No. 753,358. PATENTED MAR. 1, 1904.

T. J. CAMPBELL.

PADDLE WHEEL.

APPLICATION FILED JUNE 29, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

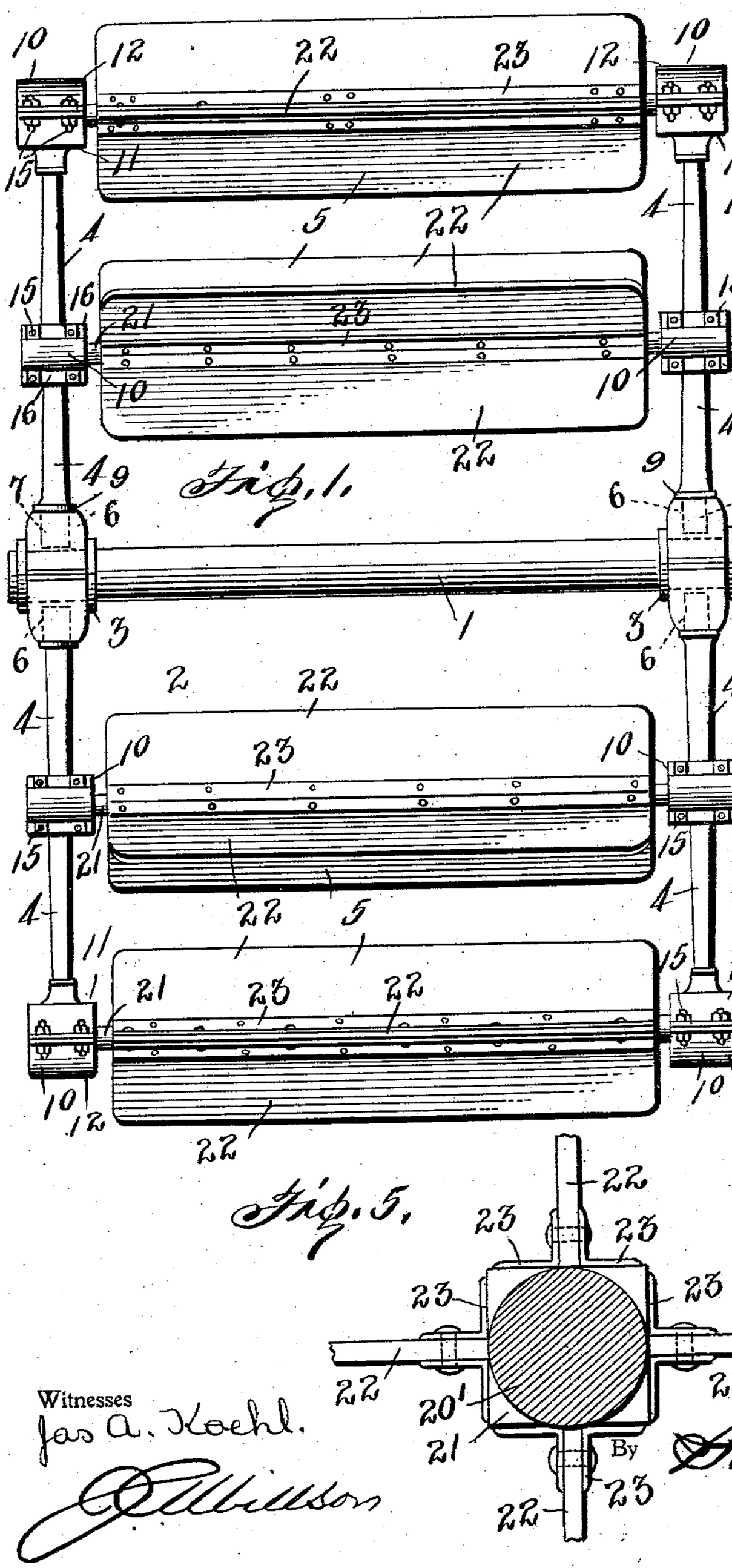

Fig. 1.

