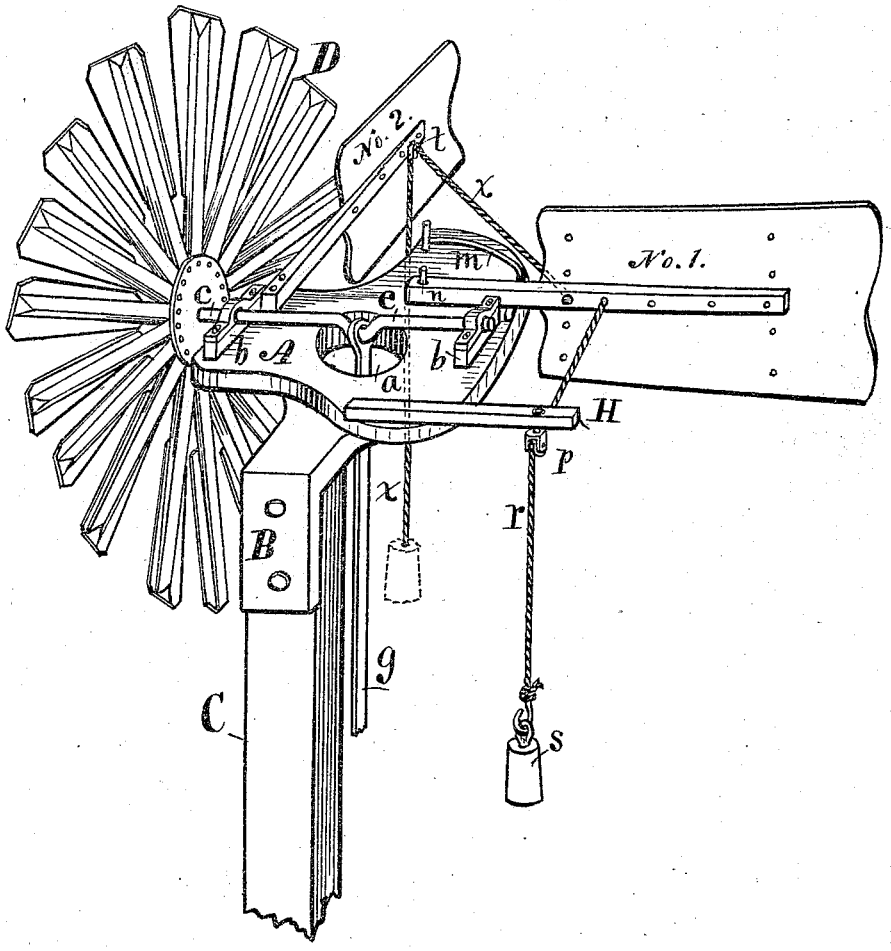
M. M. TRIMBLE.

WIND-MILL.

No. 184,053. Patented Nov. 7, 1876.



Witnesses.
Geo. W. Sargent.
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Inventor, Matthew M. Trimble,
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UNITED STATES PATENT OFFICE.

MATHEW M. TRIMBLE, OF DES MOINES, ASSIGNOR OF ONE-THIRD HIS RIGHT TO FRED. A. SMALL, OF EARLHAM, IOWA.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **184,053**, dated November 7, 1876; application filed January 26, 1876.

To all whom it may concern:

Be it known that I, MATHEW M. TRIMBLE, of Des Moines, in the county of Polk and State of Iowa, have invented an Improved Windmill, of which the following is a specification:

The object of my invention is to improve the construction and reduce the cost of a windmill that is practically self-governing while in operation, and readily made inoperative by simply changing the position of a pendent weight.

It consists in the manner of arranging and combining, upon a revolving platform, a wind-wheel, a major pivoted vane, a minor fixed vane, and a fixed weight-bearer, all as hereinafter fully set forth.

My drawing is a perspective view illustrating the construction and operation of my invention.

A represents the revolving horizontal platform, cast complete in one piece. It has a round opening, *a*, in its center, and a pivotal boss around the opening, on its under side. B is a bracket, bolted to the top of the post C. This bracket has a bearing, corresponding with the boss around the central opening *a* in the platform, to which the platform is secured, and upon which it revolves. *b b* are shaft-bearings, rigidly fixed on the top and ends of the platform A. *c c* is a horizontal shaft, to the end of which the wind-wheel D is rigidly attached. *g* is a pitman, connected with the crank of the shaft *c*, and designed to communicate power from the wheel to a pump or other machinery that is to be operated. No. 1 is a major vane, pivoted on top of the platform A, and aside of its pivotal center, and to one side of the center of the wheel D, and its shaft *c*, to prevent it from being a perfect balance to the wind-power applied to the wheel D. *m* represents a track on the top of the platform concentric with the pivot *n*, which secures the arm of the vane No. 1. This track may be formed in any suitable manner to make a bearing for the pivoted vane. No. 2 is a minor vane, rigidly fixed to the platform A, at right angles to the shaft *c*. H is a weighted bearer in the form of an arm, rigidly fixed to the platform A, parallel to the major vane No. 1, and on the opposite side of the central opening *a*. *p* is a pulley carried by the arm H. *r* is a rope or chain fastened to the vane No. 1, and passed over the pulley *p*, on the arm H. *s* is a weight attached to the pendent end of the chain *r*. *t* is a pulley attached to the minor vane No. 2. X is a chain fastened to the major vane No. 1, and passed over the pulley *t* on the vane No. 2.

In the practical operation of my windmill, the major vane is always in direct line with the wind. In its normal condition the wheel D is always squarely at right angles with the major vane regardless of the movements of this pivoted major vane. (The center of the wheel D not being in direct line with the pivot *n* of the major vane, the No. 2 minor vane is required as a balance to keep the wheel and the major vane balanced at right angles to each other.) A superabundance of wind pressing upon the wheel and the minor vane will revolve the platform A, and carry the minor vane toward the major vane, and at the same time carry the arm H away from the major vane, which remains in direct line with the wind. The arm H receding from the major vane shortens the chain *r* and lifts the weight *s*, which thus becomes a ballast for the superabundant wind. When the superabundant wind-pressure is over the weight *s* will descend and reverse the movement of the platform, and bring all the parts into their normal positions again. A complete automatic governor is thus provided.

To make and maintain the mill inoperative, remove the weight *s* from the chain *r* and attach it to the chain *x*. This will bring the wheel and the two vanes parallel to each other and all in line with the wind, and yet free to veer about with the revolving platform as often as the direction of the wind changes.

I am aware that a pivoted vane has been carried by a revolving platform. I am also aware that a wind-wheel, a pivoted vane, and a fixed side vane or wind-gage have been carried on a revolving platform, and their positions relative to each other and the direction of the wind changed by means of a weight, but I claim that my manner of arranging, combining, and operating a wind-

wheel, a pivoted vane, a fixed vane, and a fixed weight-bearer upon a post, and revolving platform or turn-table, is new and greatly advantageous in wind-motors.

I claim as my invention—

1. The revolving platform A, having the fixed vane No. 2, and the fixed weight-bearer H projecting at right angles to each other, in combination with the intermediate pivoted vane No. 1, and the chains *r* and *x*, alternately carrying the weight *s*, substantially as and for the purposes shown and described.

2. The revolving platform A, carrying the wheel, the fixed weight-bearer H, the pivoted vane No. 1, the fixed vane No. 2, the chains *r* and *x*, and the adjustable weight *s*, in combination with the bracket B and post C, substantially as and for the purposes shown and described.

MATHEW M. TRIMBLE.

Witnesses:
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