C. C. JACKSON.

WIND WHEEL.

APPLICATION FILED APR. 15, 1916.

1,225,033.

Patented May 8, 1917.

2 SHEETS—SHEET 1.

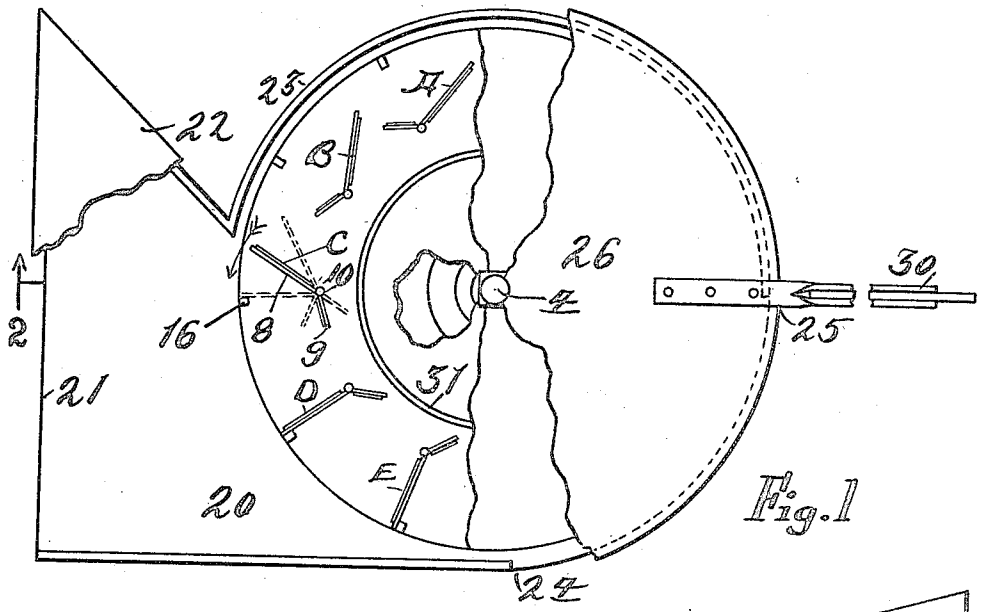


Fig. 1

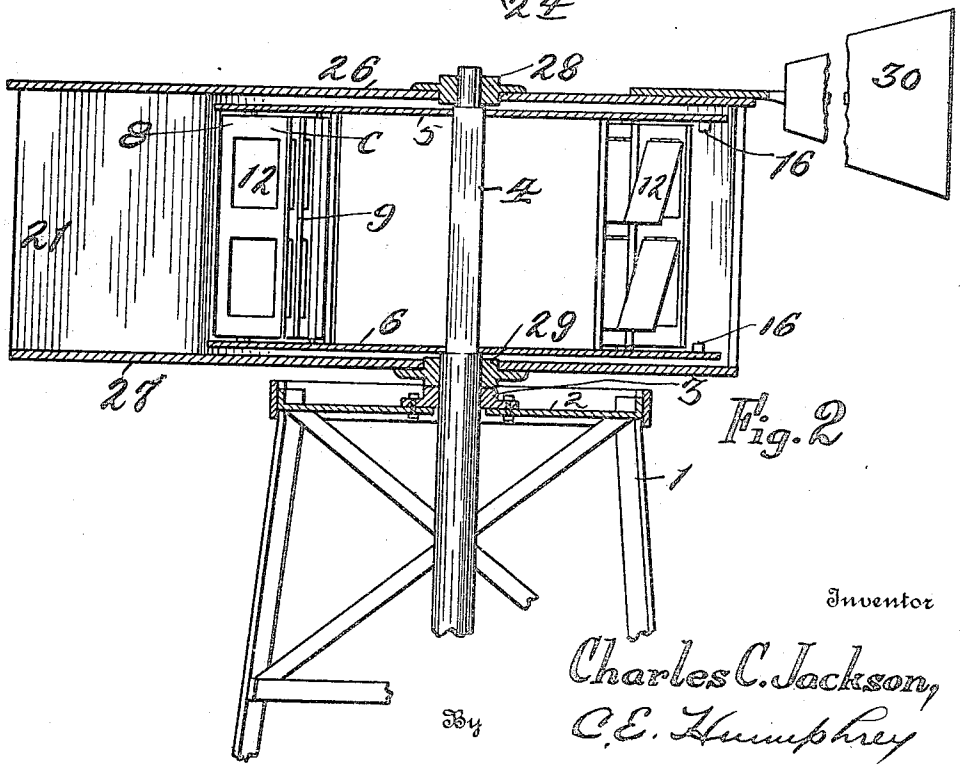


Fig. 2

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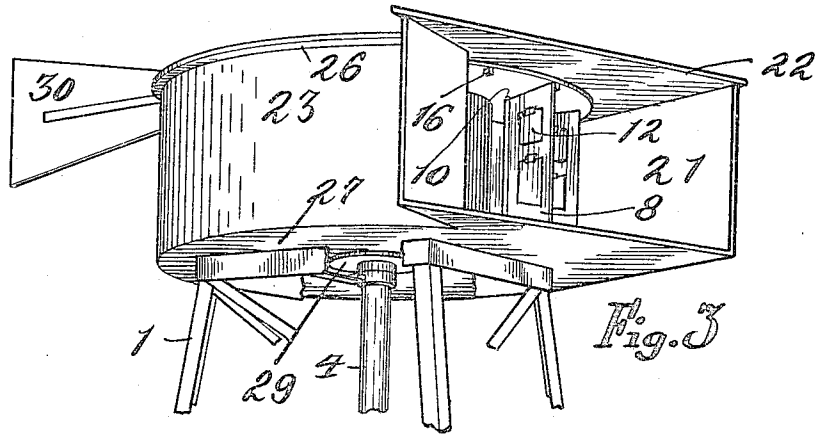


Fig. 3

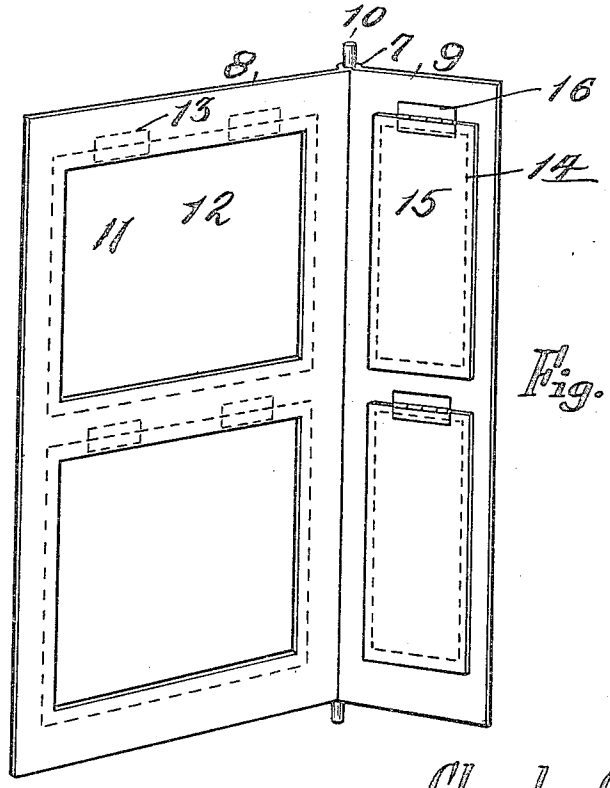


Fig. 4

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UNITED STATES PATENT OFFICE.

CHARLES C. JACKSON, OF AKRON, OHIO.

WIND-WHEEL.

1,225,033. Specification of Letters Patent. Patented May 8, 1917.

Application filed April 15, 1916. Serial No. 91,350.

To all whom it may concern:

Be it known that I, CHARLES C. JACKSON a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented new and useful Improvements in Wind-Wheels, of which the following is a specification.

This invention relates to wind-mills of that class in which the blades or wings revolve in a horizontal plane and are carried on a vertically-extending tower-shaft, the class to which my invention relates being further characterized by swinging blades capable of being rotated on axes independent of the tower-shaft and revoluble orbitally thereabout.

More particularly, the invention resides in the construction of the wind-wheel proper irrespective of the supporting mechanism therefor and irrespective of any driven mechanism which may be connected with the shaft.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts constituting the invention to be hereinafter specifically described and illustrated in the accompanying drawings which form a part hereof wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the matter hereinafter claimed.

In the drawings in which similar reference numerals indicate like parts in the different figures,

Figure 1, is a plan view of a wind wheel embodying this invention with portions thereof broken away to better illustrate the construction of the device;

