T. J. Wells.

Screw Propeller.

No. 2,400. Patented Dec. 23, 1841.

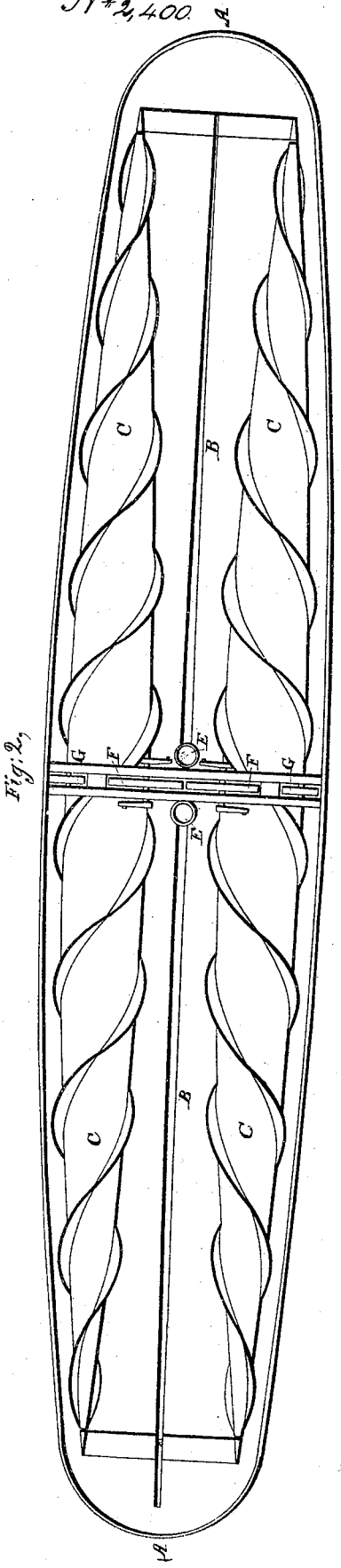

Fig. 2.

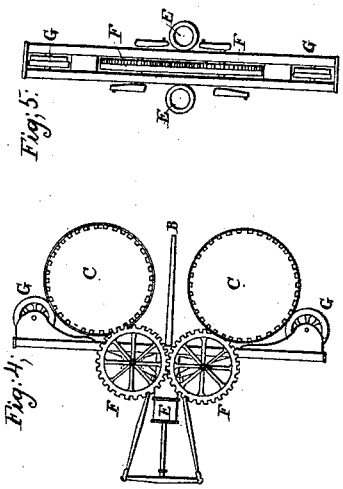

Fig. 5.

Fig. 4.

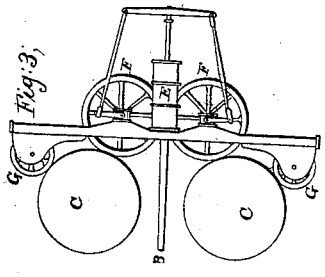

Fig. 3.

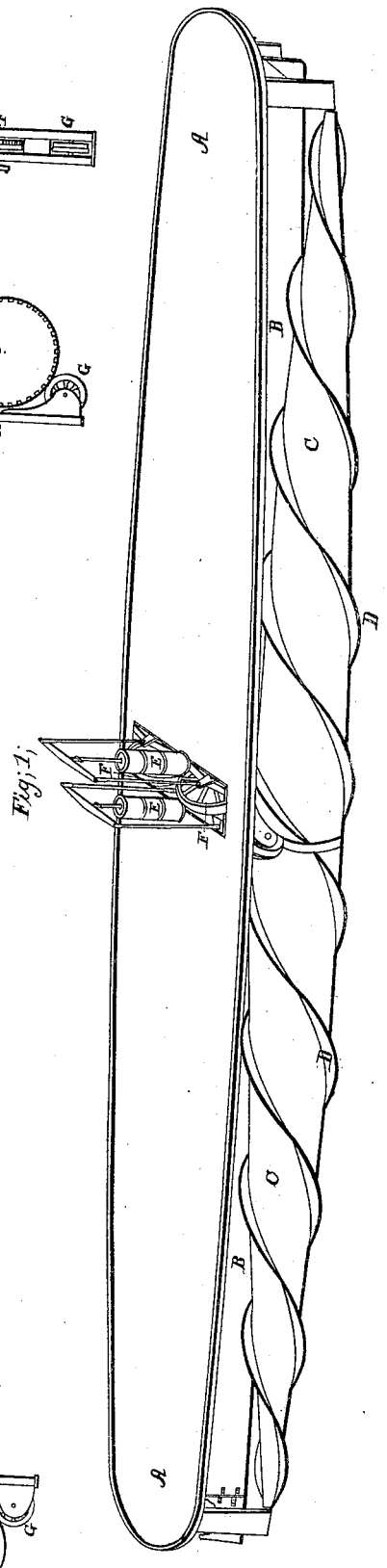

Fig. 1.

UNITED STATES PATENT OFFICE.

THOMAS J. WELLS, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MANNER OF CONSTRUCTING AND OF PROPELLING STEAMBOATS, DENOMINATED THE "BUOYANT SPIRAL PROPELLER."

Specification forming part of Letters Patent No. **2,400**, dated December 23, 1841.

