

Wind-Mills.

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IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. 145,541, dated December 16, 1873; application filed September 3, 1873.

To all whom it may concern:

Be it known that I, JOHN A. WHEELER, of Chippewa Falls, county of Pope and State of Minnesota, have invented an Improvement in Windmills, of which the following is a specification:

The nature of this invention consists of a wheel which is composed of two or more annular sections provided with radial wings or floats, so arranged as to operate by means of radial connecting-rods, segment connecting-rods, cranks, and a sliding head, so as to throw the floats or wings of each outward succeeding annular section farther into the wind than its preceding section nearer the center is thrown. By this means the floats or wings of a sectional wheel may, to all practical purposes, conform to the spiral screw, which form is necessary to the successful operation of wind-wheels—that is, the floats or wings nearest the hub should be set more edgewise into the wind than the next outer section, while at the same time these floats or wings can be thrown wholly edgewise into the wind by any suitable governor, and thus stop the wheel.

In the drawings, Figure 1 is a broken sectional elevation of my improved windmill; Fig. 2, a broken section of the wheel and its attachments; Fig. 3, a broken view of the periphery of the wheel, looking inward.

A represents an ordinary frame-work or stand, which supports the ordinary rotating platform R, said platform, in practice, terminating in a tail or fan, in the usual manner. B represents a horizontal shaft, which rotates in one or more suitable bearings, *v*, attached to the platform R, and it is driven by the wind-wheel attached to it; and it may be made to communicate power in any ordinary manner. The hub of the wheel supports any desired number of radial arms C—in this case eight; and to these arms are attached three annular rims, C', W, and X, other rims being added when the size of the wheel is to be increased. The floats or wings F are pivoted to the rims W and X, and they are pivoted, in this case, by elongated ends T, to four segment connecting-rods, J'. The outer floats or wings E are piv-

oted to the rims C' and W, and, by means of elongated ends S, are pivoted to four segment connecting-rods, J. Four radial connecting-rods, D, turn in bearings fastened to the hub and to the rims W and X, and to these rods are fastened cranks O P, which are pivoted to their respective segment connecting-rods J and J', and each of the connecting-rods D is provided with a crank, *c*, which is pivoted to its respective connecting-rod *a*, attached to its respective rod *b* of the sliding head L. There are four of these rods *b*, and they slide through the collar B' of the wheel-hub. The inner end of this sliding hub is provided with a clutch-wheel, K, which is so operated upon by an ordinary clutch-lever, I, and any suitable governor as to move the sliding head L on end M of the main shaft B, so as to cause the connecting-rods *a* to turn cranks C and connecting-rods D, and consequently throw the segment connecting-rods J' and J forward and past the floats or wings into or out of the wind, as the case may be. The floats or wings in Figs. 1 and 3 are in position as when the wheel is rotated; the wings E, as will be seen in Fig. 3, lie flatter or more into the wind than the wings F. This position of wings F is attained by making the cranks O longer than the cranks P. Other annular sections may be attached to the wheel by using longer radial arms, and said additional sections may be provided with floats or wings, which, together with those shown, can be operated by a single movement of the sliding head by lengthening the connecting-rods D, and providing the latter with suitable cranks and connections.

If, when a large wheel is employed, but little power is required, the connecting-rods on opposite sides of the wheel may be detached from cranks C, leaving the floats they control edgewise in the wind. In such a case but little governing power will be required; or, if there be too much wind-surface, any annular section may have its floats standing edgewise in the wind, and be disconnected with their respective cranks on radial rods D.

I claim and desire to secure by Letters Patent of the United States—

A wind-wheel composed of two or more stationary annular sections, C', W, and X, which are provided with radial floats or sails F E, arranged to turn on their axes into and out of the wind by means of segment connecting-rods J J', when the inner section of sails is thrown more into the wind than the outer section, and combined with connecting-rods,

cranks O P c, arms D, rod a, and sliding head L b, operated by a suitable governor, as set forth.

JOHN A. WHEELER.

Witnesses:

J. H. ELLIOTT,
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