

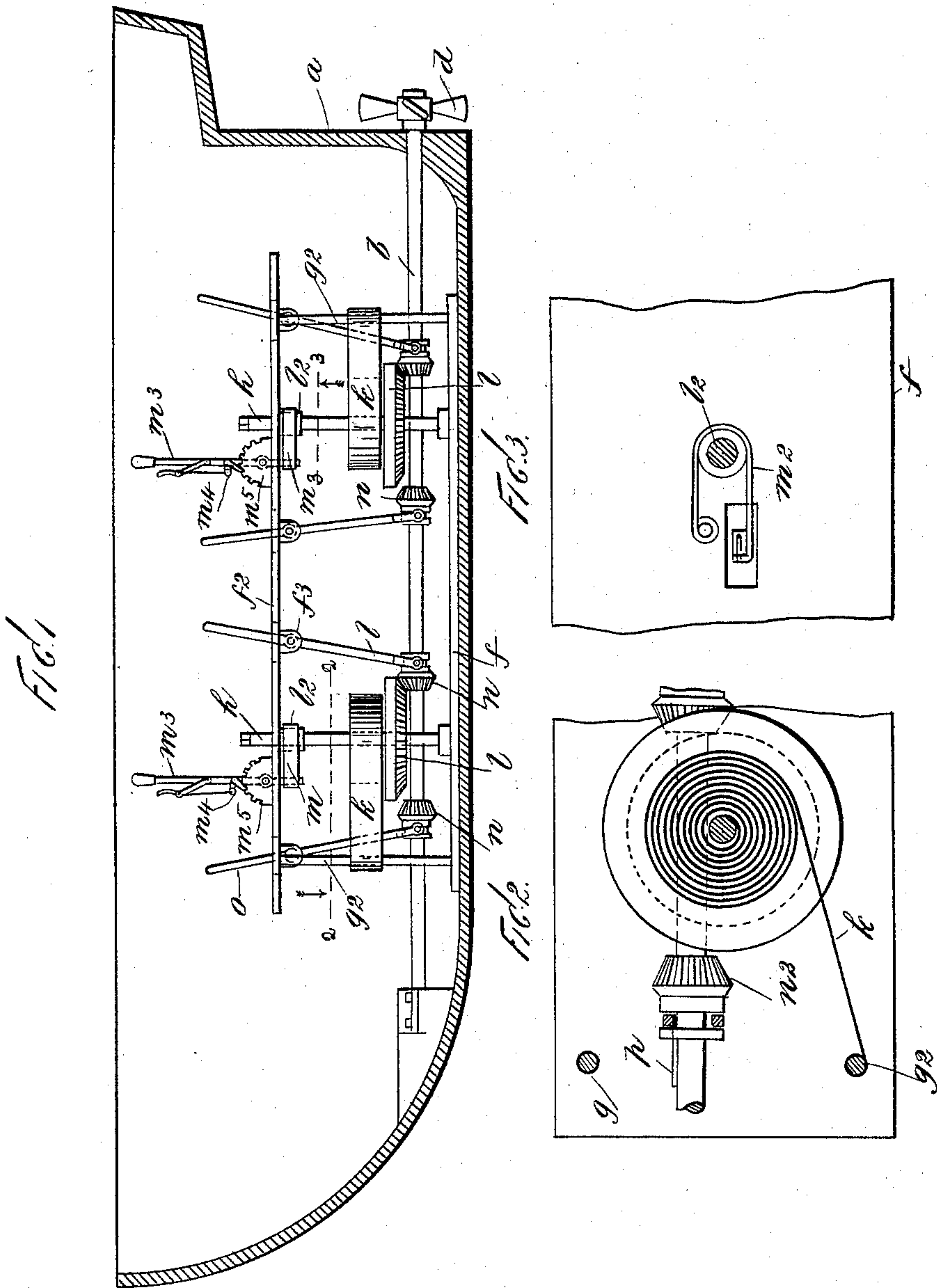
No. 612,534.

Patented Oct. 18, 1898.

A. D. TYRELL.  
PROPELLING MECHANISM FOR VESSELS.

(Application filed Oct. 29, 1897.)

(No Model.)



WITNESS

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# UNITED STATES PATENT OFFICE.

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## PROPELLING MECHANISM FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 612,534, dated October 18, 1898.

Application filed October 29, 1897. Serial No. 656,792. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED DELANCEY TYRELL, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Propelling Mechanism for Vessels, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to a propelling mechanism for vessels; and has for its object the production of a device that will propel a boat without the necessity of that large expenditure occasioned by the employment of steam or electric batteries.

A further object of the invention is to provide a simple mechanism that can originally be applied at small expense and which will be simple in construction and efficient in operation.

