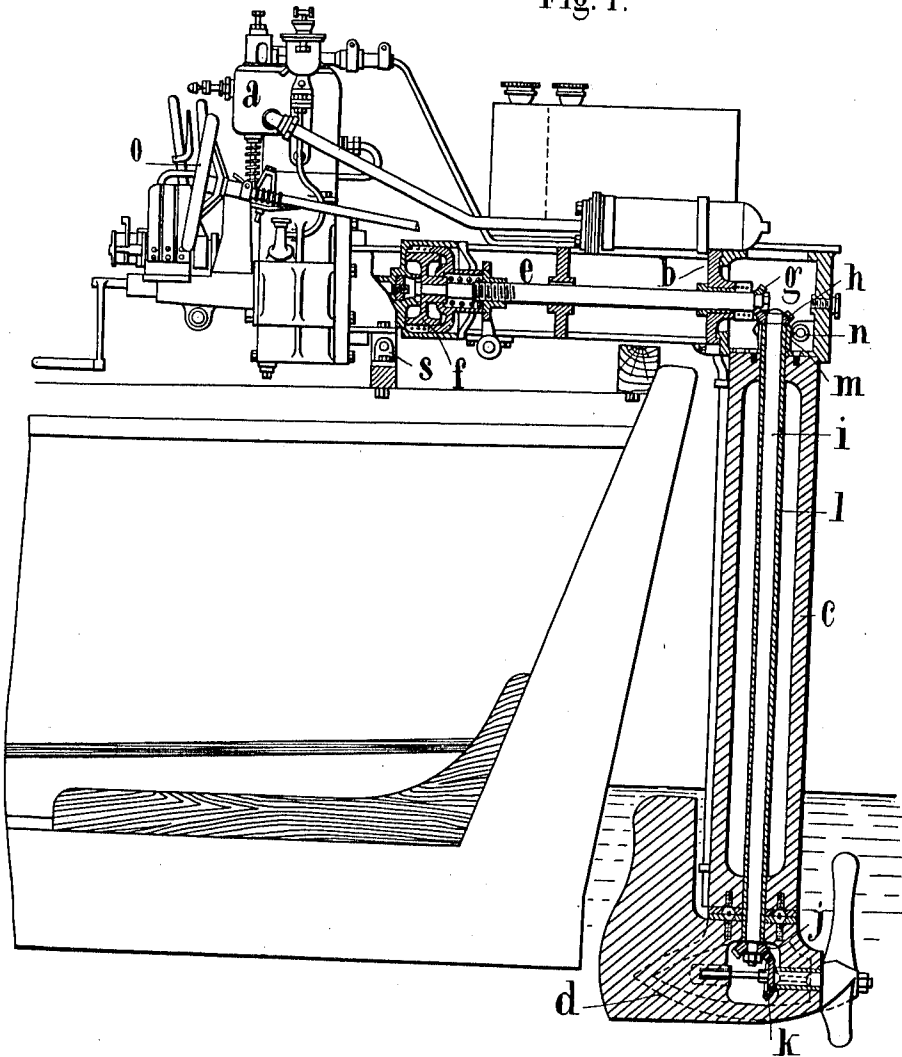


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PROPELLING MECHANISM FOR BOATS.  
APPLICATION FILED DEC. 26, 1911.

1,034,987.

Patented Aug. 6, 1912.  
4 SHEETS—SHEET 1.

Fig. 1.



