

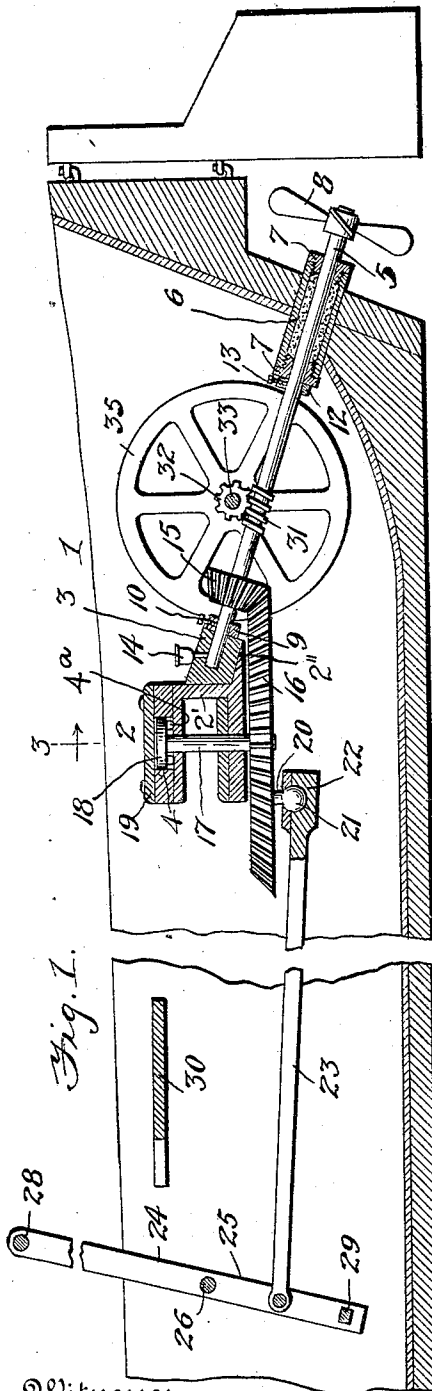
No. 873,697.

PATENTED DEC. 10, 1907.

A. J. FELL & J. A. McIVER.
PROPELLING MECHANISM FOR BOATS.

APPLICATION FILED MAY 28, 1906.

2 SHEETS—SHEET 1.



Witnesses

Chas. E. Gruestauer.
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By

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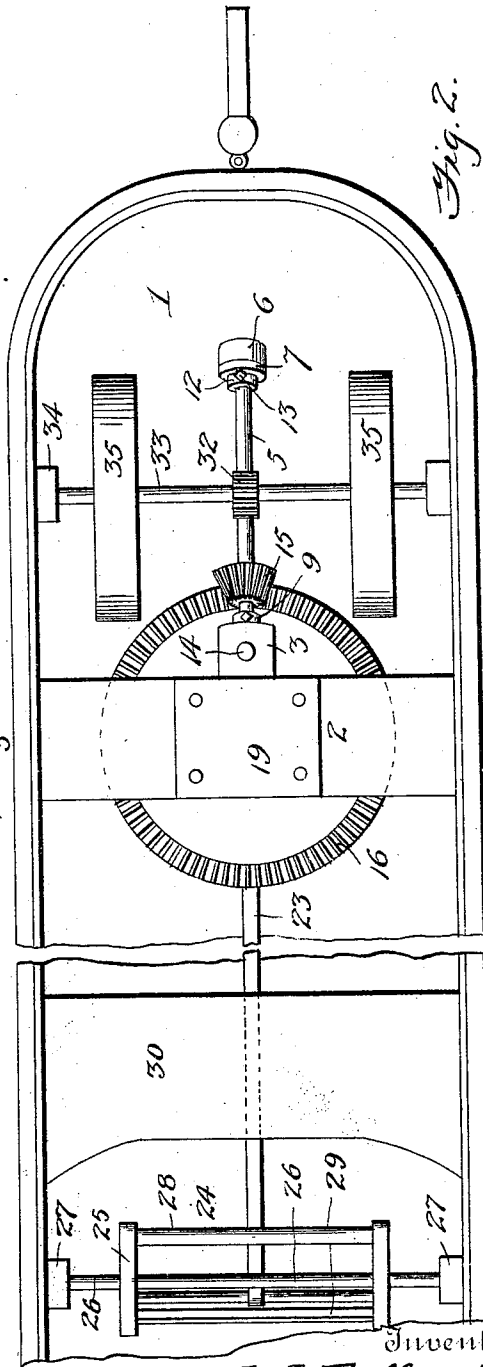


Fig. 2.