The invention consists in the novel features of construction hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a sectional elevation of the hull of a vessel, showing my improved propelling mechanism in elevation; Fig. 2, a section on the line 2 2 of Fig. 1, and Fig. 3 a section on the line 3 3 of Fig. 1.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, which form a part of this specification, the hull of the boat is designated by the letter *a*, and extending longitudinally thereof is a propeller-shaft *b*, to the outer end of which is secured a propeller *d* of ordinary construction.

The boat is provided with parallel plates *f*<sup>2</sup>, which are connected at the ends thereof by upright standards *g* *g*<sup>2</sup>. Journaled in the plates *f* *f*<sup>2</sup> are revoluble shafts *h*, which are provided with angular tops for the purpose hereinafter described.

Upon each of the shafts *h* is mounted a power-spring *k*, the ends of which are attached, respectively, to the standards *g*<sup>2</sup> and to the shafts *h*. Also rigidly mounted on

said shafts are beveled gear-wheels *l* and a disk *l*<sup>2</sup>, by means of which and the band-brake *m* the speed of the mechanism may be regulated.

Mounted upon the propeller-shaft are sliding collars *n*, comprising a beveled gear *n*<sup>2</sup> and an annular depression in the remaining portion of said collar, one of said beveled gears being disposed on each side of the gear-wheel *l*.

Upon the top plate *f*<sup>2</sup> are a plurality of depending lugs *f*<sup>3</sup>, to which are fulcrumed levers *o*, the lower ends of which are forked and partially encompass the annular depression in the sliding collar *n*.

The band-brake *m* consists of an ordinary metallic band *m*<sup>2</sup>, one end of which is secured to the top plate *f*<sup>2</sup> and the other end of which is secured to the lever-arm *m*<sup>3</sup>, which has attached thereto a pawl *m*<sup>4</sup> adapted to engage in the teeth of the segment-rack *m*<sup>5</sup>, by means of which mechanism the degree of pressure upon the disk *l*<sup>2</sup> may be regulated and maintained.

The operation of my improved propelling mechanism is as follows: The spring *k* is wound by means of the angular head thereof of the shaft *h*, the sliding collars, band-brake, &c., being so arranged as to admit of this winding process. When it is desired to transmit the energy of said springs to the propeller, it is merely necessary to bring the corresponding sliding collars *n* into such relation to the cog-wheel *l* that the teeth of the gears *n*<sup>2</sup> and said gear will intermesh and to release the band-brake, so as to allow the unimpeded action of the shaft *h*. If it be desired to moderate the velocity of the propeller *d*, this may be accomplished by applying said brake, and this application may be carried to an extent as will entirely stop the revolution of said propeller.

In the accompanying drawings I have shown the collars *n* as being secured to the shaft *b* by means of a key *p*, which is the preferred form, although it is obvious that the desired result may be accomplished in numerous other ways.

To reverse the movement of the propeller mechanism, it is merely necessary to disengage the beveled gear *n*<sup>2</sup>, meshing with the



gear 7, and bring the gear-wheel on the opposite side thereof to intermesh with the gear-wheel 7, thus instantly changing the direction of travel of the propeller.

5 By the means above described I have fully accomplished the object of my invention, having produced a propeller mechanism which may be applied without the resulting inconvenience or expense occasioned by the generation of steam or the storage of electricity, thus accomplishing by a simple, inexpensive, and efficient mechanism the ends of the invention. It is to be observed, however, that there are many variations in minor details of construction which will come within the scope of my invention and which it is not my intention to exclude therefrom.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a propelling mechanism for vessels, the combination with a propeller-shaft and a propeller thereon, of upright shafts, springs exerting a constant torsional strain on said upright shafts, gearing between said upright shafts and a propeller-shaft, said gearing embracing reversing mechanism and clutches whereby the propeller-shaft can be rotated from opposite directions and a brake for regulating the velocity of said propeller.

2. In a propelling mechanism for vessels, the combination with a propeller-shaft and a propeller thereon, of upright shafts, springs

exerting a constant torsional strain on said upright shafts, a beveled gear-wheel rigidly mounted on each of said upright shafts, a beveled gear-wheel on said propeller-shaft on each side of said first-mentioned gear-wheel, means for shifting said beveled gear-wheels of the propeller-shaft to reverse the revolution of said propeller-shaft, and a brake for regulating the velocity of said propeller.

3. In a propelling mechanism for vessels, the combination with a propeller-shaft and a propeller thereon, of parallel plates connected by suitable standards, upright shafts journaled in said plates respectively, springs exerting a constant torsional strain on said shafts, a beveled gear-wheel rigidly mounted on each shaft, sliding beveled gear-wheels on the propeller-shaft on each side of said first-mentioned gear-wheels, a band-brake for regulating the velocity of said propeller, and levers fulcrumed on one of said plates, and held in engagement with said sliding collars, whereby the movement of said propeller may be reversed, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 27th day of October, 1897.

ALFRED DELANCEY TYRELL.

Witnesses:

L. M. MULLER,  
M. A. KNOWLES.