

G. L. ELLIOTT.
Paddle-Wheel.

No. 210,680.

Patented Dec. 10, 1878.

Fig. 1.

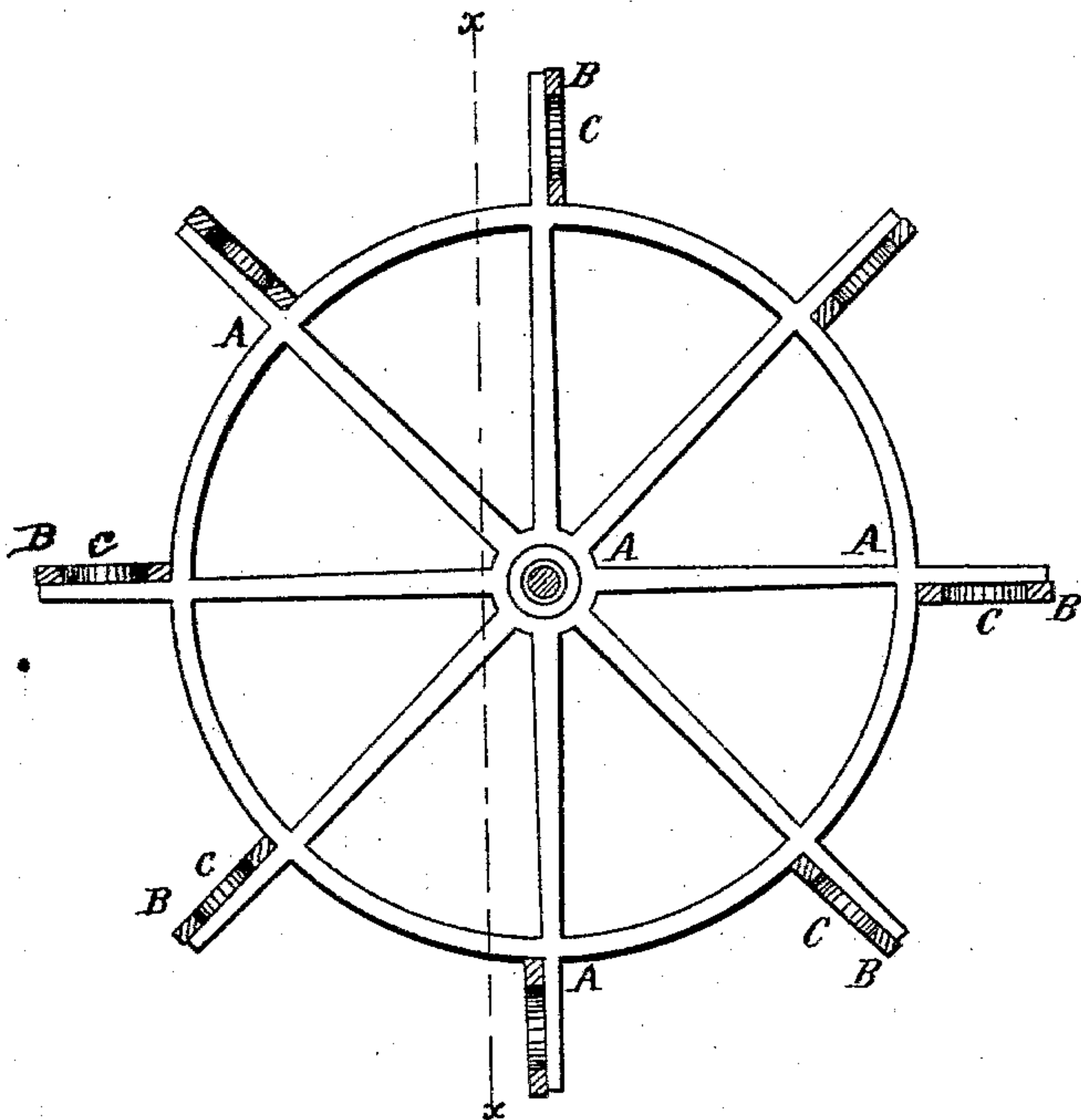
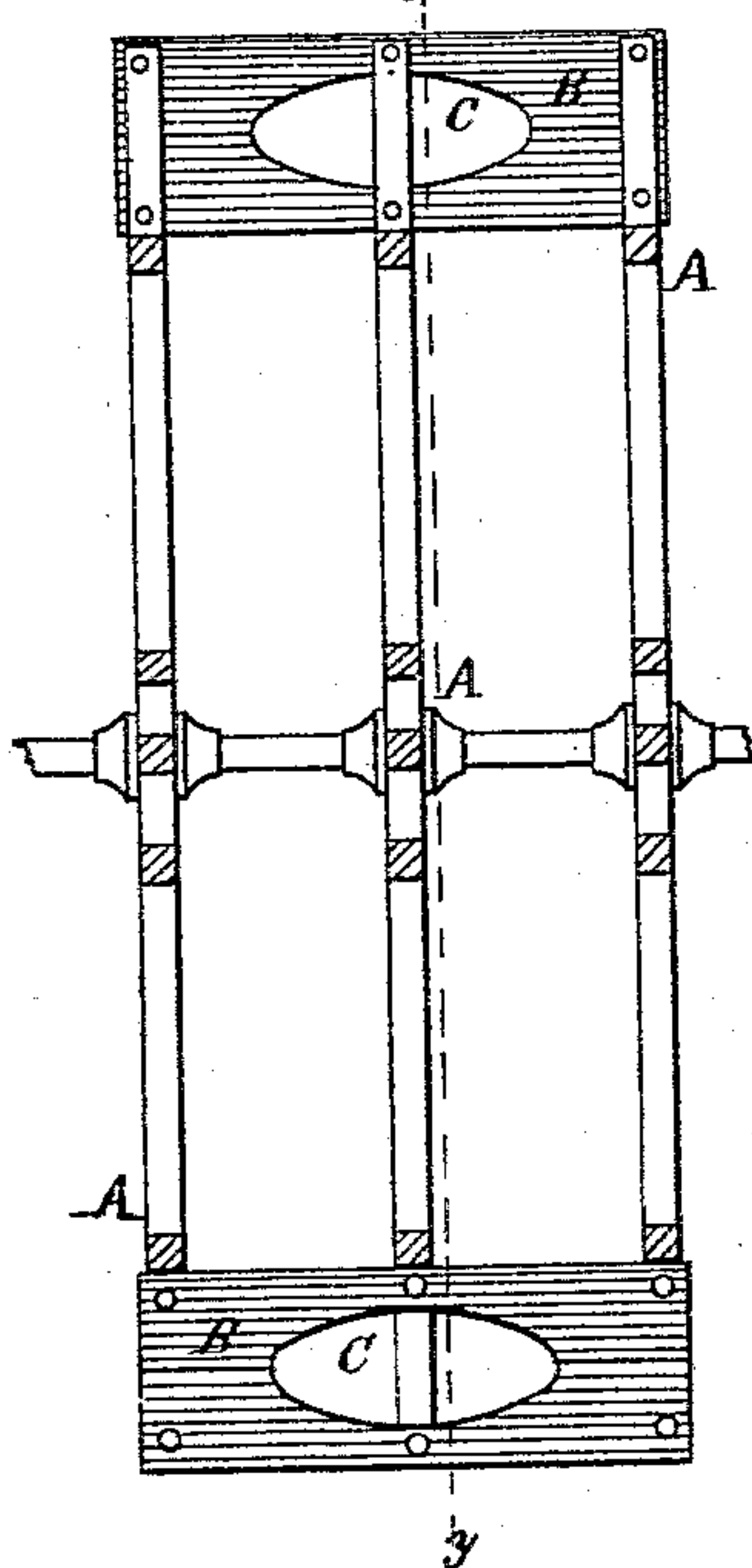


