P. U. LOUBERY.

APPARATUS FOR PROPELLING, ELEVATING, AND SUPPORTING SHIPS, BOATS, SUBMARINES, AND THE LIKE VESSELS.

APPLICATION FILED OCT. 5, 1912.

1,167,191. Patented Jan. 4, 1916

Fig. 1

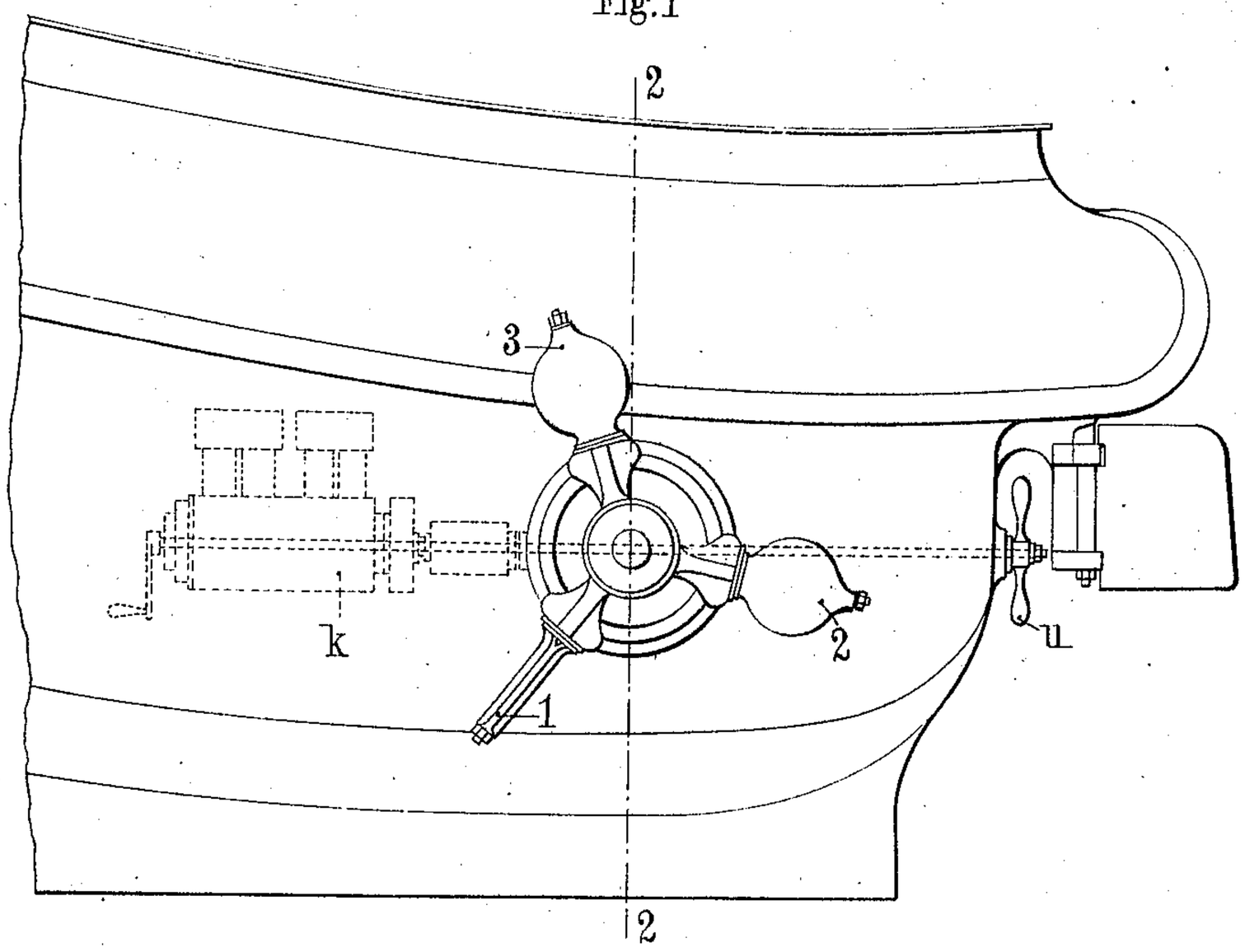
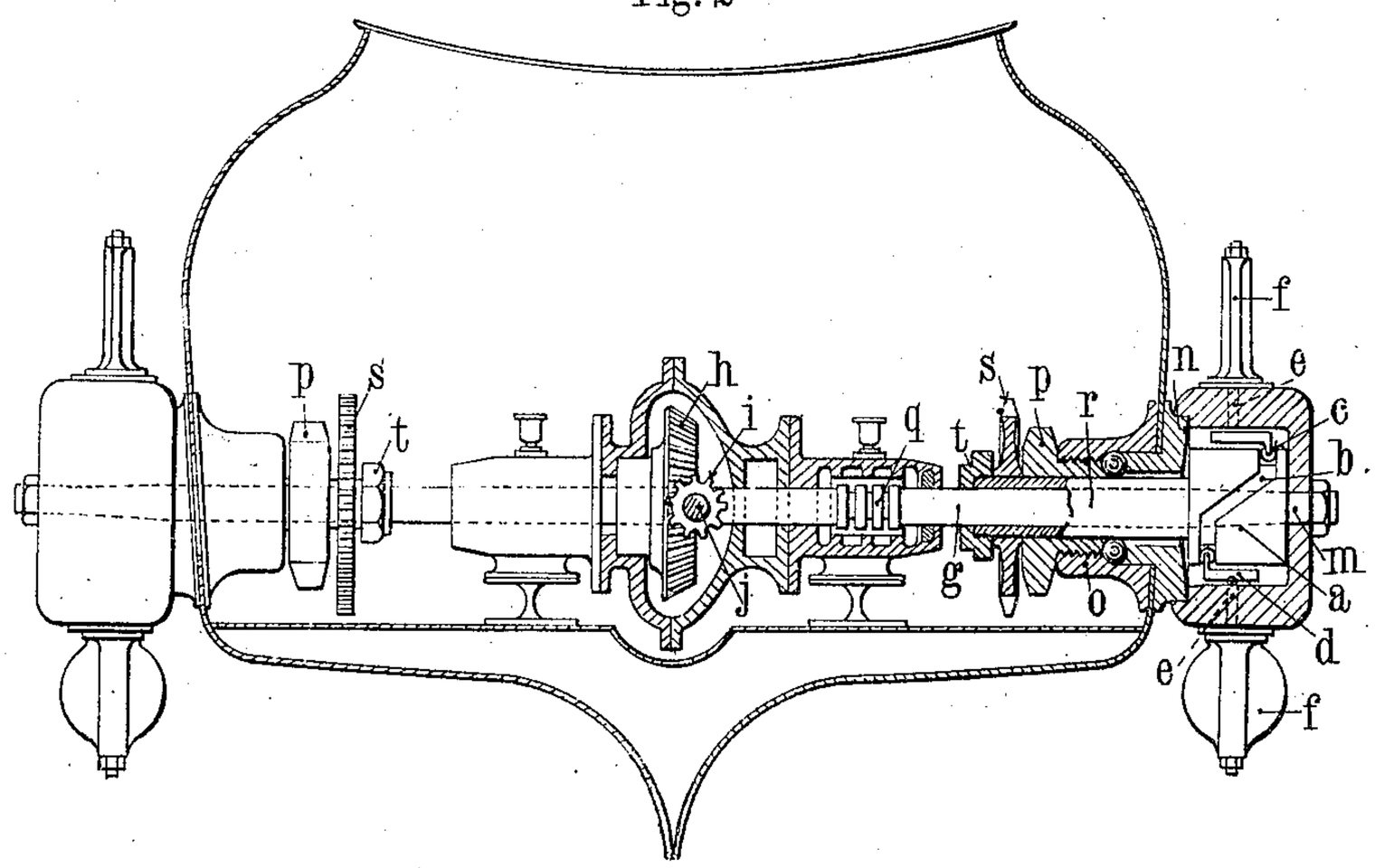


