J. HECK & C. J. VITEK.

REVERSING MECHANISM FOR BOAT PROPELLERS.

APPLICATION FILED AUG. 17, 1914.

1,161,935. Patented Nov. 30, 1915.

2 SHEETS—SHEET 1.

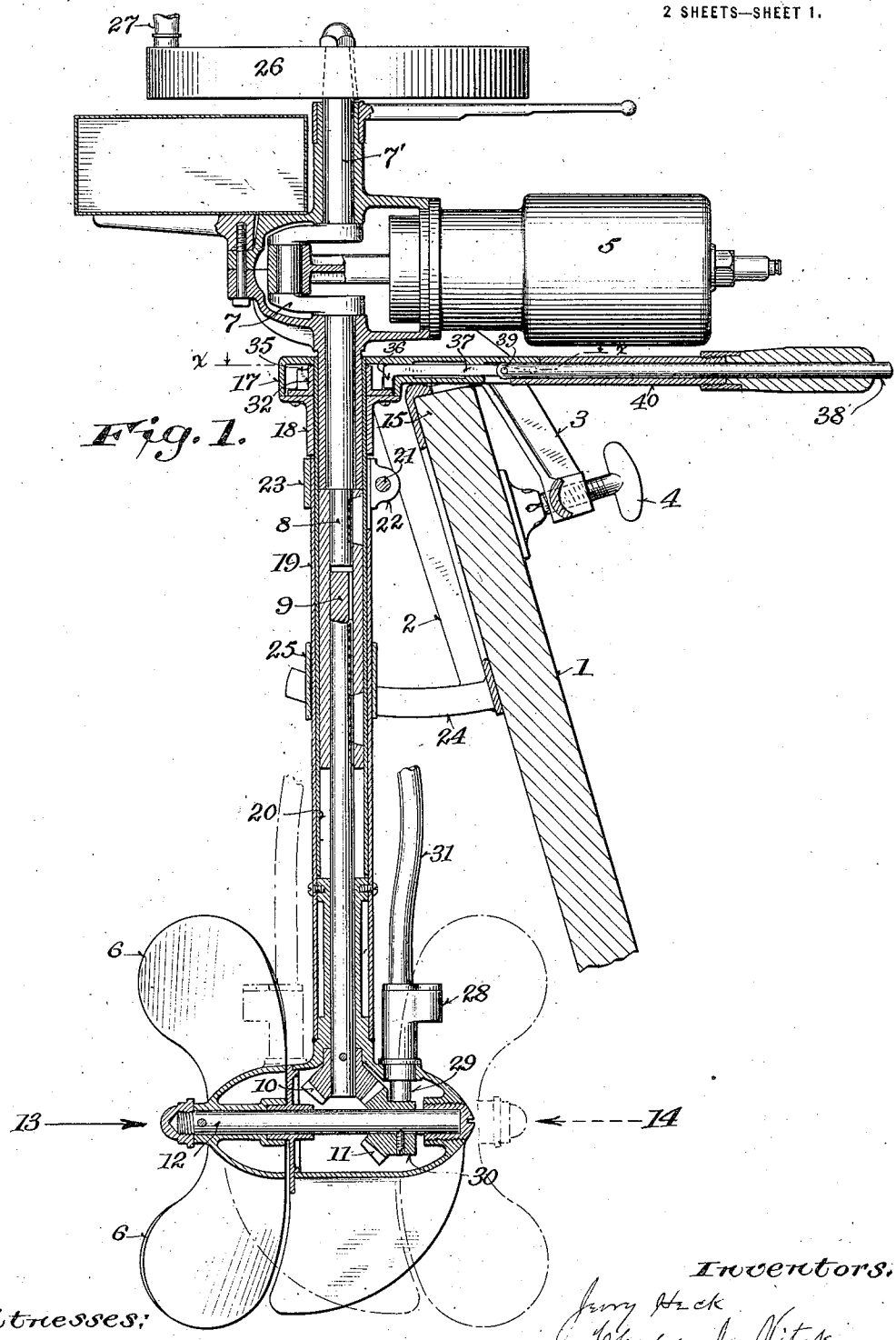


