

No. 675,477.

Patented June 4, 1901.

C. E. HALL.
PROPELLER.

(Application filed Sept. 1, 1900.)

(No Model.)

Fig. 1.

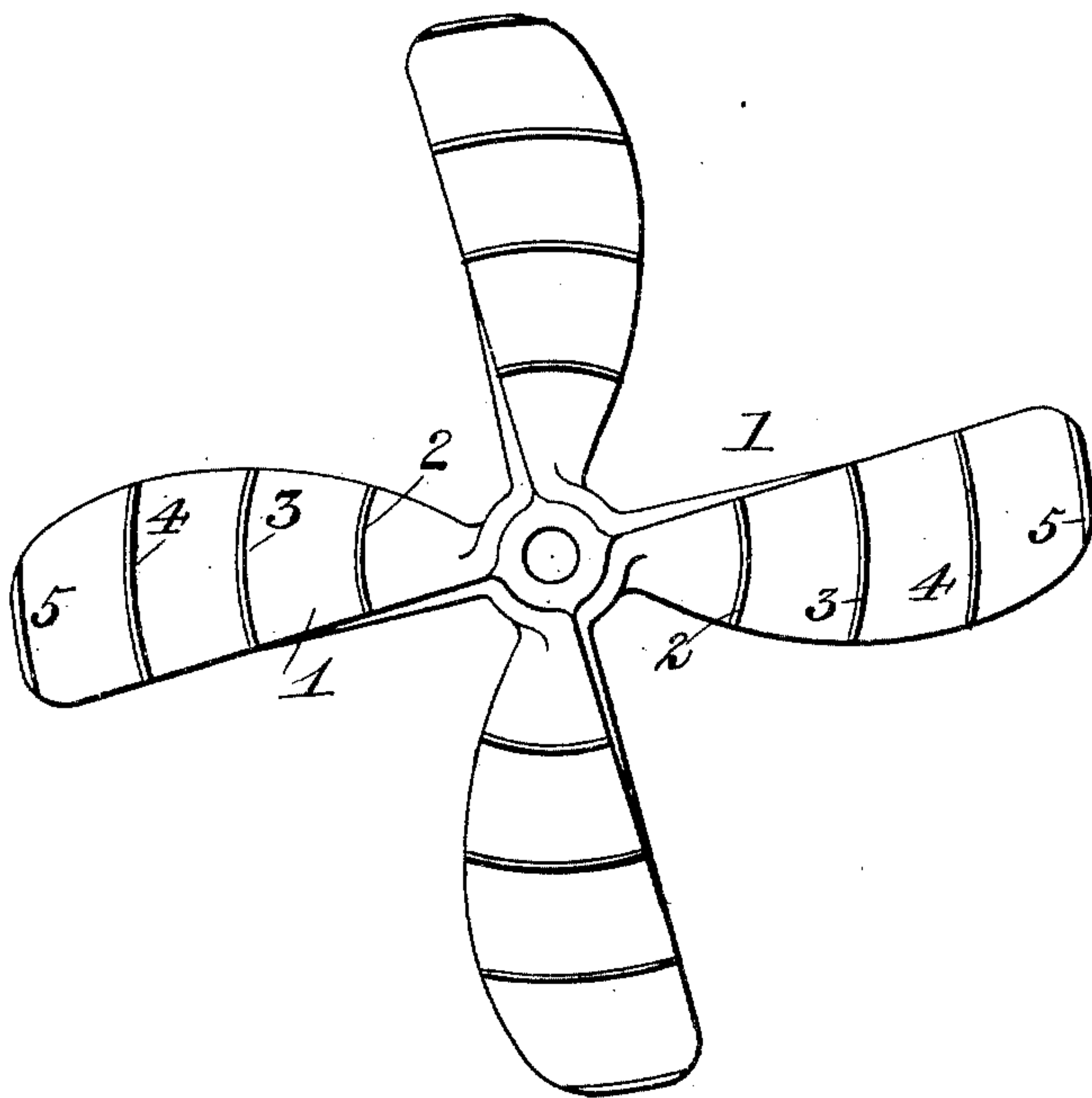


Fig. 2.

