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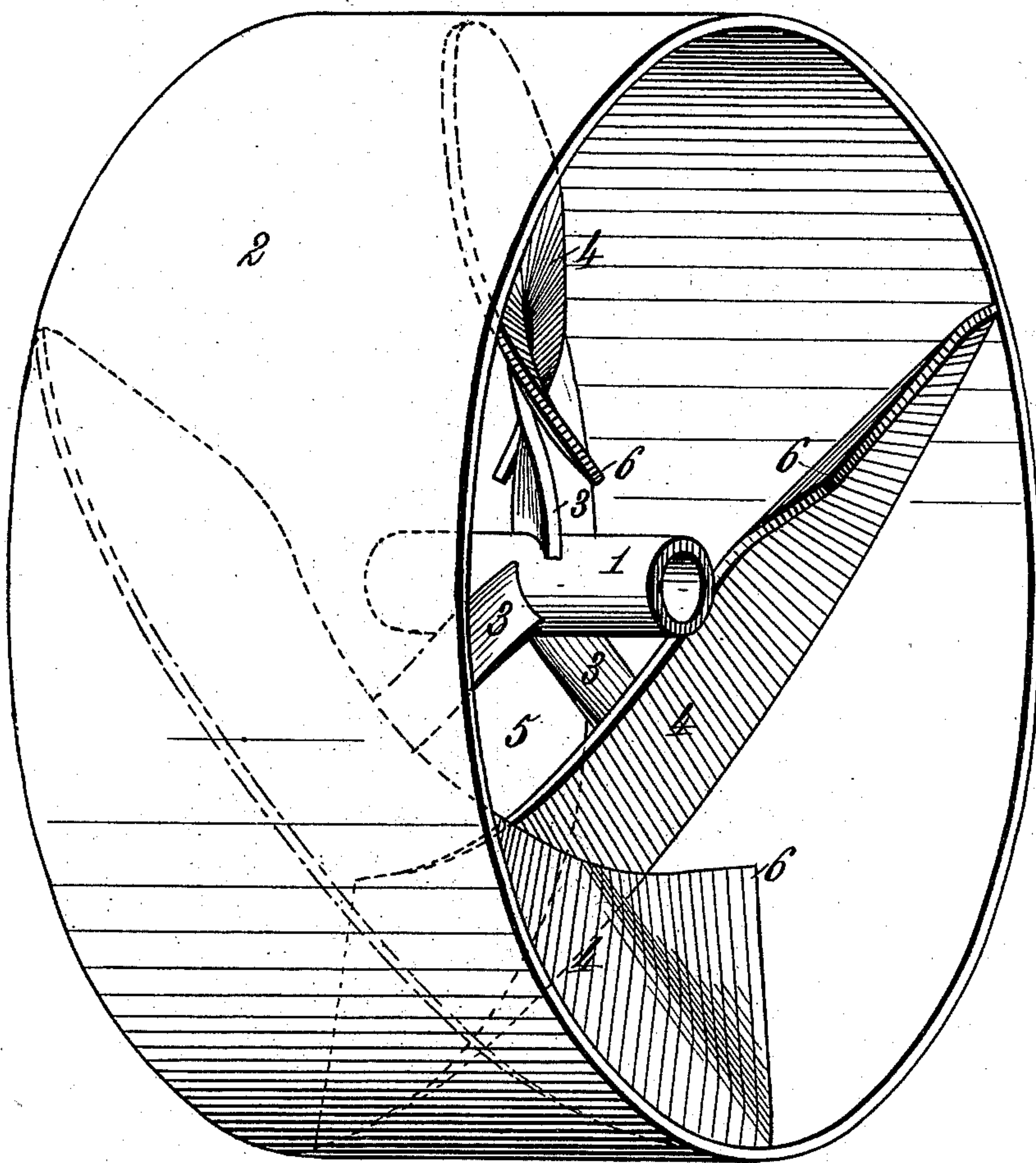
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E. J. PARKER.
PROPELLER WHEEL.

No. 573,351.

Patented Dec. 15, 1896.

Fig. 1.



