No. 723,333. PATENTED MAR. 24, 1903.

J. M. STORY.

BOAT PROPELLING MECHANISM.

APPLICATION FILED MAY 23, 1902.

NO MODEL.

Fig. 1.

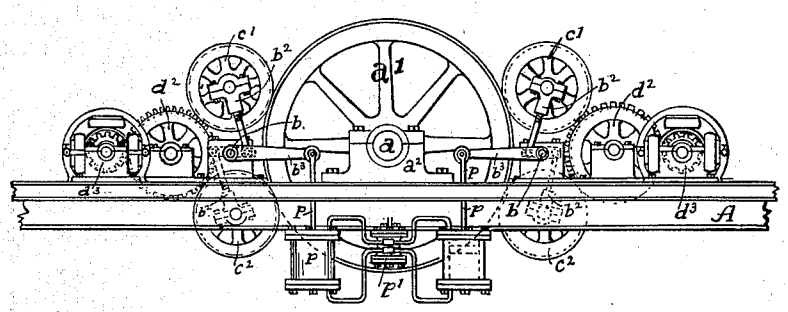


Fig. 2.

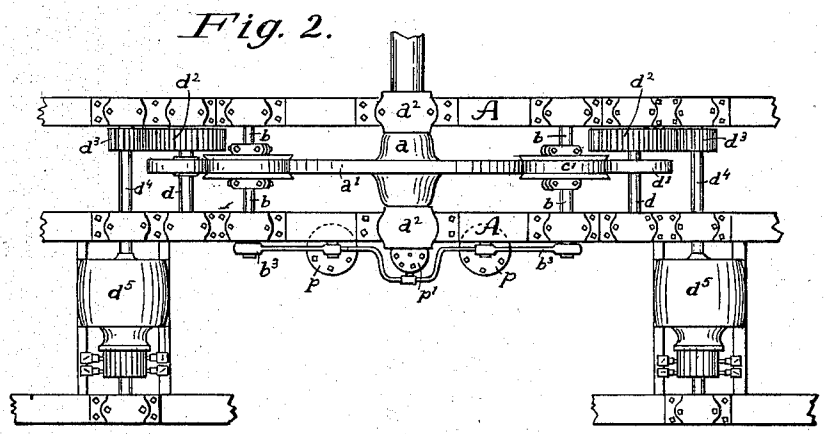


Fig. 3.

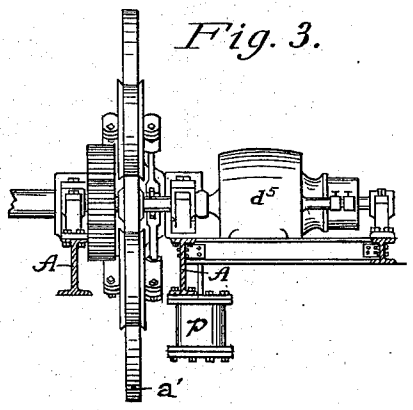
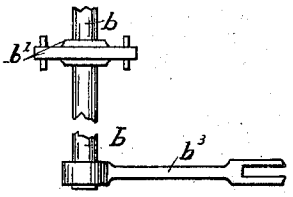


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOSEPH M. STORY, OF OWOSSO, MICHIGAN.

BOAT PROPELLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 723,333, dated March 24, 1903.

Application filed May 23, 1902. Serial No. 108,680. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. STORY, a citizen of the United States, residing at Owosso, in the county of Shiawassee and State of Michigan, have invented new and useful Improvements in Boat Propelling Mechanism, of which the following is a specification.

My invention relates to propelling mechanism for shafts, its object being to provide a driving mechanism embodying certain advantages more fully hereinafter set forth.

