No. 816,163. PATENTED MAR. 27, 1906.

H. W. HELLMANN.

STEERING PROPELLER FOR BOATS.

APPLICATION FILED SEPT. 11, 1903.

Fig. 1.

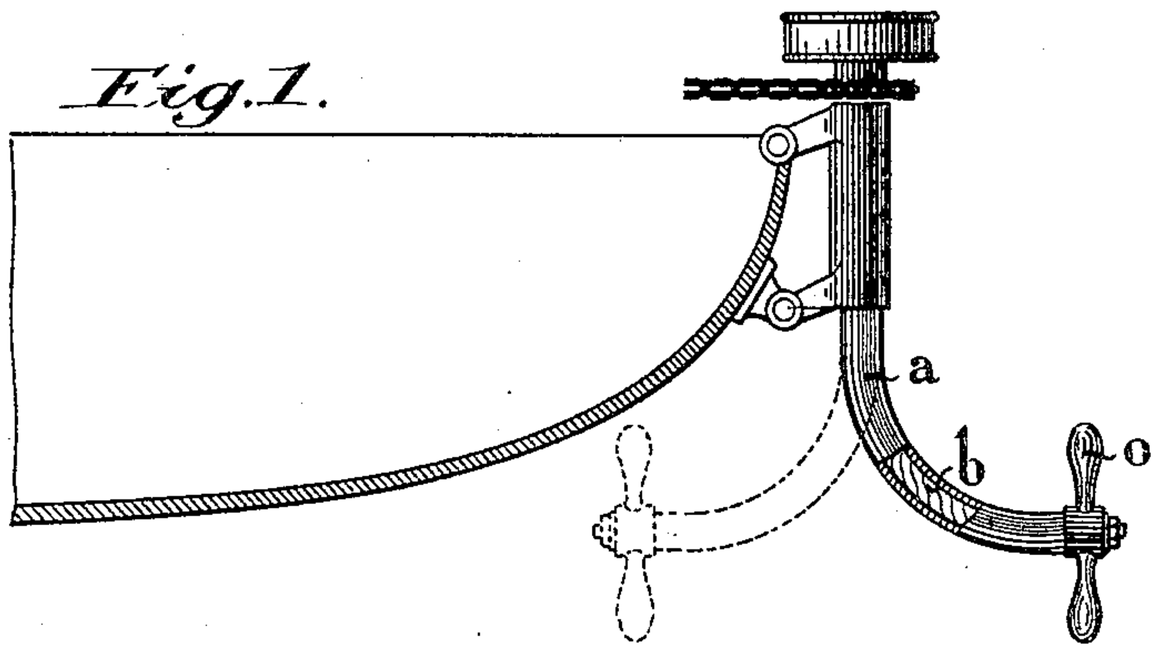


Fig 2

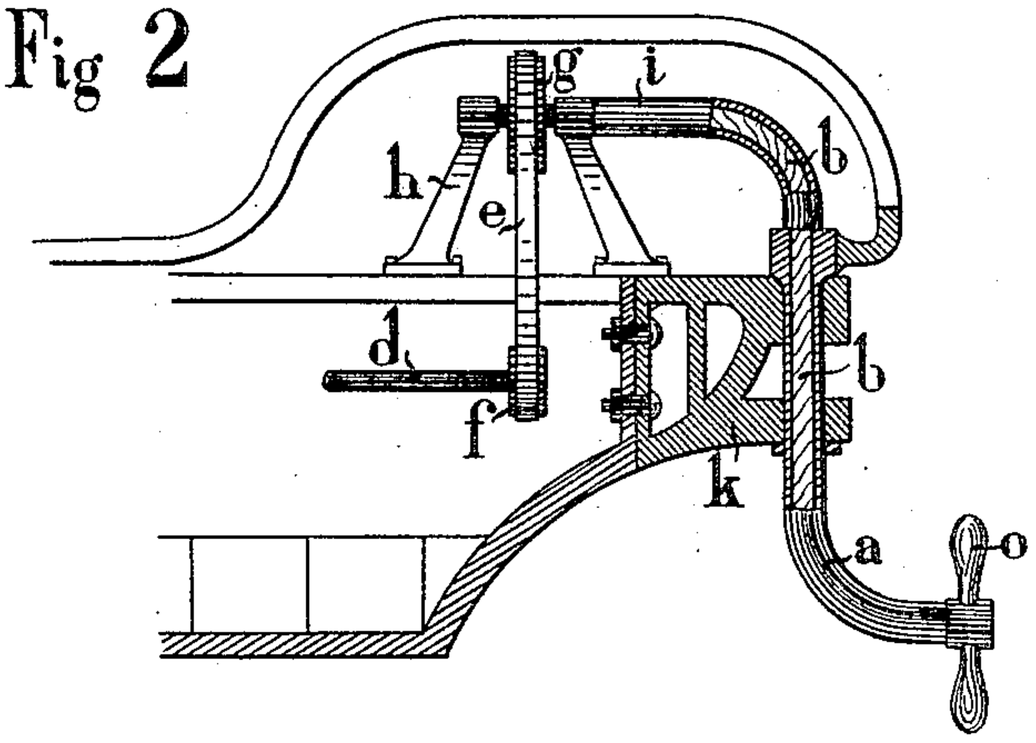


Fig 3

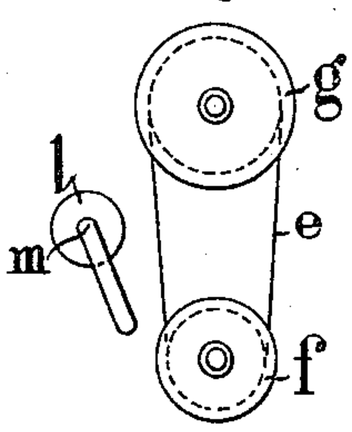
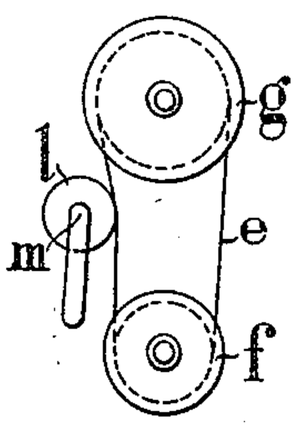


Fig 4



Witnesses:
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UNITED STATES PATENT OFFICE.

HEINRICH WILHELM HELLMANN, OF BERLIN, GERMANY.

STEERING-PROPELLER FOR BOATS.

No. 816,163. Specification of Letters Patent. Patented March 27, 1906.

Application filed September 11, 1903. Serial No. 172,844.

To all whom it may concern:

Be it known that I, HEINRICH WILHELM HELLMANN, civil engineer, a subject of the German Emperor, residing at Zinzendorfstrasse 7, in the city of Berlin, Kingdom of Prussia, German Empire, have invented a certain new and useful Steering-Propeller for Boats, of which the following is a specification.

This invention has reference to an improved steering and propelling device for water craft, particularly for rowing-boats or sailing-boats which are to be changed into motor-boats temporarily or which are to be provided with supplementary driving means. The driving of the propeller is effected by means of a flexible shaft which is mounted in a tube, this tube being swiveled, and thereby being capable of being rotated or swung round. Devices for driving boats in such a manner are well known; but in these known devices the tube containing the flexible shaft is joined with the driving device in such a way that the tube, and consequently also the axis of revolution of the propeller, could not be turned round through one hundred and eighty degrees by means of the device for turning the tube. In this invention the tube of the flexible driving-shaft of the propeller is led directly vertically downward from the device for turning the tube, so that the driving device of the flexible shaft is situated above the device for turning the tube. Thereby a very simple steering and driving device for motor-boats is provided, it being rendered possible to change the course of the boat forward or backward by turning the tube through about one hunderd and eighty degrees by means of a suitable device.

In the accompanying drawings, Figure 1 is a longitudinal fragmentary sectional view of a portion of a boat equipped with this invention. Fig. 2 is a similar view of a modified form of the invention. Figs. 3 and 4 represent a pair of driving-pulleys with driving-belt and belt-tightener, respectively, out of contact with said belt and in contact therewith.

