

No. 725,639.

PATENTED APR. 14, 1903.

C. L. WEBBER.
PROPELLER WHEEL.

APPLICATION FILED MAY 10, 1902.

NO MODEL.

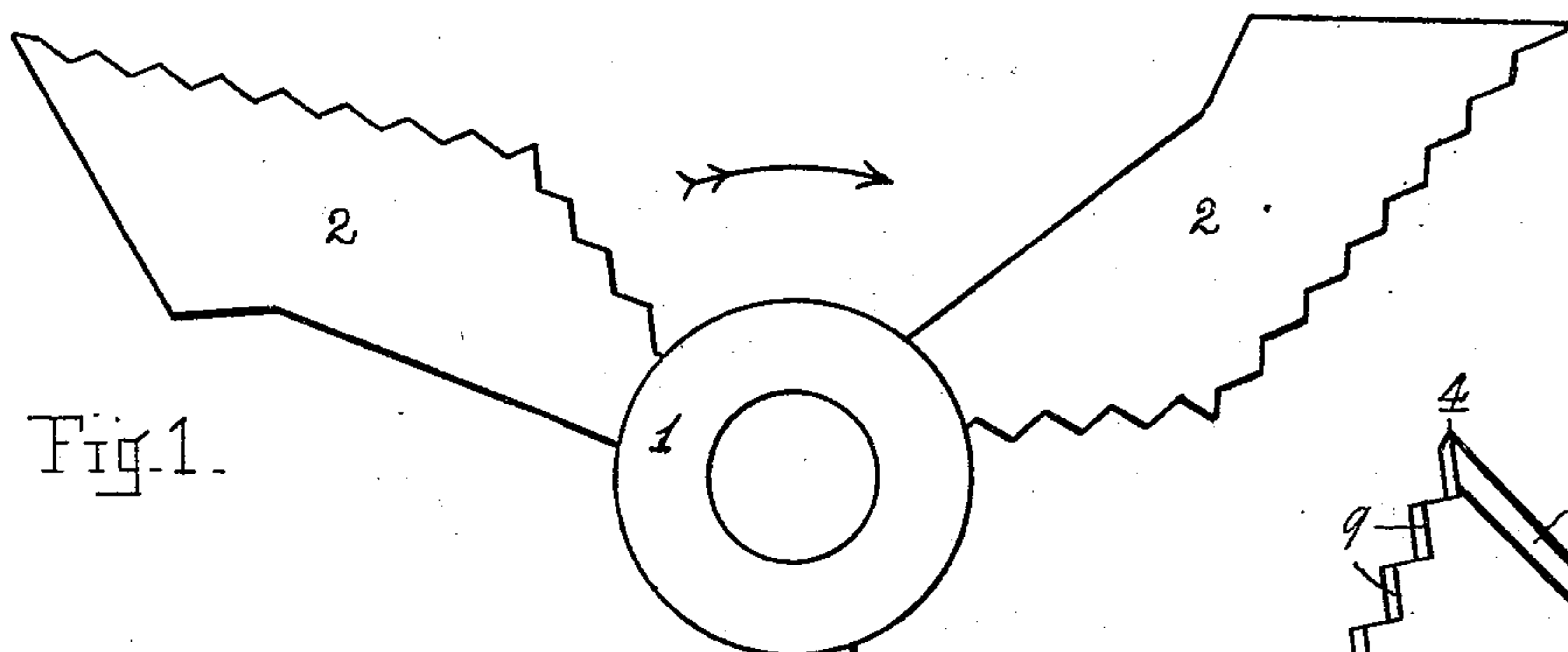


Fig. 1.