Witnesses.
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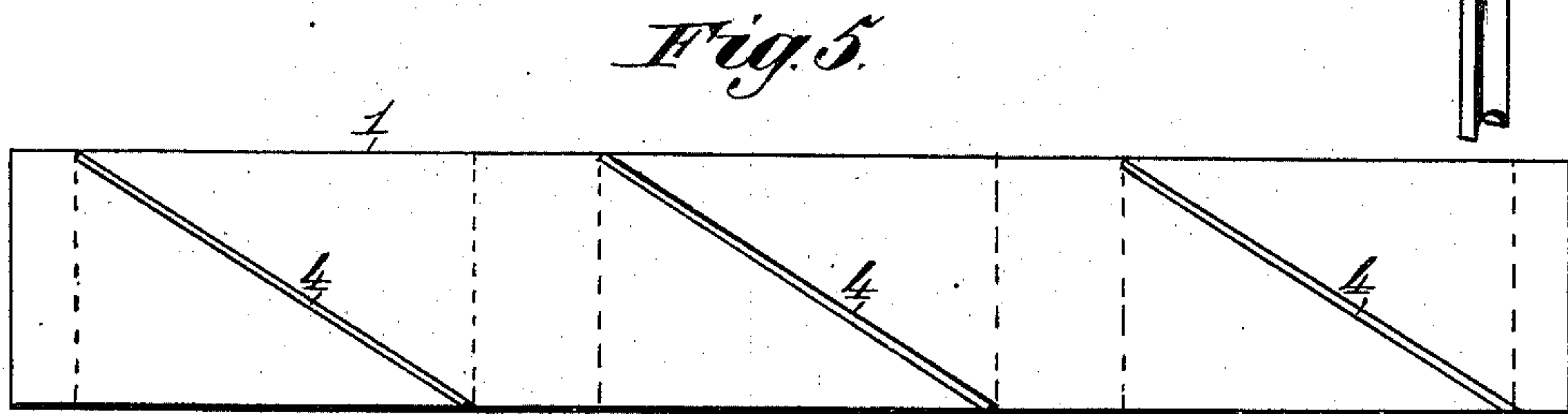
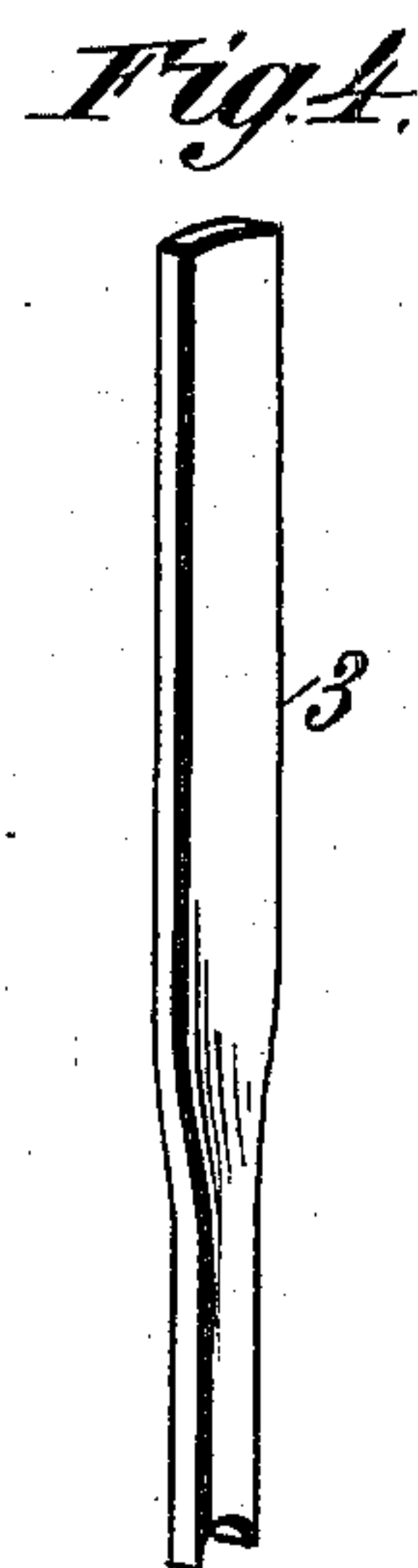
