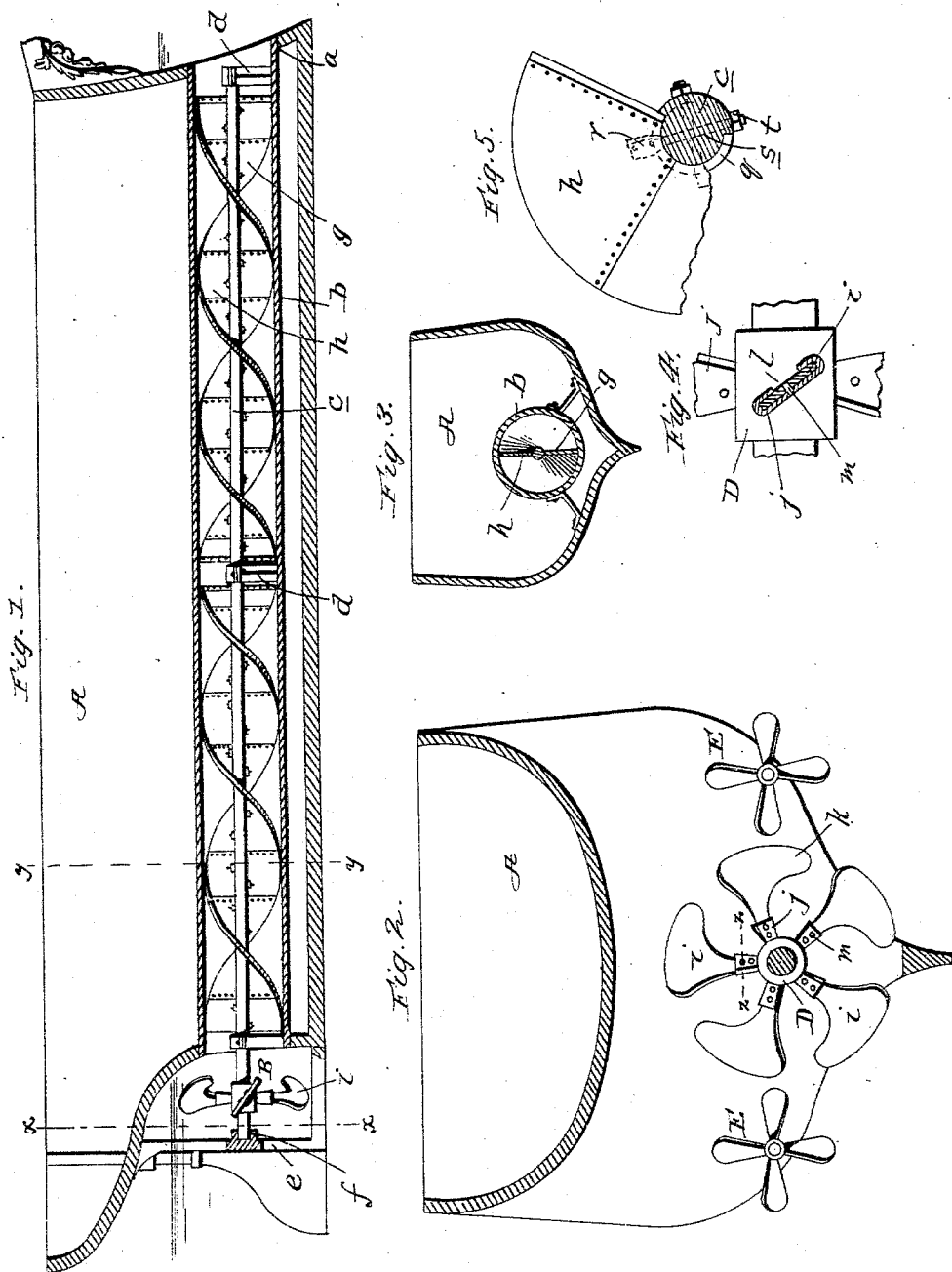


(No Model.)

J. I. NEWBURG.
PROPELLER FOR VESSELS.

No. 565,021.

Patented Aug. 4, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN ISRAEL NEWBURG, OF VICKSBURG, MISSISSIPPI.

PROPELLER FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 565,021, dated August 4, 1896.

Application filed October 28, 1895. Serial No. 567,159. (No model.)

To all whom it may concern:

Be it known that I, JOHN ISRAEL NEWBURG, a citizen of the United States, residing at Vicksburg, in the county of Warren and State of Mississippi, have invented certain new and useful Improvements in Propellers for Vessels; and I do 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.

This invention relates to improvements in propellers for vessels, and the novelty and many advantages will appear from the following description and claims, when taken in connection with the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of a vessel with my improvements applied. Fig. 2 is a cross-sectional view taken in the plane indicated by the dotted line *xx* on Fig. 1. Fig. 3 is a similar view taken in the plane indicated by the dotted line *yy* on Fig. 1. Fig. 4 is a detail sectional view taken in the plane indicated by the dotted line *zz* on Fig. 2; and Fig. 5 is a sectional detail view with one of the blades broken.

