

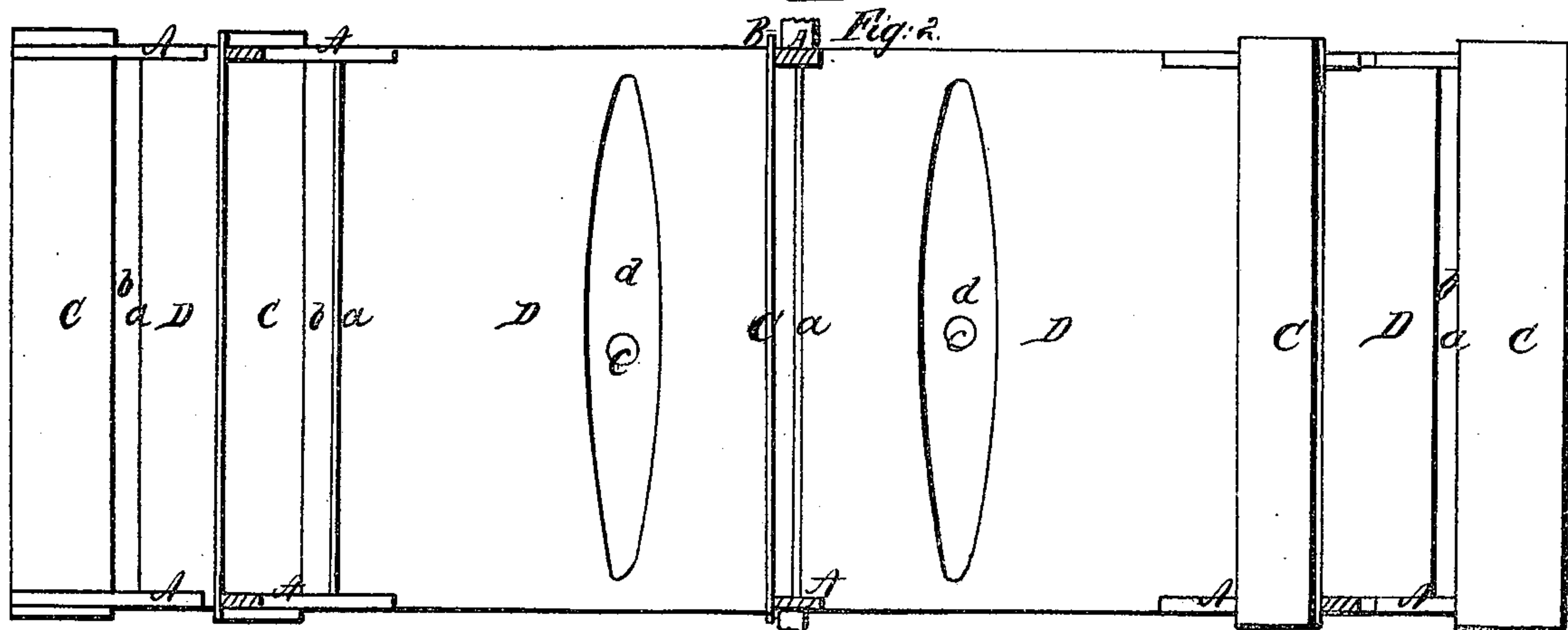
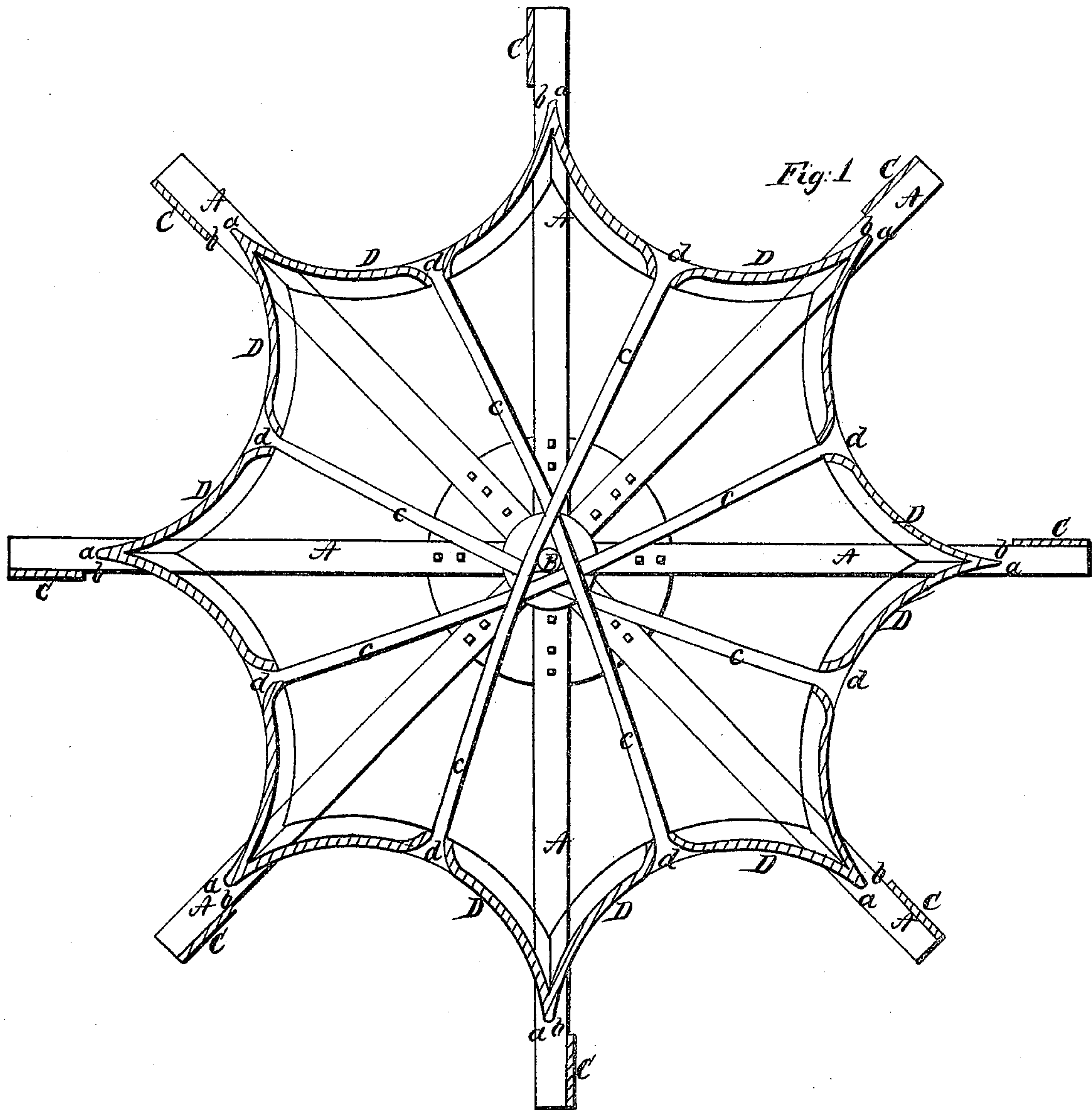
Sheet 1. 2 Sheets.