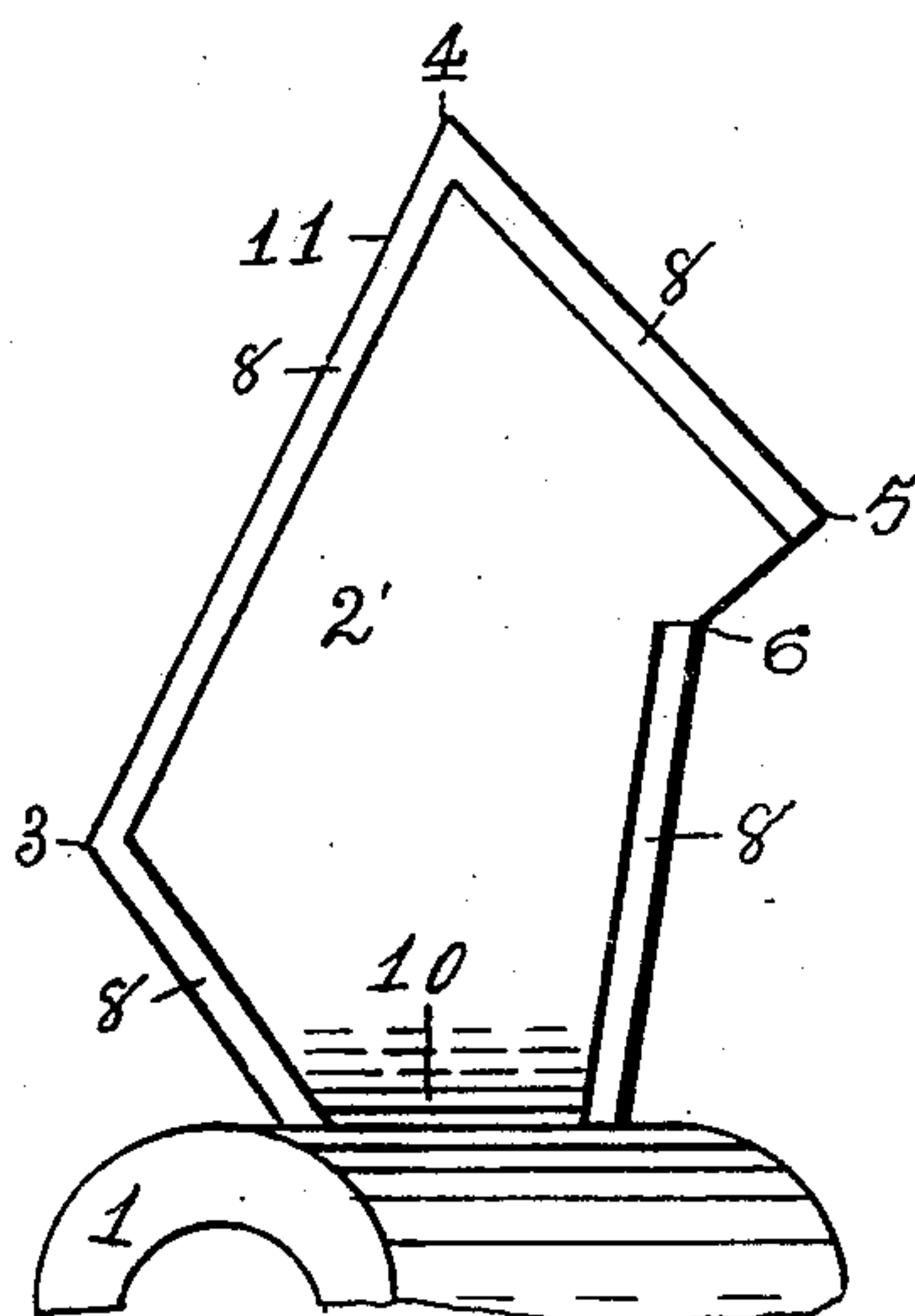


Fig. 2.

