J. E. WILSON.

SCREW-PROPULSION.

No. 169,754.

Patented Nov. 9, 1875.

Fig. 1.

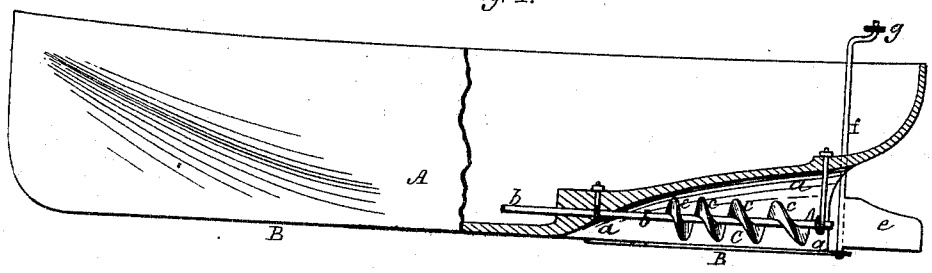
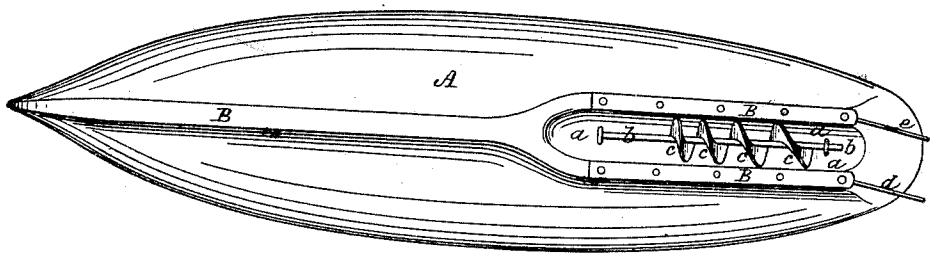


Fig. 2.



Witnesses.

W. B. Masson.

Edmund Masson

Inventor.

Joseph Erwin Wilson.

By atty A. B. Stoughton.

UNITED STATES PATENT OFFICE.

JOSEPH E. WILSON, OF BRAZORIA, TEXAS.

IMPROVEMENT IN SCREW-PROPULSION.

Specification forming part of Letters Patent No. 169,754, dated November 9, 1875; application filed October 15, 1875.

To all whom it may concern:

Be it known that I, JOSEPH ERWIN WILSON, of Brazoria, in the county of Brazoria and State of Texas, have invented a new and useful Improvement in Screw-Propellers and their adaptation to the hulls of vessels; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a side view, partly in section, of a boat or vessel with the propeller in question attached. Fig. 2 represents a plan of the under side thereof.

My invention consists in the combination of a screw-propeller having a graduated pitch of its thread or blades from the front toward the rear of the vessel, with a recess, box, or chamber, having a graduated or enlarged area from its front toward its rear, as will be explained.

A represents the hull of a boat or vessel having a Y-shaped even keel, B. In the after part or stern of the hull, and between the forks or branches of the keel, is a chamber, *a*, which inclines upward from the junction of the branches with the stem of the keel, so as to enlarge the area or water-way of said chamber from its front toward its rear end, which is open, as is also its under side. C is a screw-propeller, hung and revolving in the chamber *a*.

The propeller is constructed as follows: Upon a central shaft, *b*, is constructed the screw or threads *c*, the pitch of which is gradually spread from front to rear, so as to correspondingly enlarge the water-way between them from front to rear.

The object of the spreading of the screw from front to rear is that the succeeding threads or coils shall not work in the broken water of the preceding thread, coil, or turn of the screw, it being well known that a propeller working in broken water has very little hold upon such water, and consequently loses much of its propelling force.

The graduated spread of the screw should be from twenty-five to thirty per cent. increase; or, say in a propeller of two and one-half feet in diameter the space between the first two turns of the thread or screw may be four and three-quarter feet, the next space five and one-quarter feet, the next six and one-half feet, and so

This proportion I have found answers well; but I may change it without departing from the characteristic feature of this part of my invention.

The chamber *a* is enlarged in area from front to rear, so that as the vessel settles by the stern, by the raising of the bow, which occurs in loading the vessel, the rear of the screw will have abundant clearance or water-way, so as not to impede the action of the screw.

The object attained by the combination of a continuously-expanding screw-thread with a continuously-expanding chamber is twofold: first, that the succeeding turn of the thread may not turn in the whirl created by the preceding turn; or, in other words, that every portion of the thread may work in differently-moving water, or water not broken up by the preceding thread into a whirl corresponding with the next thread, and that the chamber or water-way may furnish the requisite volume of water to the propeller, which receives and throws it off at a continuously varying angle in relation to the shaft.

The shaft *b* passes through a packed bearing in the bottom of the hull, as shown, and extends into the hold of the vessel, where the engine and driving-gear are placed.

Two rudders, *d e*, may be used, one at each termination of the forks or branches of the keel. These rudders are hung to separate posts *f*, which are linked together by their cranks or helms by a coupling, *g*, so that both may be moved together. This enables the boat to be readily and easily steered in narrow, winding, and shallow bayous; and the branch keels may be plated with iron or other metal to protect them and the propeller between them.

The screw may be constructed with a single or double thread at the option of the builder.

Having thus fully described my invention, what I claim, is—

In combination with a screw-propeller having a gradually-enlarged or spread pitch or thread from front to rear, the chamber *a* having increased clearness of water-way from front to rear, as and for the purpose described and represented.

JOSEPH ERWIN WILSON.

Witnesses:

A. B. STOUGHTON,