(No Model.)

W. M. TUCKER.

PROPELLER.

No. 571,628. Patented Nov. 17, 1896.

FIG. 1.

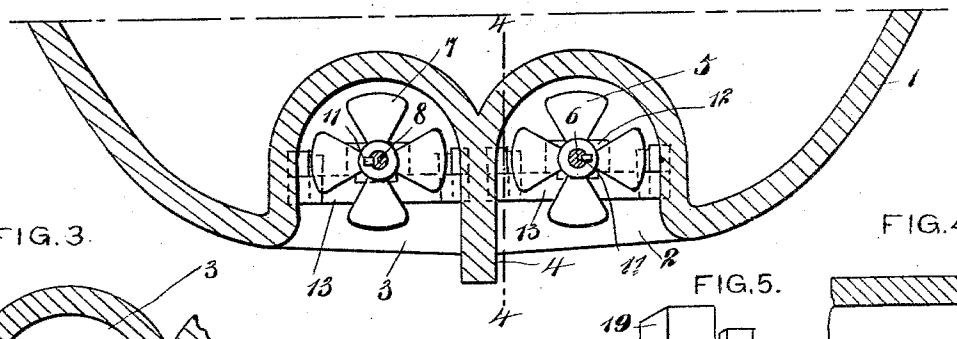


FIG. 3.

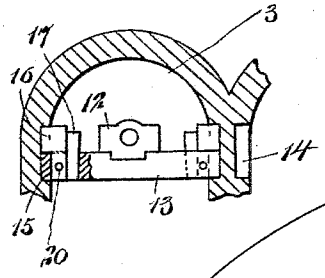


FIG. 2.

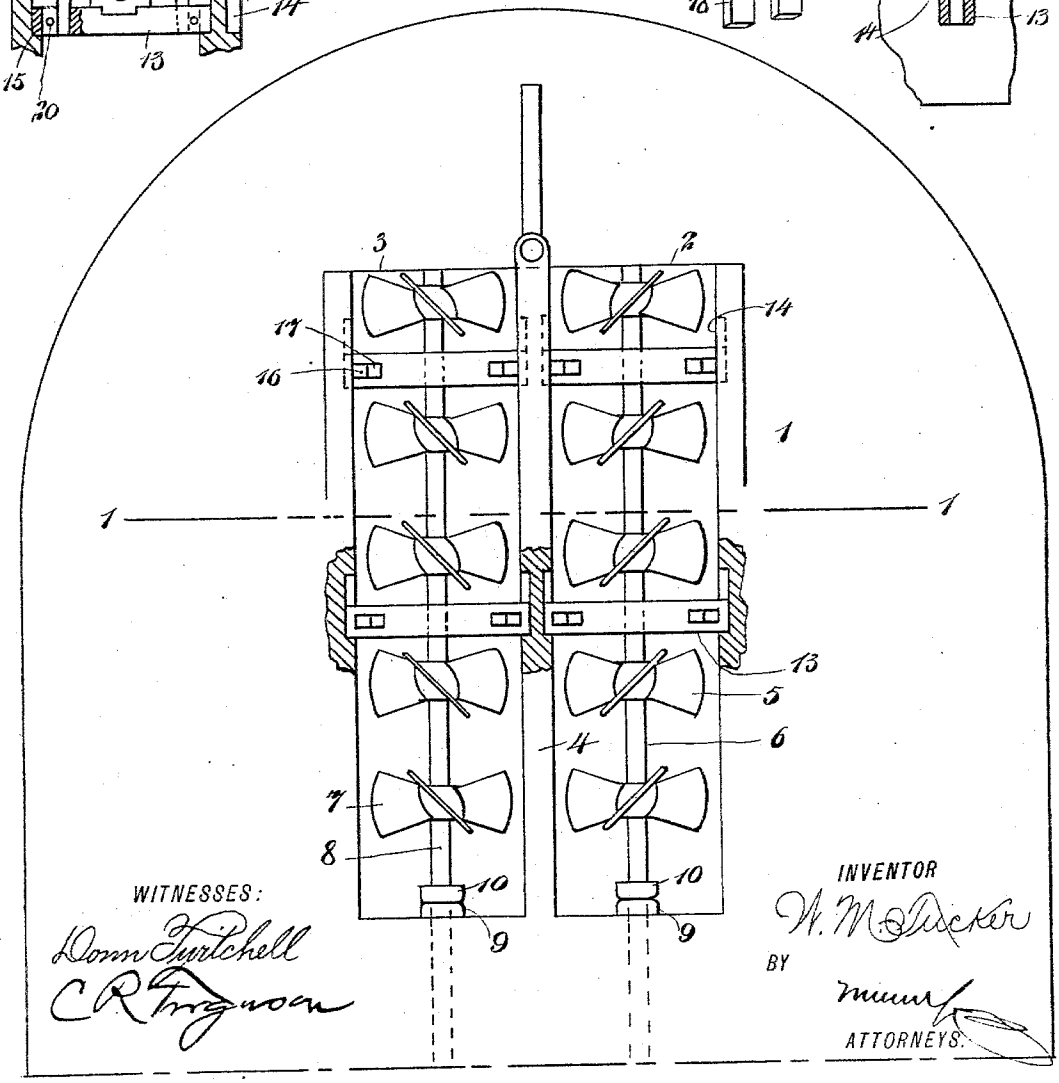


FIG. 5.

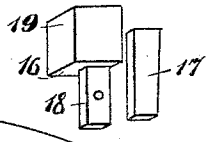
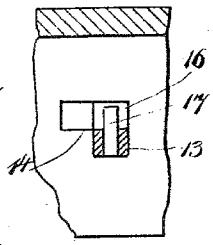


FIG. 4.



