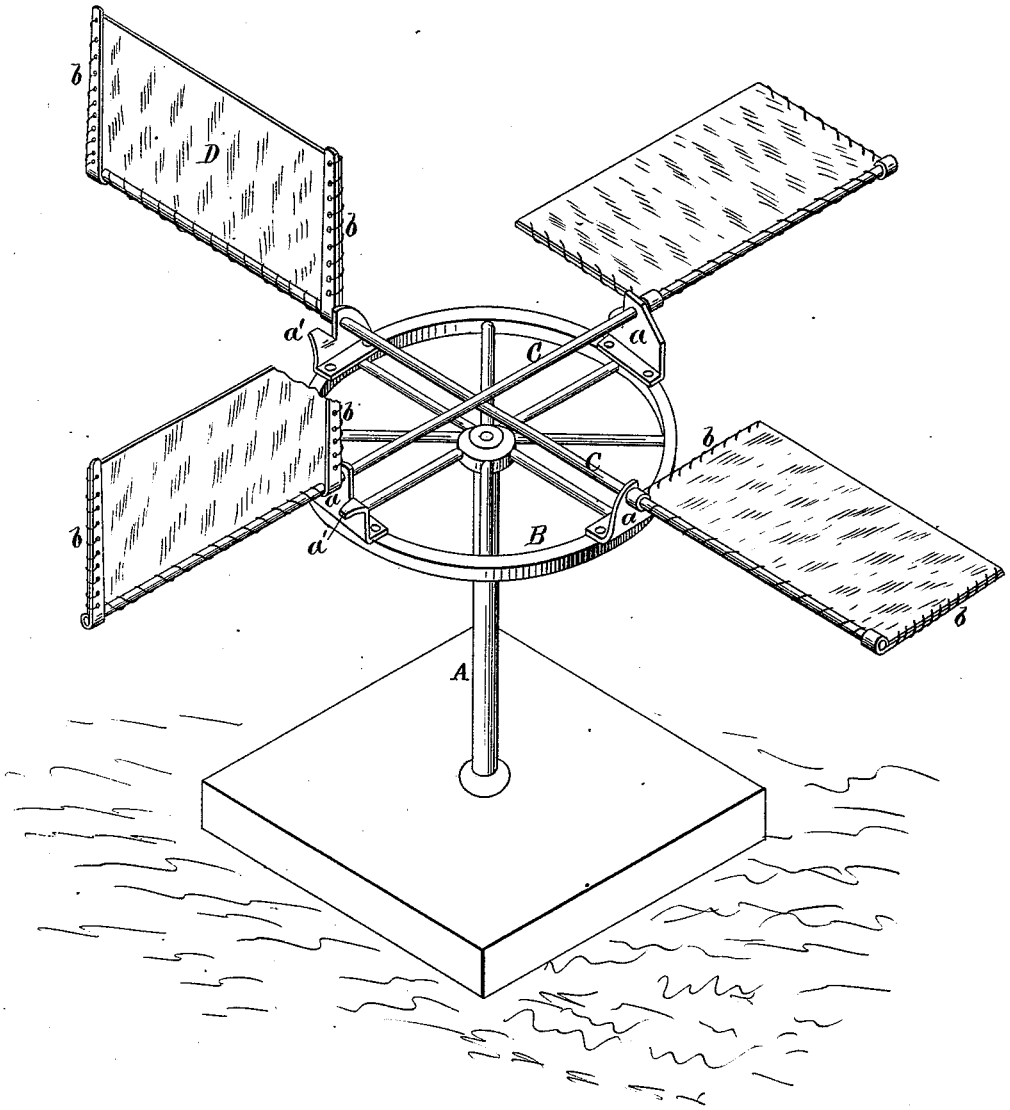
E. HOWLAND & J. B. SWEETLAND.

WIND-WHEEL.

No. 185,924. Patented Jan. 2, 1877.



WITNESSES

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EPHRAIM HOWLAND, OF WHITE LAKE, AND JEROME B. SWEETLAND, OF PONTIAC, MICHIGAN.

IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. **185,924**, dated January 2, 1877; application filed November 16, 1876.

To all whom it may concern:

Be it known that we, EPHRAIM HOWLAND, of the town of White Lake, and JEROME B. SWEETLAND, of the city of Pontiac, in the county of Oakland, and in the State of Michigan, have invented certain new and useful Improvements in Wind-Engines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of our invention consists in the construction and arrangement of a windmill, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, which represents a perspective view of our windmill.

A represents a vertical standard, of suitable height, on the upper end of which is placed a horizontal wheel, B, the hub whereof rests on a circumferential shoulder formed around the standard. C C represent two shafts, crossing each other at right angles directly over the center of the wheel, and supported in boxes or bearings *a a*, secured on the rim of the wheel. On each end of each shaft C are two parallel arms, *b b*, extending on one side of the shaft only, and to which is secured the sail D. The arms and sails at the two ends of the same shaft stand at right angles to each other, so that when one sail stands perpendicularly the sail at the other end of the same shaft will be in a horizontal position. Upon each box, *a*, is a projection, *a'*, which forms a rest for the inner arm of the sail when the same is down in a horizontal position, and thus prevent the sail from going down below such line.

In operation, it will be seen the wind acts upon two sails at one time—that is, one sail on each shaft—and as soon as the sail of either shaft gets beyond a certain point it turns down, raising the sail on the other end of the shaft, so that the wind can act thereon.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination, in a windmill, of the upright shouldered post or standard A, the horizontal wheel B, with boxes *a*, having projections *a'*, and the shafts C C, provided at each end with arms *b b* and sails D, all constructed substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 21st day of October, 1876.

EPHRAIM HOWLAND.
JEROME B. SWEETLAND.

Witnesses:
SAMUEL E. BEACH,
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