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

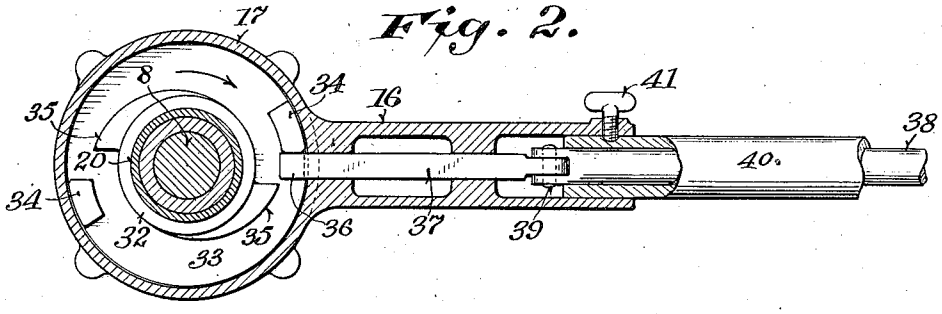


Fig. 3.

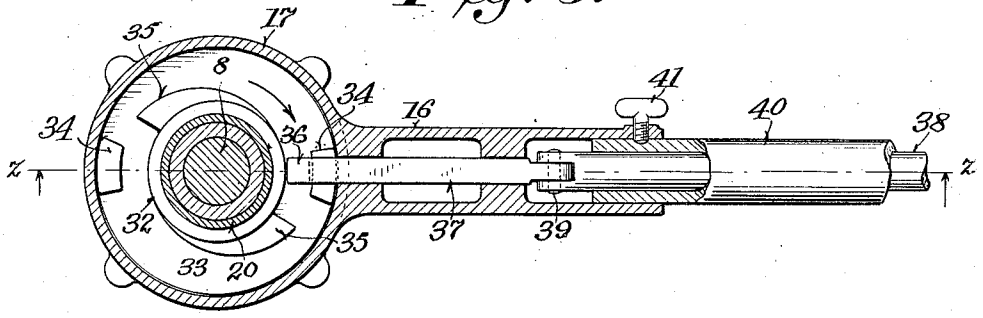
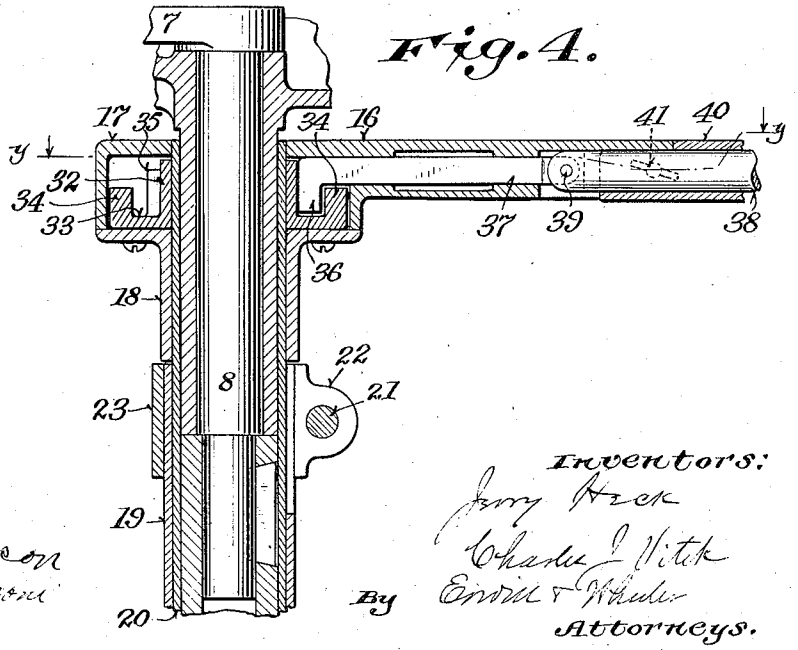


Fig. 4.