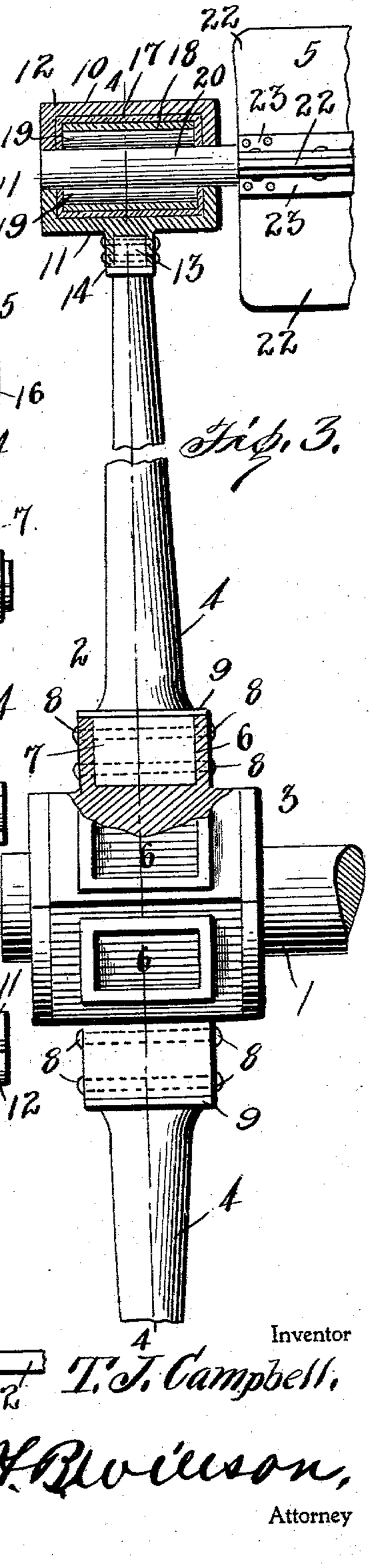

Fig. 3.

Fig. 5.

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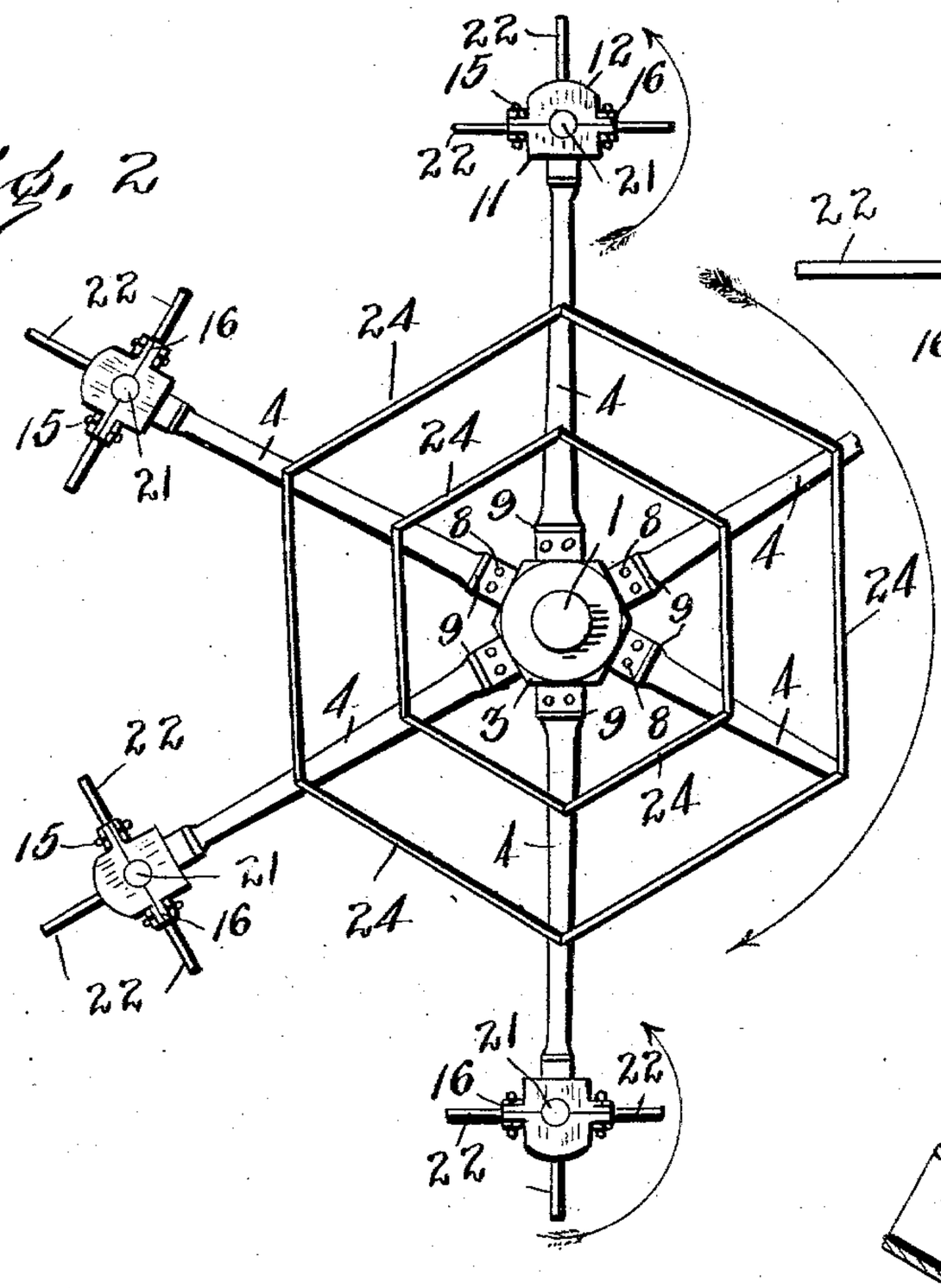
NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2