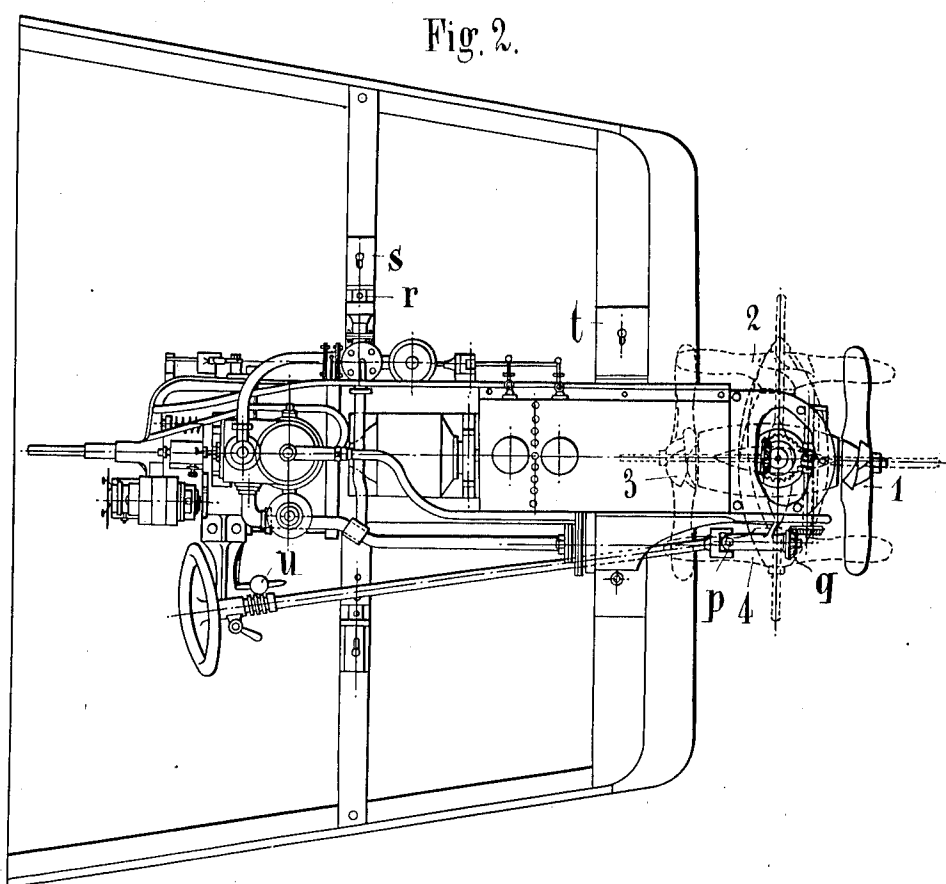
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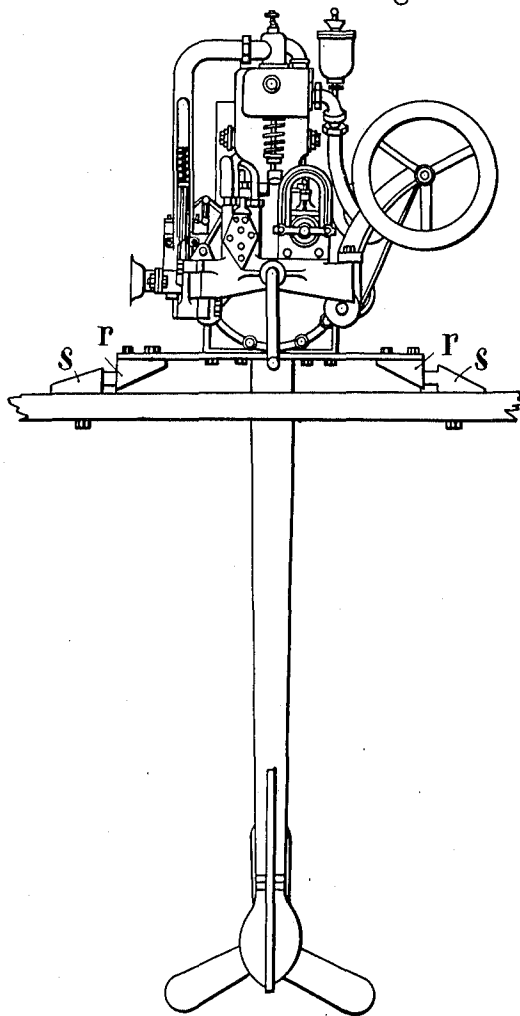
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4 SHEETS—SHEET 3.

Fig. 3.