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UNITED STATES PATENT OFFICE.

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REVERSING MECHANISM FOR BOAT-PROPELLERS.

1,161,935. Specification of Letters Patent. Patented Nov. 30, 1915.

Application filed August 17, 1914. Serial No. 857,051.

To all whom it may concern:

Be it known that we, JERRY HECK and CHARLES J. VITEK, citizens of the United States, residing at the city of Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Reversing Mechanism for Boat-Propellers, of which the following is a specification.

Our invention relates to improvements in boat propellers and it pertains more especially, among other things, to the device for shifting the propeller blades from one side of the driving shaft, from which it is suspended, to the other, while revolving, whereby the boat, with which such propeller blades are connected, may be driven forwardly and rearwardly at the will of the operator without stopping or reversing the revoluble movement of such blades or driving mechanism.

Our invention is explained by reference to the accompanying drawings, in which—

Figure 1 represents a side view, part in section, of our device in connection with the rear end of a boat. Fig. 2 is a plan view in section, drawn on line X X of Fig. 1; Fig. 3 is a plan view, part in section, drawn on line Y Y of Fig. 4; and Fig. 4 is a vertical section drawn on line Z Z of Fig. 3.

Like parts are identified by the same reference characters throughout the several views.

1 is a vertical section of the rear end of an ordinary boat to which our motor propeller is temporarily attached by the clamp arms 2 and 3, and clamp bolt 4.

5 is a driving motor of ordinary construction.

6 6 are the blades of the propeller which are also of ordinary construction. Motion is communicated from the motor 5, to the propeller blades 6 6, through crank 7, and shafts 8 and 9, miter gear 10 and 11, and transverse shaft 12, whereby, when the motor is started said blades will be caused to revolve. When the propeller blades 6 6 are in the position shown, the boat will be driven forwardly in the direction indicated by the arrow 13. When, however, the propeller blades are brought to the opposite side of the driving shaft, as indicated by dotted lines, the boat will be driven backwardly in the direction indicated by the arrow 14, while said blades will continue to revolve in the same direction with the supporting shaft. The blades 6 6, and their supporting shaft 12, are suspended from the rear end of the boat 15 by the stationary sleeve 16, housing 17, sleeve 18, and revoluble tubes 19 and 20. The tubes 19 and 20 are telescoped together, and are adapted to be extended and contracted as may be required to locate the propeller blades at the required depth beneath the surface of the water. When the blades have been thus properly located, the tubes 19 and 20 are rigidly secured together by turning down a nut, not shown, on the clamp bolt 21, against one of the clamp lugs 22, there being a clamping lug on each end of the clamping collar 23, whereby, as said nut is turned down, the said telescoping tubes are rigidly clamped and caused to revolve together. The telescoping tubes 19 and 20 are connected near their centers with the rear end of the boat by the brace member 24, and tube inclosing collar 25. The upper end of the crank shaft 7′ is provided with a fly wheel 26, and said fly wheel is provided with a handle 27, by which it may be manually turned when starting the motor. 28 is a force pump, the piston and other internal parts of which are not shown. The force pump is adapted to be operated by contact of the piston rod 29 with the eccentric hub 30, whereby said rod and piston connected therewith, are forced upward with each revolution of the hub 30, while said piston and rod are adapted to be moved in the opposite direction by a spring not shown. As the pump is thus operated, water is forced to the cylinder of the motor 5, through the flexible tube 31, whereby the motor is prevented from becoming excessively heated. To the upper end of the telescoping tube 20, is rigidly attached a revoluble member comprising the vertical sleeve 32, horizontal disk 33, stop lugs 34—34, and cams 35—35, all of which parts are formed integrally or rigidly connected, and are adapted to revolve together. It will be understood that the several members thus connected together, are normally held in a fixed position by the downwardly projecting lug 36, which lug 36, is rigidly connected with the push rod 37.

