J. B. TRESCOTT & R. C. BUSCH.

BOAT PROPELLING MECHANISM.

APPLICATION FILED APR. 30, 1913.

1,091,257.

Patented Mar. 24, 1914.

2 SHEETS—SHEET 1.

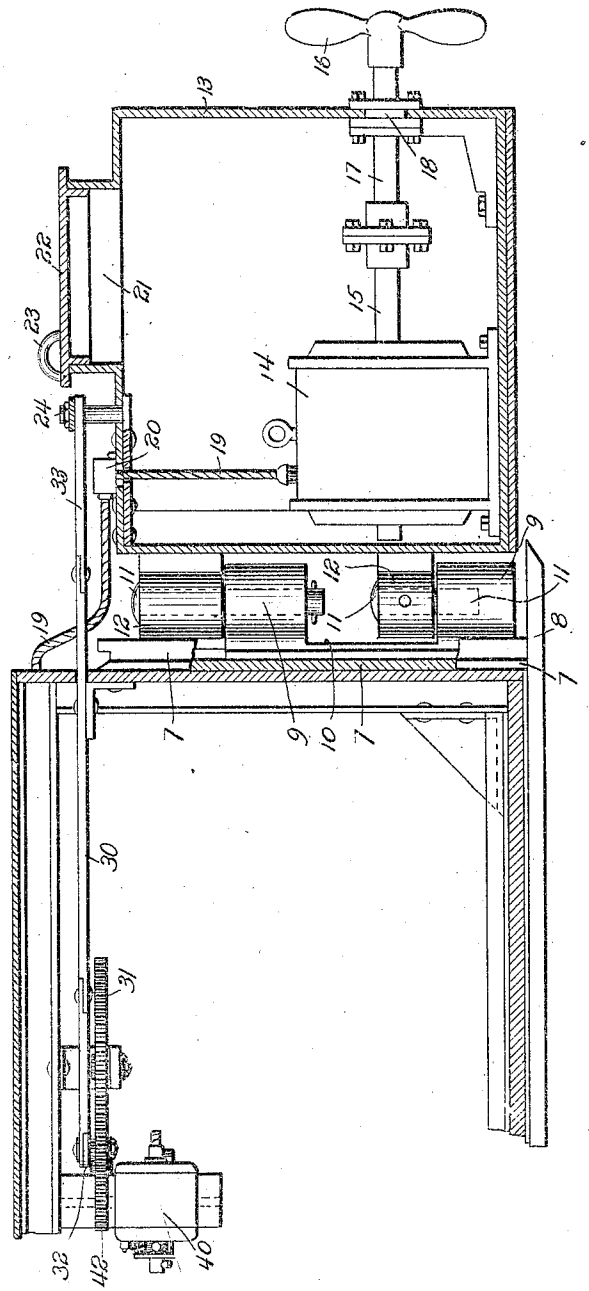


Fig. 1.

WITNESSES

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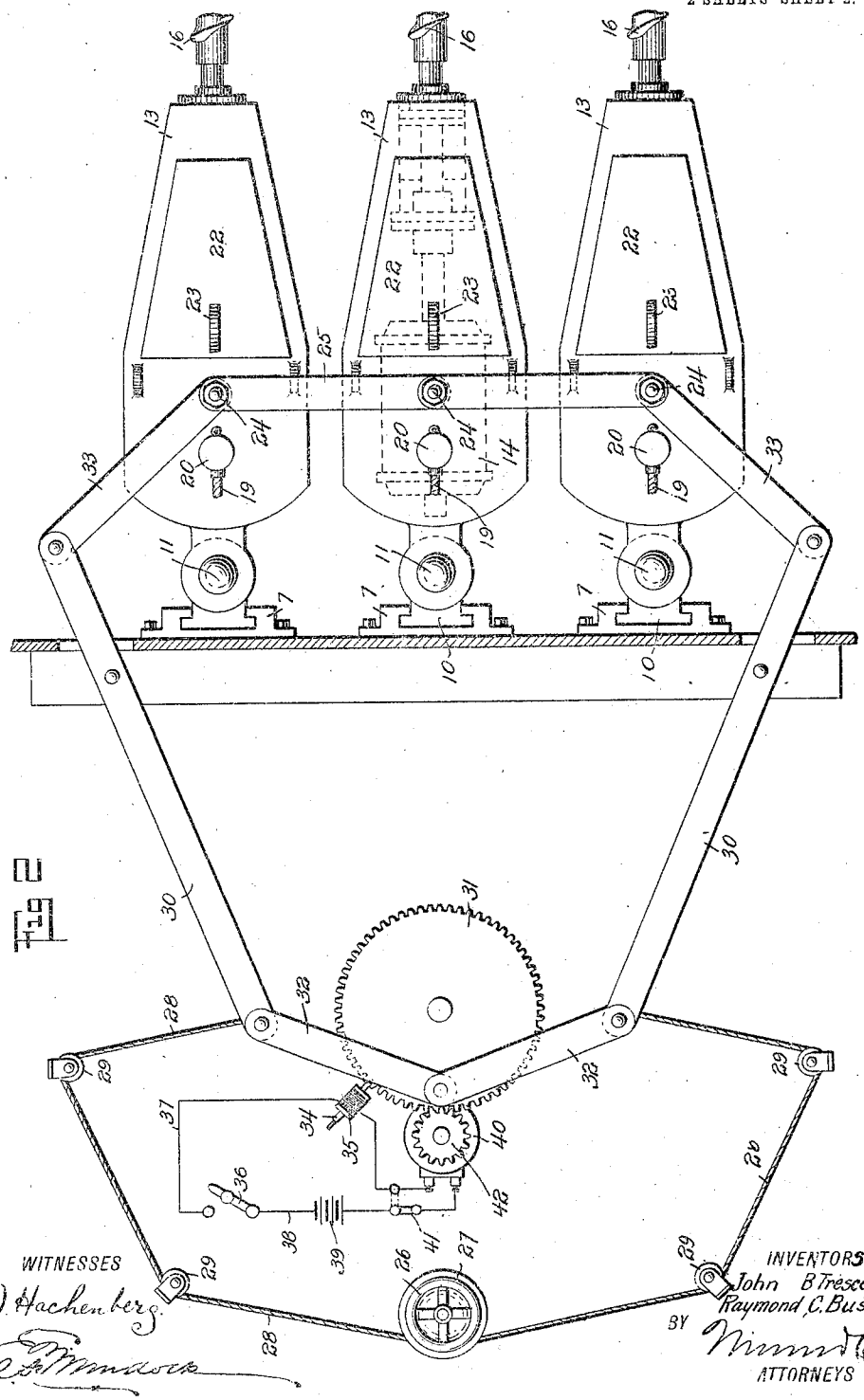