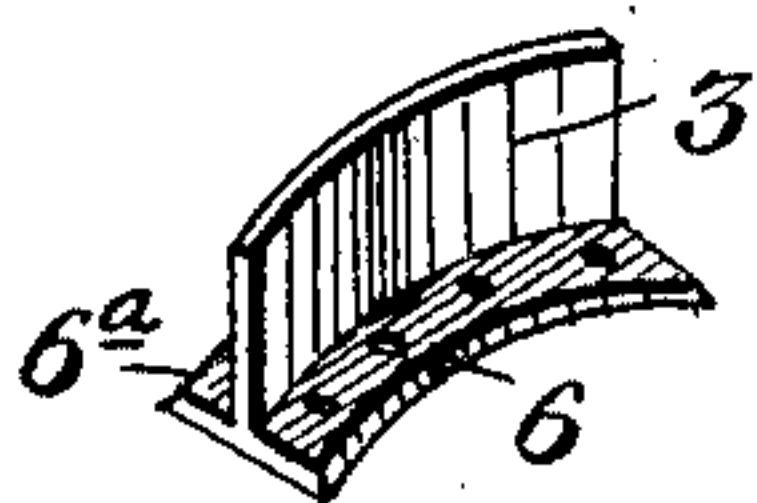
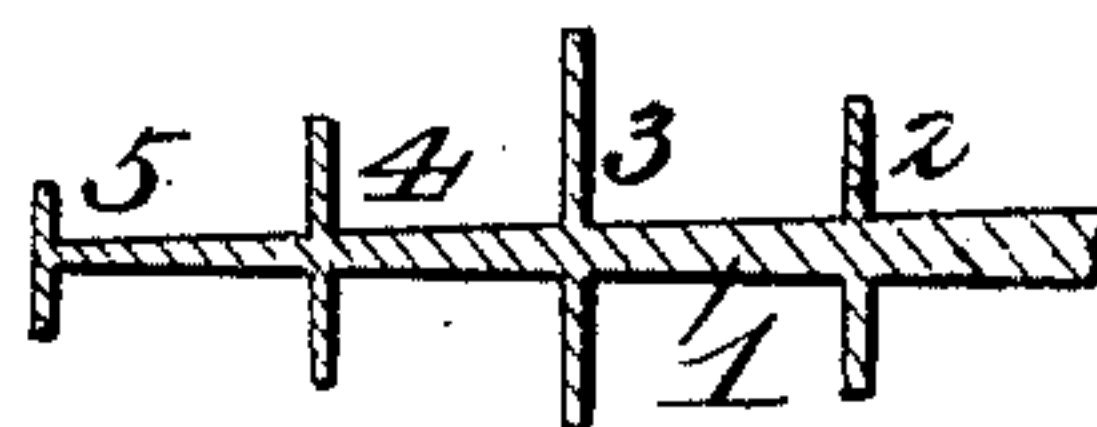


Fig. 3.

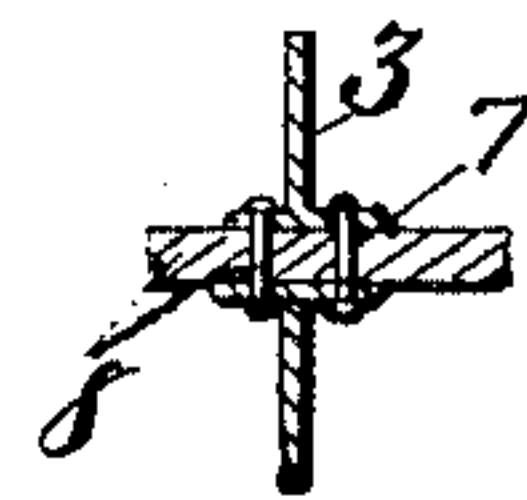


Fig. 4.

