

Oct. 10, 1950

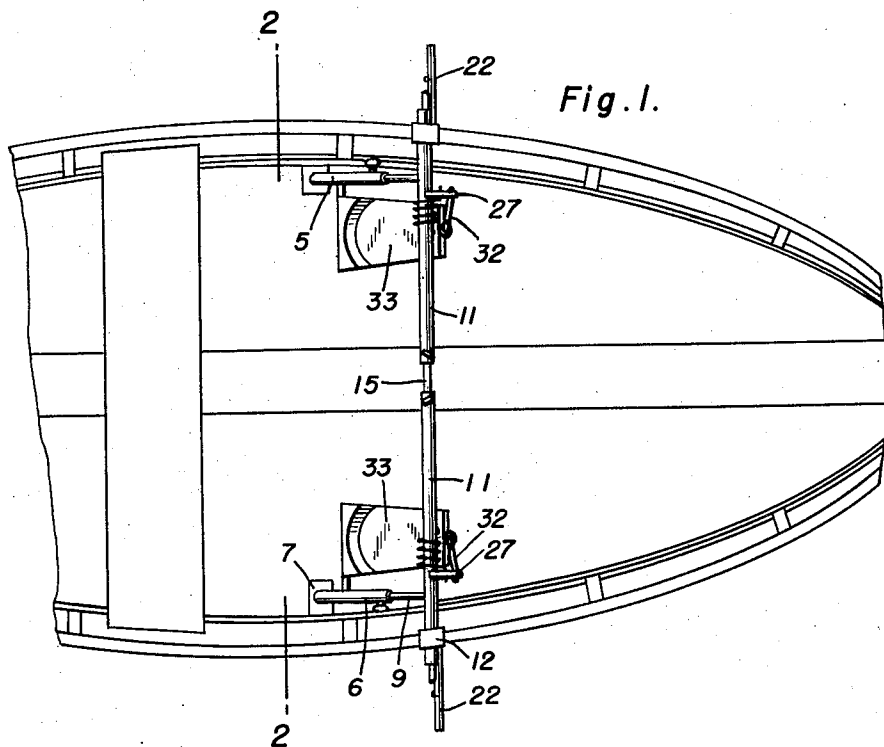
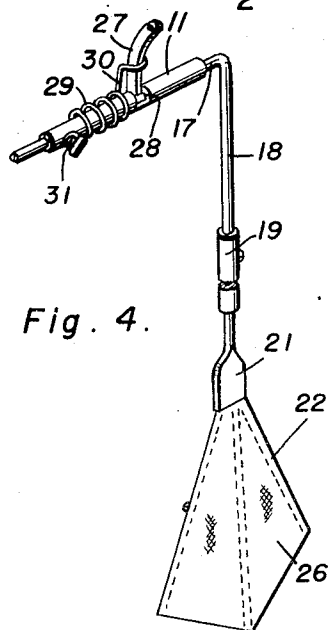
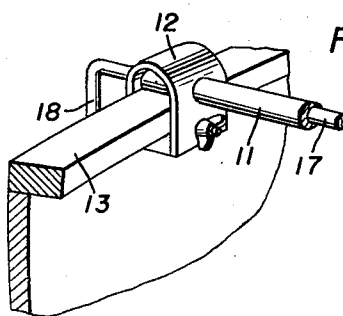
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FOOT OPERATED BOAT PROPULSION MEANS