Fig. 2

WITNESSES

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UNITED STATES PATENT OFFICE.

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BOAT-PROPELLING MECHANISM.

1,091,257. Specification of Letters Patent. Patented Mar. 24,

Application filed April 30, 1913. Serial No. 764,581.

To all whom it may concern:

Be it known that we, JOHN B. TRESCOTT and RAYMOND C. BUSCH, both citizens of the United States, and residents of St. Louis, in the State of Missouri, have invented a new and Improved Boat-Propelling Mechanism, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide motor units arranged for propelling boats; to provide means for demounting and remounting units of the character mentioned, to augment or diminish the motive power for propelling boats or similar structures; to provide a multi-unit prime mover for vessels, adapted for temporary installation; to provide units of the character mentioned, arranged for propelling shallow-draft vessels; to provide means for harnessing said units to permit the shifting thereof for employment as aids in steering the vessel to which they are applied; and to provide means for harnessing the units to change the angle of operation thereof relatively to the keel of the vessel to which they are applied.

One embodiment of the present invention is shown in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a motor unit and mounting therefor, constructed and arranged in accordance with the present invention; Fig. 2 is a top plan view of a battery of motor units connected by means of an operating harness.

As seen in the accompanying drawings, a boat is prepared to receive motor units of the character herein described by having mounted thereon slotted socket brackets 7. The socket brackets 7 are elongated, the socket grooves therein extending above the water-line of the boat. The lower end of said bracket rests upon an extension of the keel 8, as seen best in Fig. 1 of the drawings.

The slots in the brackets 7 are provided to hold in operative position heavy hinge knuckles 9, which are spaced apart and connected by a body 10. The knuckles 9 are provided to receive hinge pins 11 after the same have been passed through the hinge knuckles 12 which are structurally secured to a casing 13 which forms a housing for the motor 14 and driving shaft 15 thereof. The motor 14 is shown in the drawings as one of the type known as electric motors. It will be understood, however, that while we have shown and shall describe the motor 14 as an electric motor, any suitable motor or prime mover may be substituted therefor. The casing 13 is suitably sealed, so as to permit its being submerged without filling the interior or chamber containing the motor 14.

The driving shaft 15 is suitably connected with a propeller 16; a bearing for the short shaft 17 thereof being formed, with a stuffing box 18 set in the rearmost vertical wall of the casing. It will be noted that the diameter of the propeller or the spread of the blades thereof is diminished beyond that usually provided, so that the blades will not extend below the bottom of the casing 13 nor the keel 8 of the boat to which said casing is attached.

If the motor 14 is an electric motor, power is conveyed to it within the casing 13 by means of an electric cable 19 of suitable construction, a junction box 20 being provided for the short length of said cable within the casing 13 and the relatively larger length without said casing. Access to the casing 13 is gained through a manhole 21. The manhole 21 is preferably formed in a slightly raised turret structure, the upper end whereof is closed by a cover 22. The cover 22 is shown as having a handle 23 to assist in removing the same when it is desired to gain access to the casing 13.

