

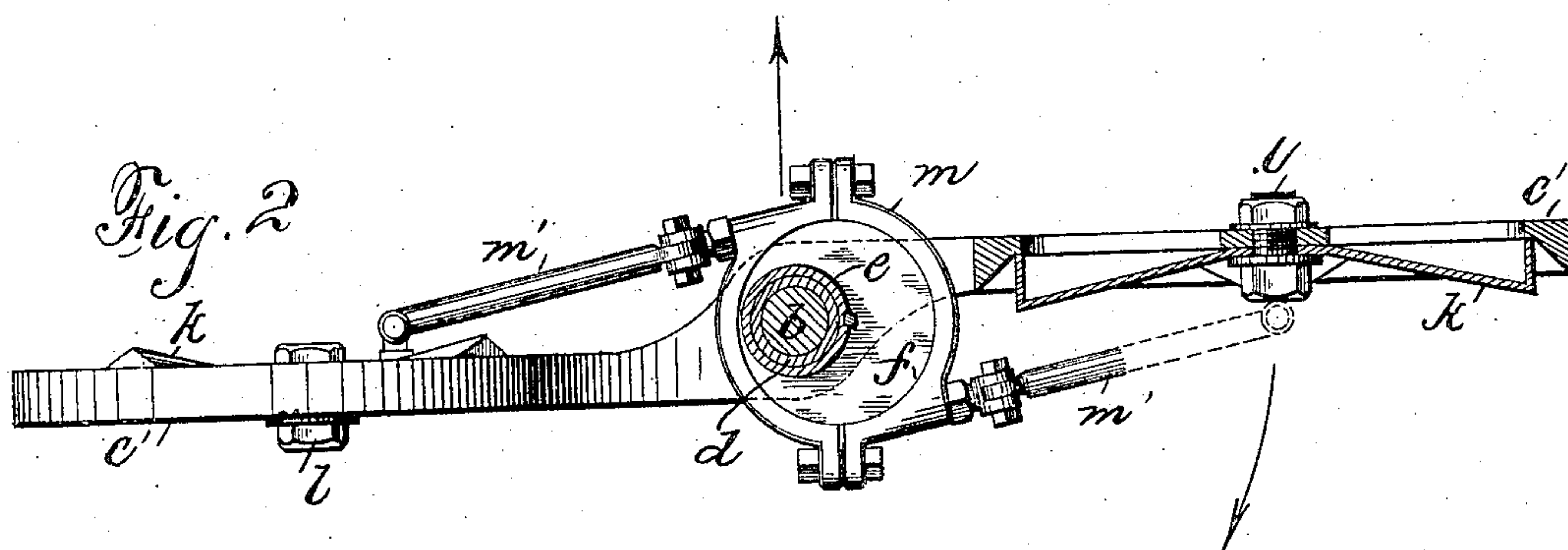
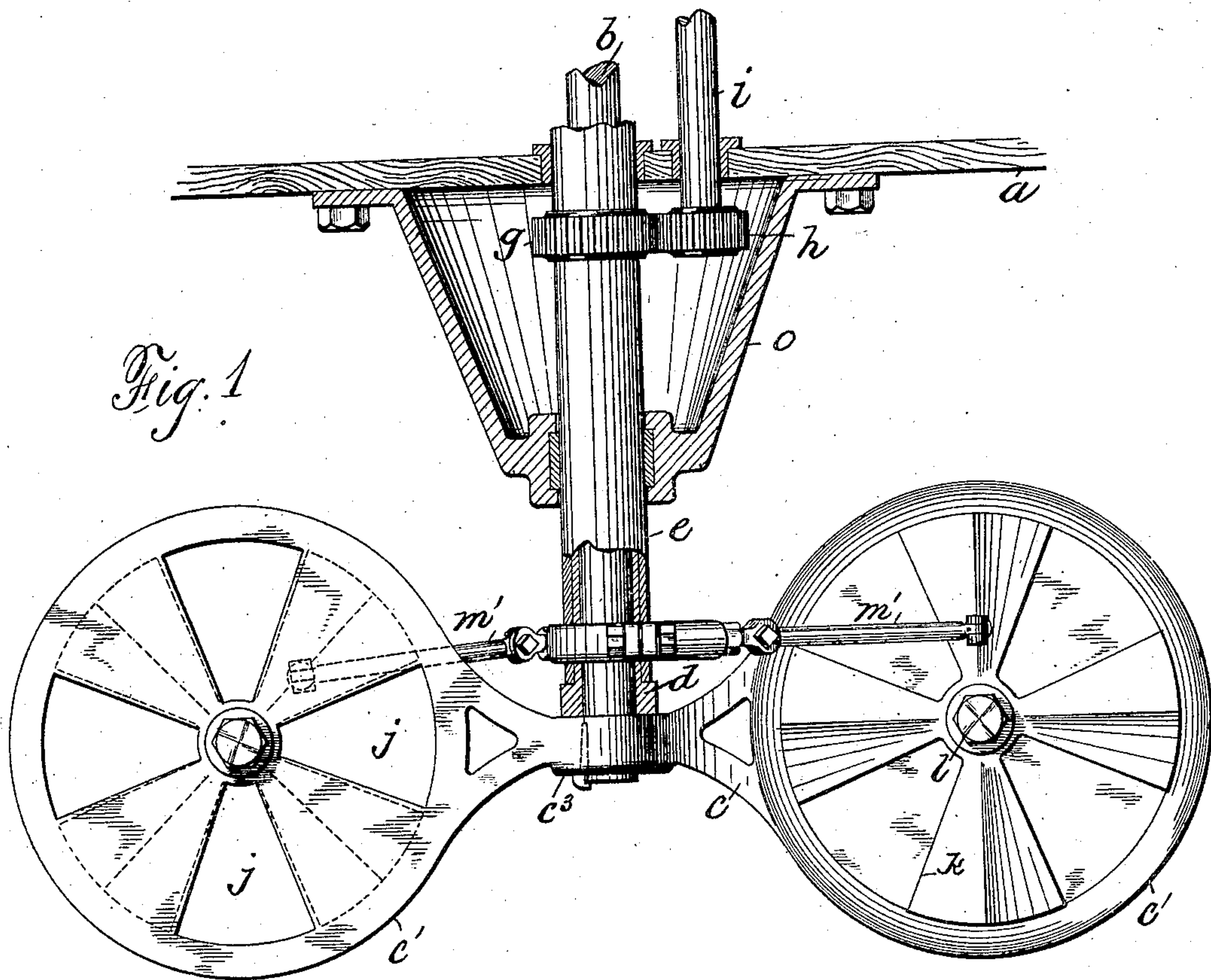
No. 845,081.

