

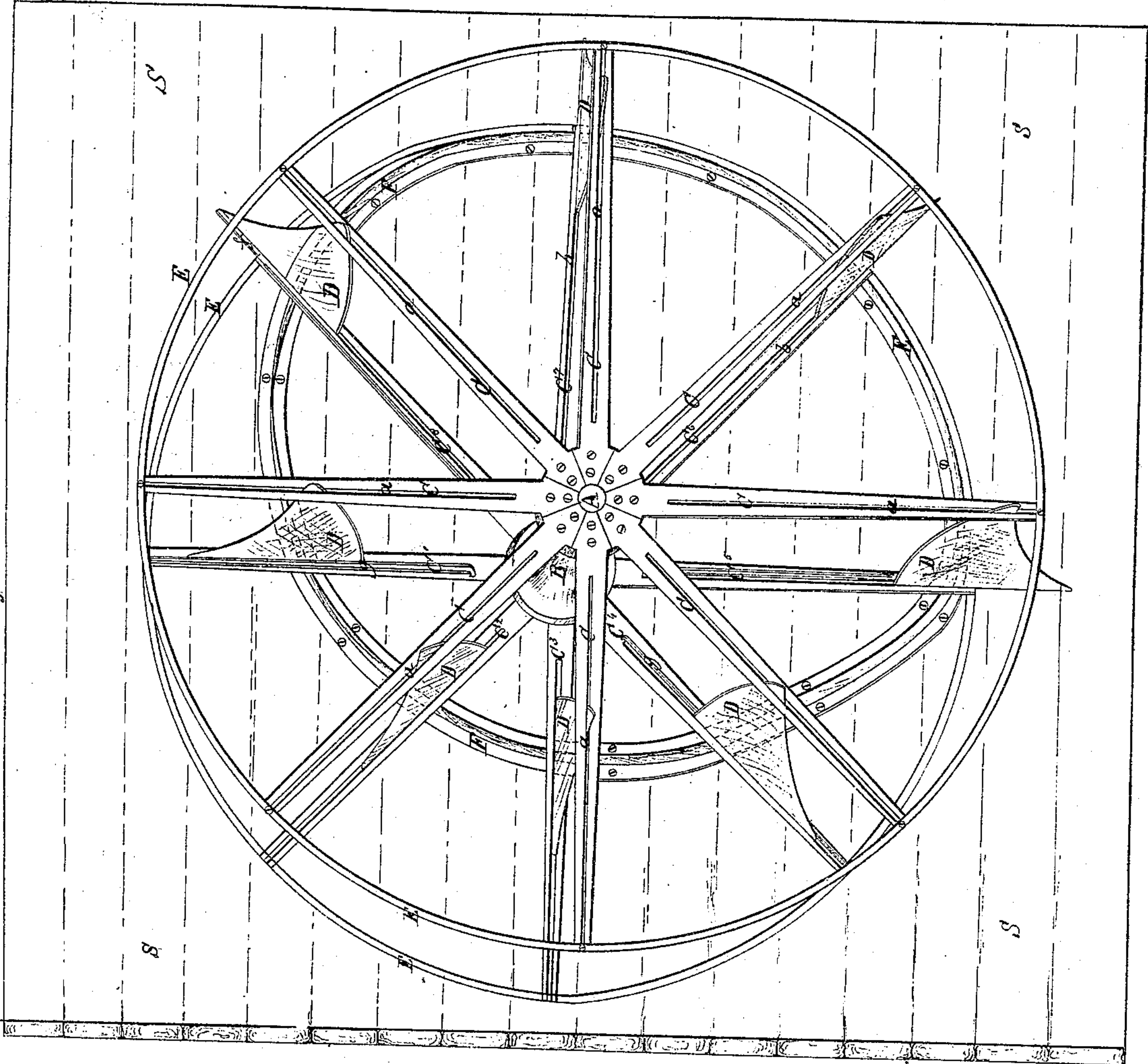
*Collyer & Patterson.*

*Paddle Wheel.*

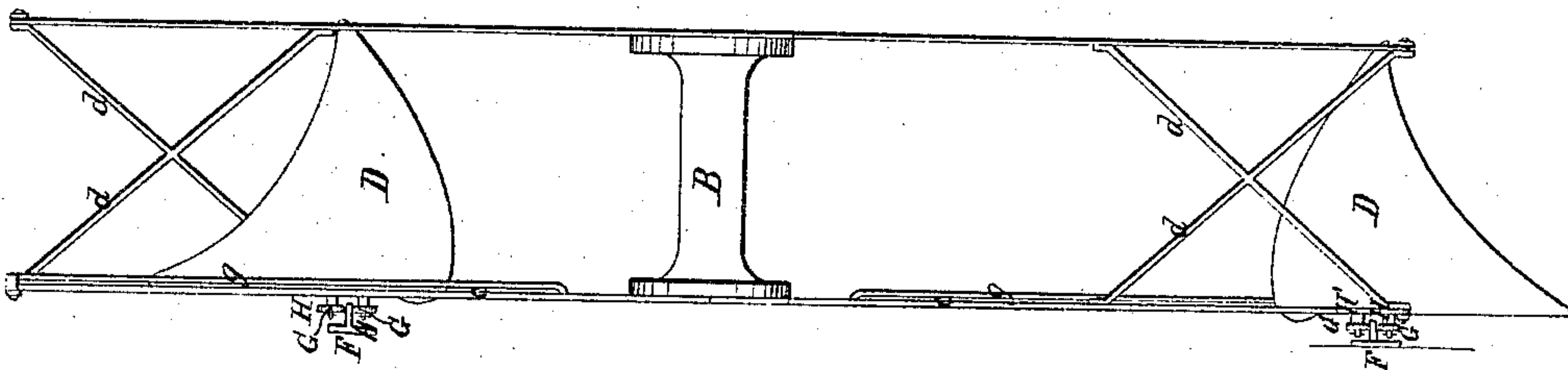
*N<sup>o</sup> 27,018.*

*Patented Mar. 27, 1860.*

*Fig: 1.*



*Fig: 2.*



*Witnesses:*

*W. H. Hunt  
J. C. Hunt*

*Inventors:*

*Geo. Collyer  
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# UNITED STATES PATENT OFFICE.

GEORGE COLLYER AND A. HAMILTON PATTERSON, OF PHILADELPHIA,  
PENNSYLVANIA.

## IMPROVED PADDLE-WHEEL.

Specification forming part of Letters Patent No. 27,618, dated March 27, 1860.

*To all whom it may concern:*

Be it known that we, GEORGE COLLYER and A. HAMILTON PATTERSON, both of the city of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Paddle-Wheels for Steam-Vessels; and we do hereby declare that the following is a full, clear, and exact description thereof.

The object of our improvements is to avoid the lifting of the water by the paddles as they leave the water after they have ceased to exert a propelling influence on the vessel. We produce this result by combining the paddles, which have shoulders, with or without friction-wheels, and which are made to slide freely upon the arms of the wheel toward or from its center or shaft with an eccentric track secured to the side of the vessel and upon which the shoulders or friction-wheels of the paddles move. The paddles are thus caused to enter the water at the required period in the revolution of the wheel and to be withdrawn from the water soon after they have passed a line perpendicular to the shaft.

In the accompanying drawings, Figure 1 is a perspective view of a paddle-wheel, showing among other parts the eccentric track, the paddles, and the grooves in the arms of the wheel. Fig. 2 is a front view of any two arms—to wit, C C', C C<sup>s</sup>—of the wheel, a similar view of the paddle attached to each arm and a sectional view of the eccentric track.

