(No Model.)

R. SMITH.

VIBRATING PROPELLER.

No. 289,867. Patented Dec. 11, 1883.

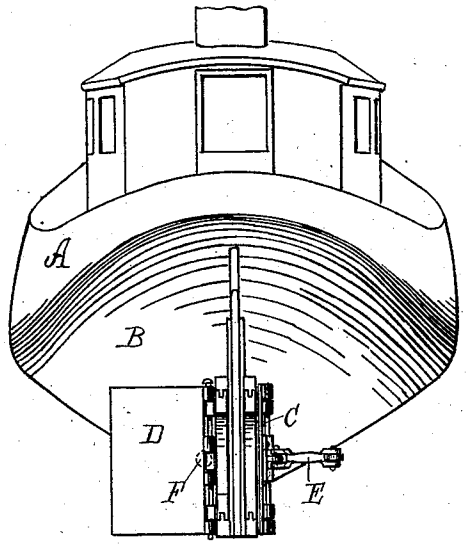
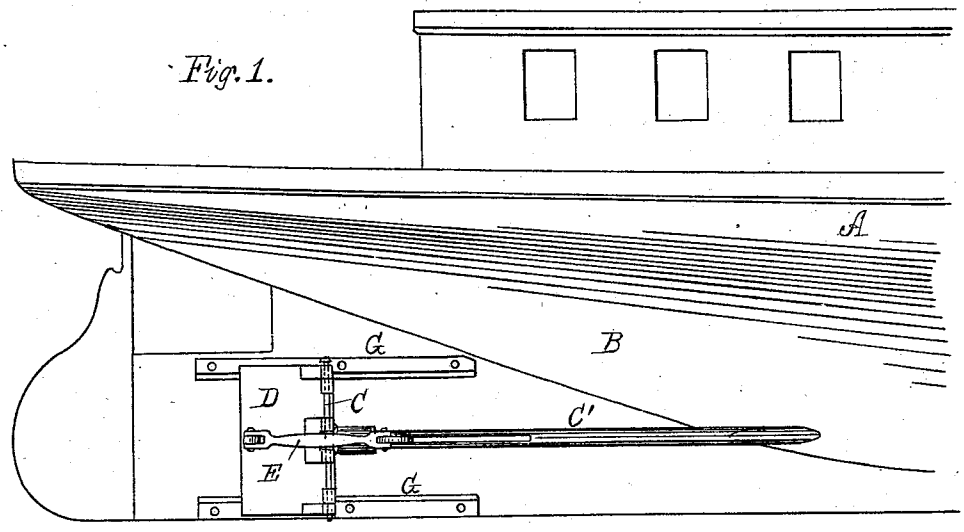


Fig. 2.

Fig. 1.



Witnesses.

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UNITED STATES PATENT OFFICE.

RICHARD SMITH, OF SHERBROOKE, QUEBEC, CANADA.

VIBRATING PROPELLER.

SPECIFICATION forming part of Letters Patent No. 289,867, dated December 11, 1883.

Application filed January 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, RICHARD SMITH, a subject of the Queen of Great Britain, residing at Sherbrooke, in the county of Sherbrooke and Dominion of Canada, have invented certain new and useful Improvements in Reciprocating Propellers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

These improvements relate to a class of marine propellers shown and described in Letters Patent of the United States numbered 264,903, and issued to myself on the 26th day of September, 1882. Under the construction shown in said patent the propeller-blades are arranged to open and close horizontally, and reciprocate in an opening through the stern dead-wood of the vessel, and are greatly exposed to the violence of the sea. In my present construction I preserve the stern dead-wood or the lower part of the same intact, and I employ two propellers of one blade each—one upon each side of said dead-wood—and I arrange the said propeller-blades vertically, so as to open and close in vertical planes, in lieu of horizontal, as before. Each blade lies closely up to the dead-wood, and plays within horizontal guides secured to such dead-wood. For this reason the small quantity of broken water between the propeller and dead-wood offers very little friction to the blade on the return-stroke, and the blades, as before intimated, are greatly protected from the shocks and thrusts of the waves.

The drawings accompanying this specification represent, in Figure 1, a side elevation of a navigable vessel containing my improved propeller. Fig. 2 is an end view of the stern of the same.

In said drawings, A represents the hull of a navigable vessel, and B the stern dead-wood of the same.

C represents a vertical cross-head sliding to and fro of the dead-wood longitudinally of the vessel upon each side the latter, and operated by a longitudinal tubular shaft, C′, extending into the interior of the vessel, and properly operated to reciprocate the cross-head.

D D represent the folding blades of the twin propellers, each being pivoted at its base to one of the cross-heads C, while its outer edge is pivoted to one end of a rod, E, the opposite end of such rod being pivoted to a shaft, F, sliding within the tubular shaft C′, and with the latter extending into the interior of the vessel, and operated in suitable manner. The two shafts C′ and F are operated in such manner as to cause each blade D to fold during the ingoing or idle stroke of the propeller and open during the outgoing or active stroke. I have not in the present instance shown the engine for operating the two shafts C′ and F, as this engine is fully shown and described in my patent before mentioned, and in itself constitutes no novel feature of my present improvements. The cross-heads C C are guided by and reciprocate upon parallel horizontal ways or slides G G, secured to opposite sides of the dead-wood B.

I claim—

1. The stern dead-wood B of a vessel, provided on both sides with longitudinal guideways G, in combination with the vertical cross-heads C, moving in said guideways, the pair of wings D D, pivoted on said guideways and opening and closing in a horizontal direction, the reciprocating shafts C′, respectively attached to said cross-head, and the reciprocating shafts F, operating on the outer parts of said wings, respectively, substantially as set forth.

2. A tubular shaft, C′, and a vertical cross-head, C, to which it is attached, in combination with the stern dead-wood B and guideways on its sides for said cross-head, shaft F, reciprocating within tubular shaft C′, propeller wing or blade D, which is hung on said cross-head, so as to have a horizontally-opening and closing as well as a longitudinally-sliding motion, and a rod, E, which connects shaft F to the outer part of said wing or blade D, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD SMITH.

Witnesses:
H. E. LODGE,
THOS. T. BAILEY.