To this end the invention, as applied, for example, to screw-propellers for boats, consists generally in the construction and arrangement of a system of driving mechanism wherein the driving power of the two motors placed at the sides of the propeller-shaft is applied thereto through the medium of friction-gears so arranged as to be readily thrown into or out of driving connection, whereby a relatively short propeller-shaft is employed and the power applied near the propeller-wheel, thereby avoiding the torsional strains and dangers incident to a long shaft with power applied at one end and delivered at the other, whereby also the initial motive power is applied through two small high-speed motors, one of which may be disabled without necessitating the stoppage of the other, the vibration incident to the reciprocation of a single motor avoided, and various other incidental advantages attained, which will appear in the subjoined description.

Referring now to the drawings, Figure 1 is a front elevation of the mechanism in a line of vision extending the axis of the propeller-shaft, omitting the motors; Fig. 2, a plan view of the mechanism complete; Fig. 3, a side elevation, and Fig. 4 a detail of the crank-shaft controlling the friction-gear idlers.

Referring now to the drawings, A A designate the supporting-frame, consisting of two beams A, extending in parallel relations across the hull of the vessel, upon and across which is mounted in suitable bearings a^2 the propeller-shaft a, carrying between the beams of the supporting-frames a friction-wheel a', to which the motive power is applied.

The means of applying the motive power being duplicates one of the other at opposite sides, the description of one will apply equally well to the other.

At the side of the shaft a is mounted in parallel relations a crank-shaft b, having a rocking crank or toggle b' thereon, from the opposite extremities of which in pivoted yokes b^2 are supported idler friction-wheels c' c^2, adapted to engage rotatively by frictional peripheral contact with the main frictional wheel a', at points equidistant above and below its horizontal axial plane. At the outer extremity of the shaft b is attached a lever-arm b^3, pivotally engaged by the piston-rod p of a cylinder P, whose piston is actuated by water or oil under pressure controlled by a valve p'.

Beyond and parallel with the shaft b is a second shaft d, also journaled in bearings upon the frame A A, carrying a friction-wheel d', bearing peripherally against the intermediate friction-wheels c' c^2. The initial motive power is applied to the shaft d either directly or, as shown in the present instance, through the medium of a spur-gear d^2, driven by a spur-pinion d^3 upon the shaft d^4 of an electric or other motor d^5.

The *modus operandi* is as follows: Initial motive power communicated to the shaft d is thence transmitted by means of the friction-idlers c' c^2 to the propeller-shaft a through friction-wheel a'. The location of the friction-idlers c' c^2 at opposite sides of the horizontal axial plane of the shaft a renders it possible by the toggle arrangement of the mounting to draw the idlers c' c^2 into a frictional contact of any desired pressure or to release the contact entirely and instantly by the operation of the piston p and levers b^3, as controlled by the valve p'.

The ability to disconnect the propeller-shaft from its motive power is an advantage peculiar to this construction, whereby when power is shut off a vessel may continue moving influenced by its momentum with but little drag of the wheel. This feature of construction also lends itself admirably to the operation of a governor or regulating mechanism to prevent racing of the wheel when raised out of the water by the pitching of a vessel in a rough sea. In such case the mo-

tion of the vessel is not impeded by the slowing down of the wheel revolutions, but is allowed to revolve as influenced by its own momentum until connection is again made with the motive engine.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In boat propelling mechanism, the combination of a relatively short propeller-shaft provided with a driven friction-wheel, two motor-shafts arranged one at each side of the propeller-shaft and provided with corresponding driving friction-wheels, and a pair of idler friction-wheels carried at each side of the main shaft in the bights between the main or driven and the opposite driving wheels—said idlers being mounted in yokes as part of a toggle-lever system whereby they may be thrown into or out of engaging contact, substantially as set forth.

2. In boat propelling mechanism, the combination of a propeller-shaft, two motors arranged at opposite sides thereof respectively and friction-wheel connections between the motor-shafts and the propeller-shaft at each side adapted to be thrown independently of each other into engaging relations, at will, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH M. STORY.

Witnesses:
GILBERT L. TAYLOR,
JAY MATTISON.