In Fig. 1, S is a part of the side of a vessel. A is the shaft of the wheel. B is the hub. C C', &c., are arms which have grooves or slots *a b c*, in which the paddles freely slide. The arms are braced by any number of cross-braces *d*, Fig. 2. E E form the rim of the wheel. Each of the paddles D has a flange, (shown at *f*, Fig. 1,) and has also shoulders H H'. (Shown in Fig. 2.) H H' may have friction-wheels G. The outside part C of each of the arms has a slot *a*. The inside part C', &c., has a similar slot *b*, and has also an an-

gular offset *g*, which has a slot *c*, Fig. 2. The outside points of the paddles D slide in the slots *a*. The flanges *f*, Fig. 1, of the paddles slide in the slots *c*. Through the slots *b* the shoulders H, Fig. 2, of the paddles project, one on the outside, the other on the inside, surface of the track F. The track F is made of cast-iron and is secured to the side of the vessel.

In using our sliding paddles much power in the forward motion of the wheels is incidentally gained, which is due to the fact that the forward or descending paddles being about one-half the whole number are always at the extremities of their arms respectively, while the opposite or ascending paddles which would otherwise exert a counterbalancing effect are more or less drawn toward the center of the wheel.

When wheels of the ordinary construction having paddles of rectangular shape are used, the number of paddles is much increased, merely to obviate the jar incidental to the force of their concussion with the water. In consequence of the form (shown in Fig. 2) of our paddles, whereby they enter the water with a point gradually enlarging to their full breadth, we are enabled to dispense with the use of about one-half of the number of paddles commonly used in such wheels.

What we claim as new, and desire to secure by Letters Patent, is—

The sliding paddles D, shaped and arranged so that each paddle enters the water with a point, and as it enters presents a surface which gradually widens until the full breadth of the paddle is presented to the water, in combination with an eccentric track secured to the side of the vessel on the inside of the space occupied by the wheel, as and for the purpose shown and described.

GEO. COLLYER.

A. HAMILTON PATTERSON.

Witnesses:

J. E. SHAW,

M. A. ROOT.