In the accompanying drawings, Fig. 1 shows an embodiment of my invention in which the tube *a* of the flexible driving-shaft *b* is so mounted as to be capable of being turned about its vertical axle in any way on the stern of the boat, and the said tube *a* of the flexible shaft *b* of the propeller *c* is so mounted as to be capable of being turned at its lower part through one hundred and eighty degrees into the dotted position by means of a chain-gearing engaging its upper free part. The driving-gear for the flexible propeller-shaft *b* is arranged at the end of the shaft near the upper part of the tube. The driving-gear may, for instance, consist of belt-gearing. The driving-motor is located at any suitable part of the boat.

In Fig. 2, which shows another modification of the invention, the rotation of the motor-axle *d* of the motor, located comparatively low, is transferred to the flexible propeller-shaft *b* by means of a belt or strap *e*, running over two pulleys *f* and *g*. The pulley *g* is mounted on a jack *h*. The flexible shaft *b*, driving the propeller *c*, is surrounded concentrically by suitably-formed tubes *a* and *i*, one of which, *i*, is fixed, whereas the other, *a*, is so mounted as to be capable of being turned in a bearing-piece *k*, being adapted to be screwed to the boat and serve as a rotation-axle of the propeller *c*. At the upper part of the tube *a* the tiller is fastened, by means of which the tube *a*, and therewith the propeller *c*, can be moved to the right and to the left in order to steer the boat or can be turned through one hundred and eighty degrees in order to cause the boat to go backward. The tube *i* serves as a bearing and as a protecting-tube for the flexible shaft *b*.

In order to couple or to uncouple the flexible driving-shaft *b* and the motor-axle *d*, an idle pulley *l*, situated at about the middle of the belt or strap *e*, is employed, which is capable of being turned about its axle *m* and of being pressed against the belt *e*, which usually hangs loosely below, or of being moved away from said belt, in the manner shown in Figs. 3 and 4 of the accompanying drawings. This simple device renders it possible to allow the motor to run always in the same direction during the voyage and also to place it at any part of the boat, whereas the starting and stopping of the propeller *c* can conveniently be produced merely by moving the pulley *l*, which is easy to reach, either toward or away from the belt *e*, whereby the belt is tightened or loosened. The flexible propeller-shaft can also be coupled directly to the motor-axle, which is advantageous when the motor is located comparatively high. In this case likewise, as is shown in Fig. 2, the bearing and the tube surrounding the propeller-shaft consist of two parts, one of which is fixed and the other of which can be swung round and

turned about its axis. Instead of swinging and turning the tube by means of a belt-gearing or a tiller a chain and a sprocket-wheel can be used for this purpose.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a steering and driving device for water craft, the combination of a propeller, a flexible shaft for driving said propeller, a tube surrounding the flexible propeller-shaft, means for turning said tube and thereby changing the direction of the axis of revolution of the propeller by one hundred and eighty degrees, and means for driving the flexible propeller-shaft, substantially as and for the purpose described.

2. In a steering and driving device for water craft, the combination of a propeller, a flexible shaft for driving said propeller, a tube surrounding the flexible propeller-shaft, means for turning said tube and thereby changing the direction of the axis of revolution of the propeller by one hundred and eighty degrees, means for driving the flexible propeller-shaft, a continuation of the flexible propeller-shaft in a horizontal direction, beyond the means for turning the tube, to the means for driving the shaft, and a protecting-tube surrounding the said horizontal continuation of the flexible axle, substantially as and for the purpose described.

3. In a steering and driving device for water craft, the combination of a propeller, a flexible shaft for driving said propeller, a tube surrounding the flexible propeller-shaft, means for turning said tube and thereby changing the direction of the axis of revolution of the propeller by one hundred and eighty degrees, a motor for driving the flexible propeller-shaft, a belt and belt-gearing gearing said motor with said shaft, an idle pulley adapted to be pressed against said belt, or moved away from it, a continuation of the flexible propeller-shaft in a horizontal direction, beyond the means for turning the tube, to the motor, and a protecting-tube surrounding the said horizontal continuation of the flexible axle, substantially as and for the purpose described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

HEINRICH WILHELM HELLMANN.

Witnesses:
WOLDEMAR HAUPT,
OSCAR ARENDT.