Filed June 13, 1947

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

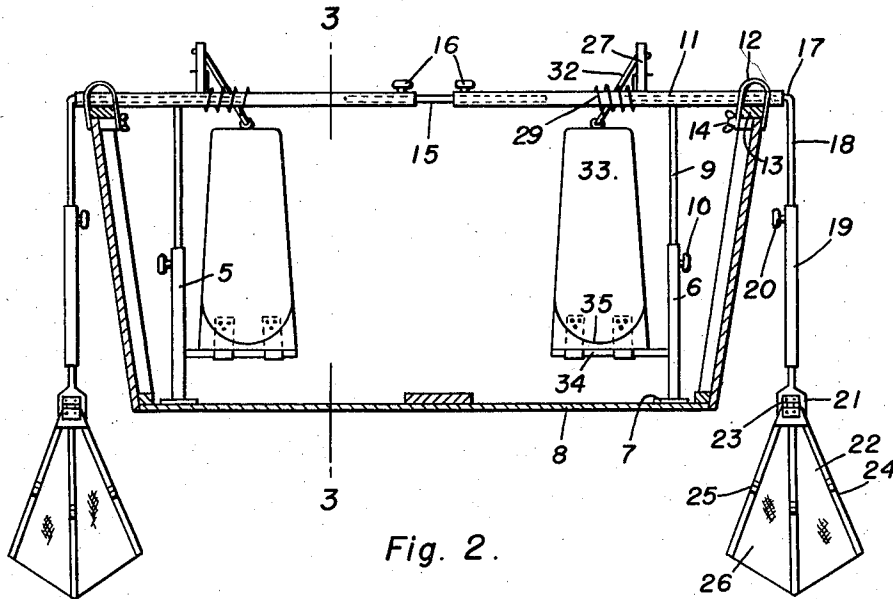


Fig. 2.

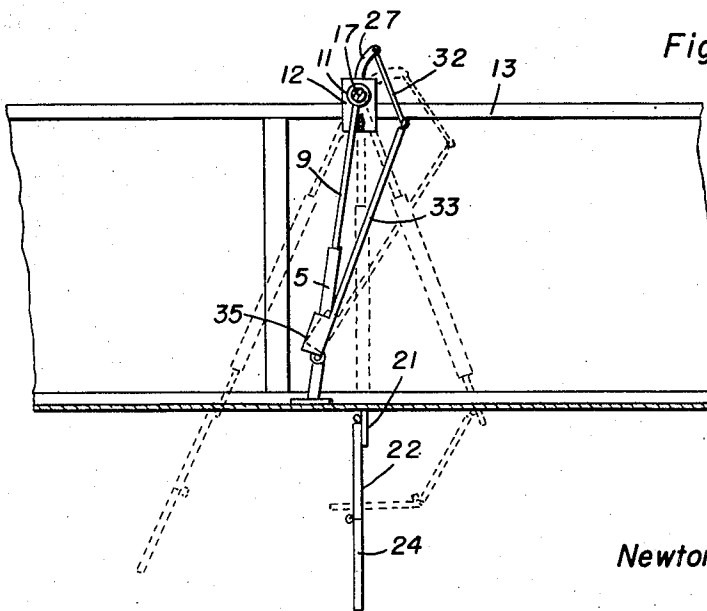


Fig. 3.

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UNITED STATES PATENT OFFICE

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FOOT OPERATED BOAT PROPULSION
MEANS

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Application June 13, 1947, Serial No. 754,391

3 Claims. (Cl. 115—66)

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The present invention relates to new and useful improvements in propulsion means for row boats and other small water craft, and more particularly to foot-operated paddles whereby the hands of a person are left free for handling a fishing rod, gun, or for other purposes, while at the same time the boat is being moved through the water.

A further object of the invention is to provide oscillating paddles mounted at each side of the boat together with foot pedals operatively connected to the paddles for moving the same forwardly and backwardly in a motion to propel the boat.

Another object of the invention is to provide a foldable blade for the paddle, the blades being maintained in a rigid position during the power or propelling stroke thereof and foldable during an opposite stroke of the paddle to eliminate resistance to the water.

Another object of the invention is to provide an apparatus of this character which may be easily and quickly mounted in position in a boat without necessitating any changes or alterations in the construction thereof and which, at the same time, is efficient and reliable in operation, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a top plan view;

Figure 2 is a transverse sectional view taken on a line 2—2 of Figure 1;

Figure 3 is a longitudinal sectional view taken on a line 3—3 of Figure 2;

Figure 4 is an enlarged perspective view of one of the paddles; and

Figure 5 is a similar view of one of the clamps for the paddle.

Referring now to the drawings in detail wherein, for the purpose of illustration, I have disclosed a preferred embodiment of the invention, the numerals 5 and 6 designate a pair of tubular posts or standards each having a base or foot 7 for resting on the bottom of a boat 8 adjacent one side thereof.

A vertical rod 9 has its lower end slidably received in each of the standards and is secured in vertically adjusted position therein by a set screw or the like 10. To the upper end of each

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rod 9 is welded or otherwise suitably secured a horizontal tube 11 which is welded or otherwise fixedly secured adjacent one end to a clamp 12 which is clamped to the gunwale or upper edge 13 of the boat by a bolt and wing nut 14.

The two tubes 11 supported at the upper ends of the standards 5 and 6 project inwardly of the boat from the respective clamps 12 and the inner ends of the tubes 11 are rigidly connected to each other by means of a rod 15 projecting into the adjacent ends of the tubes and secured in adjusted position by set screws 16, the tubes 11 being adjusted relative to each other in accordance with the width of the boat.