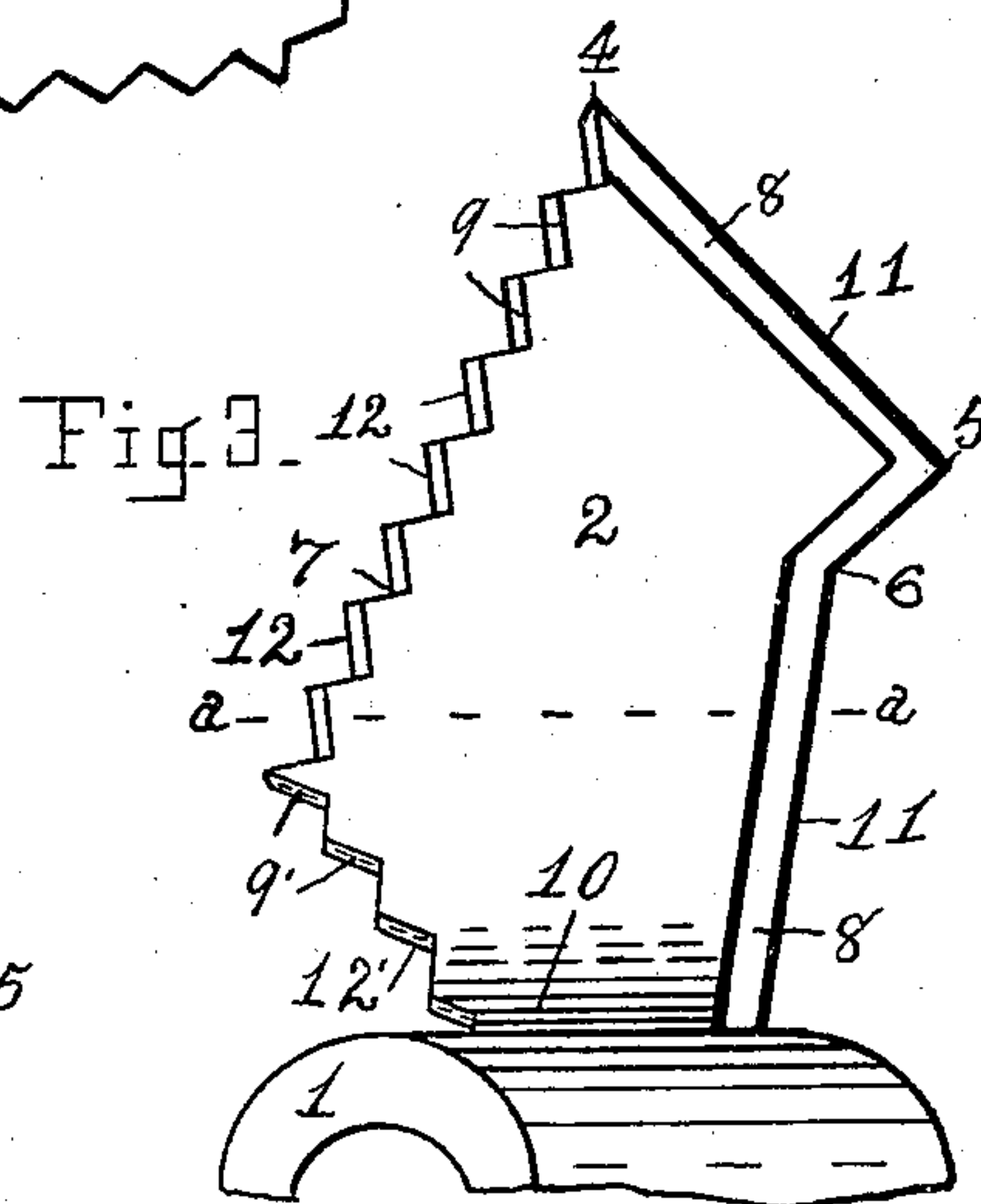


Fig. 3.