Referring by letter to said drawings, A indicates a vessel which may be of any ordinary or approved construction. I provide the vessel throughout its length from bow to stern, and preferably just above the keel, with a cylindrical opening *a*, and within this opening I fix a tube *b*, which may be composed of metal or other suitable material, and is open at opposite ends, so as to allow a channel or passage for water through the same. Within this tube and in the longitudinal center thereof is arranged a shaft *c*, which may have its bearings on standards *d*, suitably constructed for the purpose, and the rear end of said shaft may have its bearing in the rudder-post *e*, as shown at *f*. I provide this shaft with spiral blades which are carried in opposite directions around the shaft, the blade *g* being carried spirally to the right, while the blade *h* is carried in a similar manner to the left. These blades are made up of sections shaped as shown, and their inner edges are let into a groove *q* in the surface of the shaft C. Each blade has an arm *r*, secured to it by bolts or otherwise, and the bolts which

pass through transverse holes *s* in said shaft have their free ends threaded to receive a nut *t*, or other suitable fastening device. 55

It will be observed that the rear end of the shaft extends beyond the tube in the vessel and this extended portion carries a propeller B, so as to receive the water as it leaves the tube. By reason of this tube extending entirely through the bottom of the vessel it will be seen that the double spiral will act as a concentrator for the water. 60

The main propeller B has five blades *i*. These blades are of a peculiar shape and are disposed obliquely to the longitudinal plane of the shaft, the adjacent edges of each blade being elongated, as shown at *k*, and this elongated portion enters the water first during the rotation of the shaft. 65 70

D indicates a collar, which is suitably secured on the shaft *c*, so as to turn therewith. This collar is provided with sockets *j*, which are of an oblong form in cross-section, and are slotted or open on one side, as shown at *l*. The wall of the socket facing the opening is provided with a suitable number of holes to receive bolts *m*, or the like, which also take through aligned holes in the stems of the blades *i*. By this construction it will be seen that should any one or more of the blades become impaired or injured they may be removed and replaced by others. 75 80

In the practice of the invention the propeller B is preferably made about three times as large in diameter as the spiral blades of the screw in tube *b*. In consequence of this it will be observed that at or adjacent to the center of the propeller B the speed is three times as great as the spiral blades of the screw. 85 90

The five blades of the propeller B have broad pressure capacity and will not churn the water into foam, and consequently one hundred revolutions of said propeller B will be equal to one hundred and fifty revolutions of the ordinary propeller. 95

E indicates the small propellers arranged one on each side of the main propeller B and may be operated in conjunction with the main propeller or independently thereof, as may be desired. 100

With an apparatus of the character shown and described a greatly-increased speed can

be obtained, and the improvements can be applied to new vessels or vessels such as at present in use at a comparatively small expense.

- 5 From the foregoing description, taken in connection with the annexed drawings, it will of course be understood that the small propellers receive their motion from the driving mechanism of the vessel, while the
10 large propeller receives its rotation and is driven by the force of the water passing from the tube *b*.

Having described my invention, what I claim is—

- 15 1. A vessel-hull provided with a longitudinally-disposed opening of circular form in cross-section extending from its bow to its stern and having its opposite ends open, a longitudinal shaft journaled in suitable bear-
20 ings and arranged in the longitudinal center of the opening in the hull and extending rearwardly from the rear end of said opening, spiral blades fixed on the shaft so as to turn therewith and arranged in and conform-
25 ing in size to the opening in the hull, and the propeller fixed on the rearwardly-extended end of the shaft in rear of the opening in the hull and in alinement therewith substan-
tially as and for the purpose set forth.

- 30 2. A vessel-hull provided with a longitudinally-disposed opening of circular form in cross-section, extending from its bow to its

stern and having its opposite ends open, a longitudinal shaft journaled in suitable bear-
ings and arranged in the longitudinal center 35
of the opening in the hull and extending rearwardly from the rear end of said opening, spiral blades fixed on the shaft so as to
turn therewith and arranged in and conform-
ing in size to the opening in the hull, and the 40
propeller fixed on the rearwardly-extended end of the shaft in rear of the opening in the hull and in alinement therewith and having
the five blades each of which is disposed ob-
liquely upon the shaft and is provided with 45
the elongated portion *k*, substantially as specified.

3. In a propeller for vessels, the combina-
tion of a shaft having peripheral grooves *q*,
and also having the diametrical apertures *s*, 50
the blades let into the grooves *q*, of the shaft and having the bolts extending through the apertures *s*, of the shaft and provided with
screw-threads, and nuts mounted on the ends
of said bolts so as to secure them and the 55
blades to the shaft, substantially as and for the purpose set forth.

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

JOHN ISRAEL NEWBURG.

Witnesses:

D. J. KLENKY,
GUSTAV SINA.