WITNESSES:

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WILLIAM MORRIS TUCKER, OF NELSONPOINT, CALIFORNIA.

PROPELLER.

SPECIFICATION forming part of Letters Patent No. 571,628, dated November 17, 1896.

Application filed August 3, 1896. Serial No. 601,516. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MORRIS TUCKER, of Nelsonpoint, in the county of Plumas and State of California, have invented a new and Improved Propeller, of which the following is a full, clear, and exact description.

This invention relates to propelling devices for steam vessels, and is particularly adapted to large vessels, such, for instance, as those plying in deep waters; and the main object of my invention is to so construct the propelling devices that a greatly-increased rate of speed may be obtained without the expenditure of an increased driving-power or consumption of coal over that of the propellers as ordinarily used.

I will describe a propeller embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a transverse section, substantially on the line 1 1 of Fig. 2, of the hull of a vessel, showing my propeller mechanism as attached thereto. Fig. 2 is a bottom plan view thereof. Fig. 3 is a sectional detail. Fig. 4 is a section substantially on the line 4 4 in Fig. 1, and Fig. 5 shows the construction of several keys employed.

In carrying out my invention I provide the keel 1 of a vessel with two longitudinally-extended chambers 2 3. These chambers may be and preferably are arranged near the stern of the vessel, and they may be of any desired length, depending entirely upon the number of propeller-wheels to be placed therein, as will be hereinafter described, the number of propeller-wheels of course depending upon the size and draft of the vessel. The chambers 2 and 3 have their walls extended upward from the bottom of the vessel, and of course there is an outward opening at the bottom. The two chambers are separated by a wall 4, which may constitute a portion of the keel of the vessel. Therefore it will be seen that the two chambers are arranged quite close together.

Within the chamber 2 are arranged a number of propeller-wheels 5, mounted on a shaft 6, extended to the engine of the vessel in the usual manner, and in the chamber 3 are mounted similar propeller-wheels 7, which are also mounted on a shaft 8, having connection with the driving mechanism. The shafts 6 and 8 extend through suitable stuffing-boxes 9, arranged in the inner end wall of the respective chambers, and collars 10 may be attached to the shafts to engage against the stuffing-boxes 9 by means of screws, so that said collars may be removed when it is desired to remove a shaft. The propeller-wheels are also removably attached to their shafts by keys 11, which engage in grooves in the shafts and also in grooves formed in the interior of the hubs of the wheels. The shafts 6 and 8, respectively, have bearings in boxes 12, secured on the upper side of bars 13, extended transversely of the chambers 2 and 3 and removably secured therein.

As a means for removably securing the transverse bars 13 in position I provide the opposite side walls of a chamber with L-shaped recesses 14, into which the ends of a bar may pass. Each end of a bar 13 is provided with a vertically-disposed mortise 15, into which keys 16 and 17 are designed to be placed after the end of the bar shall have been seated in the recesses. The key 16 has a shank portion 18 and a head portion 19, the said head portion being extended laterally from each side of the shank portion and also being extended forward from one edge thereof. The head 19 will be of a size in cross-section to fit snugly against the walls of a recess 14. The key 17 is substantially in the form of a wedge.

In inserting a bar 13 one end is placed in a recess 14 near one end of said recess and the other end of the bar is placed in the opposite recess near the opposite end, the said ends of the bar of course being in the horizontal portions of the recesses. Then by drawing the bar to a position directly at right angles to the chamber, so that the two ends are in direct lines with the vertical portions of the recesses 14, the ends of the said bar may be moved downward into the said vertical portions of the recesses. The shank portion 18 of the key 16 is forced through the mortise in the end of the bar, the said mortise being extended sufficiently toward the center

of the bar to allow said key to be placed therein without striking the inner side of its head against the wall of the chamber. After inserting the shank portion of the key through the mortise the key is to be forced outward, so that its head portion will engage in the recess 14. After this the wedge-shaped key 17 may be forced into the mortise between its inner end and the inner edge of the key 16. As a further means for securing the key 16 a pin 20 may be inserted through perforations formed in the bar 13 and in the shank portion of the key.

It will be seen that the several propeller-wheels are so arranged in the chambers that they do not project at any time below the bottom of the vessel, and therefore they are not liable to be raised out of the water while the vessel is crossing or riding large waves, and therefore there is very little danger, if any, of breaking the shaft, as often happens in the usual type of propeller when the said propeller is raised out of the water and allowed to rotate against the resistance of the air only.

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

1. A vessel having a chamber arranged along its keel, a propeller-shaft extended longitudinally through said chamber, a number of propeller-wheels on said shaft, and supporting-bars for said shaft having their ends removably engaged in recesses in the side walls of said chamber, substantially as specified.

2. A vessel having parallel chambers arranged along its keel, an outlet-opening at the bottom, a propeller-shaft arranged longitudinally in each chamber, transverse bars for supporting said shafts, the said transverse bars having their ends fitted into L-shaped recesses formed in the opposite walls of the chamber, keys for securing said bars in the recesses, and propeller-wheels on said shafts, substantially as specified.

3. A vessel, comprising a hull having parallel longitudinal chambers formed along its keel, L-shaped recesses formed in the opposite walls of each chamber, transverse bars adapted to engage their ends in said recesses, the said bars having transverse mortises, a key having a shank portion to engage through a mortise and having a head portion to engage in a recess, a wedge-shaped key for securing the first-named key in position, propeller-shafts supported on said transverse bars, and propeller-wheels removably secured on said shafts, substantially as specified.

WILLIAM MORRIS TUCKER.

Witnesses:
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