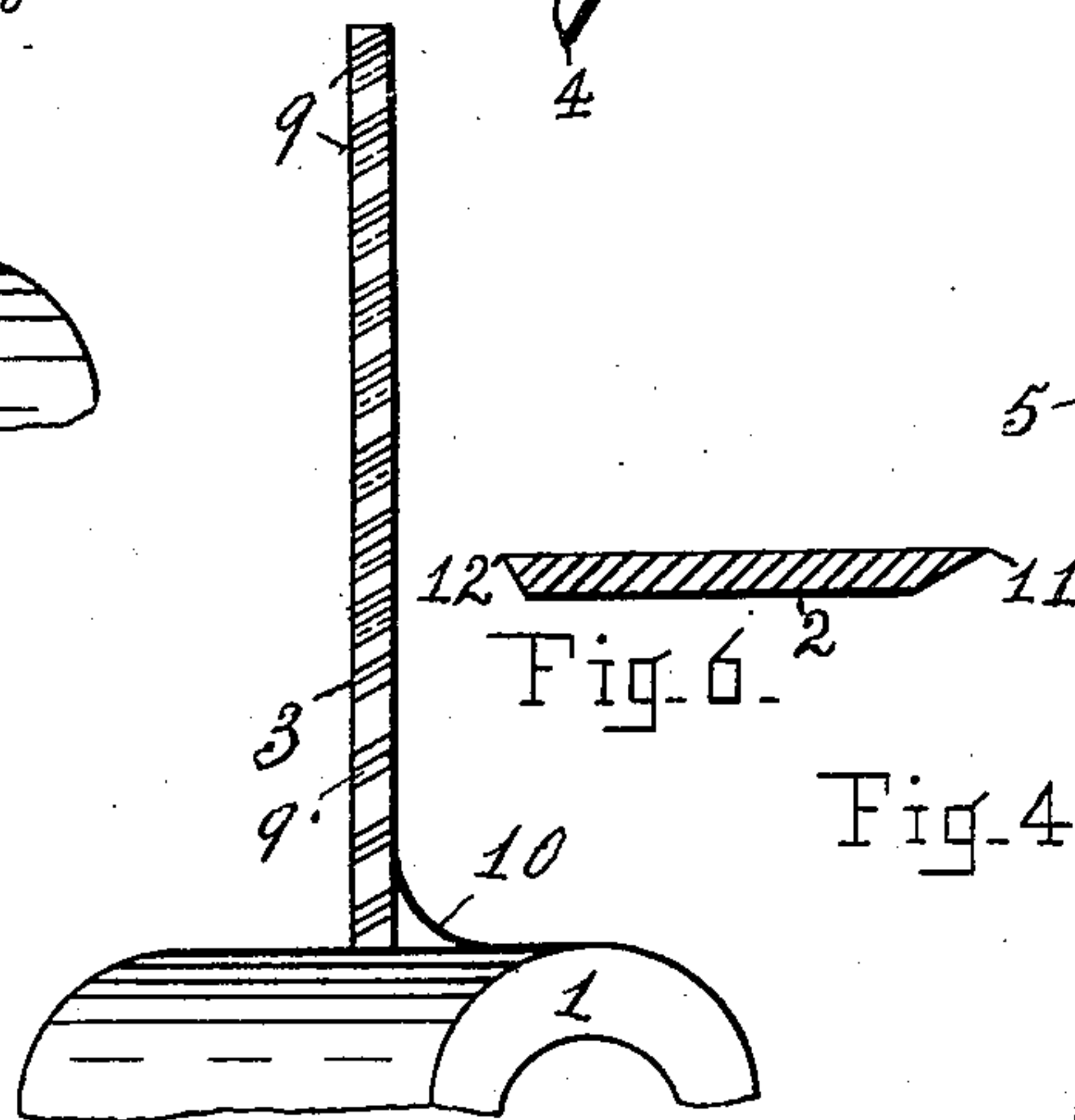


Fig. 4.

Fig. 5.