Buchanan.

Paddle Wheel.

N^o 19,482.

Patented Mar. 2, 1858.

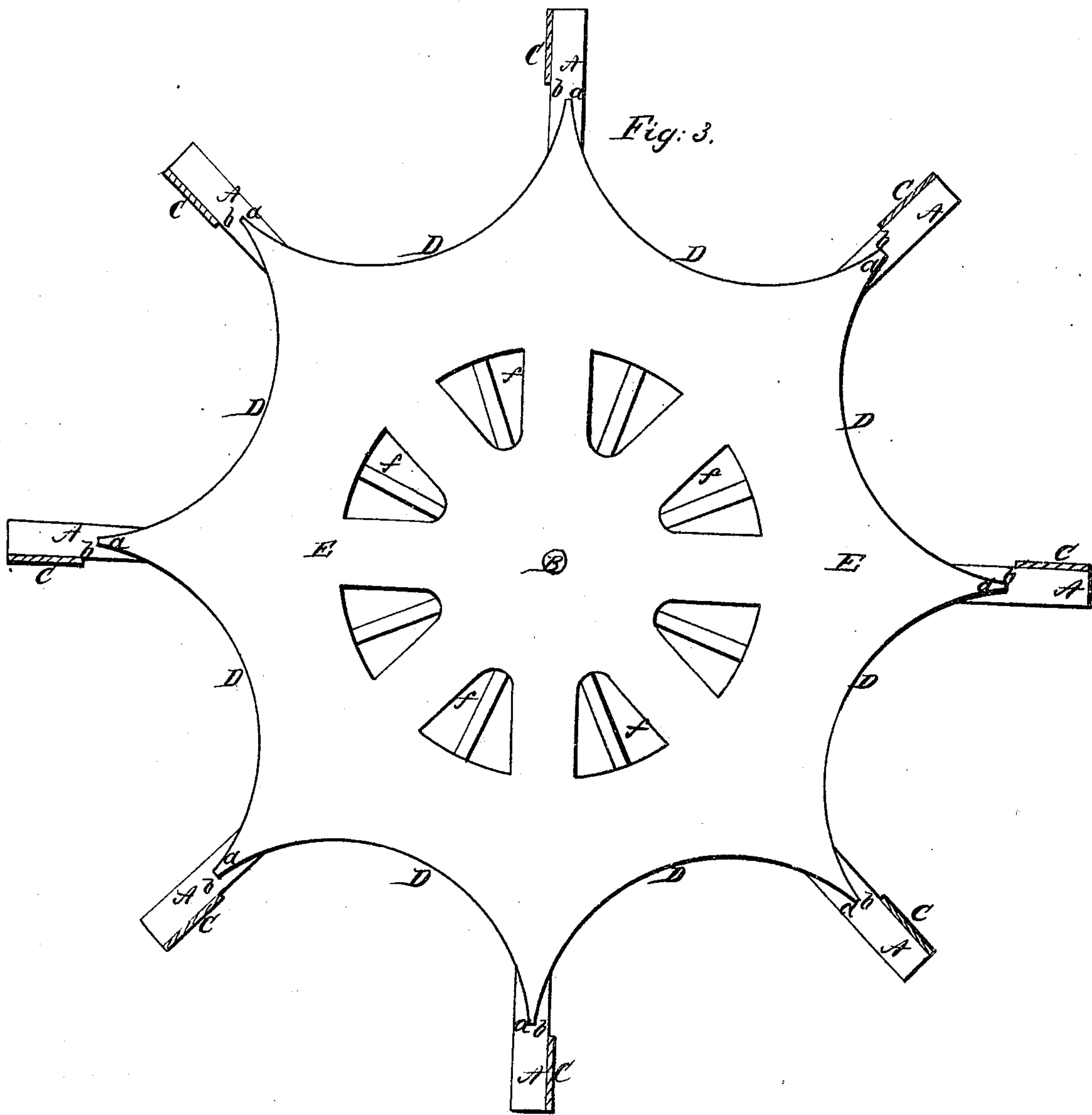


Sheet 2. 2 Sheets.

Buchanan Paddle Wheel.

N^o 19,482.

Patented Mar. 2, 1858.



UNITED STATES PATENT OFFICE.

ANDREW BUCHANAN, OF NEW YORK, N. Y.

PADDLE-WHEEL.

Specification of Letters Patent No. 19,482, dated March 2, 1858.

To all whom it may concern:

Be it known that I, ANDREW BUCHANAN, of the city, county, and State of New York, have invented a new and useful Improvement in Paddle-Wheels for Propelling Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a section, taken in a plane perpendicular to the axis, of a paddle-wheel, constructed according to my invention. Fig. 2 is a top view of the same. Fig. 3 is a side view of the same.

Similar letters of reference denote like parts in all the figures.

My invention consists in a certain arrangement of ventilating pipes, in combination with a series of arches placed between the floats, for the purpose hereinafter specified.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

The paddle-wheel to which my improvements are to be applied is to be constructed in the same or substantially the same manner as the paddle-wheel in most common use, as my improvements do not require the alteration of any part of it, but are additional and can be applied to any wheel already in use.

In the drawing B represents the shaft of the wheel, and A, A, represent the arms, arranged radially to the shaft and supposed to be fitted in the usual manner into two hubs that are keyed to the shaft. C, C, are the floats of the usual flat form bolted to the arms A, A.

D D, in Figs. 1 and 2, are the arches, arranged between the floats. These arches, which may be made of wood or sheet metal, extend all across the wheel parallel with the axis thereof and are open at their ends, *i. e.* at the sides of the wheel. They are described from centers about midway between the arms and at equal distances from the center of the wheel. They unite with each other all around the wheel, forming slightly rounded straight edges at their junction as shown at *a, a*, in Figs. 1 and 2. These edges *a, a*, do not unite with the floats C, C, but open spaces *b, b*, are left between the said edges and the floats. The sides of the central portion of the wheel

