(No Model.)

G. H. AYLSWORTH.

WIND WHEEL.

No. 346,797. Patented Aug. 3, 1886.

Fig. 1.

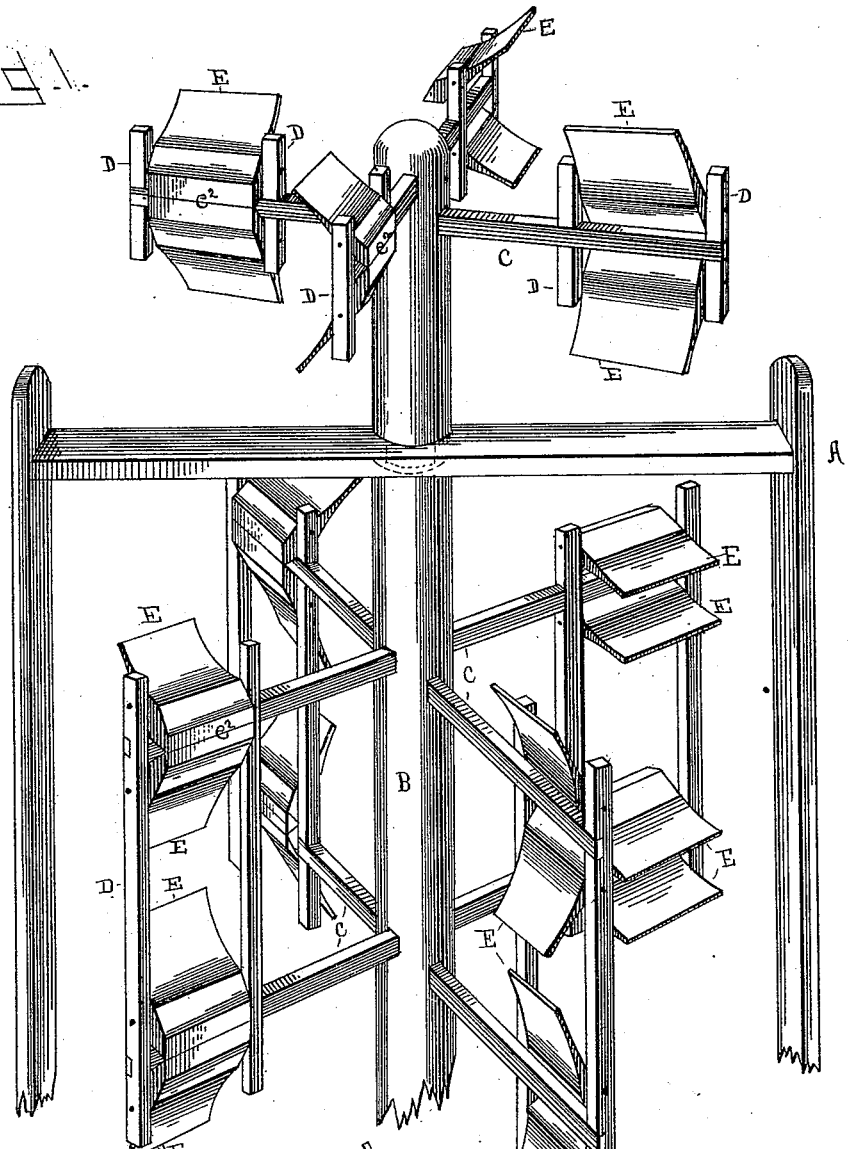
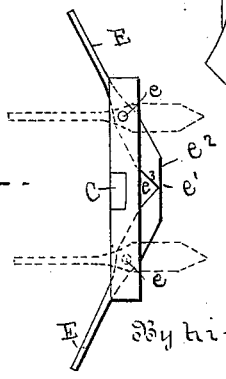


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE H. AYLSWORTH, OF NILES, MICHIGAN.

WIND-WHEEL.

SPECIFICATION forming part of Letters Patent No. 346,797, dated August 3, 1886.