Fig. 2, is a vertical, sectional view taken on line 2 of Fig. 1;

Fig. 3, is a perspective view of the device shown in Figs. 1 and 2; and,

Figure 4, is a perspective view of the blades or wings employed.

Referring to the drawings in detail, the reference numeral 1 denotes an upright frame or housing provided with an upper wall 2 provided with a central opening in registration with which is a bearing 3. Mounted in the bearing 3 is a vertical shaft 4. The frame 1 may be constructed of any material and may be of any preferred construction, the same forming only an incidental portion of this invention.

Mounted on the shaft 4 are upper and lower disk-like plates 5 and 6, arranged in spaced relation and rigidly secured to the shaft 4. Positioned between the upper wall 5 and the lower wall 6 of the wind-wheel are a plurality of blades or wings of similar construction and a description of one is believed to be sufficient for the understanding of them all, reference being especially directed to Fig. 4. Each blade consists of a sheet of suitable material bent to form an obtuse angle at 7 thereby providing a wide member 8 and a narrower member 9. The blades at the points 7 are provided with upper and lower vertically alined pivots 10 arranged to be mounted in suitable apertures (not shown) in the plates 5 and 6.

By this arrangement each blade is pivoted at the angle of intersection of the members 8 and 9 and is thereby free to swing or revolve on the pivots 10 irrespective of the revolution orbitally of the blades about the shaft 4. The member 8 of each blade is provided with one or more openings 11, normally closed by gravity controlled swinging doors 12 connected with the member 8 by hinges 13. The member 9 is provided with one or more openings 14 which are closed through the medium of similar doors 15 mounted on hinges 16.