PATENTED FEB. 26, 1907.

A. HECTOR.  
PROPELLER.

APPLICATION FILED JAN. 26, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

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*William J. Brewer*

INVENTOR.

*Andre Hector*  
BY *Fischer & Sanders.*  
ATTORNEYS.

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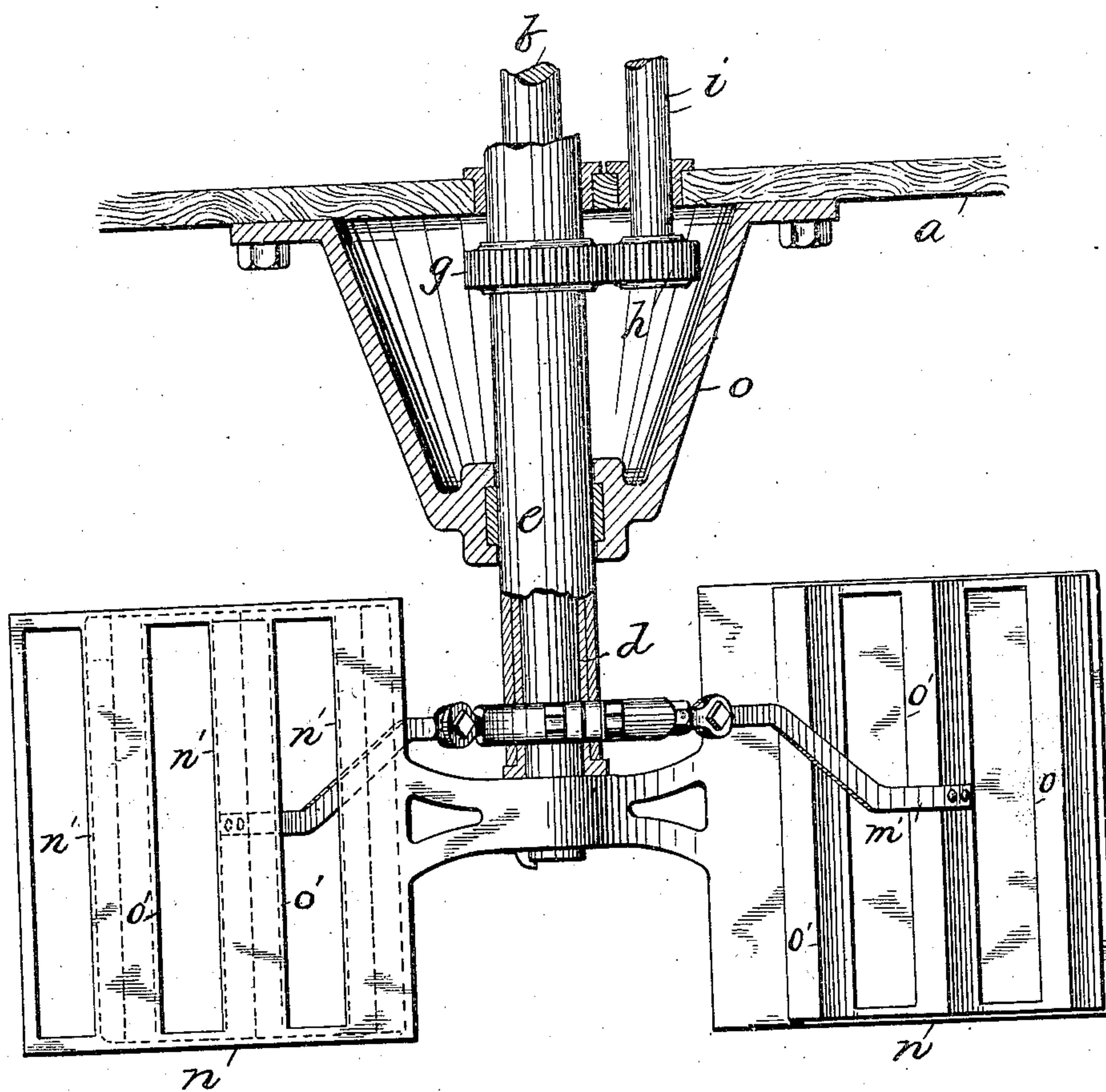


