No. 650,091. Patented May 22, 1900.

W. L. MATTS & J. B. SWAIN.

PROPELLING MECHANISM.

(Application filed Sept. 13, 1899.)

(No Model.)

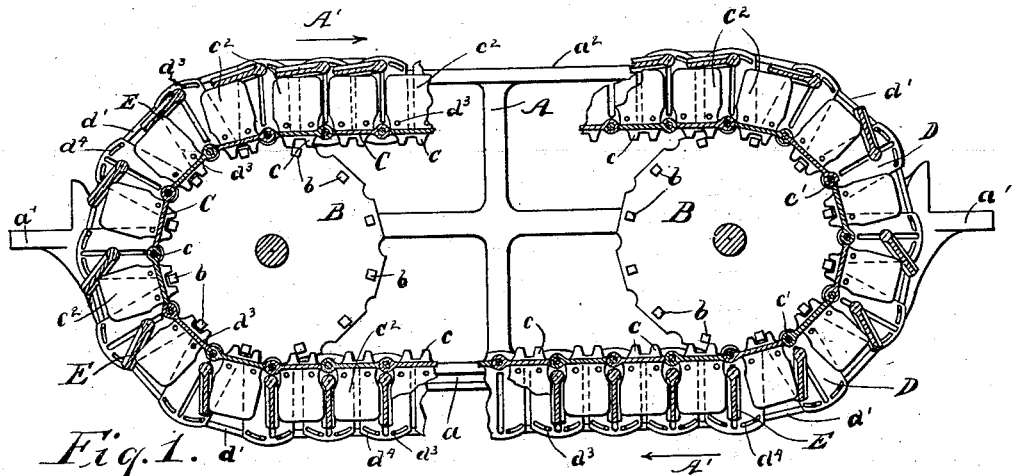

Fig. 1.

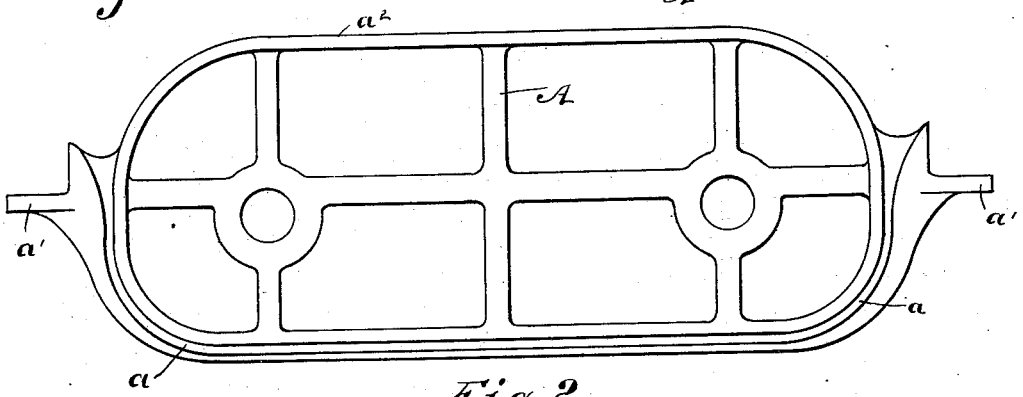

Fig. 2.

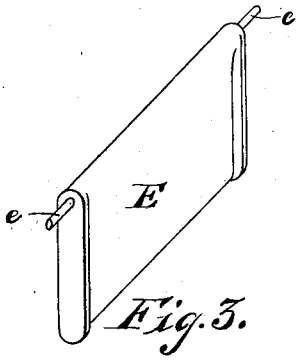

Fig. 3.

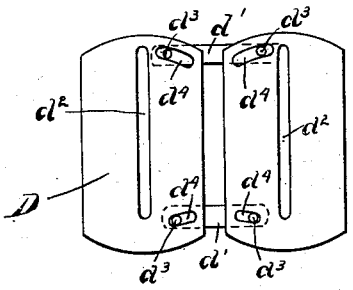

Fig. 4.

WITNESSES:
R. McComb.
R. A. Williams

INVENTORS
William L. Matts
and John B. Swain.
BY Rufus Ching.
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM L. MATTS AND JOHN B. SWAIN, OF NEWARK, NEW JERSEY.

PROPELLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 650,091, dated May 22, 1900.

Application filed September 13, 1899. Serial No. 730,350. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM L. MATTS and JOHN B. SWAIN, citizens of the United States, and residents of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Propelling Mechanism, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts in all the figures.