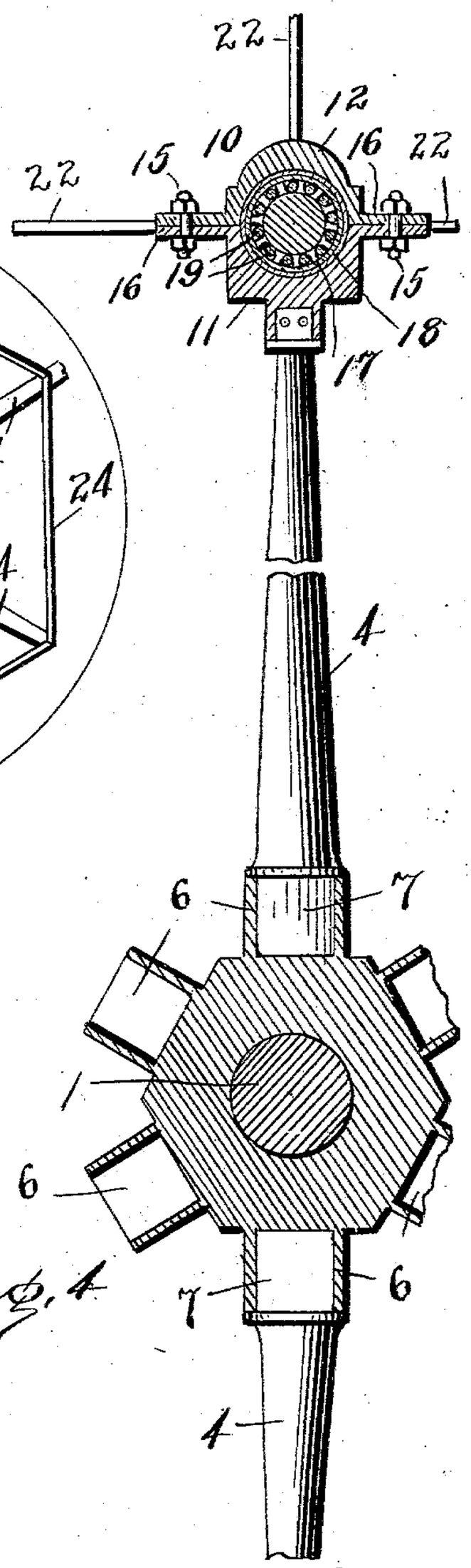


Fig. 4

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UNITED STATES PATENT OFFICE.