Fig. 3

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# UNITED STATES PATENT OFFICE.

ANDRE HECTOR, OF EAST NEWARK, NEW JERSEY.

## PROPELLER.

No. 845,081.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed January 26, 1906. Serial No. 297,939.

*To all whom it may concern:*

Be it known that I, ANDRE HECTOR, a subject of the King of Great Britain, residing in the city of East Newark, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Propellers, of which the following is a specification.

Propeller-wheels for vessels are ordinarily mounted on horizontal shafts and have their blades normally at an angle to the axis of the shaft. I have discovered that by using a vertical shaft for the propeller-wheel and having the blade of such wheel lying in a vertical plane it is possible not only to propel a vessel as effectively as at the present time, but also it is possible to dispense with the use of the ordinary steering apparatus.

The object of my invention is to construct a combined propelling and steering apparatus for vessels in which a vertical driving-shaft is employed, said shaft having secured to its exterior end a propeller provided with vertical blades, the blades having openings therein and shutters secured to said vertical blades in any convenient manner and means suitably arranged for alternately shifting the shutters on said blades so as to alternately close said openings.

In carrying out my invention I make use of the structures illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of my improved propeller. Fig. 2 is a plan view of the same; and Fig. 3 is a side elevation, partly in section, of a modified form of my improved propeller.

In the drawings like letters of reference indicate the same parts throughout.

*a* is the stern or after part of a vessel.

*b* is the vertical driving-shaft, to which the propeller *c* is secured in any desired manner. Mounted upon the shaft *b* is a sleeve *d*, which forms a suitable bearing for the shaft and at the same time provides a means for preventing the water from circulating around said shaft.

*e* is a sleeve loosely mounted upon the sleeve *d* and has secured to it in any desired manner the eccentric *f*.

*g* is a gear-wheel secured to the sleeve *e*, which meshes with the gear-wheel *h*, which is secured to the shaft *i*.

Any suitable means may be provided for rotating the eccentric *f* about the axis of the

propeller-shaft. In order, however, to show an operative construction, I have shown means for rotating or changing the position of the eccentric *f*, such means consisting of the gear-wheel *g*, fixed to the sleeve *e*, which communicates with the gear-wheel *h*, secured to the operating-shaft *i*. By placing any suitable operating means at the upper end of the shaft *i* it will be apparent that any reverse movement of such means will cause the gear-wheel *h* to turn the gear-wheel *g*, which is secured to the sleeve *e*, at the same time changing the position of the eccentric *f*. The position of the eccentric will swing the stern of the vessel in the direction indicated by the straight arrow, it being assumed at all times that the propeller is revolving in the direction of the curved arrow. (See Fig. 2.) The propeller *c* consists, essentially, of a frame made up of two circular plates *c'* *c'*, united by the hub *c*<sup>3</sup>. These circular plates are provided with suitable openings *j*, four being shown in the drawings; but any convenient number may be employed. Rotatably mounted upon said circular plates *c'* *c'* are the shutters *k*, which are held in position by means of the bolts *l*. The object of this invention is to provide a propeller, one side of which will be closed by means of the shutter *k* and the other side open when in actual operation, and this I accomplish by connecting the shutter at any convenient point with suitable means which engage the eccentric *f*. In order, however, to show an operative structure, I have shown means for opening and closing the shutters *k*, such means consisting of the eccentric *f*, fixed to the sleeve *e*, which is provided with an eccentric-strap *m*, to which are secured the rods *m'*, which in turn are secured to the shutters *k* in any desired manner.