Fig. 2.



WITNESSES:

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GEORGE L. ELLIOTT, OF NEW YORK, N. Y.

IMPROVEMENT IN PADDLE-WHEELS.

Specification forming part of Letters Patent No. **210,680**, dated December 10, 1878; application filed November 12, 1878.

To all whom it may concern:

Be it known that I, GEORGE L. ELLIOTT, of the city, county, and State of New York, have invented a new and useful Improvement in Paddle-Wheels, of which the following is a specification:

Figure 1 is a vertical section of one of my improved paddle-wheels, taken through the line *y y*, Fig. 2. Fig. 2 is a cross-section of the same, taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish improved paddle-wheels, the paddles of which shall be so constructed as to diminish the velocity of the middle portion of the current of water set in motion by the paddles, in order that the remaining portion of the said water may be made efficient, so that the combined action of the different parts of the paddles upon the water may be more effective for the propulsion of the boat.

The invention consists in improved paddle-wheels in which the paddles are made in the form of rectangular parallelograms, and are provided with elliptical apertures through their middle parts, of such a size that their areas may be from one-fourth to one-third the area of the said paddles, and in such positions that their centers may be in the centers of the paddles, and their transverse and conjugate axes may be respectively parallel with the side and end edges of the said paddles, as hereinafter fully described.

A represents the frame-work of a paddle-wheel, about the construction of which there is nothing new. B are the paddles, which are made in the form of rectangular parallelograms, and are attached to the frame A in radial positions in the usual way. The width of the paddles B should be from one-fourth to one-third their length, and they should be arranged with their inner edges parallel with the axis of the wheel, and at such a distance from the said axis that they will be entirely submerged when at the lowest part of their stroke.

Through the middle part of each paddle B is formed an elliptical aperture, C, of such a

size that its area may be from one-fourth to one-third the area of the entire paddle.

The ellipse C should be so placed that its center should coincide with the center of the paddle B, and that its transverse and conjugate axes may be parallel with the side and end edges, respectively, of the paddle B, and the length of the transverse and conjugate axes should be in proportion to the length and width of the paddle.

The shape and size of the paddles and their apertures should be uniform upon any given pair of wheels.

Paddles B constructed in this way would concentrate instead of dispersing the water acted upon by them by allowing a comparatively small quantity of the water to escape through the apertures C, instead of a larger quantity around their ends, by drawing in the water evenly from all sides toward the apertures C.

Each paddle B may be made in one piece or in two pieces, as may be desired or convenient. In the latter case the two pieces should be so jointed together as to leave no slip or opening between them, except the aperture C.

I am aware that the boards of paddle-wheels have been provided with perforations throughout their entire surface; but such wheels could not accomplish the result desired—viz., the concentration of the water to the center of the paddle-board, and the diminishing of the velocity of the middle portion of the current of water set in motion by the paddles. The holes being central and elliptical permit the greatest amount of water to pass through the said openings at the center of the paddle, the quantity gradually decreasing toward the ends and sides. It will thus be seen that by providing the boards with such holes the velocity of the water will be diminished more at the middle than at any other part, and the water concentrated to the center of the paddle, thereby enabling the paddles to act more effectually on the water.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

Improved paddle-wheels in which the pad-

dles B are made in the form of rectangular parallelograms, and are provided with elliptical apertures C through their middle parts, of such a size that their areas may be from one-fourth to one-third the area of the said paddles, and in such positions that their centers may be in the centers of the paddles and their transverse and conjugate axes may be

respectively parallel with the side and end edges of the said paddles, substantially as herein shown and described.

GEORGE L. ELLIOTT.

Witnesses:

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