Witnesses.
Clara M. Albee.
C. S. Briggs

Inventor.
Charles L. Webber.
By G. H. Albee.
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES L. WEBBER, OF NEENAH, WISCONSIN.

PROPELLER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 725,639, dated April 14, 1903.

Application filed May 10, 1902. Serial No. 106,675. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. WEBBER, a citizen of the United States, and a resident of Neenah, in the county of Winnebago and State of Wisconsin, have invented a new and useful Improvement in Propeller-Wheels for Use upon Steam or other Propelled Vessels, of which the following is a specification.

My invention relates to the form of the blades used; and its object is to produce a wheel that will increase the speed of a vessel over that produced by the wheels at present in use; and my improvement is illustrated in the accompanying drawings, which are made a part of this specification, in which—

Figure 1 is an end elevation of the rear end of the wheel, an arrow indicating the direction it is intended to run. Fig. 2 is an elevation showing the rear side or side that does not act upon the water in propelling a vessel forward of one of the blades, and a part of the wheel-hub in perspective. Fig. 3 is an elevation showing the rear side of the preferred form of one of the blades, and a part of the wheel-hub in perspective. Fig. 4 is an elevation showing the front or side of the blade that acts upon the water in propelling a vessel forward, said side being termed the "active" side of the blade, and a part of the wheel-hub in perspective. Fig. 5 is a plan showing the front edge of the blades that are shown in all of the figures excepting Fig. 2, with a part of the wheel-hub. Fig. 6 is a transverse section of the blade upon the line *a a* of Fig. 3.

Similar numerals indicate like parts in the several views.

1 indicates the wheel-hub; 2 2', a blade and a modification thereof of the wheel, the former having serrations in its forward edge and the latter being without said serrations; 3, an obtuse angle in the contour of the forward or entering edge of the blades; 4, an acute angle at the outer end of the blades; 5, a nearly right angle upon the rear edge of the blades; 6, an obtuse reëntering angle in the rear edge of the blades; 7 7', serrations along the forward edges of the blades; 8, a bevel upon a part of the edges of the blades; 9, a bevel upon the outer side of the serrations 7; 9', a bevel upon the outer sides of the serrations 7'; 10, a fillet upon the rear side of the shank of the

blades for providing the necessary strength at their inner ends; 11, chisel-points which are formed by the bevels 8; 12 12', chisel-points which are formed by the bevels upon the serrations 7 and 7', respectively.

The wheel may consist of any suitable number of blades arranged at equidistant points around a hub at a suitable angle (forty-five degrees, more or less) with the axis of the wheel, each blade consisting of a substantially flat plate of any suitable metal of polygonal form and of a nearly uniform thickness, the active side of the blade or the side which acts upon the water in propelling a vessel forward being flat over its entire surface and the opposite or rear side being flat excepting where it is beveled along its edges and thickened at the shank of the blade near the hub for providing the necessary strength for the blade. The contour of the blade contains along its forward edge the obtuse angle 3, at the outer end the acute angle 4, upon its rear edge the nearly right angle 5 and the obtuse reëntering angle 6, the rear edge of the blade between its several angles from the extreme outer end to the hub being formed of straight lines. In the preferred form, as shown in Figs. 1, 3, 4, 5, and 6, the forward edge of the blade is provided with serrations 7 and 7', diagonally arranged across said edge, the former upon the side of the serrations farthest from the center of the wheel being provided with the bevels 9 and the latter with bevels 9', which bevels form chisel-pointed cutting edges 12 and 12', respectively, upon the active side of the blade. The bevels 8 upon the forward edge of the blade that is represented in Fig. 2 and upon the rear edges of all of the blades, together with the bevels 9 and 9' upon the serrated edges of the blades, also form chisel-pointed edges upon the active side of the blades, their purpose being for the easy entrance of the blade into the water and for the easy closing of the water over the blade as the wheel is being revolved for propelling a vessel forward. These bevels may be of any suitable degree and their contour be a straight or curved line.