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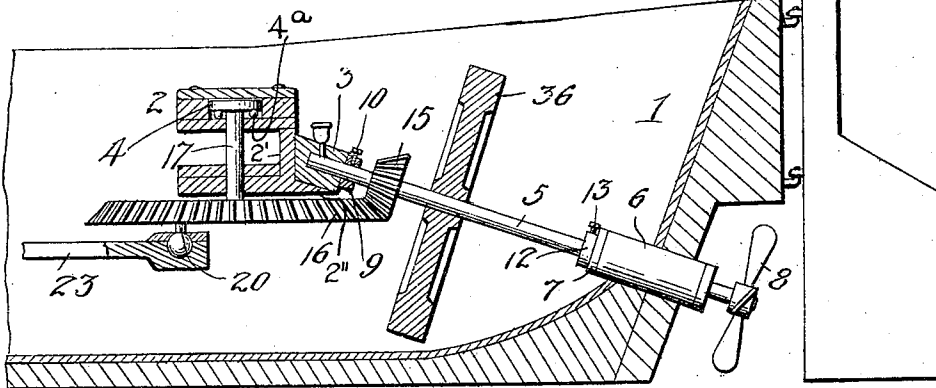


Fig. 4.

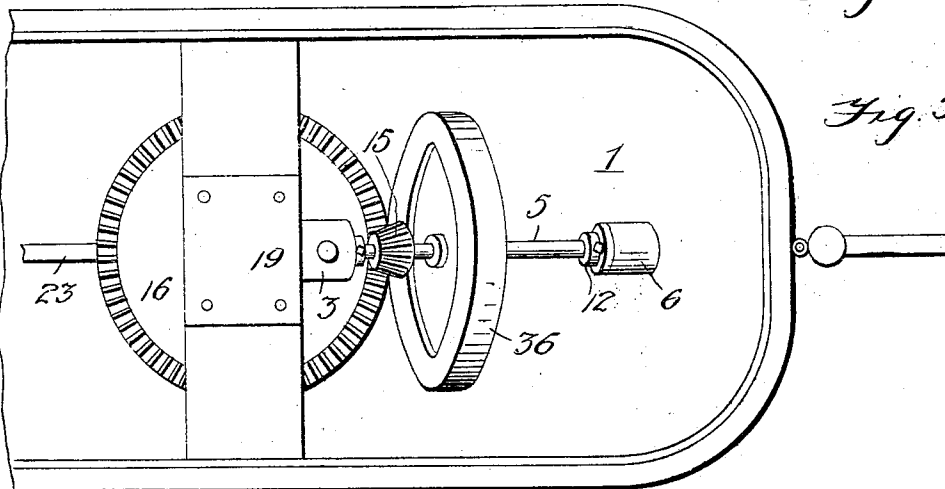


Fig. 5.

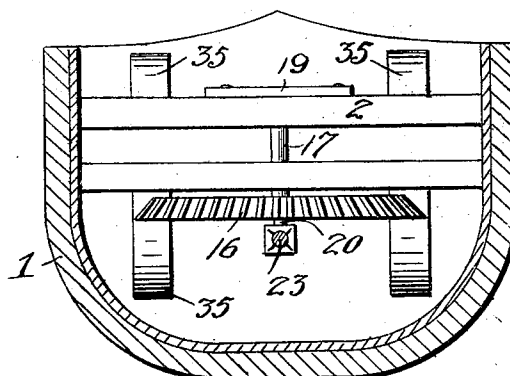


Fig. 3.

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UNITED STATES PATENT OFFICE.

ALBERT J. FELL AND JOHN A. McIVER, OF ROODHOUSE, ILLINOIS.

PROPELLING MECHANISM FOR BOATS.

No. 873,697.

Specification of Letters Patent.

Patented Dec. 10, 1907.

Application filed May 28, 1906. Serial No. 319,220.

To all whom it may concern:

Be it known that we, ALBERT J. FELL and JOHN A. McIVER, citizens of the United States, residing at Roodhouse, in the county of Greene and State of Illinois, have invented certain new and useful Improvements in Propelling Mechanism for Boats; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in propelling mechanism for boats.

The object of the invention is to provide propelling mechanism for boats and means whereby the same may be operated either by hand or foot or by both.

A further object is to provide a propelling mechanism of this character having means whereby the momentum of the propeller will be increased, so that the rotary movement of the same will be practically continuous.

With the above and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings:—Figure 1 is a longitudinal, vertical sectional view through a portion of a boat, showing the application of the invention thereto; Fig. 2 is a top plan view of the same; Fig. 3 is a vertical, cross sectional view on the line 3—3 of Fig. 1; Fig. 4 is a detail, longitudinal, vertical sectional view of a modified form of the propelling mechanism; and Fig. 5 is a top plan view of the same.