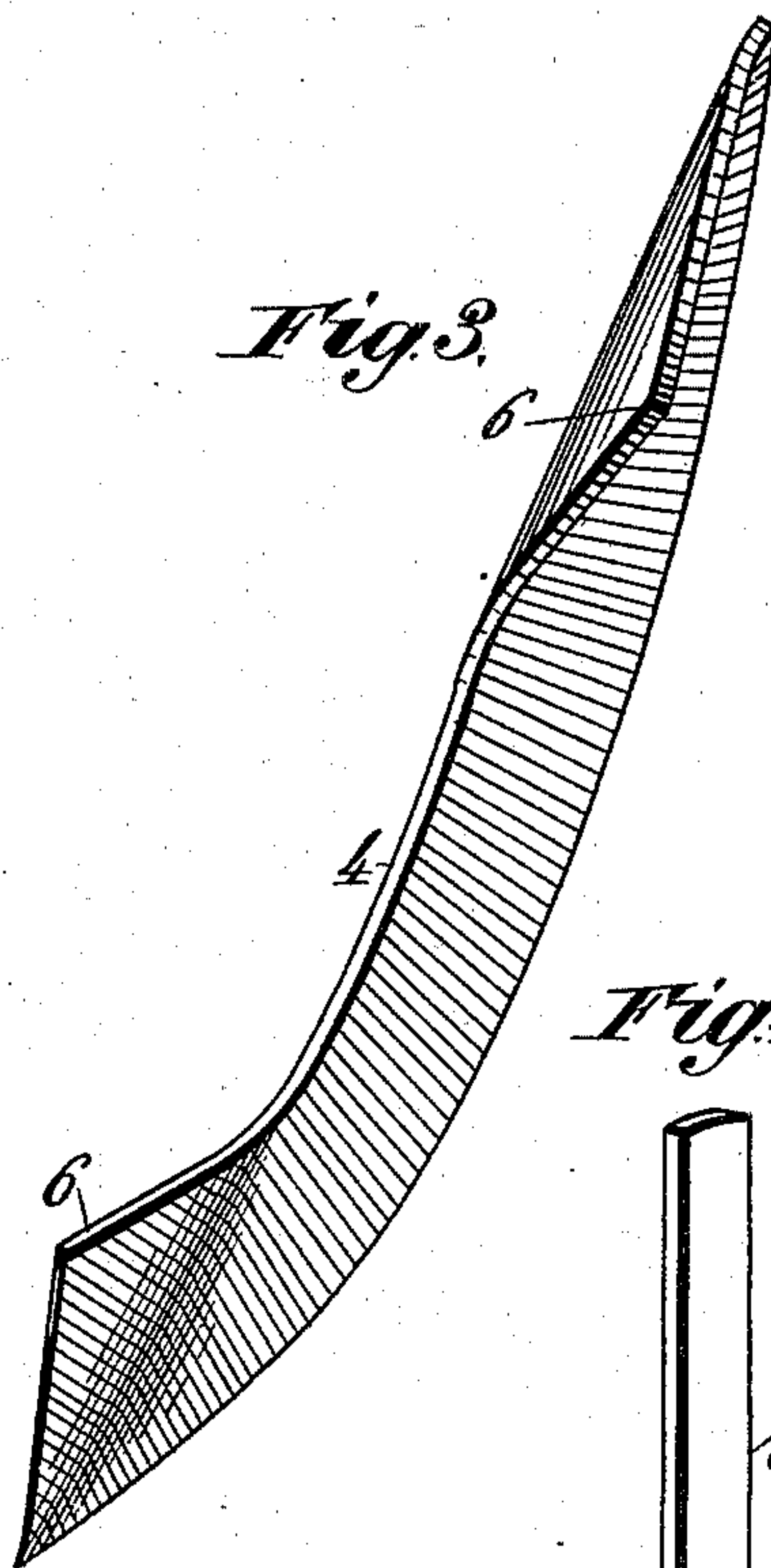
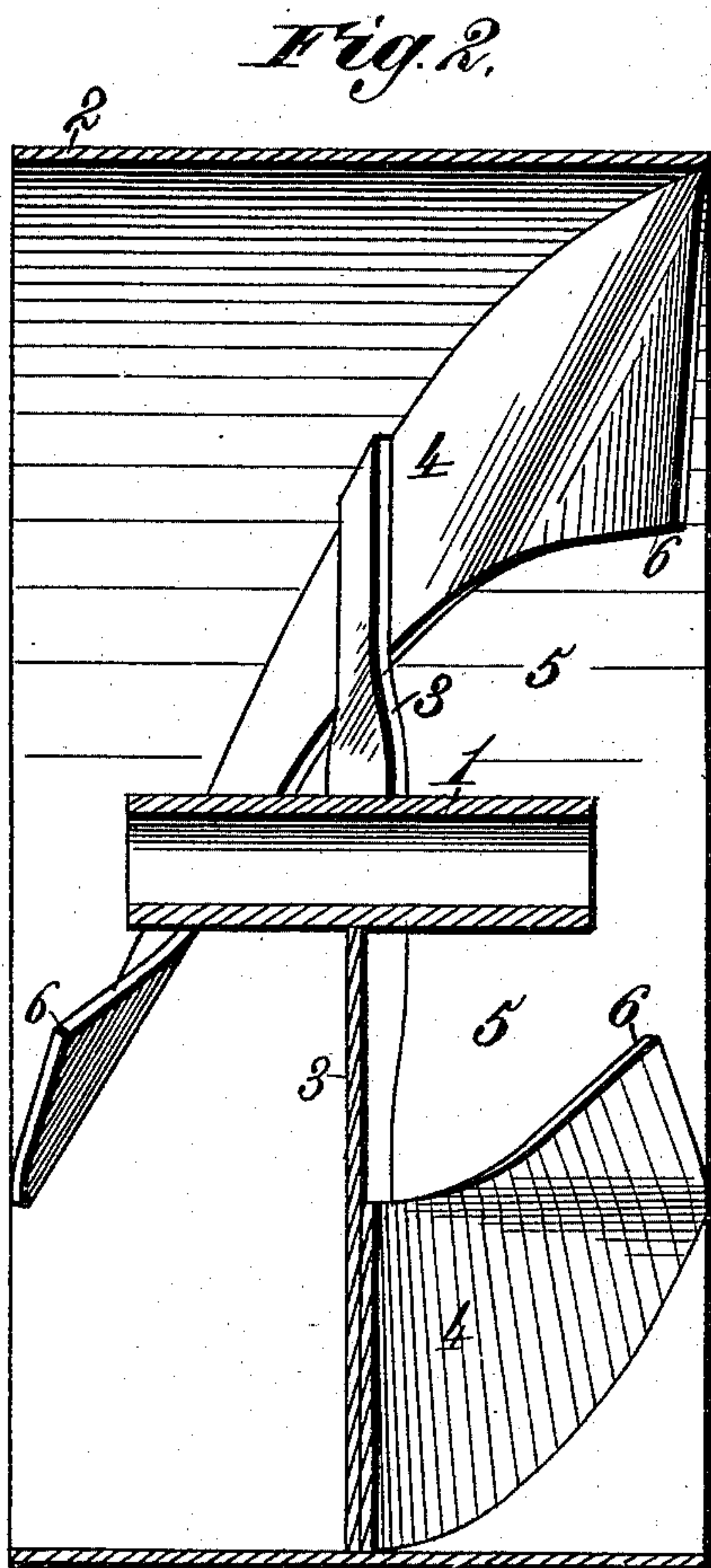
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