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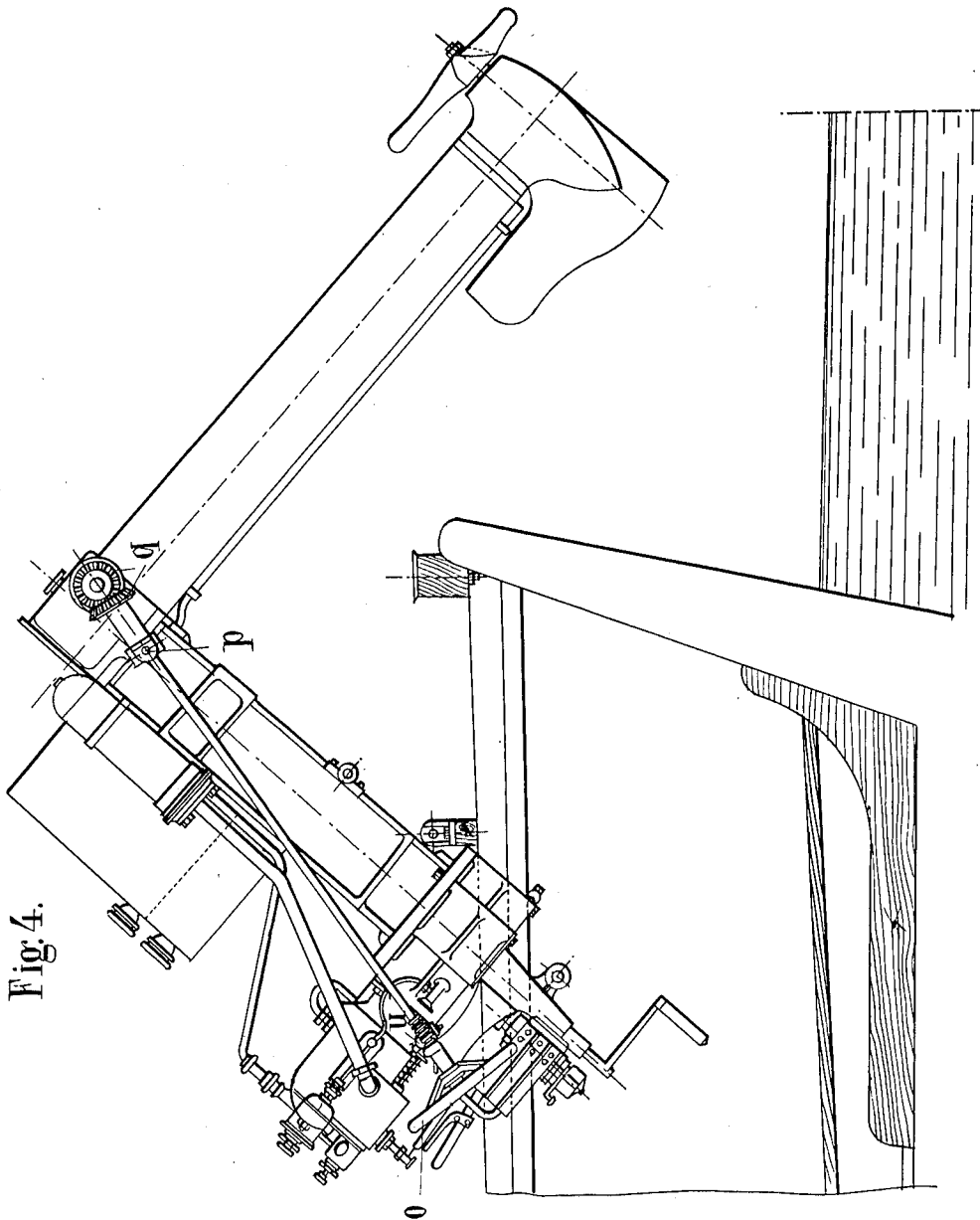


Fig. 4.

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# UNITED STATES PATENT OFFICE.

JOSEPH GEORGES DUCASSOU, OF PARIS, FRANCE, ASSIGNOR TO SOCIÉTÉ G. DUCASSOU & COMPAGNIE, OF PARIS, FRANCE.

## PROPELLING MECHANISM FOR BOATS.

1,034,987.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed December 26, 1911. Serial No. 667,846.

To all whom it may concern:

Be it known that I, JOSEPH GEORGES DUCASSOU, a citizen of the Republic of France, and residing at Paris, France, have invented new and useful Improvements in Propelling Mechanism for Boats, of which the following is a specification.

This invention relates to an apparatus by means of which it is possible to convert immediately into motor-boats any sailing or rowing vessels, vessels generally towed, and others.

In order to make the explanation as clear as possible, a construction according to this invention is illustrated by way of example in the accompanying drawings.

Figure 1 is a vertical section showing the apparatus secured at the stern of a boat. Fig. 2 is a plan of the apparatus, Fig. 3 an end view and Fig. 4 shows the apparatus turned as will be hereinafter explained.

The device in question comprises four principal parts: The motor *a*, the frame *b*, the plunger arm *c*, the propeller holder block and rudder *d*.

The motor *a* which can use any desired fuel or mechanical power, drives the horizontal spindle *e* by means of a clutch *f*. The spindle *e* is provided at its end with a bevel pinion *g* engaging with the bevel pinion *h* secured to the end of the vertical spindle *i*. The other end of the spindle carries the pinion *j* engaging with the pinion *k* secured to the horizontal spindle of the propeller. This pinion can be reduced in its ratio to the desired extent, so as to obtain the best efficiency from the propeller. The movement of rotation is thus transmitted from the engine to the propeller.

The tube *l* concentric with the spindle *i* passes through the dipping or plunger arm and is secured to the block *d*. It is provided at its upper end with a pinion *m* with helical teeth engaging with a worm *n*. The latter is controlled by means of a steering wheel *o* arranged in front of the group, within reach of the pilot, and connected to the worm *n* by means of a Cardan joint *p* and two bevel pinions *q*. By rotating the hand wheel *o*, the propeller can be brought into the main positions 1, 2, 3, 4 (Fig. 2) as well as into any intermediate positions. The position 1 brings about the driving ahead, the position 2 turning to starboard, the position 3 driving astern, and the posi-

tion 4 turning to port. The use of the worm *n* makes the steering non-reversible. A pointer *u* arranged in view of the pilot, shows to him the position of the propeller in the water.

