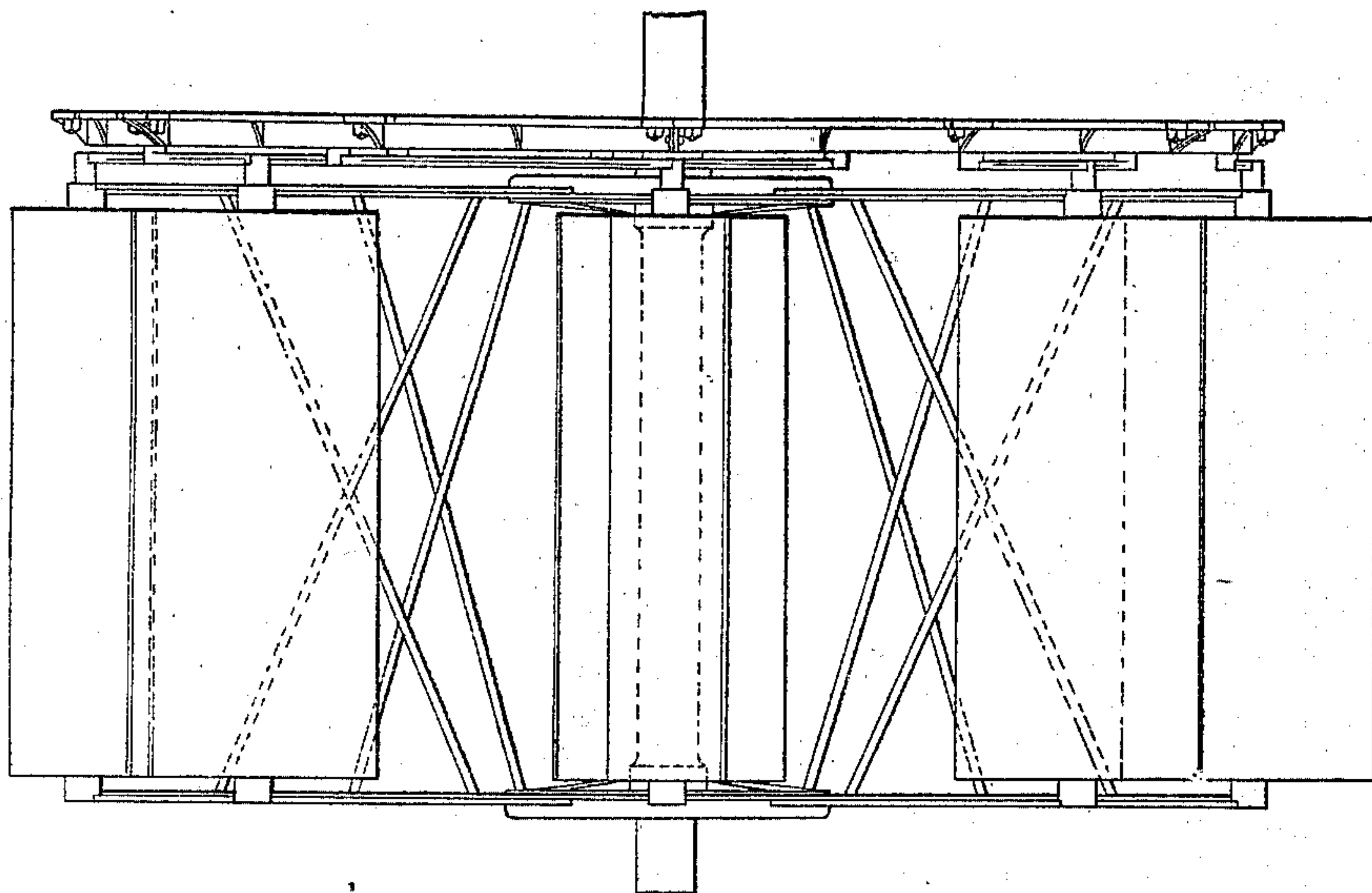


A. Gilman.
Paddle Wheel.

Nº 49,102.