From the foregoing, it will be seen that the shafts 15 and 17, propeller 16, and motor 14, are mounted on an independent structure; to wit, the casing 13, which casing, when in service position, is pivoted upon the usual mounting to extend from the side or rear thereof. When, now, means is provided whereby the casing 13 may be swung upon its pivot mounting, it is obvious that the thrust or pull of the propeller 16 may, when desired, be in a line at an angle to the keel of the boat. It is obvious that when the boat is under headway, the casing 13 may be moved on the hinge pins 11 to assist the rudder or other steering gear with which the boat is provided. It is equally obvious that should the boat be at rest at the side of a wharf or pier, the casing 13 may be disposed in such position that when the motor 14 is operated, the propellers would move the boat away from said wharf or pier, and this without requiring headway for the boat.

As seen in Fig. 2, a battery of motor units, each independently mounted in its own casing 13, may be employed as a prime mover or propelling mechanism for the boat. By multiplying the number of brackets 7, provision is made for increasing or decreasing the number of motor units at will. Thus it will be found that provision may be made for augmenting the propelling power to provide for exigencies in a trip, such as, for instance, a steamer going up a fast-going stream would require a greater propulsive power, and therefore larger propelling facilities, than would be needed by the same vessel when descending the stream. It is necessary to the perfect operation of the various units that they should be maintained in mutually parallel relation. For this purpose, each of the casings 13 is provided with a pivot pin 24. The various pivot pins 24 are operatively connected by a straight link bar 25. Preferably the distance between the centers of the perforations in said link bar provided to receive the pins 24, is equal to the distance between the centers of the pins 11. The parallel arrangement of the axes of the power units is thereby secured. The movement of said units on their various hinge pins is produced by either manual or power-driven means, and preferably each installation is equipped with a manually-operable mechanism having an auxiliary power-driven mechanism.

The manually-operable mechanism employs primarily a hand-wheel 26, which is operatively connected with a drum or winch 27. The winch 27 is arranged to collect and pay out a cable 28, from opposite sides thereof. The cable 28 is reeved about pulleys 29, and is secured at its opposite ends to levers 30. The levers 30 are connected each with the other and with an intermediate gear wheel 31 by means of link bars 32, which link bars are pivotally connected to the gear wheel 31. The levers 30 are each connected by means of link bars 33 with the link bar 25 and at the opposite ends thereof.

It will be seen that when in the course of operation the winch 27 is rotated to shift the levers 30, the link bar 25 and the casing 13 are moved concordantly therewith. Should it be desired for any purpose that the units should remain in the angular disposition to which they are moved, this is effected by permitting the latch head of the core 34 in the solenoid 35 to engage the teeth of the wheel 31. Preliminary to moving the wheel 31 by means of the hand wheel 26 and cable connections, the switch 36 is closed to energize the electric circuit embodying the wires 37 and 38, the battery 39 and the solenoid 35. By thus energizing the solenoid, the core and the latch head thereof are drawn back from, and out of engagement with, the wheel 31, to permit the same to rotate in correspondence with the operation of the hand wheel 26 and winch 27. When the power units have been set to the desired angle, then, by opening the switch 36, the latch head of the core 34 engages and locks the wheel 31 in position.

The auxiliary power-driven mechanism above referred to embodies an electric motor 40, which is introduced in the circuit above outlined by means of a switch 41. The switch 41, as indicated by the dotted lines in Fig. 2 of the drawings, may be disposed to complete the circuit embodying the solenoid 35, while cutting out the motor 40. The motor 40 is operatively connected with the intermediate gear wheel 31 by means of a pinion 42, the teeth of which are meshed with the teeth of said gear wheel 31. It will be understood that while there is not shown in the accompanying drawings, nor here described, mechanism for reversing the motor 40, nevertheless, any of the well known and conventional mechanisms suitable for this purpose may be employed with this end in view.

With a propelling mechanism constructed and arranged as described and as shown in the accompanying drawings, a boat may be navigated in very shallow water. The multiplication of the power units for diminished propellers compensates for the loss of power incident to the employment of larger propellers, while not requiring the submergence of said larger propellers. Also, by manipulating the power units to swing the same on their hinge pins 11, the propelling impulse may be so directed with reference to the hull of the boat as to coöperate with the rudder of said boat, to vary the course thereof. Again, if the boat has been tied or made fast to a wharf or pier, the propelling units may be so swung on their hangings as to draw the boat away from the pier.

While we have not shown or described in the drawings and specification generating means for supplying power to the motors 14, it will be understood that any known or suitable means may be employed. As indicated above, we do not wish to confine ourselves to the employment of an electric motor, such as the motor 14, it being possible to substitute for this motor any of the well known types of internal combustion, or some types of steam, engines.

Claim.

A boat propelling mechanism, comprising a plurality of power units, each embodying a propeller, a prime mover therefor; a casing for said prime mover, forming a bearing for said propeller, and a pivotal mounting for said casing; means flexibly connecting said units to maintain the same in parallel relation; an electric motor; a transmission mechanism connecting said units and said electric motor, said transmission mechanism

embodying suitable gear wheels and levers operatively connected; means for at will operating said motor; a solenoid latch for holding said gear wheels, said latch being disposed in circuit with said motor; and means for, at will, energizing said motor and latch.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN B. TRESCOTT.
RAYMOND C. BUSCH.

Witnesses:
M. B. FORRESTER,
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