ELISHA J. PARKER, OF DALLAS, TEXAS.

PROPELLER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 573,351, dated December 15, 1896.

Application filed September 17, 1896. Serial No. 606,160. (No model.)

To all whom it may concern:

Be it known that I, ELISHA J. PARKER, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Propeller-Wheels, of which the following is a specification.

This invention relates to propeller-wheels for steamships and other vessels, whether driven by steam or other power; and it is among the objects of my invention to provide for increased speed of the vessel with an expenditure of less power than is usually required, and to so greatly diminish the resistance that a much larger percentage of power may be applied to propelling the vessel.

It is a further object of my invention to provide a construction of propeller-wheel that will permit a large reduction in the wheel-diameter without impairing its effectiveness, and which will thereby bring the resistance nearer to the crank-range of the motive power, and also to increase the bucket or blade surface of the wheel and at the same time afford such clearance at the center of the wheel as will relieve resistance to easy operation of the engine or motive power.

Other purposes of the invention will appear from the features of propeller-wheel construction hereinafter described.

The invention consists in a propeller-wheel comprising a central hub, a rim having a breadth equal to about half the diameter of the wheel, a series of spokes disposed radially and at equidistant intervals between the hub and rim and set obliquely to the longitudinal axis of the hub and rim, and a series of diagonally-placed blades or buckets secured to the wheel-rim and to the outer half of each spoke to thereby provide the wheel with a central space or spaces for passage of water, the said blades being so constructed as to give the propeller the action of a suction-pump in front and a force-pump at the rear and afford a very high speed without a proportionate increase of power.

In the annexed drawings, illustrating the invention, Figure 1 is a perspective of my improved propeller-wheel viewed from the front. Fig. 2 shows the propeller-wheel in central cross-section. Fig. 3 is a perspective of one

of the blades. Fig. 4 is a view of one of the spokes. Fig. 5 is a diagrammatic view of a portion of the inner periphery of the propeller-wheel rim, showing a variation in arrangement of the propeller-blades.

Referring to the drawings, the numeral 1 designates the hub or sleeve of the propeller-wheel, by which it is to be mounted on its shaft.