Referring more particularly to the drawings, 1 denotes the boat, in which near the stern end thereof is arranged a thwart or bearing frame 2, in which is disposed a propeller shaft thrust bearing 3 and a gear shaft bearing 4, the latter bearing being provided with anti-frictional bearing balls or the like 4^a. The frame 2 comprises an upper and a lower bar joined together at the rear by a vertical strip 2' and provided with a rearwardly extending lip or projection 2'' upon which the bearing 3 is seated. In the thrust bearing 3 is journaled the upper inner end of an inclined propeller shaft 5, said shaft projecting through a packed bearing or journal box 6 arranged in the stern of the boat. Said journal box 6 is provided with adjusting nuts 7, whereby the packing therein may be kept in water-tight engagement with the

shaft passing therethrough. On the outer end of the propeller shaft is secured a propeller 8, which may be of any suitable form. On the propeller shaft adjacent to the inner end of the bearing 6 is secured a stop collar 12, said collar being rigidly held in place on the shaft by means of a set screw 13 and is adapted to prevent the propeller shaft from slipping outwardly in its bearings. On the propeller shaft adjacent to the end of the bearing 3 is arranged a stop collar 9, said collar being held in place on the shaft by means of a set screw 10, and is adapted to coact with the bearing 3 in resisting the inward thrust of the shaft, as will be understood. The thrust bearing 3 is provided with a lubricating oil cup 14.

On the propeller shaft 5 is fixedly mounted a beveled gear pinion 15, which is adapted to be engaged by a beveled drive gear 16 fixedly mounted on the lower end of a vertically disposed drive shaft 17, the upper end of which is provided with a disk-like head 18 journaled in the bearing 4 in the thwart bearing frame 2 and working upon the roller bearings 4^a. The shaft 17 is held in place in the bearing frame, by means of a bearing plate 19 arranged as shown.

The drive gear 16 has secured to its under side an eccentrically mounted wrist pin 20, on the outer end of which is formed a bearing ball 21, with which is adapted to be pivotally engaged a socket 22 arranged on the rear end of a pitman rod 23. The pitman rod 23 extends forwardly through the center of the boat and near the bottom thereof and is pivotally connected at its forward end to an operating frame 24. The frame 24 preferably consists of a pair of side bars 25, which are mounted intermediate their ends upon a shaft 26 journaled in bearings 27 secured to the opposite sides of the boat, as shown. The bars 25 are connected together at their upper ends by means of a handle bar 28, and at their lower ends by means of a foot bar 29. In rear of the operating frame 24 is a seat 30, upon which the operator sits within convenient reach of the operating frame. By providing the frame 24 with a handle bar 28 and a foot bar 29, the same may be engaged and operated by hand or foot power or by both hand and foot power as may be desired, said frame being rocked or oscillated back and forth. This movement is communicated to the drive gear 16, by means of the pitman rod 23 and through said gear to the

propeller shaft to drive the propeller 8 in one direction or the other for propelling the boat forwardly or rearwardly, as may be desired.

On the propeller shaft between the beveled pinion 15 and the bearing 6 are shown worm teeth 31, with which are adapted to be engaged a worm gear 32 fixedly mounted upon a shaft 33 journaled in bearings 34 on the sides of the boat. Said shaft 33 is preferably arranged above the propeller shaft, and at right angles thereto across the boat. On the shaft 33 adjacent to each side of the boat is arranged a balance or fly wheel 35, said wheel serving to increase the momentum of the propeller shaft and propeller, thereby providing for a practically continuous revolution thereof, as will be understood.

In Figs. 4 and 5 of the drawings is shown a modified arrangement of the balance or fly wheel mechanism. In the latter instance, the propeller shaft is provided with but one fly or balance wheel 36, said wheel being fixedly mounted directly upon said shaft immediately in rear of the beveled gear pinion. The driving and operating mechanism of Figs. 4 and 5 and the arrangement of the gearing are the same as that shown in connection with the first figures of the drawings. Owing to the great speed with which the propeller shaft must be driven, and which would require the fly wheel to revolve at the same rate when it is secured directly thereto we prefer to drive the fly wheels from the propeller shaft by means of the worm gearing as shown in Figs. 1, 2 and 3.

From the foregoing description, taken in connection with the accompanying drawings,

the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention, as defined by the appended claims.

Having thus described our invention, what we claim as new and desire to secure by Letters-Patent, is:—

In propelling mechanism for boats, a boat, a frame across the same near the stern provided with vertically arranged bearings and a rearwardly extending lip, a shaft in said bearings the upper end of which is provided with a disk and the lower end with an upwardly facing bevel wheel, a thrust bearing mounted on said lip, a propeller shaft journaled in said thrust bearing and in the stern of the boat, a propeller on the rear end of the propeller shaft and a bevel pinion on the forward end in engagement with said bevel wheel, a fly wheel adapted to be actuated by the propeller shaft, a pitman connected with said bevel wheel, and means for reciprocating the pitman.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

ALBERT J. FELL.
JOHN A. McIVER.

Witnesses:

CHAS. E. FOLLEY,
A. J. LEE.