(No Model.)

# D. S. REGAN.

## TRANSMITTING POWER TO PROPELLERS.

No. 474,926. Patented May 17, 1892.

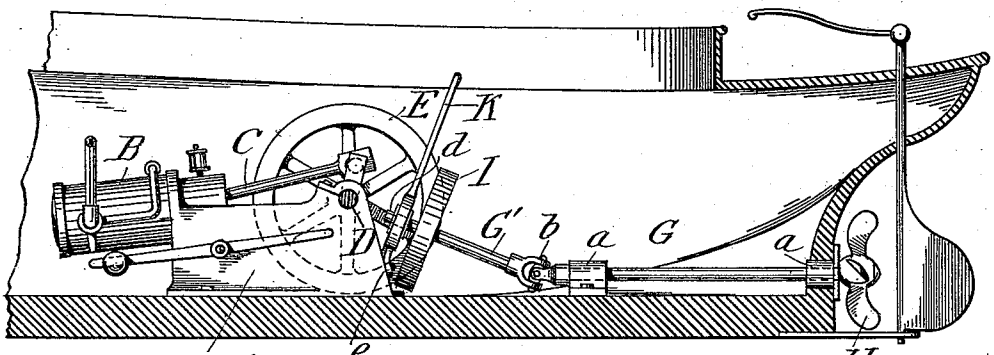


Fig. 1.

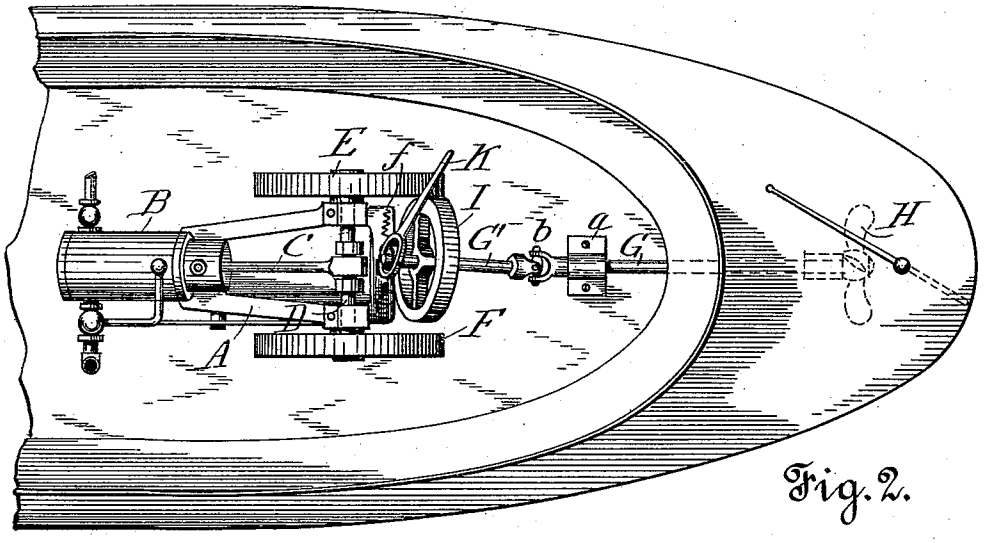


Fig. 2.

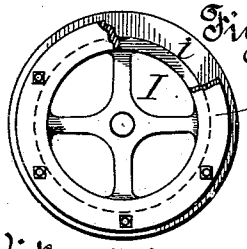


Fig. 3.

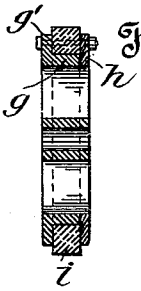


Fig. 4.

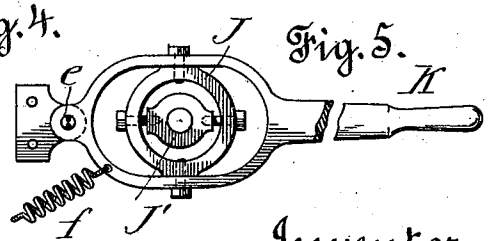


Fig. 5.

Witnesses.
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# UNITED STATES PATENT OFFICE.

DANIEL S. REGAN, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE REGAN VAPOR ENGINE COMPANY, OF SAME PLACE.

## TRANSMITTING POWER TO PROPELLERS.

SPECIFICATION forming part of Letters Patent No. 474,926, dated May 17, 1892.

Application filed May 19, 1891. Serial No. 393,292. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL S. REGAN, a citizen of the United States, and a resident of the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Transmitting Power to Propellers; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to special means for transmitting the power derived from marine engines to the propeller-shafts in boats. It is particularly adapted, however, to small launches run by gas or vapor engines of either the vertical or horizontal type.