The doors 10 and 12 when moved to their closed positions swing in the same direction circumferentially of the circle described by the blades when the latter are revolved on their pivots and in moving the doors to their closed positions the latter are moved in the same direction as the movement of the members 8 and 9 on their pivots, but when the doors 12 and 15 are moved to their open positions they move in a direction opposite to the movement of the doors 8 and 9 of the blades on their pivots 10. That is to say, the members 8 and 10 of each blade are preferably arranged at an angle with respect to each other and each is provided with openings therein, the openings in each member being closed by appropriate doors and

the doors carried by the two members are moved in the same general circumferential direction to move them to their open positions and also are moved in the same general direction to move them to their closed positions. The upper plate 5 and lower plate 6 are provided with stops constituting abutments 16 arranged in the path of revolution of the wider member 8 of the blades.

Loosely mounted on the shaft 4 is a casing 20 provided with an inlet opening 21 and having an inclined wall 22, the function of which is to direct the current of air entering through the opening 21, so that the wind passing through the inlet 21 will act upon the blades positioned between the upper plate 5 and lower plate 6.

For convenience of description, the blades shown in Fig. 1 are denoted generally by the reference letters A, B, C, D and E. The wind entering the inlet 21 will engage the narrower member 9 of the blade C and move the doors 15 to their closed position, thereby affording sufficient resistance to the passage of air to swing the entire blade C on its axis 10, during which time the entire blade C is moving orbitally about the axis of the shaft 4. This rotation of the blade C on its axis brings the member 8 into the engagement with the stops 16; at this time the door carrying face of the larger plate 8 of the blade C will be opposed to the wind and the doors 12 thereon moved to their closed positions, thereby forming a large approximately imperforate surface opposing the wind. The blade C maintains its position against the stops 16 until it has passed the point 25 when it is free to partially rotate on its own axis and will assume substantially the position shown by the blades A and B in Fig. 1. The description of the operation of the blades C applies to all of the blades.

It will be noted that as the larger member 8 of the blades moves to its operative position, that is to say, into engagement with the stops 16, the narrower member 9 extends inwardly toward the shaft 4. In order to confine the air to operative engagement with the blades on the wheel I provide a cylindrical baffle 31 extending between the plates 5 and 6 so as to form a channel between the baffle 31 and the side wall 23 of the casing for the passage of air.

I claim:—

1. A wind wheel comprising a supporting frame, a vertical shaft rotatably mounted therein, a pair of disks rigidly mounted on said shaft and arranged in spaced relation, and a plurality of horizontal rotatable blades or wings mounted on vertical axes between said plates, each of said blades comprising two portions, one of which is wider than the other, and each provided with an opening adapted to be closed by a swinging door, the doors on the two portions arranged to swing in the same general direction circumferentially with respect to the cycle of movement of the blade on which said doors are mounted.

2. A wind wheel comprising a supporting frame, a vertical shaft, a pair of disk-like members rigidly mounted on said shaft and arranged in spaced relation, a plurality of blades rotatably mounted between said disk-like plates and each independently rotatable on its own axis, stops for limiting the rotation of said blades each of said blades embodying two portions arranged at obtuse angles with respect to each other, each of the portions of said blades provided with an opening, a swinging door on each portion adapted to cover the respective opening therein, the doors on the two portions arranged to swing in the same general direction circumferentially with respect to the cycle of movement of the blade on which said doors are mounted.

3. A wind wheel comprising a supporting frame, a vertical shaft, a pair of disk-like members rigidly mounted on said shaft and arranged in spaced relation, a plurality of blades rotatably mounted between said disk-like plates and each independently rotatable on its own axis, stops for limiting the rotation of said blades each of said blades embodying two portions arranged at obtuse angles with respect to each other, each of the portions of said blades provided with an opening, a swinging door on each portion adapted to cover the respective opening therein, said doors arranged on opposite sides of said blade, the doors on the two portions arranged to swing in the same general direction circumferentially with respect to the cycle of movement of the blade on which said doors are mounted.

4. A wind wheel comprising a supporting frame, a vertical shaft, a pair of disk-like members rigidly mounted on said shaft and arranged in spaced relation, a plurality of blades rotatably mounted between said disk-like members and each independently rotatable on its own axis, stops for limiting the rotation of said blades, each of said blades embodying two portions arranged at obtuse angles with respect to each other, each of the portions of said blades provided with an opening, a door on each portion adapted to cover the respective opening therein, said doors arranged on opposite sides of said blade, the doors on the two portions arranged to swing in the same general direction circumferentially with respect to the cycle of movement of the blade on which said doors are mounted.

5. A wind wheel embodying as an element a blade comprising two portions of unequal

width, said portions arranged at an angle with respect to each other, pivoting means for said blade positioned near the angle between the portions, each of said portions provided with an opening, a door arranged to close each opening, said doors arranged on opposite sides of said blade and arranged to swing in the same general direction circumferentially with respect to the cycle of movement of the blade on which said doors are mounted.

In testimony whereof I have hereunto set my hand.

CHARLES C. JACKSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."