevel pinion 8 on the rear end of a shaft 9 which extends forward into the boat where it is driven by means of a suitable motor indicated at 10.

The paddles or blades 11 radiate from a common sleeve or hub 12 which is journaled on the central portion of the shaft 5, as shown in Fig. 4, each of said blades being carried by oppositely arranged spokes 13 preferably in the form of rods or bars which are round in cross section and adapted to slide outward and inward through the enlarged portions 4 of the slots 3 in the drum. The inner ends of the spokes 13 are received in sockets formed in a corresponding number of knuckles 14 which are carried by the sleeve 12, a pivotal connection being provided between the blades and the sleeve 12, as shown at 15, so as to allow the spokes or arms 13 to adjust themselves to the varying angles required to permit the central portion of the shaft 5 to be moved upward or downward or laterally for a purpose which hereinafter appear. Arranged inside of the drum 1 is a series of guides 16 through which blades or paddles 11 slide. Each of said guides 16 is of the form shown in detail in Fig. 5 comprising the oppositely arranged sides 17 and the cylindrical end portions 18 having guideways 19 extending therethrough in which the rods or spokes 13 slide. Each of said guides 16 is provided at its opposite ends with projecting pivot lugs 20 having sockets 21 to receive pivots on the inner surfaces of the ends 2 of the drum whereby said guides are adapted to oscillate to agree with the positions and angles of the blades of the propeller.

One of the crank ends 6 of the shaft 5 is provided with a pinion 22 with which a rack bar 23 engages, said rack bar being carried by a slide rod 24 which works through an opening in the stern of the boat and is connected to a reversing lever 25 mounted in the boat, as shown in Fig. 1, so that by sliding the rod 24 backward or forward, a partial rotation is imparted to the shaft on which the propeller is mounted, thereby adjusting the offset central portion of said shaft and correspondingly raising, lowering or shifting laterally the sleeve 12 with which all of the blades are con-

nected, and correspondingly shifting the blades to give more or less projection to said blades at the bottom of the drum or at the top or sides thereof.

5 By means of the construction above described, it will be seen that the propeller as a whole is adapted to operate beneath the surface of the water and that by means of the blade-shifting mechanism hereinabove described, the blades may be shifted relatively
10 to the drum in which they are mounted, so as to cause said blades to project below the surface of the drum, as shown in Fig. 3, or above the surface of the drum when it is desired to
15 reverse the action of the propeller, the propeller thus being reversed as to its action without reversing the engine and direction of rotation of the propeller. By reason of the eccentric relation between the shaft 5 and the
20 drum 1, as the propeller is revolved, the blades are caused to be alternately projected and withdrawn, and when in their withdrawn positions, said blades offer no resistance to the rotation of the drum.

25 I claim:

1. A marine propeller embodying a rotary drum, an eccentric shaft within said drum, a series of blades slidable through slots in the

drum, a common hub for said blades journaled on said shaft, spokes extending from the opposite ends of the blades inward and pivotally connected to said hub, and guides through which the blades slide pivotally mounted within the drum and having enlarged ways through which the spokes of the
30 blades slide, substantially as described. 35

2. A marine propeller embodying a rotary slotted drum, an eccentric shaft therein having cranked end portions on which the drum is journaled, blades sliding through the slots
40 in the drum, a common hub to which said blades are connected journaled on said shaft, a pinion on one of the cranked ends of said shaft, and a rack bar meshing with said pinion for turning the shaft to shift the eccentric
45 portion thereon and change the throw of the blades relatively to the periphery of the drum, substantially as described.

In testimony whereof, we affix our signatures in presence of two witnesses.

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