To all whom it may concern:

Be it known that I, THOMAS J. WELLS, of the city of New York, in the State of New York, have invented a new and Improved Manner of Constructing and Propelling Boats or other Vessels which are to be Propelled by Steam or other Motive Power, and which improved boat or vessel I denominate the "Buoyant Spiral-Propeller Boat;" and I do hereby declare that the following is a full and exact description thereof.

In my boat or vessel I use a screw-propeller, or screw-propellers, which are so constructed as not only to operate as propellers, but also to give buoyancy to the vessel, they being in some instances made sufficiently buoyant to sustain the whole load, including both the weight of the boat and of its lading, and in all cases said propellers contributing largely by their buoyancy and by the manner in which they are arranged in effecting this object.

In the accompanying drawings, Figure 1 is a perspective view of one of my boats so constructed as that its buoyancy shall be derived entirely from the manner of constructing and of arranging the spiral propellers. Fig. 2 is a top view of the same, supposing the deck to be transparent, so as to exhibit the propellers below it. Fig. 3 is a vertical transverse section across the middle of the boat; Fig. 4, a similar section with some variation from the former. Fig. 5 is a top view of the arrangement shown in Fig. 4.

A A is the deck of the boat, which consists of a continuous platform without any hold below it, but such timbers only as are necessary to support the deck.

B B is a broad keel attached to the lower side of the deck and extending from end to end of the boat. Its depth may be equal to that of the greatest diameter of the spiral propellers or greater or less than this, as may be preferred.

C C are the spiral propellers, which are pointed at their ends, so as to pass readily through the water. They have their greatest diameter at their middles, their form being nearly that of two cones joined together at their bases; but they are in preference made barrel-formed or curved from end to end. Instead of giving them this form, however, I intend sometimes to make them cylindrical along the greater portion of their length, but tapering off conically toward each end. They will under this form possess greater buoyancy than when made in that shown in the drawings. These propellers are hung upon gudgeons at each end, so as to allow them to revolve freely, and where a vessel is of such length as would render it inconvenient to have a single propeller extending from stem to stern there may be two propellers placed end to end with their axes coinciding. These propellers are to be made hollow, of light materials, and they may be bound together by iron hoops and calked, so as to render them water-tight. I have in the drawings shown two such propellers, but do not intend to limit myself to this particular number. Along them are arranged the spiral or screw propelling vanes D D, which may be formed of sheet-iron or of any other suitable material. These spirals are continued the whole length of the propellers, excepting at their middles, where power is applied to them by which they are made to revolve. In this part the spirals are discontinued for the requisite distance.

I intend, in general, to communicate the power derived from the steam-engine by friction only, but to use cogged or other gearing should it be found requisite.

E E represent steam-engine cylinders, which are to give motion to the wheels F F. The peripheries of these wheels are to be in contact with the bodies of the spiral propellers at their middles and are to give motion thereto.

G G are friction-wheels affixed to the framework of the boat, as seen most distinctly in the sectional views, Figs. 3 and 4. These are for the purpose of supporting the propellers.

In Fig. 3 the wheels F F and the body of the propeller are represented without cogs, as in most cases the force with which the propellers will be borne up against the wheels F F will occasion such adhesion or friction as will suffice to produce the intended effect. There may be teeth or cogs, if found necessary in any case, upon the wheels F F and upon the propellers, as shown in Fig. 4.

In some cases I intend to make use of the buoyancy of the boat itself to aid in sustaining it on the water, still, however, depending in a great degree upon the buoyant propellers.

In Fig. 6 A A is a boat, and C C the buoyant propellers on each side of it. This is shown in section in Fig. 7, and will not need

further description. Fig. 8 represents two such boats with the propellers between them; and Fig. 9, a cross-section thereof, the whole arrangement of which will be perfectly obvious, the same letters of reference being used to designate the respective parts which are employed in the other figures.

My buoyant spiral propellers I intend sometimes to combine with a stationary buoyant trunk attached to the boat and in a line with the revolving propellers. My intention in this modification of my apparatus will be manifest from an examination of Figs. 10 and 11. In Fig. 10 the middle portion C′ is made to revolve, while the two pointed ends C^2 C^2, which are firmly attached to the boat, are employed only for their buoyancy and to give such form to the termination of the propelling portion as shall cause the boat to pass readily through the water. In Fig. 11 the middle portion C^3 C^3 of the buoyant body is made stationary, and the terminal ends C^4 C^4 alone act as propellers.

Having thus fully described the nature of my invention, and shown how the respective parts thereof are constructed and made to operate, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The employment of buoyant screw-propellers for steamboats, so constructed and arranged as that they shall constitute the whole of the buoyant portion of the boat, which propellers may in this case be nearly or entirely submerged.

2. The use of such propellers so arranged and combined with the boat as that the hull of the boat itself shall dip into the water and concur with the propeller or propellers in giving to the whole structure the requisite degree of buoyancy, the said propellers and boat being constructed, arranged, and combined substantially in the manner herein set forth.

I do hereby declare that I do not claim the use of buoyant propellers generally, such propellers having been used or proposed to be used with their axes crossing the boat; but I limit my claim to the use of buoyant screw-propellers placed like other screw-propellers in the direction of the length of the boat, as herein set forth.

THOS. J. WELLS.

Witnesses:
THOS. P. JONES,
G. D. WALDO.