

S. F. GARD.
No. 120,735.

Improvement in Propulsion of Vessels.

Patented Nov. 7, 1871.

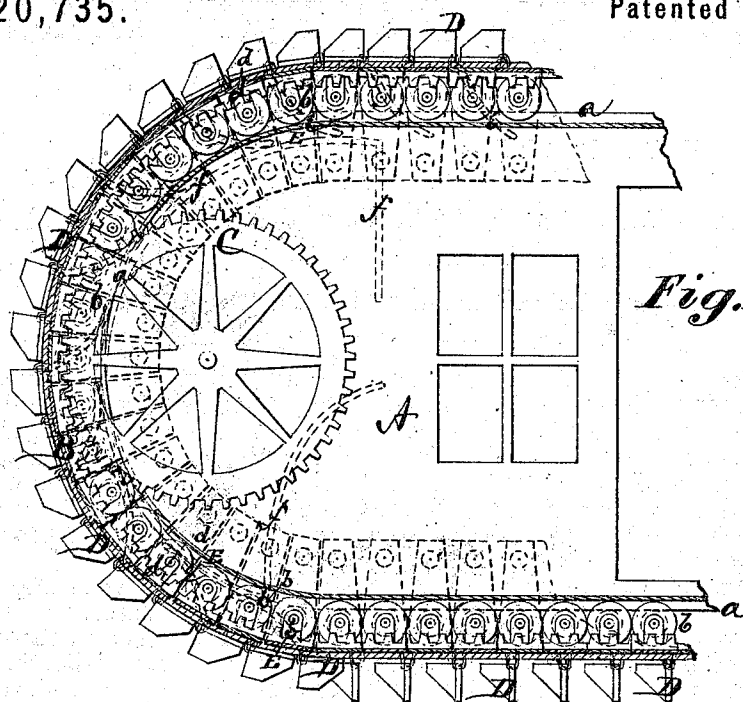


Fig. 1.

Fig. 2.

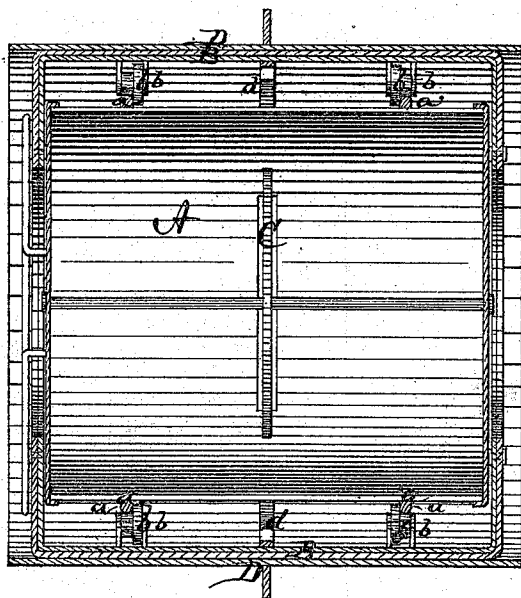
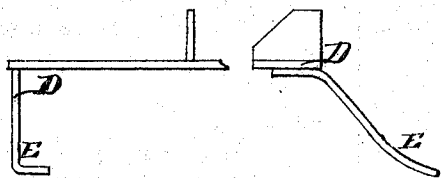


Fig. 3. Fig 4.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL F. GARD, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN PROPULSION OF VESSELS.

Specification forming part of Letters Patent No. 120,735, dated November 7, 1871.

To all whom it may concern:

Be it known that I, SAMUEL F. GARD, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Propellers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon which form a part of this specification.

The nature of my invention consists in a new method of and means for propelling canal or other boats, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a longitudinal vertical section of a portion of my boat. Fig. 2 is a transverse vertical section of the same, and Figs. 3 and 4 show detached portions of the same.

A represents a boat of any suitable dimensions, constructed somewhat in the shape of an ellipse, having no opening on top, but only on the sides. This boat is provided, longitudinally around its entire circumference, with iron rails *a a* of the usual shape for railroad rails. Around this, and fitted to it, is placed a drum or endless apron, B, making an endless elliptical dry-dock. This drum or apron may be made in any desired or convenient shape, of a series of water-tight boxes of light wood, cork, or any other suitable material, and joined together so as to fit around the outside of the boat. On the inside of the drum or apron B are wheels *b b*, arranged in longitudinal rows around the entire inner circumference, which wheels fit upon the rails *a a* so that the drum is enabled to rest and revolve upon the same. To the inside of this apron are also attached one or two endless chains or sectional rack-bars, *d d*, which fit into one or two cog-wheels, C, at either or both ends of the boat, said cog-wheels being moved or turned by means of cranks connected with one or more engines placed within the boat. On the outside of the drum or apron B are hinged paddles D D, which catch in the water as the apron passes under the boat, and thus form a resisting medium, by means of which the boat proper, on the inside of the apron or drum, is caused to move forward. Each paddle D is pro-

vided with a lever, *e*, at one end, which strikes a guard or railing, *f*, attached to one side of the boat A, in such a manner that the paddles will always come vertically down into the water and be lifted out of it in the same manner. When each paddle enters the water in this manner the resistance of the water will retain it in this position until it passes out again.

A greater hold on the water is also obtained over the ordinary paddle-wheel or screw; as the hold on the water is measured by the entire length of the boat multiplied into its depth, and this into the depth of the paddles; and, as a result of all this, the disturbance of the water in canals and other slack-water courses is greatly lessened below that caused by other boats doing the same work or moving the same weights; because, as I save nearly all the friction of the water against a sliding boat and have many times the hold on the water that other boats have, consequently the water is less disturbed in its resistance to the paddles than by ordinary paddle or screw-propellers. Furthermore, each paddle as it goes into the water takes hold of water nearly at rest, and therefore gets the full force or resistance of dead-water.

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

1. A boat made with openings on the sides only, and provided with a track running around the same, in combination with the revolving drum or apron B provided with the wheels *b b*, said apron being operated from within, as set forth.

2. In combination with the revolving drum or apron B and paddles D D, the levers *ee* and guard *f*, or their equivalents, for the purposes herein set forth.

3. The combination of the boat A with track *a*, drum or apron B with wheels *b b* and chain or rack-bar *d*, the cog-wheels C and paddles D D, all constructed and arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

S. F. GARD.

Witnesses:

WM. SHANNON,
DUDLEY WHITCOMB.

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