J. P. Burnham,

Wind Wheel.

No. 42,164. Patented Apr. 5, 1864.

Fig. 1.

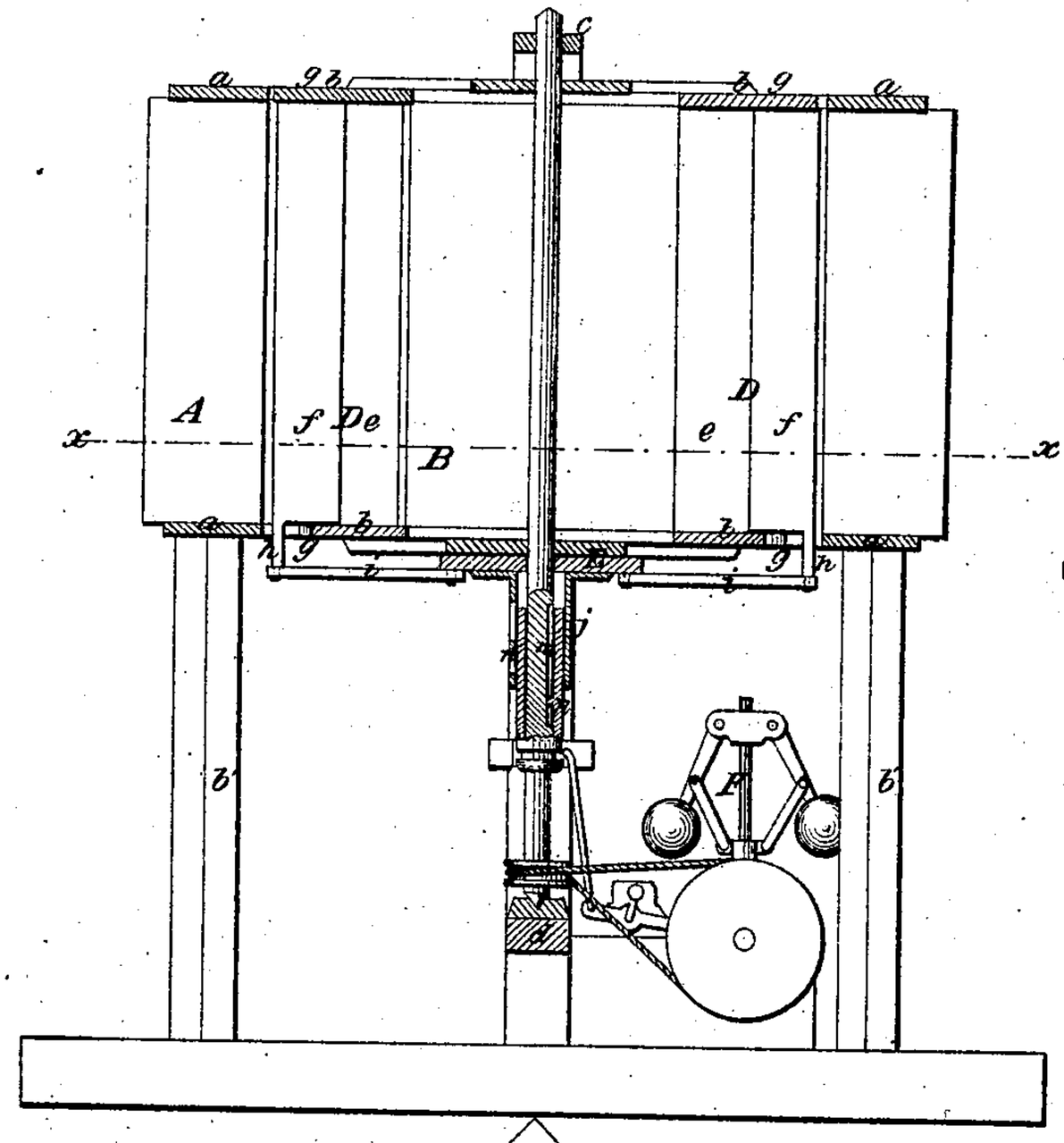


Fig. 3.