THOMAS J. CAMPBELL, OF ECONOMY, PENNSYLVANIA.

PADDLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 753,358, dated March 1, 1904.

Application filed June 29, 1903. Serial No. 163,545. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. CAMPBELL, a citizen of the United States, residing at Economy, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Paddle-Wheels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in paddle-wheels for boats.

The object of the invention is to improve and simplify the construction of devices of this character and to render them more durable in use and efficient in operation.

A further object is to provide a paddle-wheel which will not elevate or raise water as it rotates.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of my improved paddle-wheel. Fig. 2 is an end elevation of the same. Fig. 3 is a detail sectional view, on an enlarged scale, of a portion of the wheel. Fig. 4 is a detail sectional view taken on the line 4 4 of Fig. 3. Fig. 5 is a detail sectional view through one of the revolving paddles.

Referring to the drawings by numerals, 1 denotes a shaft upon which my improved paddle-wheel 2 is secured. The wheel comprises in its construction two hubs 3, radially-disposed spokes or arms 4 upon said hubs, and revolving paddles 5, journaled between the ends of said spokes. The hubs 3, which may be secured to the shaft in any desired manner, are preferably polygonal in cross-section, having as many sides as the number of spokes and paddles desired. Upon each of said sides is formed a radially-projecting socket 6, in which the reduced ends 7 of the spokes 4 are secured by bolts 8. Flanges 9 upon said spokes adjacent to the ends 7 engage the tops of the sockets 6 to strengthen the connection of the spokes.

Secured to the outer ends of the spokes or arms 4 are journal-boxes 10, each of which comprises a base portion 11 and a cap 12. Said journal-boxes are removably secured upon the spokes by bolting the reduced ends 13 of the spokes in the sockets 14, formed upon the bases 11, and the caps 12 are secured upon the bases 11 by passing bolts 15 through apertured ears 16, formed upon said bases and caps. The bores of the bearing-boxes are each lined with a suitable bushing 17 and contain a cage 18, which spaces friction-rollers 19 around the journals 20 of the paddle-shafts 21. The paddle-shafts 21 are preferably square in cross-section and provided with the turned ends 20, which form journals for the same.

Secured at right angles to each face or side of the square portion of the shafts 21 is a rectangular blade 22, which extends longitudinally from the journal upon one end of the shaft to the journal upon the opposite end. The blades may be secured in any desired manner; but I preferably bolt or rivet a strip 23 of angle-iron upon each side of each blade and secure said strips to the faces or sides of the square shafts, as seen in Fig. 5 of the drawings.

The operation of the wheel will be readily understood upon reference to the drawings. When the same is rotated in the direction of the large arrow in Fig. 2, the revolving paddles 5 as they leave the water will revolve in the direction indicated by the small arrows, and thus it will be impossible for the wheel to raise or elevate any water as it rotates.

While I have shown each paddle provided with four blades, it will be understood that any desired number may be employed, and, if desired, a greater or less number of revolving paddles than are illustrated in the drawings may be used. The spokes or arms 4, upon which these paddles are journaled, may be braced and strengthened by the ties or braces 24, as clearly shown in Fig. 2.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. A paddle-wheel having revoluble paddles, disposed concentrically of and with their axes parallel to its axis, said revoluble paddles having radially-disposed blades, which converge and join at the axes of said paddles, substantially as described.

2. A paddle-wheel, comprising a shaft, hubs thereon spaced apart, radial spokes projecting from the hubs, braces connecting the spokes to the respective hubs, bearings in the spokes, and revoluble paddles, having shafts journaled in said bearings and disposed parallel with the shaft of the wheel, said revoluble paddles having radially-disposed blades, which converge to and are joined at their respective axes, substantially as described.

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

THOMAS J. CAMPBELL.

Witnesses:

WM. ANSHUTZ,

OSCAR C. GRUBER.