Fig. 2



WITNESSES

J. P. Davis

A. L. Kitchin.

INVENTOR

Pierre Urbain Loubery

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

PIERRE URBAIN LOUBERY, OF JUVISY, FRANCE.

APPARATUS FOR PROPELLING, ELEVATING, AND SUPPORTING SHIPS, BOATS, SUBMARINES, AND THE LIKE VESSELS.

1,167,191. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed October 5, 1912. Serial No. 724,066.

To all whom it may concern:

Be it known that I, PIERRE URBAIN LOUBERY, of No. 5 Quai de l'Industrie, Juvisy, Seine-et-Oise, France, have invented certain new and useful Improvements in and Relating to Apparatus for Propelling, Elevating, and Supporting Ships, Boats, Submarines, and the like Vessels, of which the following is a specification.

This invention has for its object to provide improved apparatus for propelling, elevating and supporting ships, boats, submarines and the like vessels hereinafter included in the term "vessel," and it consists substantially in an improved arrangement and construction of rotary propellers of the feathering vane type on driving shafts extending through the skin of the hull approximately at right angles to the length of the vessel.

One form of application of the present invention to the hull of a vessel is illustrated by way of example in the accompany drawings, in which:—

Figure 1 is a partial elevation of the hull of the vessel, and Fig. 2 is a cross section on the line 2—2 of Fig. 1.

As shown, the cam block *a* has a cam groove *b* formed in its thickness in which work rollers *c* that are pivoted on the ends of plates *d* keyed on the shafts *e* of vanes *f*. The block *a* is freely mounted on a transverse shaft *g* which extends through the skin of the hull of the vessel and is common to the two groups of vanes. On the shaft *g* and near its middle there is keyed a bevel toothed wheel *h* engaging a pinion *i* keyed on the longitudinal shaft *j* of the motor *k* (Fig. 1). The cam block *a* is situated inside a box or hub *m* supporting the shafts *e* of the vanes; it works fluid-tight against a part *n* that is fixed to the hull and held by means of bolts or any other suitable means against a counterpiece *o* provided inside the hull. A thrust bearing *q* is provided on each section of the shaft *g* for the purpose of preventing any displacement of the latter. In order to allow of adjusting the position of the cam block *a*, the latter is fixed to a sleeve *r* surrounding the shaft *g* and fitted inside the hull with a chain-wheel *s*. The chain wheel *s* is provided with a lock nut *t* mounted loosely on the shaft and engaging the end of the sleeve *r* and holding the chain wheel, sleeve, and cam block in position after adjustment. The sleeve *r* passes through a stuffing box *p*. Tie-rods, stays, struts or supports of any kind not shown are arranged on the internal bracket *o* for connecting it to the keelsons or frames of the vessel.

The operation of the improved apparatus is as follows:—The motor *k* drives the cross shaft *g* through the wheels *i*, *h* and thus causes the hubs *m* to revolve with the vanes *f* which are also rotated on their axes by the passage of the rollers *c* in the cam groove *b* of the block *a*, the latter being kept stationary, in such a manner that, as shown in Fig. 1, each vane occupies in its turn a position 1 at right angles to the longitudinal axis of the vessel during that portion of its revolution which takes place in the direction of the travel of the vessel, while during the remainder of its revolution indicated by the positions 2 and 3 in Fig. 1, it remains parallel to the longitudinal axis of the vessel and therefore does not offer any resistance to the travel of the vessel. When the improved apparatus is applied to a submarine, it is an easy matter to regulate the depth of immersion of the vessel at the same time as its speed of travel, by varying the position of the cam block *a* by operating the chain wheel *s* by any suitable means. The improved apparatus may be applied to existing hulls as shown in Fig. 1, by simply providing the shaft of the propeller *u* with the bevel pinion *i* and installing the apparatus as hereinbefore described. The improved apparatus being situated wholly below the water line, it will be unaffected by the surface waves and therefore its efficiency will be increased. The improved apparatus may be constructed in any desired manner. Ball bearings may be provided for rendering the working easier, and the cam block may be arranged in an oil bath. The number and dimensions of the vanes may be varied according to requirements. The improved apparatus may be arranged on the hull forward or aft or both forward and aft. Change speed gears or other devices may be provided as usual for the operation of

internal combustion motors when such are employed for the purposes of the present invention.

What I claim is:

The combination with the hull of a boat having a member on the outer face thereof, a driven shaft mounted in the hull and having its end projecting beyond the said member, a hollow hub secured on the projecting end of the hub and having its inner face recessed to receive the member of the hull and upon which it turns, vanes mounted to rotate on the hub, and a stationary member within the hub and having means engaging the shafts of the vanes to turn the same.

In testimony whereof I have hereunto placed my hand at Paris, France, this 24th day of September, 1912.

PIERRE URBAIN LOUBERY.

In the presence of two witnesses:

HANSON C. COXE,

HENRY SCHWAB.