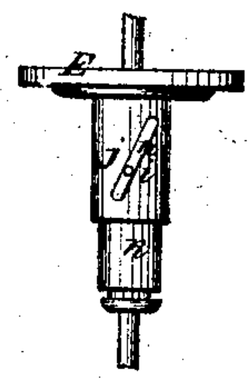
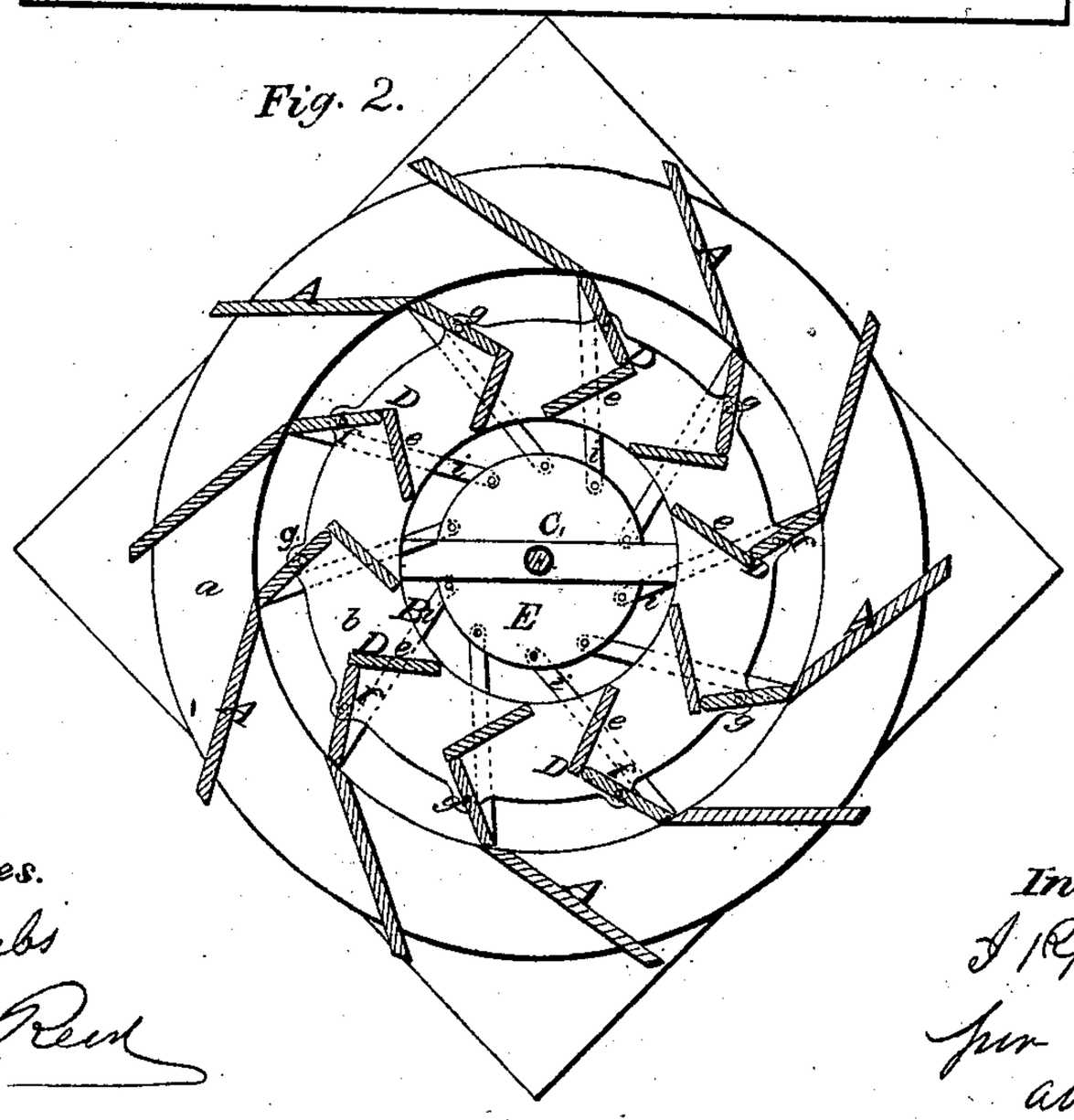


Fig. 2.



