

No. 636,479.

Patented Nov. 7, 1899.

C. R. WILLIS.

MANUAL PROPELLING MECHANISM FOR BOATS.

(Application filed Feb. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

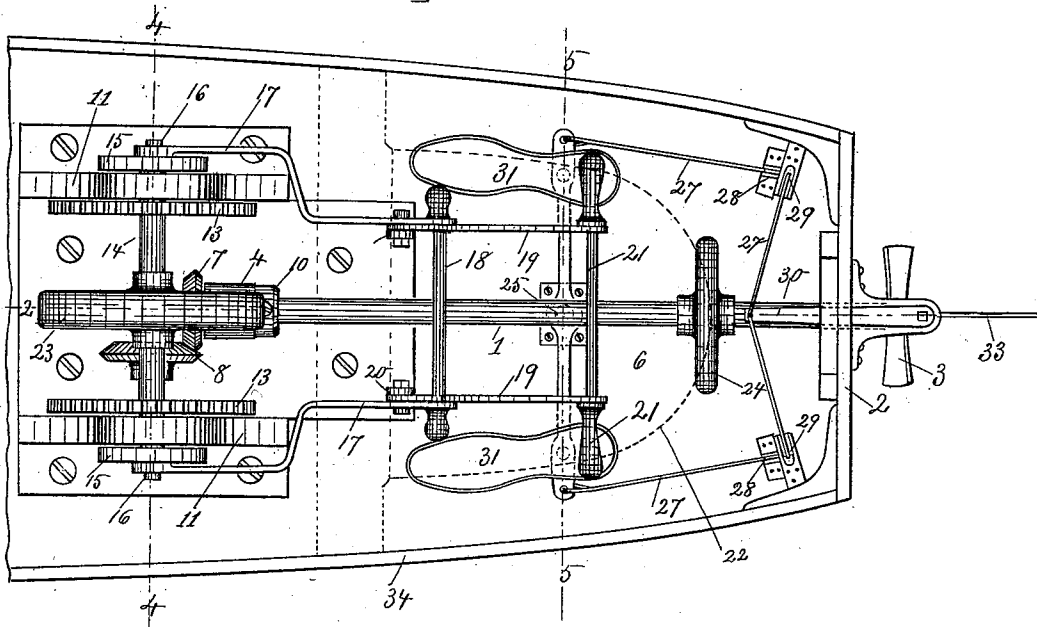
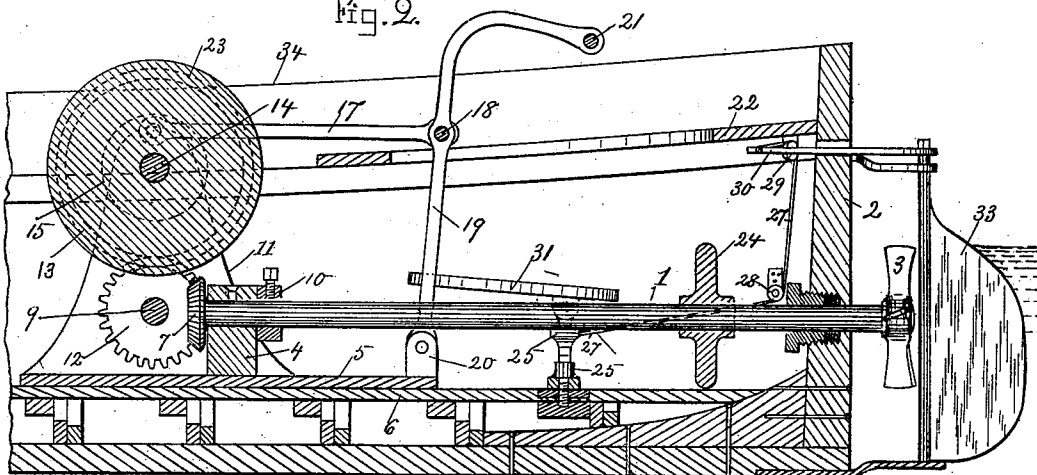


Fig. 2.



Witnesses

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Fig. 3.