It will now be understood that when the push rod 37 is moved toward the right as shown in Figs. 1 and 2, one of the stop blocks 34 will contact therewith, whereby the revoluble movement of the telescoping tubes will be stopped. When, however, a rearward movement is communicated to the

push rod 37, said lug 36 will be thrown out of contact with the stop lug 34, whereby said stop lug, together with supporting disk 33, cam 35, collar 32, and telescoping tubes 19 and 20 will be free to revolve with the driving shaft a half revolution when the next adjacent cam 35, will be brought in contact with said lug 36, whereby said lug 36, together with the push rod 37, will be automatically pushed back to its former position, where it will again be brought in contact with the next approaching lug 34, whereby said lug 34, together with the telescoping tubes and all parts, rigidly connected therewith, will be again stopped. Thus it is obvious that, since the propeller blades are suspended from said tubing, they will be revolved a half revolution every time a longitudinal movement is communicated to said push rod, and that when the propeller blades are in the rear of the lower end of said telescoping tubing, as shown in Fig. 1, the boat will be propelled forwardly as indicated by the arrow 13. By pushing forwardly again on said push rod, said telescoping tubing and propeller blades will revolve another one half revolution, and be again stopped by said downward projecting lug 36 in the position indicated by dotted lines in said Fig. 1, whereby the boat will be driven rearwardly.

38 is a handle for the push rod from the longitudinal center of which said push rod projects a slight distance as shown in Fig. 1. Thus it is obvious that the movement of the boat may be readily reversed and the boat caused to move either forwardly or rearwardly at the will of the operator by simply pushing rearwardly upon the protruding end of said push rod. For convenience in handling, the push rod 37 is preferably made in two parts, which parts are pivotally connected together by the pin 39, and said parts are retained in alinement with each other by the supporting tubular member 40, which member, is held in alinement with the sleeve 16 by the hand screw 41.

In view of the fact that invention herein is not predicated on the telescoping tubing, the form of the propeller, the motor, or two-part extensible driving shaft, we have, for brevity of description, in the claims hereinafter referred to such parts in the singular, regardless of the construction of such parts.

It will be understood that the propeller blades and the tubing with which such blades are connected are turned by the force transmitted through the gears 10 and 11 and by the running friction of the motor together with the back pressure on the propeller as the propeller blades are being driven.

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

1. In a device of the described class, the combination with the driving shaft of an inclosing tubing, adapted to be revolved a partial revolution at a time as the shaft is revolved therein, means for holding said tubing, means for manually releasing said tubing when desirous to reverse the movement of a boat, and means for automatically stopping the revoluble movement of such shaft, when the same has performed a partial revolution.

2. In a device of the described class, the combination with the propeller driving shaft and shaft inclosing tubing, of a revoluble member, rigidly fixed to the upper end of said revoluble tubing, a propeller connected with the lower end of said tubing, a longitudinally movable push-rod, and holding means adapted to temporarily engage and hold said revoluble member, said holding means being adapted as said push-rod is moved longitudinally to be moved out of engagement with said revoluble member, and to be automatically returned to its former position by the movement of said revoluble member.

3. In a device of the described class, the combination with a revoluble member affixed to the upper end of a propeller supporting tubing, a longitudinally movable push-rod, a holding lug connected with said rod, said lug being adapted to temporarily engage and hold said revoluble member, said revoluble member and tubing being adapted when released from said lug to turn a half revolution, whereby a stop lug connected with said revolving member is automatically brought in contact with the holding lug of said push rod, whereby the movement of said revolving member is stopped.

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

JERRY HECK.
CHARLES J. VITEK.

Witnesses:
JAS. B. ERWIN,
O. R. ERWIN.