Witnesses.

D. W. Coombs

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UNITED STATES PATENT OFFICE.

JOHN P. BURNHAM, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. **42,164**, dated April 5, 1864.

To all whom it may concern:

Be it known that I, JOHN P. BURNHAM, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Wind-Wheel; 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 represents a vertical central section of my invention. Fig. 2 is a horizontal section of the same, the line *x x*, Fig. 1, indicating the plane of section. Fig. 3 is a detached side elevation of the regulating mechanism.

Similar letters of reference in the several figures indicate corresponding parts.

This invention relates to an improvement in that class of wind wheels in which the wind is conducted by a series of stationary boards to a wheel arranged on the interior of said boards and made to rotate on a vertical shaft.

The nature of my invention and its peculiar advantages will be readily understood from the following description.

A represents a series of stationary boards, which are secured in tangential positions between two rings, *a*, supported by posts *b'* at any desirable height above the ground.

The space inclosed by the boards A and rings *a* is occupied by the wheel B, which consists of two rings, *b*, between which the sails are secured, and which rotates on a vertical shaft, C. This shaft has its bearing above in a cross bar, *c*, secured to the outer rings *a* and extending across the center, and below it is stepped in a suitable block, *d*, at any desirable height above the ground.

Each of the sails D is composed of two distinct sections, *e f*. The sections *e* are firmly secured in tangential positions between the rings *b* of the wheel B in such relation to the stationary boards A that they are situated in planes at right angles to said boards. The sections *f*, or the regulating-sections, are hung on pivots *g*, which have their bearings in suitable sockets near the circumference of the rings *b*, and they are so arranged that they can be brought in a position at right angles to the stationary sections *e*, as shown in Fig. 2, when their edges meet and a bucket is formed to catch the wind; or they can be so adjusted that an open space is left between their inner edges and the outer edges of the stationary sections, and in this case the wind passing in between the stationary boards A is allowed to escape at the corner of the buckets and its power is reduced.

Each of the regulating-sections *f* is provided with a stud, *h*, projecting from its outer edge below the lower ring, *b*, and these studs connect by suitable rods, *i*, with the regulating-disk E. This disk is firmly secured to the top of a tube, *j*, which fits nicely over a sleeve, *k*, and this sleeve is slipped on the shaft C, and its position is regulated by a governor, F. It is connected with the shaft by a key, *m*, so that it can slide up and down but not rotate on the shaft, and a pin, *l*, projects from its surface through an oblique slot, *n*, in the tube *j*. When this pin is down at the bottom end of the slot, the sections *f* close up against the sections *e*, and the sails are in the proper position to meet the wind; but if the speed of the wind wheel exceeds a certain limit and the balls of the governors fly out, the sleeve *k* is pushed up on the shaft C, and by the action of the pin *l* on the oblique slot the tube *j* and the disk E are slightly turned and the sails are opened. The wind is now allowed to pass through between the edges of the sections *e* and *f*, and the speed of the wind-wheel slacks off.

It must be remarked that my wheel can be used without the stationary boards A, the sails being so shaped that their backs offer very little resisting-surface to the wind, causing the same to glance off and to escape without much obstruction through the open center of the wheel. At the same time the faces of the sails catch the wind and the wheel is compelled to rotate in the desired direction.

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

1. The combination of regulating-sections *f*, fixed sections *e*, rings *b*, stationary boards A, and regulating-disk E, all constructed and operating in the manner and for the purpose shown and described.

2. The oblique slotted tube *j* and disk E, in combination with the vertically-sliding sleeve *k* and regulating-sections *f* of the sails D, constructed and operating as and for the purpose set forth.

JOHN P. BURNHAM.

Witnesses:

O. BURNHAM,

J. STANFORD.