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UNITED STATES PATENT OFFICE.

CARLOS E. HALL, OF MEXICO, MEXICO.

PROPELLER.

SPECIFICATION forming part of Letters Patent No. 675,477, dated June 4, 1901.

Application filed September 1, 1900. Serial No. 28,763. (No model.)

To all whom it may concern:

Be it known that I, CARLOS E. HALL, a citizen of the United States, residing at the city of Mexico, Mexico, have invented new and
5 useful Improvements in Propeller-Wheels, of which the following is a specification.

My invention relates to propeller-wheels; and one object of the same is to provide simple and efficient means for increasing the propulsive power of propeller-wheels by diminishing the "slip."
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Another object of my invention is to increase the speed of vessels by means of ribs or flights which extend across the blades of
15 the wheel in curved lines concentric with the axis of the wheel, said ribs or flights serving to confine a quantity of water about the wheel and to give greater stability or hold of the blades on the water. In other words, since
20 the slip is caused by lack of sufficient density of the water to act as a firm resisting medium for the propeller-blades any means which will add solidity or give greater compactness and consequent resistance to the water about the
25 blades will decrease the slip in a degree corresponding to the character and force of the resistance created. The means I have employed gives greater compactness to the water on both sides of the blade by retarding the
30 centrifugal action of the water or by holding the water within the area or sweep of the blades during a part of the revolution of the wheel without, however, requiring any increase in power to drive the wheel.

The objects referred to are attained by means of the construction illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a face view of a propeller-wheel
40 made in accordance with my invention. Fig. 2 is a longitudinal sectional view of one of the blades, showing the ribs of varying heights. Fig. 3 is a detail perspective of one of my detachable flights or ribs. Fig. 4 is a fragmentary section of a blade having detachable ribs
45 secured thereto.

Like numerals of reference designate like parts wherever they occur in the different views.

50 To the opposite faces of a screw-propeller

wheel-blade 1 I attach flights or ribs 2, 3, 4, and 5. The form or contour of the blade is immaterial and may be of the ordinary or any well-known form. The ribs or flights are curved in the arc of circles struck from the
55 axis of the wheel, the circles being of larger diameter for the curvature of flights 5 than for the others and the circles decreasing in diameter for each rib or flight from 5 to 2.

I may either cast the ribs or flights integral
60 with the blades or they may be attached to the blades of wheels in use.

When designed for attachment to the blades of ordinary wheels, the ribs or flights may be formed, as shown in Fig. 3, with oppositely-extending flanges 6 6^a, and when so
65 constructed the flanges on the flights to be attached at opposite sides of the blade may be brought into coincident relation upon opposite sides of said blade and a series of bolts 7
70 passed through the flanges on both flights and through the blade for securing them in place. Other means may, however, be resorted to for securing the ribs or flights to the blades, and I do not wish to be restricted in
75 this particular.

When it becomes necessary to attach my flights to wheels already in use, the blades may be drilled to form the holes 8 on the
80 blade which projects out of the water when the ship is light, and then the shaft may be revolved to bring another blade in position above the water-line, and so on, until all the blades have been equipped.

As shown in the drawings, the ribs 3 extend a greater distance from the blades 1 than
85 the others, and blades 2 and 5 are shorter than the others.

It will be obvious from the foregoing that by having detachable ribs or flights I may apply my improvements to wheels in use, as it
90 requires but a short time to make the necessary change. The object of having the ribs upon the opposite sides of the blades is that the water upon opposite sides of the blade
95 may be held toward the hub, and also in reversing the engine the ribs operate either way.

Having thus fully described my invention, what I claim is—

A propeller-wheel having a series of ribs extending upon opposite sides of the blades, the central ribs being of greater height than the others, and the ribs gradually decreasing in
5 height from the center to both extremities of the blades, substantially as described.

In testimony whereof I have hereunto set

my hand in presence of two subscribing witnesses.

CARLOS E. HALL.

Witnesses:

JAMES R. HARDY,

JOSEPH G. PARKE.