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

1. A propeller-wheel having a plurality of

blades arranged at a suitable angle with its axis around its hub, each blade consisting upon its side for acting upon the water for propelling a vessel forward, of a flat plate of metal of polygonal form, the contour of its forward or entering edge being of an obtuse angular form, the outer end of the blade being an acute angle which lies in that plane of rotation of the wheel which passes through the shank of the blade, and the rear edge of the blade having a nearly right angle and an obtuse reëntering angle, substantially as described.

2. A propeller-wheel having a plurality of blades arranged at a suitable angle with its axis around its hub, each blade consisting upon its side for acting upon the water in propelling a vessel forward, of a flat plate of metal of polygonal form, the contour of its forward or entering edge being of an obtuse angular form, the outer end of the blade being an acute angle which lies in that plane of rotation of the wheel which passes through the shank of the blade, and the rear edge of the blade having a nearly right angle and an obtuse reëntering angle, a part of the outer edge around the blade being chisel-pointed upon the active side of the blade for its easy entrance into the water and the easy closing of the water over the blade when the wheel is being revolved for propelling a vessel forward, substantially as described.

3. A propeller-wheel having a plurality of blades arranged upon a suitable angle with its axis around its hub, each blade upon its side for acting upon the water for propelling a vessel forward consisting of a flat plate of metal of polygonal form, the contour of its forward or entering edge being of an obtuse angular form the edges of which are formed into a series of diagonally-arranged serrations, the entering edges of which when the wheel is being revolved for propelling a vessel forward that are farthest from the center of the wheel being chisel-pointed upon the active side of the blade for their easy entrance into the water, the outer end of the blade being an acute angle which lies in that plane of rotation of the wheel which passes through the shank of the blade, the rear edge of the blade having in its contour a projecting nearly right angle and an obtuse reëntering angle, and the outer edge of the blade in the rear of said acute angle being chisel-pointed upon the active side of the blade for its easy entrance into the water and the easy closing of the water over the blade when the

wheel is being revolved for propelling a vessel forward, substantially as described.

4. A propeller-wheel having a plurality of blades arranged upon a suitable angle with its axis around its hub, each blade upon its side for acting upon the water in propelling a vessel forward, consisting of a flat plate of metal, the outer end of which lies in that plane of rotation of the wheel which passes through the shank of the blade, the contour of the blade upon that portion of its edge which lies forward of said plane being provided with a series of diagonally-arranged serrations, the entering edges of which when the wheel is being revolved for propelling a vessel forward that are farthest from the center of the wheel being chisel-pointed upon the active side of the blade for their easy entrance into the water, substantially as described.

5. A propeller-wheel having a plurality of blades arranged upon a suitable angle with its axis around its hub, each blade upon its side for acting upon the water in propelling a vessel forward, consisting of a flat plate of metal, the outer end of which lies in that plane of rotation of the wheel which passes through the shank of the blade, a part of the outer edge around the blade being chisel-pointed upon its active side for its easy entrance into the water and the easy closing of the water over the blade when the wheel is being revolved for propelling a vessel forward, substantially as described.

6. A propeller-wheel having a plurality of blades arranged at a suitable angle with its axis around its hub, each blade consisting upon its side for acting upon the water in propelling a vessel forward of a flat plate of metal of polygonal form, the outer end of the blade being in the form of an acute angle which lies in that plane of rotation of the wheel which passes through the shank of the blade, the entire blade outside of its hub being inclosed within five straight lines, two of them being forward of the aforesaid plane of rotation, diverging from it and meeting in an obtuse angle, and the others being in the rear of said plane of rotation, the two outer ones in meeting forming a nearly right angle, and one of the latter with the inner line in meeting forming an obtuse reëntering angle, substantially as shown and described.

C. L. WEBBER.

Witnesses:

T. B. BLAIR,
S. D. BAIRD.