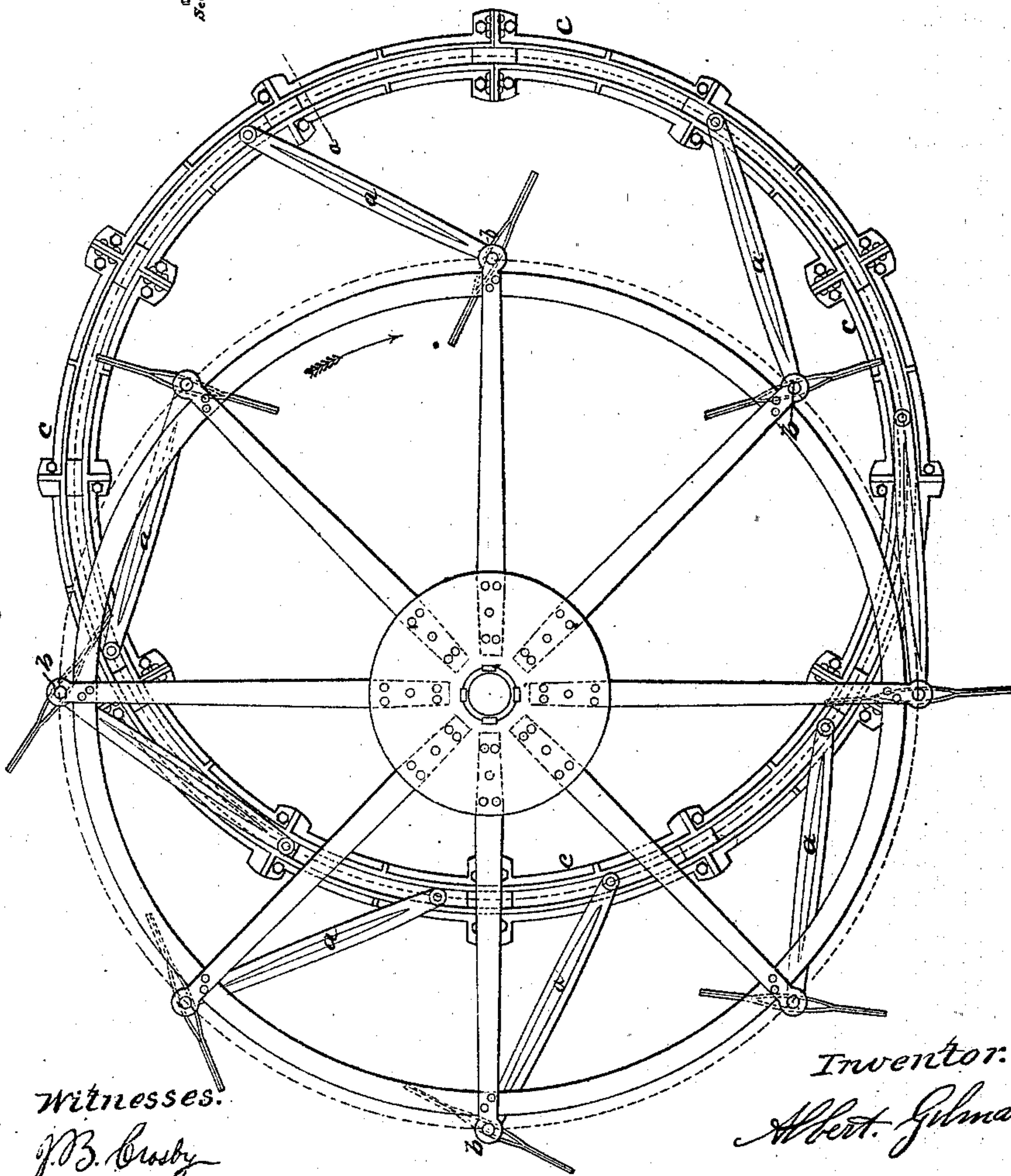
Patented Aug 1, 1865.