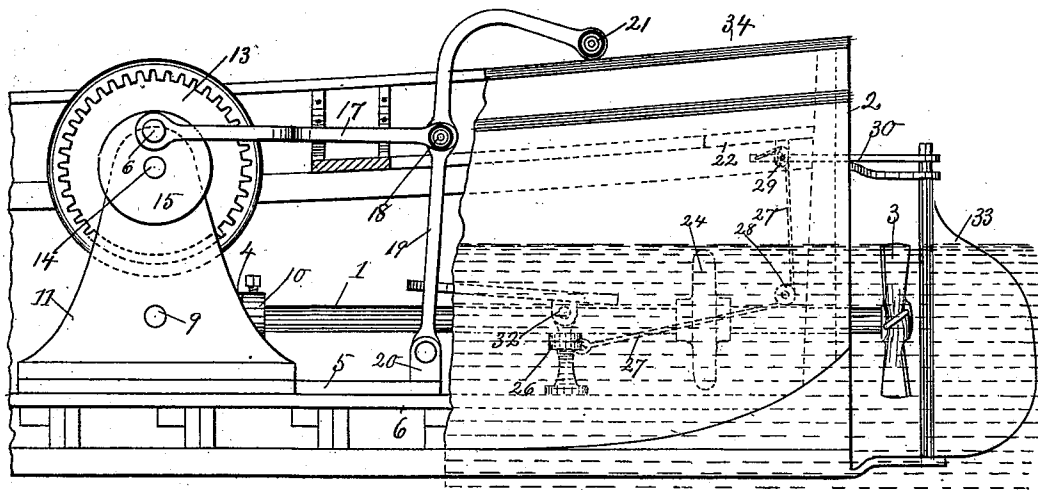
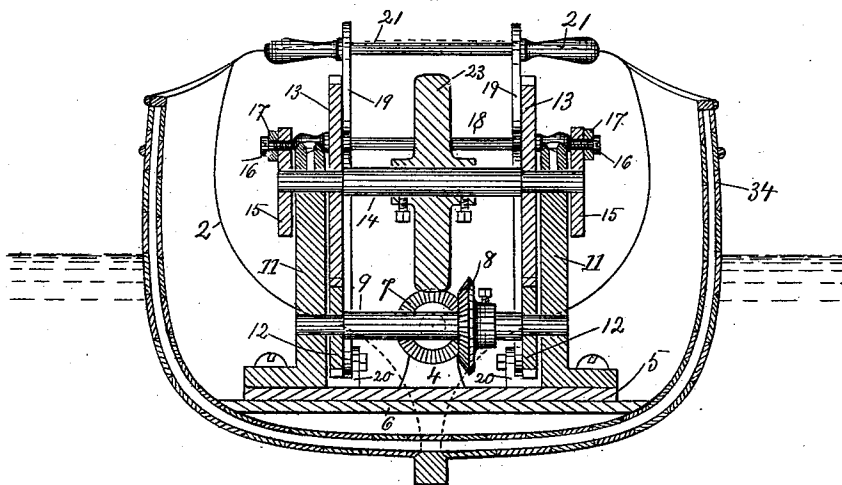


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MANUAL PROPELLING MECHANISM FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 636,479, dated November 7, 1899.

Application filed February 25, 1899. Serial No. 706,779. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE R. WILLIS, a citizen of the United States, and a resident of Mansfield, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Hand-Propellers for Small Boats, of which the following is a specification.

The object of my invention is to provide a simple apparatus for propelling small boats, like the common row-boats, by hand-power without the use of oars.

The invention will now be fully described, and the particular features thereof pointed out in the claim at the end of the specification.

In the drawings, Figure 1 is a plan view of my apparatus, showing only the rear part of the boat. Fig. 2 is a longitudinal section on line 2 2 of Fig. 1. Fig. 3 is a side elevation with the side of the boat broken away. Fig. 4 is a cross-section on line 4 4 of Fig. 1.

The propeller-shaft 1 passes through the stern 2 of the boat 34 and carries on its outer end the propeller 3. The shaft is suitably boxed where it passes through the stern. At its forward end it is journaled in a short standard 4, rising from a bed-plate 5, which is secured to the floor 6 in the bottom of the boat. On the inner end of the shaft is a bevel-gear 7, which engages with a bevel-gear 8 on counter-shaft 9. On the propeller-shaft 1 there is a collar 10 just back of the standard 4, so that the shaft is prevented from endwise movement. The counter-shaft 9 is journaled in the standards 11, rising from the bed-plate 5, and has pinions 12, which engage with gear-wheels 13 on the driving-shaft 14. The driving-shaft 14 is journaled in the standards 11. On the ends of the driving-shaft are the crank-disks 15, having wrist-pins 16, to which the connecting-rods 17 are attached. The wrist-pins 16 are con-

nected with the crank-disks 15 at corresponding points, so that the two connecting-rods and cranks will work in unison. The rear ends of the connecting-rods 17 are attached to the cross-rod 18, which connects the two levers 19. The levers 19 are pivoted in the bosses 20, secured to the bed-plate 5. The levers 19 are bent rearwardly, and at their ends are connected by a cross-rod 21, which serves as a handle by which the machine is operated by the boatman sitting on the seat 22 in the stern of the boat. On the driving-shaft 14 there is a balance-wheel 23, and on the propeller-shaft 1 there is a balance-wheel 24.

By lengthening the propeller-shaft the gear may be placed in any part of the boat, but it is preferable to have it near the stern. It can be used with any small boat.

What I claim as my invention is—

A propelling apparatus for boats having in combination a propeller-wheel, a propeller-shaft, a counter-shaft crosswise of the boat mounted in suitable supports and having a gear which engages with a gear on the propeller-shaft, a drive-shaft supported crosswise of the boat above the said counter-shaft, a balance-wheel on said drive-shaft, pinion-wheels on said counter-shaft and gear-wheels on said drive-shaft which engage with said pinions, crank-disks on said drive-shaft, connecting-rods attached to said crank-disks, upright levers pivoted at their lower ends to a fixed support and pivoted above to said connecting-rods and having operating-handles, substantially as described.

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

CLARENCE R. WILLIS.

Witnesses:

WILLIAM A. COPELAND,
F. E. COPELAND.