The shutter *k* is so constructed that it will in the position shown in Fig. 1, right side of the propeller, entirely close the openings *j* in the circular plates *c'*, so that that particular one half of the propeller moving in the direction of the curved arrow will offer great resistance to the water, while the other shutter when in the position as shown on the left side of the propeller will be clear of the openings *j* in the circular plate, and consequently offer as little resistance as possible to the water. The openings in the plate *c'* and the conical surfaces of the shutter *k* will readily permit the water to pass through the plate *c'*, thereby



relieving one side of the propeller of the necessity of moving such large bodies of water as if said side were closed. It will also be noted that by swinging the eccentric *f* by means of the gears *g* and *h* through one-half of a circle, so as to close the openings in the opposite plate *c'* of the propeller, the motion of the vessel may be reversed, inasmuch as the plate then uncovered would be moving in the direction to produce such reverse movement.

If the vessel were intended to move only in a forward direction, the eccentric *f* might be rigidly secured in its position against rotation; but I find by making said eccentric rotatable about the propeller-shaft that I am able to dispense with the use of the rudder and may use the eccentric and the propeller as the sole steering means for the vessel. Not only is this an advantage, but it permits of the continuous operation of the propeller in the same direction, thereby avoiding any reverse movement of the wheel or of the driving-engine.

*o* is a chamber mounted on the stern or after part of the vessel and is utilized for protecting the gears *g* and *h* from injury from contact with any exterior body.

In the modification illustrated in Fig. 3 I employ a propeller-wheel provided with rectangular or square blades *n* in place of the circular blades *c'* shown in Fig. 1 and substitute for the openings *j* the openings *n'*, which are designed to be alternately covered and uncovered by the shutter *o'*, which is composed of members having an outline or shape conforming to the openings *n'* in place of the circular shutter and radial members, as shown in Fig. 1.

I also wish it to be distinctly understood that I do not limit myself to a propeller-wheel having the number of blades and openings as shown in the drawings, inasmuch as said propeller-wheel may be constructed with any number of blades or any number of openings.

I claim—

1. In a marine propeller, the combination of a propeller-wheel having vertical blades, openings in said blades and means for closing said openings in said blades.

2. In a marine propeller, the combination of a propeller-wheel having relatively fixed vertical blades and means for varying the effective area of said blades.

3. In a marine propeller, the combination of a propeller-wheel having relatively fixed vertical blades, openings in said blades and means for alternately closing said openings in said blades.

4. In a marine propeller, the combination of a propeller-wheel having vertical blades, sliding shutters mounted on said blades and means for changing the position of said shutters on said propeller-wheel.

5. In a marine propeller, the combination of a propeller-wheel, vertical blades, sliding shutters mounted on said blades and means for alternately changing the position of said shutters on said blades.

6. A propelling and steering apparatus for vessels comprising a vertical shaft projecting from the vessel, a propeller having relatively fixed vertical blades secured to the exterior end of said shaft, openings in said propeller-blades and means for closing said openings.

7. A propelling and steering apparatus for vessels comprising a vertical shaft projecting from the vessel, a propeller having vertical blades secured to the exterior end of said shaft, openings in said propeller-blades and means for alternately closing said openings in the respective blades.

8. A combined propelling and steering apparatus for vessels, comprising a vertical driving-shaft, a propeller-wheel having vertical blades provided with openings therein secured to said shaft, shutters secured to said vertical blades and means for shifting the shutters on said blades to open and close said opening.

9. A combined propelling and steering apparatus for vessels, comprising a vertical driving-shaft, a propeller-wheel having vertical blades secured to said shaft, openings in said propeller, shutters secured to said vertical blades and means for alternately shifting the shutters on said propeller-blades.

10. A combined propelling and steering apparatus for vessels, comprising a vertical driving-shaft, a propeller-wheel having a series of vertical blades secured to said shaft, shutters secured to said vertical blades and shifting means for alternately opening and closing said shutters.

11. A combined propelling and steering apparatus for vessels, comprising a vertical driving-shaft, a propeller-wheel having a plurality of vertical blades secured to said shaft, openings in said blades, means for alternately closing said openings and means for changing the position of said closing means.

This specification signed and witnessed this 20th day of January, 1906.

ANDRE HECTOR.

Witnesses:

FREDK. C. FISCHER,  
LOUIS M. SANDERS.