Fig. 2.



Sectional a.

Fig. 1.



Witnesses.
J. B. Crosby
T. S. Soud

Inventor.
Albert Gilman

UNITED STATES PATENT OFFICE.

ALBERT GILMAN, OF CHARLESTOWN, MASSACHUSETTS.

IMPROVED FEATHERING PADDLE-WHEEL.

Specification forming part of Letters Patent No. 49,102, dated August 1, 1865.

To all whom it may concern:

Be it known that I, ALBERT GILMAN, of Charlestown, in the county of Middlesex, in the State of Massachusetts, have invented an Improved Feathering Paddle-Wheel; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The purpose, utility, and general mode of operation of feathering paddle-wheels are too well known to require description here.

My invention relates to such a construction and arrangement of the parts and accessories in and connected with such wheels as will keep the paddles at the desired angle with relation to the water-level with the least possible amount of mechanism, possessing both strength and durability.

Of the drawings, Figure 1 is a side elevation of a feathering paddle-wheel embodying my invention, and Fig. 2 is a front elevation of the same.

The hubs, arms, rim, and bracing of the wheel need no description, being such as are in common use.

The inner edge of the wheel is set off from the side of the vessel sufficiently to allow of the attachment and movement of the arms *a*, which are rigidly fixed to the paddle-axes *b*, and of the attachment of the grooved ring *c* to the side of the vessel; which ring is located eccentrically with respect to the paddle-wheel shaft. As represented in the drawings, the paddle-axes *b* are of such length as to extend entirely across the face of the wheel, pivoting or having bearings in the inner and the outer rim, and extending toward the vessel sufficiently from the inner rim for the attachment of the arms *a*. Each paddle is formed by two pieces of metal placed over each paddle-axis, one on either side, and united at the edges, and also to the axis. This construction of the paddles is a minor feature of my invention, but is of considerable importance, inasmuch as the paddles so made are of great strength for the amount of material contained therein, and are as strong in backing as in going ahead, while the edges being thinner than the center, they enter and leave the water without jar or splash. The direction of rotation of the wheel in pro-

PELLING the vessel ahead is indicated by the arrow in the drawings.

The ends of the arms opposite to those fixed on the paddle-axes are provided with pins or rolls, which fit and travel in the ring *c*. The arms *a* being rigidly attached to the axes of the paddles, as shown in the drawings, and the pins in the outer ends of the arms being in the groove in the ring *c*, it will be seen upon inspection of the drawings that rotation of the wheel in the direction of the arrow will draw each arm around the groove in the ring *c*, and that this will constantly change the angle of each paddle and each arm with reference to the water-level.

It will also be observed that in entering and leaving the water the paddles are held at substantially right angles to the surface of the water, the slight variation from the vertical of the paddles in entering and leaving the water being such as to affect but slightly the theory of the action of the wheel based on exact vertical position of the paddles while in the water.

In backing the action of the wheel is similar to its action in going forward, except that the arms *a* are pushed by the wheel, instead of being pulled thereby, around the groove in the ring *c*.

The amount of eccentricity of the ring with regard to the wheel, the diameter of the wheel and the ring, and the length of the arms *a* may be varied, all producing more or less of change in the operation of the paddles, but not departing from my invention, of which I have given in the drawings the best embodiment known to me.

I claim—

1. The stationary ring-guide or track *c c*, fastened to the side of the vessel, for the purposes set forth, substantially as described.

2. In combination with the rocking or rotating paddles provided with arms *a*, rigidly fastened to the paddle-axes *b*, the fixed or stationary ring-guide or track *c c*, in which the pins or pivots of the arms travel, to govern the position of the paddles.

In witness whereof I have hereunto set my hand this 22d day of December, A. D. 1864.

ALBERT GILMAN.

In presence of—

J. B. CROSBY,

FRANCIS GOULD.