The block *d* which carries the propeller, is provided at one of its ends with a blade playing the part of a rudder, so that the steering of the ship is obtained by manipulating the steering wheel of the block, even when the engine or motor is not working. In that case the block works like an ordinary rudder.

It will be seen that in this apparatus the propelling action is always exercised in the direction of the rudder for a complete and continuous revolution of the latter. This device has the advantage of utilizing the total force of the motor for propelling in any direction of driving, without modifying the direction of rotation of the propeller. This has an obvious advantage over any other apparatus in which the direction of the ship is obtained by modifying the direction of the axis of rotation of the propeller relatively to the axis of the ship. In prior devices this shifting was only possible in an arc of 180°, so that the reversing could be obtained only by changing the direction of rotation of the propeller or by using a reversible propeller. In the apparatus according to this invention, on the contrary, the axis of rotation of the propeller and the rudder which is secured to it, can make a complete revolution of 360° about a vertical axis.

The apparatus described, forming a rigid whole, can be adapted to any desired hull without modifying the latter in any way. It is secured to the same in the following manner: At the front portion of the frame *b* are secured two trunnions *r*, the bearings *s* of which are secured to the ship. In that way, the whole apparatus can be turned about a horizontal axis toward the interior of the ship, which enables the arm *c* to be raised out of water either for examining or for exchanging the propeller, or for preventing it from touching the bottom when passing a lock or when landing (Fig. 4). In the working position, the apparatus is fixed by means of two flanges or straps *t* which enable the frame to be almost instantaneously secured in horizontal position on the ship, by tightening two bolts.

This device makes the up-keep of the apparatus very simple, as it is not necessary to take anything to pieces for examining or repairing the submerged portions. It makes possible motor boat navigation in water where grass would make impossible the use of a propeller that could not be easily examined, and in rivers of small depth where it is necessary to pass sand banks and rapids without touching the ground.

I claim—

1. In combination, a boat, a propelling mechanism therefor comprising an arm extending downwardly at the rear of the boat, a propeller block immersed in the water and rotatably connected to said arm and having a rudder portion, a propeller wheel carried by said block, connections for driving said propeller wheel, and means for adjusting the propeller block throughout a complete revolution of 360 degrees, substantially as described.

2. In combination, a boat, a propelling mechanism therefor comprising an arm extending downwardly at the rear of the boat, a propeller block immersed in the water and rotatively connected with said arm and having a rudder portion, and means for adjusting said block throughout a complete revolution of 360 degrees, substantially as described.

3. In combination, a boat, an angular frame pivoted on the boat to swing about a horizontal axis, said frame having a horizontal portion and a motor thereon and a vertical and downwardly extending portion, a propeller and rudder carried by the vertical portion and held immersed in the water, horizontal and vertical shafting connecting the motor and propeller, and means on the horizontal portion of the frame for adjusting the propeller and rudder throughout a complete revolution of 360 degrees, substantially as described.

4. In combination, a boat, a frame mounted to swing about a horizontal axis and having a horizontal portion extending rear-

wardly over the top of the boat and a vertical portion extending downwardly at the rear of the boat, means for locking the frame in a normal position, a block carried by the vertical portion part of the frame and having a rudder portion and held immersed in the water, a motor on the horizontal portion of the frame, a propeller carried by said block, horizontal and vertical shafting connecting the motor with the propeller, and horizontal and vertical adjusting means for turning the propeller block throughout a revolution of 360 degrees, substantially as described.

5. In combination, a boat, a frame mounted on the boat and having an arm portion immersed in the water, a block rotatively and reversibly mounted on said arm portion, and a rudder and propeller on said block, means for operating the propeller, and means for turning or reversing the block to steer and propel the boat in any direction, substantially as described.

6. In combination, a boat, a propeller and rudder, a frame suspending the propeller and rudder on the boat, means for operating the propeller, and means for changing the position of the rudder and propeller with respect to the boat to propel and steer the same in any direction, substantially as described.

7. In combination, a boat, a propeller and rudder in fixed relation with respect to each other, a frame suspending the propeller and rudder on the boat, means for operating the propeller, and means for changing the position of the rudder and propeller with respect to the boat to propel and steer the same in any direction, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH GEORGES DUCASSOU.

Witnesses:

EMILE LEDRET,  
H. C. COXE.