J. SALTER.

Paddle-Wheel.

No. 165,029. Patented June 29, 1875.

*Fig. 1*

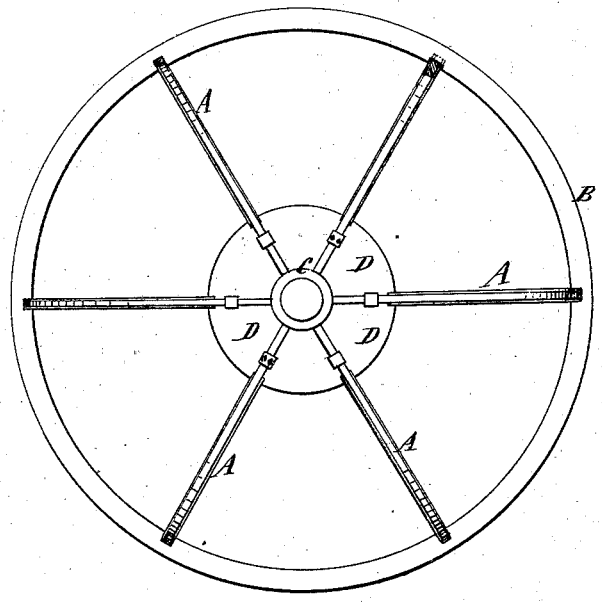



*Fig. 4*

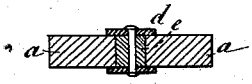



*Fig. 5*

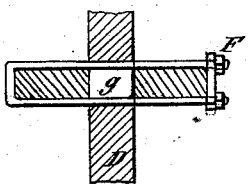



*Fig. 2*

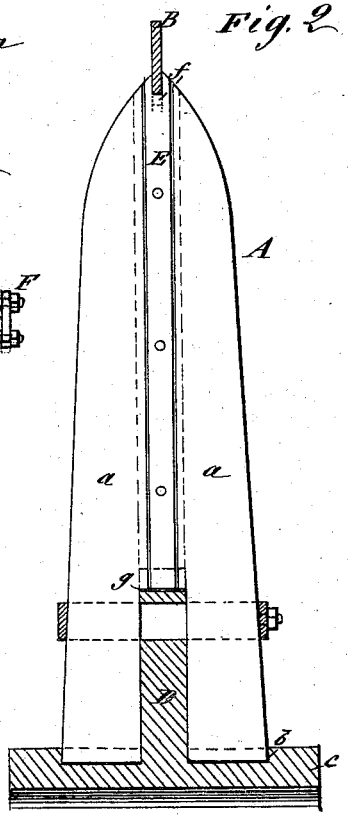
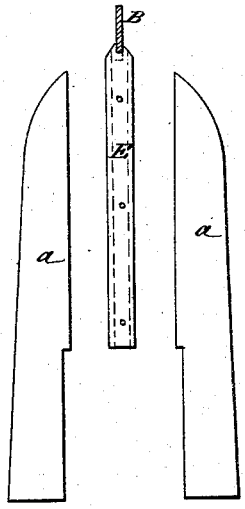



*Fig. 3*




WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES SALTER, OF BROOKLYN, E. D., NEW YORK.

## IMPROVEMENT IN PADDLE-WHEELS.

Specification forming part of Letters Patent No. **165,029**, dated June 29, 1875; application filed May 8, 1875.

*To all whom it may concern:*

Be it known that I, JAMES SALTER, of Brooklyn, E. D., in the county of Kings and State of New York, have invented a new and Improved Paddle-Wheel, of which the following is a specification:

My invention consists of the paddles composed of entire or continuous plates the whole length and breadth, with taper-pointed outer ends, the outer ends being connected to a thin metal ring, and the inner ends connected to the hub. By the tapered form the paddles enter and leave the water so much easier and smoother that they run nearly their whole length in the water with best results, and thus the necessary surface is presented to the water with much less length and breadth, which enables the wheel-houses to be made much narrower and smaller—a matter of great importance in the construction of steamboats. My invention also consists of the paddles made in two plates or planks, which match at the inner edge with an arm having a groove on opposite sides, in which the plates are confined by a band or yoke of metal applied between the rim and the hub, to fasten them to the arm, while the inner ends enter mortises in the hub.

Figure 1 is a side elevation of my improved paddle-wheel. Fig. 2 is a section through the wheel in the line of the axis. Fig. 3 is an elevation of the arm and the two plates forming the paddle. Fig. 4 is a section of the paddle, and Fig. 5 is a section of the hub and plan of the band for fastening the two parts of the paddle to the arm.

Similar letters of reference indicate corresponding parts.

A represents the paddles; B, the ring connecting the outer ends; C, the hub; D, a center flange of the hub; E, the arms, and F the metal bands securing the paddles. The paddles consist of two plates, *a*, which enter the hub at the inner end *b*, and outside of the middle flange D match at their inner edges in the grooves in the arms. The arms consist of two thin metal bars, *d*, and a middle piece, *e*, of wood or other material, firmly secured by rivets or bolts, the bars being a little wider than the middle piece, to make the grooves for the plates *a*, and at the outer end the bars are notched at *f*, to receive the ring B, while the inner ends enter notches *g* in the flange of the hub. The plates of the paddle are firmly secured to these arms and to the flange by the metal bands, which, in practice, will be open at one end, with the ends screw-threaded to pass through a short bar, to be fastened on by nuts to bind up the parts tightly, as shown in Fig. 2.

The bands will pass through the flange of the hub when it is used; but it may be dispensed with, and in that case the bands may be continuous or endless, and be driven on the paddles, which may be slightly tapered above the point for that purpose, if preferred.

It will be seen that the wheel is fastened without so many projecting bolt-nuts and angular corners as are common in paddle-wheels, which make it work smoother in the water.

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

1. Taper-pointed paddles of continuous or entire plates, in combination with an outer stay-ring, B, constructed substantially as specified.

2. The plates *a*, arms E, hub C D, ring B, and band or yoke F, combined and arranged substantially as specified.

3. The combination of bars *d*, middle piece *e*, plates *a*, ring B, band F, and the hub, substantially as specified.

JAMES SALTER.

Witnesses:

T. B. MOSHER,

ALEX. F. ROBERTS.