The reference-numeral 2 designates the wheel-rim, which may have a breadth equal to about one-half the wheel-diameter.

To connect the wheel-hub 1 and rim 2, I have shown three radially-disposed arms or spokes, indicated by the reference-numeral 3; but a greater or less number of such spokes may be employed, if desired. These spokes are each secured to the hub 1 in a plane at an angle of about forty-five degrees to the longitudinal axis of the hub, and near the hub a sufficient twist is given to each spoke so that its outer portion will have an angle of about thirty degrees. To this outer portion of each spoke and also to the inner periphery of the wheel is secured a blade or bucket 4, which thus has an angle of about thirty degrees to the longitudinal axis of the wheel; but, although I have found that good results are obtained by arranging the blades 4 at the angle named, it is obvious that the angles of attachment for the spokes and blades may be varied without departing from my invention.

The blades or buckets 4 are each segmental in form, having an outer edge curved to conform to the inner surface of the wheel-rim. It is preferable to curve also the inner edge of each blade or bucket 4, as shown. In width each blade or bucket is equal to about one-half the length of the spoke to which it is secured, and there are thus provided between the hub the spokes and the blades or series of openings or spaces 5, occupying a central position in the wheel and affording free passage of water, so as to greatly diminish the resistance in the operation of the propeller without decreasing its propelling effectiveness. The three spokes securely brace the blades and offer no appreciable resistance to driving power, while the spaces between them, intermediate the hub and blades, permit the passage of a large volume of surplus water

that greatly relieves any cramp in the wheel and enables nearly all the driving power to be utilized.

The length of the segmental blades or buckets 4 is sufficient to have them extend fully across the inner surface of the wheel-rim at the angle selected, whether greater or less than thirty degrees. The ends of the blades are inclined slightly inward toward the hub, and each inner corner 6 of a blade is twisted out on a line to the center or axis of the hub, the twist being in opposite directions at the two ends of the hub, as shown. This construction and arrangement of the blades will cause them to catch the water evenly and also discharge evenly. It will also give twice the bucket-surface and force in a wheel-diameter less than the diameter of the ordinary propeller, thus bringing the resistance to the engine in a much smaller circle and enabling it to work more easily and with greater power. Furthermore, the wheel is less liable to slip. It acts like a suction-pump in front and a force-pump at the rear, and consequently will carry the full driving power at a rapid speed. With the construction of propeller-wheel described sixty-six and two-thirds per cent. of the driving power of the engine can be applied to propelling the vessel.

While I have shown the spokes and the blades spaced at intervals equaling one-third the rim-periphery, I would have it understood this arrangement may be varied.

If desired, the width of the wheel-rim may be reduced about one-half, and the spokes and blades, the latter reduced in length, may be set at intervals equaling one-sixth the rim-periphery for light work, or at any other intervals and with any number of blades desired to suit the work to be done; but I prefer the employment of only three blades, constructed as shown and arranged at an angle of about thirty degrees or with a pitch of one twist. This will bring the rearmost end of one blade approximately in line with the foremost end of an adjoining blade; but, as shown in Fig. 5, the blades may be arranged at such

angles and intervals as will throw their ends wholly out of line with each other, if desired.

In the small number of parts comprised in the propeller-wheel its construction is exceedingly simple and durable and of great strength, the rim serving to bind all the parts securely together, besides avoiding the lateral resistance of the water and consequently aiding to increase the efficiency of the propeller.

It is obvious that the wheel may be made in sections bolted or riveted together in any approved manner or it may be cast solid, if preferred. The construction described will also permit the diameter of the propeller-wheel to be reduced from thirty to forty per cent. and utilize every square inch of the blade-surface in effective work.

What I claim as my invention is—

1. A propeller-wheel for vessels and boats, consisting of a central hub, a broad rim, a series of spokes connecting said hub and rim, and a series of segmental blades or buckets secured to the outer portions of the several spokes and to the inner surface of the rim in oblique positions and having the inner corner of each blade twisted toward the hub-axis, substantially as described.

2. A propeller-wheel for vessels and boats, consisting of a central hub, a broad inclosing rim, a series of spokes connected with said hub and rim at an angle to the axis of each, and a series of blades or buckets secured to the inner surface of the rim and to the outer portions of the spokes to afford central spaces for passage of surplus water, each blade having the inner corners of its opposite ends twisted toward the hub-axis and in reverse directions at the blade ends, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ELISHA J. PARKER.

Witnesses:

STEPHEN I. MUNGER,
WILLIAM T. SPEARS.