Our invention relates to an improved mechanism for propelling ships, and has for its object to provide a cheap and effective construction for the propulsion of ships. We attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a section of the mechanism, showing its operation. Fig. 2 is a view of the side frame carrying said mechanism. Fig. 3 is an enlarged perspective view of one of the blades; and Fig. 4 is a detail view showing method of joining the side plates, as will be hereinafter fully described.

Referring to the drawings, A represents the side frame, which carries the driving-wheels B. The said driving-wheels B are provided with lateral projections *b*, which are adapted to engage in the jaws *c* of a moving belt made up of plates C, connected by hinged joints *c'* and mounted upon the said wheels B. The said plates C are provided with the side projecting pieces c^2.

Moving outside of the plates C is a chain composed of the plates D, fastened by means of the rods *d'* and *d'*. The said plates D are provided with slots d^3, which are adapted to allow pins *e*, projecting from the blades E, to move in them. The said blades E are held in position by means of the chain made up of the plates D. A pin d^3 is employed to fasten the plate D to the rod *d'* and moves in a groove d^4 upon said plate.

The side frame A is constructed with a groove *a*, adapted to receive the end of the pins *e* upon the blade E, and is also provided with projecting lugs *a'*, which afford a means for attaching the mechanism to a vessel to be propelled.

The operation of the device is as follows: The mechanism is suitably attached to the vessel, and the driving-wheels B are set in motion by any suitable means. As shown in Fig. 1, the mechanism is indicated as revolving or moving in the direction shown by the arrows A'. The lower blades engage in the water and are securely held in a vertical position by means of the side projecting pieces c^2. As the chain or belt continues to move upwardly the pins follow the track of the groove *a* and the blades E are forced out along the slot d^2 in the plates D until they engage along the upper end of the track a^2, and moving along they are again forced inward by means of the pins *e* engaging in the track *a*, and continue to move in as they come down until they turn over by force of gravity and again take a vertical position along the bottom of the apparatus.

It is obvious that the mechanism may be operated in a reverse direction. The position of the blades along the upper side of the mechanism will take a reverse position and will start to take a vertical position from the opposite end and be securely locked when they reach the lower portion of the mechanism.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a propelling mechanism for vessels, of a movable belt or chain composed of a series of plates C pivotally connected, driving-wheels B for driving said chain, collapsible blades E mounted in projecting side pieces c^2 formed upon the said plates C of said movable chain, side frames A carrying said driving-wheels B, and means for allowing the collapse of the aforesaid blades, substantially as described.

2. The combination, in a propelling mechanism for vessels, of a driving belt or chain composed of a series of plates pivotally connected, side projections extending outwardly from said plates forming said belt, lugs or jaws formed upon the under side of said plates of said belt or chain, a side belt or chain made up of a series of plates pivotally fastened by means of suitable rods and connected pivotally at suitable points along the side of the aforesaid driving belt or chain, blades mounted within said side belt or chain, small pins formed upon the end of said blade and engaging through slots in said plates of the side chain or belt and adapted to engage along

the track or groove and employed in conjunction with the aforesaid slot and plates of side chain, to overthrow the blade in its downward motion, suitable side frames for holding the mechanism in position, a groove and track formed upon the said side frame and employed as a guide in and upon which the pins on the blades engage, driving-wheels suitably mounted within said side frame, lugs formed upon said driving-wheel and adapted to engage the jaws formed upon the under side of the plates forming the aforesaid driving belt or chain and employed to revolve the mechanism, and suitable means for driving the same, substantially as described.

3. The combination, in a propelling mechanism for vessels, of a driving belt or chain composed of a series of plates pivotally connected, blades mounted within the said driving-belt, the side chain or belt composed of plates pivotally connected by means of a rod, small pins formed upon the said blades and engaging within slots upon the said plates forming the side belt or chain, driving-wheels mounted upon side frames and employed to set the mechanism in motion, a track and groove formed upon the said frame and adapted to allow the small pins on the aforesaid blades to engage within said groove and upon said track, projecting lugs formed upon the aforesaid side frames affording a means for attaching the mechanism to a vessel, and suitable means for driving the mechanism, substantially as described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 8th day of September, 1899.

WILLIAM L. MATTS.
JOHN B. SWAIN.

Witnesses:
R. A. WILLIAMS,
B. MCCOMB.