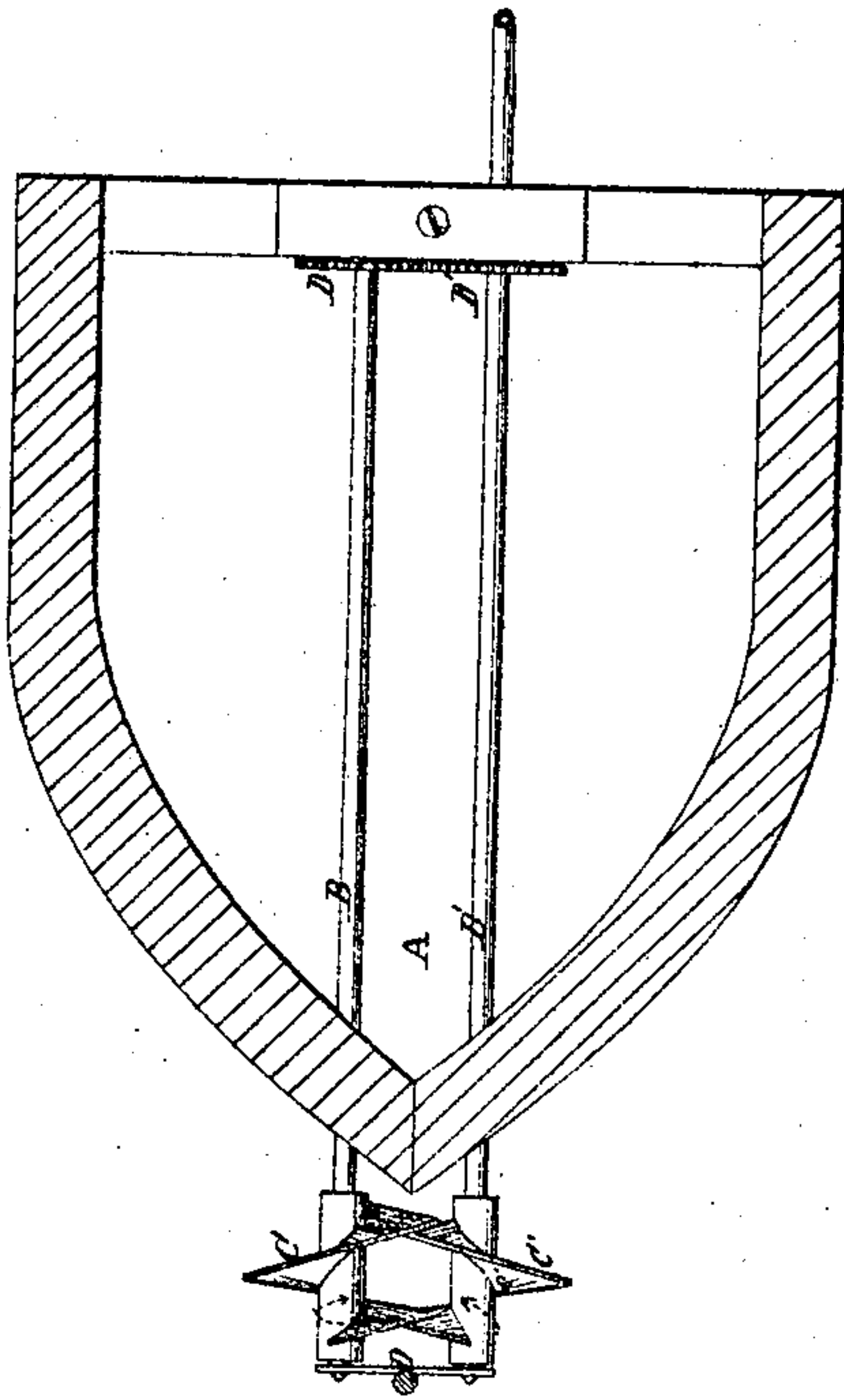


N<sup>o</sup> 26,106.