Application filed February 25, 1886. Serial No. 193,132. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. AYLSWORTH, a citizen of the United States, residing at Niles, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Wind-Wheels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to windmills of that class in which the wings or sails have a feathering action, so as to display a large surface when running before the wind and a small surface when going against it, for the purpose of diminishing the resistance of the wings to the wind when passing from a passive to an active state.

It particularly relates to improvements in the wings and the manner of mounting the same in pairs, whereby each wing of a pair forms a lock for the other, thus holding both wings open against the wind when running before it.

The invention consists of the novel features of construction shown and hereinafter more fully set forth and claimed.

In the annexed drawings, Figure 1 is a perspective view of the upper portion of a windmill of my construction provided with my improvements. Fig. 2 is a side detail view of a pair of wings, showing the manner of supporting the same and their position when going before and against the wind, the latter position being indicated by dotted lines.

The derrick or tower A may be of any approved construction and size suitable for supporting the vertical shaft B of the mill, which is provided with radial arms C, projecting at right angles to occupy a nearly-horizontal position. There may be as many of these arms as desired, and they may be set at any angle relative to each other. Vertical supports D, arranged at a distance apart, are secured to the outer ends of the arms and extend on each side thereof. In case two or more arms are in the same vertical plane, they may be united by the supports which will extend from one to the other, as shown in the lower portion of Fig. 1. Wings or sails E are arranged in pairs and pivoted between the supports, one on each side of the arm. The distance from the pivotal points e to the meeting edges e' of the wings is greater than half the distance between the pivotal points in a straight line. Thus when the wind is blowing in the direction of the arrow, the meeting edges of each wing contacting, the one will form a lock for the other and prevent the wings being thrown out of the wind. The wings have considerably less wind-surface from the pivotal points to their meeting edges than from said points to their outer surface, the ratio being about one to three.

To normally hold the wings in the wind, the upper one is slightly heavier on the right of its pivotal point, and the lower one is slightly heavier on the left of its pivotal support. By this arrangement the meeting edge of the upper wing gravitates while the meeting edge of the lower wing rises. The meeting edges of the wings are formed by beveling the sides in such manner that when closed a flat surface, e^2, is presented for the wind to strike against, and a space left to give clearance and permit the wings being easily thrown out of the wind without any binding action between their meeting edges.

In practice each pair of wings in the wind normally occupies the position shown by full lines, Fig. 2, to present a large wind-surface. Those wings out of the wind occupy a nearly-horizontal plane to present their edges to the wind, thereby offering little or no resistance.

When reduced to practice, my mill will be provided with a governor and the usual means to throw the sails into and out of the wind at pleasure.

I am aware that arms radiating from a vertical shaft in a horizontal plane have been provided with wings pivoted directly thereto—the one above, the other below, said arms—in such manner that the inner edges of the wings interlock with the arm and have their movement limited when running before the wind. My construction is essentially different therefrom, inasmuch as the inner edges of each wing interlock and hold the wings in the wind in the manner hereinbefore specified.

Having thus described my invention, what

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

1. The combination, with the vertical shaft, radial arms projected at right angles therefrom, and vertical supports secured to the outer ends of the arms at a distance apart and extended above and below the same, of a pair of wings pivoted between the supports, one on each side of the arms, and adapted to have their inner edges interlock and hold the wings in the wind when going before it, and separate when going against the same, substantially as hereinbefore set forth.

2. The combination of the shaft, arms projecting therefrom, a pair of wings pivotally supported on the arms to swing in a vertical plane, the right-hand portion of the upper wing and the left-hand portion of the lower wing being weighted to cause the wings to gravitate in opposite directions and bring them in the wind, the distance between the pivotal points of each wing and their inner ends being greater than one-half the distance between the pivotal points in a straight line, whereby said ends will interlock and hold the wings in the wind, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE H. AYLSWORTH.

Witnesses:
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