The invention consists, partly, in a frictional gearing placed intermediately between the crank-shaft of the engine and the propeller-shaft; further, in providing the engine with two fly-wheels and a frictional disk adapted to be thrown into engagement with either fly-wheel, in one case to go ahead and in the other to reverse the propeller, or to be thrown out of engagement with both fly-wheels when the boat is stopped.

It further consists in special features in the construction of the frictional gearing and in the manner of arranging it, and also in the novel manner of constructing and connecting the propeller-shaft to adapt it to be operated from either fly-wheel of the engine.

Such details of construction need not be specifically set forth here; but they are fully hereinafter described in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of an engine in connection with and adapted to drive the propeller-shaft of a boat. Fig. 2 is a plan view. Fig. 3 is an elevation of the friction-wheel. Fig. 4 is a cross-section of the same. Fig. 5 is an elevation of the operating-lever.

A represents the bed-frame of a horizontal gas-engine, and B its cylinder. As the operations of such engines is well understood by those skilled in the art, and as the construction of the engine itself forms no part of my invention, I have indicated only its general form without unnecessary detail.

C represents the piston-rod, and D the crank-shaft, the latter being journaled in the bed-frame and having keyed upon its ends fly-wheels E F outside of the frame. The fly-wheel F is omitted in Figs. 1 and 2 for the sake of clearness, but is fully shown in Fig. 3.

G represents the propeller-shaft, journaled in boxes *a a*, set in the bottom of the boat, and H is the propeller. The propeller-shaft is formed in two parts G G′, connected by a universal joint *b*, located between the engine and the boxes for the shaft.

I represents a friction-disk secured to the part G′ of the shaft. The extreme end *d* of the shaft is journaled loosely in the gimbal-joint J J′, forming part of the lever K, the lower end of the latter being pivoted to the bed of the engine, as shown at *e*, Fig. 2. By means of this lever the friction-disk I may be thrown into contact with either of the fly-wheels E F. As shown in the drawings, the disk is in contact with fly-wheel E, which communicates motion to it, and through it to the propeller-shaft in going ahead. As this is the normal or most usual position in practical operation, a spring *f* is preferably employed for pulling the lever toward the fly-wheel E. When the lever is thrown in the opposite direction and the disk I brought into contact with fly-wheel F, the propeller is reversed for backing. At any intermediate position the propeller-shaft is stationary.

The friction-disk I, of which details are shown in Figs. 4 and 5, is formed in two parts *g h*, the small part *g* having a flange *g′* and the part *h* being bolted, so as to leave a groove or seat for a band *i*, composed of rubber, paper, or other suitable frictional material. By forming the friction-disk in two parts the band may be conveniently removed when worn and another substituted.

If desired, a toothed segment may be connected to the engine-frame and the lever provided with an ordinary spring-catch for engaging with the segment, and thus holding the lever at any point. This device is well known and common in many mechanical structures, and I have not thought it necessary to illustrate it in the drawings. In ordinary use, during the short time occupied in reversing or

stopping, it will usually be convenient to hold the disk by hand against the reversing fly-wheel or intermediate between the two.

What I claim is—

1. In combination, the crank-shaft, a jointed propeller-shaft, and driving connections from the crank-shaft to the propeller-shaft, comprising a friction-disk on the laterally-movable propeller-shaft and the wheels on the crank-shaft on each side thereof, said wheels being the fly-wheels of the engine, substantially as described.

2. In combination with the crank-shaft of an engine having two fly-wheels, a two-part propeller-shaft universally jointed, means for operating and sustaining said shaft, consisting of a pivoted lever in which one end of said shaft is journaled, and a friction-disk fixed on said propeller-shaft, substantially as and for the purposes set forth.

3. In combination, an engine-shaft and fly-wheel, a two-part propeller-shaft universally jointed, a friction-disk fixed thereto, means for moving the shaft laterally to disengage the disks from the fly-wheels, and a spring for maintaining said disk in frictional contact with the fly-wheel, substantially as set forth.

4. In combination, an engine-shaft and fly-wheel, a two-part universally-jointed propeller-shaft, a friction-disk secured to said propeller-shaft, and a pivoted lever for operating the shaft laterally, having a gimbal-joint containing a bearing for the end of said propeller-shaft, substantially as set forth.

5. In combination, the crank-shaft, the fly-wheel thereon, a propeller-shaft, a friction-disk on the same engaging directly with the fly-wheel, said disk having a peripheral flange, a removable flange secured to said disk, forming a groove or channel, and a band held in said groove, substantially as described.

In testimony whereof I have hereunto set my hand this 2d day of May, 1891.

DANIEL S. REGAN.

Witnesses:
L. W. SEELY,
W. B. CLAYTON.