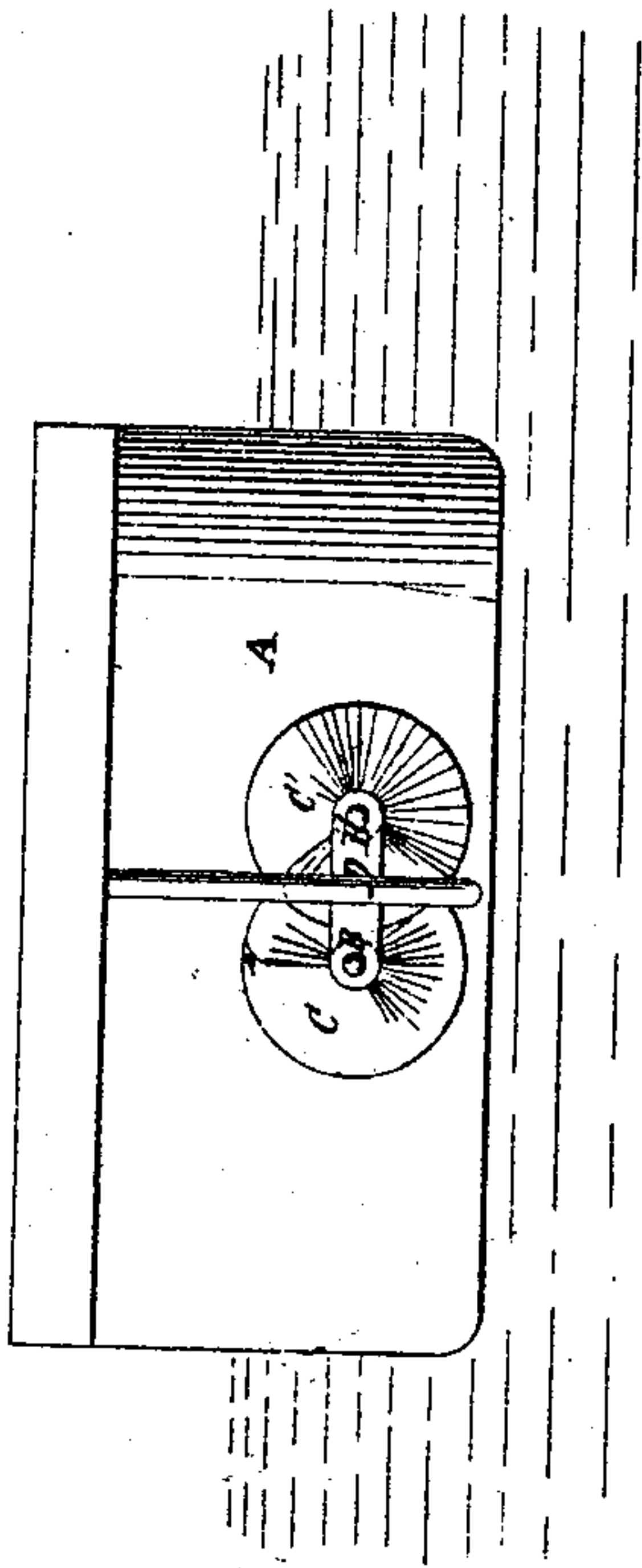
*D. Hughes.*  
*Screw Propeller.*

*Patented Nov. 15, 1859.*

*Fig. 2.*



*Fig. 1.*



*Witnesses:*  
*Nolan Sage*  
*Frank De Lann*

*Inventor:*  
*Daniel Hughes*

# UNITED STATES PATENT OFFICE.

DANIEL HUGHES, OF ROCHESTER, NEW YORK.

## PROPELLER.

Specification of Letters Patent No. 26,106, dated November 15, 1859.

*To all whom it may concern:*

Be it known that I, DANIEL HUGHES, of Rochester, in the county of Monroe and State of New York, have invented a new and  
5 useful Propeller for Ships, Vessels, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specifica-  
10 tion, in which—

Figure 1, represents an end view of a vessel with my propeller, looking at the same from the stern. Fig. 2, is a horizontal section of do.

15 Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in arranging at the stern of the same vessel and on shafts parallel with each other, two propellers, the  
20 blades of one of which form a right handed or part of a right handed screw thread, and the blades of the other a left handed or part of a left handed screw thread of the same pitch as the former and which are placed so  
25 close together that the blades of one propeller gear into those of the other, so that by rotating the same in opposite directions the mass of water between the two propellers forms a sort of an abutment for the blades to work  
30 against, so that the slip of the screws is prevented in a great measure.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it.

35 A, represents the stern of a vessel which forms the bearings for two parallel shafts B, B', to the ends of which the screw propellers C, C', are attached. The outer ends of the shafts B, B', are supported by a framing D,  
40 which is attached to the stern of the vessel in the usual manner.

The blades *c*, of the propeller C, form one complete turn of a right handed screw thread, and the blades *c'*, of the propeller  
45 C', form a left handed screw thread of precisely the same pitch as the first one, and the shafts B, B', are so close together that the blades of one propeller gear with those of the other, as clearly represented in Fig. 2.

50 One of the propellers may be attached to its shaft in such a manner that the same has some play in a longitudinal direction, so that all foreign substances, such as pieces of wood or other things floating on the water,  
55 which might get between the two screw pro-

pellers, may pass freely between the blades without injuring them.

The two shafts B, B', are connected by gear wheels D, D', and motion is communi-  
60 cated to one of the shafts from some motive power. It is, however, not absolutely necessary to connect the two shafts by these gear wheels, as the friction of one screw against the other is sufficient to convey motion from one to the other, I would prefer  
65 however to connect the shafts by wheels as it would be injurious to the blades of the propellers should one of them be propelled merely by the friction between its blades and the blades of the other.  
70

In order to propel the vessel, the screws are rotated in the direction of the arrows, and the mass of water between the blades *c* of the propeller C, and the blades *c'*, of the propeller C', forms a sort of abutment as the  
75 blades of one propeller push the water against those of the other propeller, so that the screws have considerably more hold on the water than propellers arranged in the usual way and the vessel is propelled with  
80 a great deal more advantage as a much smaller amount of the effective power of the screws is lost by slip.

It is obvious that the action of these propellers is the same in either direction, so  
85 that they act with the same advantage in backing, as they do in propelling the vessel, it may however be desirable to increase the propelling power of the vessel and this may be done by giving the blades a small incli-  
90 nation in the direction from the vessel whereby the water is thrown more effectually in the space between the blades *c*, of one and those *c'*, of the other screw, if the same be rotated in the direction of the arrows.  
95 In this case however the screws have less power in backing than in propelling the vessel and where the same power is required in both cases the blades should be placed on the hubs in an upright position.  
100

A particular advantage arising from the use of my propellers is the ease with which the boat is steered as it feels the rudder more sensibly owing to the current formed by the  
105 rotation of the wheels, the rudder being directly in the current or where the current leaves the screws.

I do not claim broadly the use of two screws arranged near each other on parallel shafts, for propelling the vessel, but  
110



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

5 The arrangement of the spiral screw propellers C, C', so that their blades shall work nearly in contact and thus present a broad, unbroken resisting surface, substantially as

and for the purposes herein shown and described.

DANIEL HUGHES.

Witnesses:

NELSON SAGE,  
FRED. DE LANO.