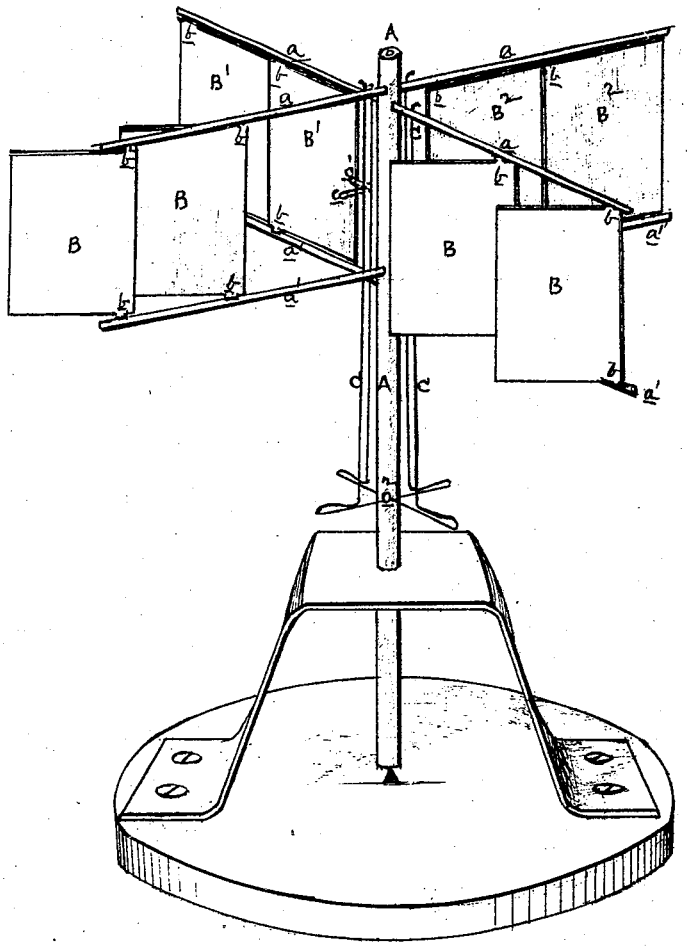
J. O. Heyworth.

Wind Wheel.

NO. 107,372. Patented Sept. 13. 1870.



Witnesses
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JAMES O. HEYWORTH, OF CHICAGO, ILLINOIS.

Letters Patent No. 107,372, *dated September* 13, 1870.

IMPROVEMENT IN WIND-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same

To whom it may concern:

Be it known that I, JAMES O. HEYWORTH, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Wind-Wheels; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification.

The drawing is a view of my invention in perspective.

The nature of this invention relates to an improvement in wind-wheels, and consists in constructing them with a double series of arms projecting from the shaft which connects the attained power with any machinery to be worked by it.

These arms are arranged in pairs, one over the other, as shown in the drawing; and in each pair the sails are hung perpendicularly by pivot-hinges.

Through each pair of arms, near the shaft, rods pass perpendicularly, which are provided with check-studs, which project so as to hold the inner sails operating the wheel in position against the wind, the studs being on that side of the wheel to leeward of the sails, and the inner sails extend sufficiently beyond their pivots, so that, when parallel with the arms, to be overlapped by the sails more remote from the center of the wheel, and between the same pair of arms, and so to hold the outward sails in similar position against the wind.

On the opposite side of the wheel, the studs being to windward of the inner sails, they offer no resistance to the sails turning on their pivots, so they feather to the wind, by which turning on their pivots, the sails more remote from the center of the wheel are released from their overlapping on the inner sails, and, turning on their pivots, also feather to the wind.

These rods extend below the arms, parallel with the shaft, and may be turned so as to free the sails from all interference of the check-studs when it is desired that the sails should swing clear, and the wheel be at rest.

The lower and horizontal parts of these rods also represent hand-spikes, by which the shaft and wheel can be turned to start it by bringing the sails into working position after the studs have been reset to come in contact with the sails.

In the drawing—

A represents the shaft by which any machinery is to be operated, and

a and a^1, the arms, arranged in pairs, in which the sails are hung.

B B′ are the sails, hung, by pivot-hinges b, to the arms a a^1.

C are the rods, provided with check-studs c c'. As shown in the drawing, c' is in position to hold the sails B′ against the wind, the wheel being as shown in the drawing, rotating by the sails B, the latter also held in position against the wind by a stud, not shown in the drawing, the sails B hanging free, and feathering to the wind.

These rods may be held in position to operate the check-studs by any appropriate means, in the drawing their lower extremities being bent so as to be held by sockets in the shaft, at a^2.

In the construction of this wheel, the pairs of arms may be arranged all in the same plane, as shown in the drawing, or on different planes, so that one pair may not be in the lee of the next more windward pair of arms.

By the substitution of floats in place of the sails, this wind-wheel may be used as a horizontally-placed water-wheel in streams of water.

In using wind-wheels so constructed, none of the force of the wind is lost.

On inclined planes, as is the case with most wind-wheels, only a part of the force of the wind exercises motive power, a part being neutralized and opposed by said inclined planes.

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

1. The arms a a^1, extending from shaft A, having pivoted between them the sails B B′, in the manner and for the purposes set forth.

2. In combination, the arms a a^1, the sails B B′, rod C, and check-studs c c', substantially as and for the purposes set forth.

Witnesses: J. O. HEYWORTH.

GEO. O. MANCHESTER,

SAML. B. BELL.