within the arches *a, a*, are represented as being covered with plates E, E, but these plates do not entirely close the central portion as openings are provided in them as shown at *f, f*, in Fig. 3. The plates E, E, however, form no essential feature of my invention, and they may be omitted, leaving the sides of the wheel entirely open, as is the usual custom.

The arches D, D, are not intended to act as propelling surfaces, and the dip of the wheel is not intended generally to be any greater than the depth of the floats, but the object of said arches is to prevent the water being driven upward and broken into foam behind the floats, as the latter enter and pass through the water, and thereby to make the water less yielding to the pressure of the floats and thus to obtain a greater propulsive effect. The openings *b, b*, serve to allow the escape from under the arch of any excessive quantity that might get in during the action of the wheel and also for the escape of water from off the floats as they rise from the water.

c, c, are the ventilating pipes for the escape of air from the interior of the arches D, D, said pipes passing through the wheel from each arch to one nearly opposite, so that each serves to ventilate two arches. The arches are hollowed slightly, as shown at *d, d*, Figs. 1 and 2, in such manner as to produce funnel-like mouths to the ventilating pipes, which are thus made to provide for the escape of any air that the arches might otherwise have a tendency to confine, and which would tend to agitate and disturb the water by attempting to escape in any other than an upward direction.

I do not claim the closing of the spaces between the floats, as I am aware that paddle-wheels have been made with peripheries formed like cog-wheels, stars, and in other form, with the said spaces closed. But

What I claim as my invention, and desire to secure by Letters Patent, is:—

The arrangement of the ventilating pipes *c, c*, substantially as described, in combination with the arches D, D, between the floats, for the purpose set forth.

ANDREW BUCHANAN.

Witnesses:

W. TUSCH,
W. HAUFF.