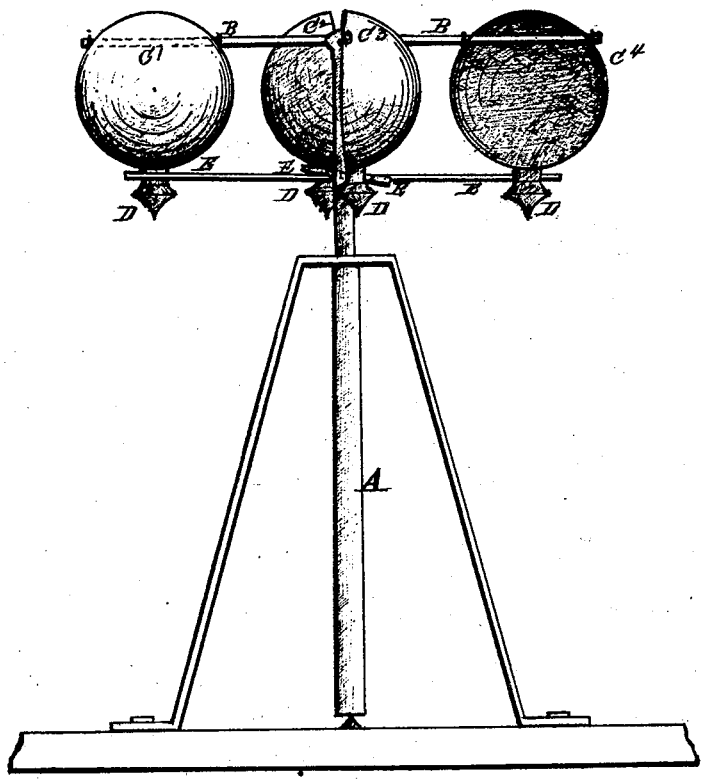
Heyworth & Fessel,

Wind Wheel.

No. 108,593. Patented Oct. 25. 1870.



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JAMES O. HEYWORTH AND HERMAN E. FESSEL, OF CHICAGO, ILLINOIS.

Letters Patent No. 108,593, dated October 25. 1870; antedated October 8, 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 we, JAMES O. HEYWORTH and HERMAN E. FESSEL, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sails for Wind-Wheels; and we 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 in perspective of our invention.

This invention relates to an improvement in sails for wind-wheels, and consists in constructing them convex on one side and concave on the other, and hung loosely upon arms passing from the shaft through them, at a point above the center; these are ballasted by weights at the bottom of the sails, which serve to keep them more or less in a perpendicular position, and to steady them under pressure of the wind, so as to expose a greater concave area to a slight wind, and less area, by tilting of the sails, by the force of a greater wind, thereby preventing sudden jerks in the rotation of the arms.

In order to prevent the sails from being at any time so much tilted as to present too little surface to the wind, the shaft is provided with a second series of arms, projecting so that, when the sails tilt beyond a certain angle, they shall bear against the arms, by means of a projection at the bottom of the sails, shown in the drawing, by the weights.

In the drawing—

A is the shaft, operated by the wheel;

B, the arms, upon which the sails C are hung; and

D the weights, by which the sails are ballasted.

C^1 shows the convex surface of the sail;

C^2, the concave; and

C^2 C^3 give side views of the sails.

E are the second series of arms, projecting from the shaft, so arranged as to prevent the sails from tilting beyond a certain angle by the weights D bearing against them.

It will be seen that these sails, hanging loosely on the arms, adjust themselves to the force of the wind; hanging above the center, they are not too easily turned from the perpendicular, and always offer a sufficient surface to the wind to operate the machinery to which the wheel is attached, and, with increase in the force of the wind, they turn on the arms, so as to offer less surface; and, when the force is decreased, they fall again to their natural position, the weights attached steadying them, so that the velocity of the rotating arms is maintained with great regularity and steadiness.

This invention affords an economical and self-regulating power in every case where a wind-mill can be put to use.

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

1. A wind-wheel, having its sails C constructed convex on one side and concave on the other, hung upon arms B passing through them at a point above the center, and ballasted by weights D, attached to the bottom of each sail, substantially as and for the purposes set forth.

2. In combination with the above, the second series of arms E, projecting from the shaft A, arranged and operating as and for the purposes set forth.

J. O. HEYWORTH.
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Witnesses:

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