A shaft 17 is rotatably supported in each tube 11 and projects outwardly at the outer end thereof, the outer end of the shaft being formed with a downwardly extending arm 18.

The lower end of the arm 18 is telescopically received in a tubular paddle handle 19 and is secured in adjusted position therein by a set screw 20. The lower end of the handle 19 is formed with a flat head 21 to the rear side of which is hingedly attached a blade 22 by means of a conventional hinge member 23 and is constructed as near as possible to resemble a duck's foot.

The blade 22 is of substantially reticulated form and includes a plurality of jointed fingers 24 diverging toward their lower ends from each other, the sections of the fingers being pivotally connected to each other by a conventional hinge structure 25 which holds the fingers rigid when the blade is moved in one direction through the water and permits a folding action of the fingers when the blades are moved in a reverse direction through the water. A flexible web 26 of rubber or the like extends between the adjacent fingers and is connected at its edges thereto.

The shaft 17 is provided at its inner end with a crank arm 27 which extends upwardly and forwardly through a circumferential slot 28 in the tube 11.

A coil spring 29 surrounds the tube 11 with one end 30 of the spring attached to the crank arm 27 and the other end of the spring attached to a set screw 31 carried by the tube 11.

A rope or cable 32 is attached at one end to the upper end of the crank arm 27 and is attached at its lower end to the free edge of a foot pedal 33 which is supported in an upwardly and forwardly inclined position in the boat and pivoted at its lower end on a horizontal arm 34 projecting laterally from one of the posts. The upper lower surface of the foot pedal 33 is formed

with a heel seat 35 to support a foot in position on the foot pedal.

In the operation of the device the posts 5 and 6 are braced against the bottom 8 of the boat by the clamp 12 which is secured to the gunwale 13 and the paddle arms 18 extend downwardly at each side of the boat from the respective tubes 11 at the upper ends of the posts.

The foot pedals 13 are positioned to extend forwardly in an upwardly inclined position so that a person seated in the boat may place his feet on the foot pedals carried by the respective posts.

A downward pressure exerted on the foot pedals will bring the crank arms 27 downwardly whereby to rotate the shaft 17 and oscillate the paddle arms 18 at the outer ends of the shaft. The paddles 19 carried at the lower ends of the paddle arms 18 may be oscillated independently or in unison according to the wishes of the operator.

The blades 22 are positioned at the rear side of the flat head 21 at the lower end of the paddle and the fingers 24 of the blades are likewise arranged to be held in a rigid position by a rearward stroke of the paddle when the foot pedal 33 is depressed.

Accordingly, the blades 22 will offer an effective resistance to the water during the rearward stroke of the paddles, to thus propel the boat forwardly. At the completion of the stroke and when the pressure is released on the foot pedals 33, the springs 29 will rotate the shaft 17 in a reverse direction whereby to swing the paddles 19 forwardly and the blades 22 will collapse or fold upwardly, as shown by the right hand dotted line position in Figure 3 of the drawings whereby the blades offer no resistance to the water during their return stroke.

From the foregoing, it will be apparent that the boat may be propelled at a slow speed and the hands of the operator are free for handling a fishing rod or for other purposes.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the construction, operation and advantages of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even

though I have herein shown and described a preferred embodiment of my invention that the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A boat propulsion device comprising a transverse shaft housing, attaching means holding the housing rigid to a side of a boat, a shaft journaled in the housing, a paddle connected to the outer end of the shaft for oscillating movement, a crank arm at the inner end of the shaft, an upright support for the inner end of the housing rising from the bottom of the boat, and a foot pedal pivoted to the support and connected to said crank arm for operating the shaft.

2. A boat propulsion device comprising a transverse shaft housing, attaching means holding the housing rigid to a side of a boat, a shaft journaled in the housing, a paddle connected to the outer end of the shaft for oscillating movement, a crank arm at the inner end of the shaft, a post supporting the inner end of the housing, an arm extending horizontally from the post, and a foot pedal pivoted on said horizontal arm and connected to said crank arm for operating the shaft.

3. A paddle including a shank portion and a blade portion, said shank having a flat lower end, and said blade comprising a plurality of jointed fingers connected to each other at one end and hinged to the rear side of said flat end of the shank to fold by water pressure during a forward stroke of the paddle, and a flexible web between said fingers.

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