

R. N. ROCKWELL.

Wind Mills.

No. 153,379.

Patented July 21, 1874.

Fig. 1.

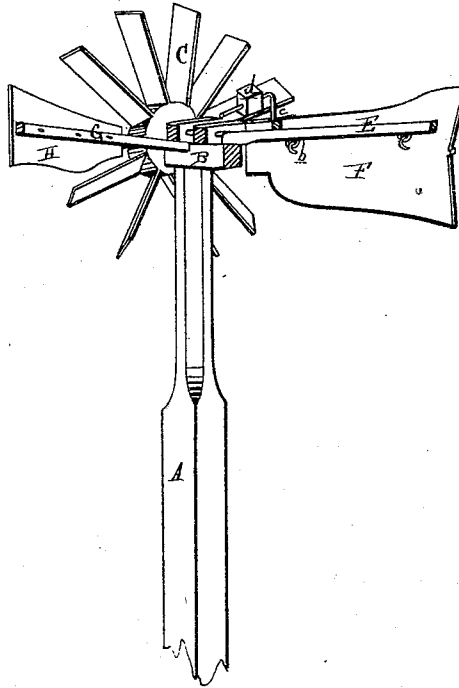
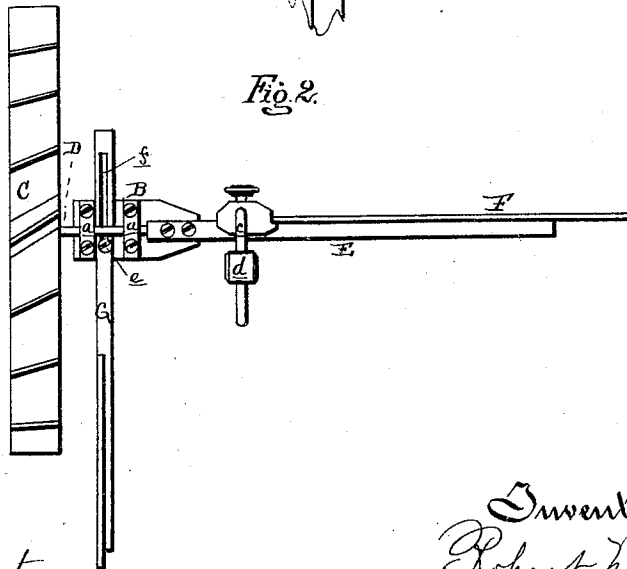


Fig. 2.



Attest:
H. F. Elliott
H. Sprague

Inventor:
Robert N. Rockwell
per atty
H. Sprague

UNITED STATES PATENT OFFICE.

ROBERT N. ROCKWELL, OF GLENWOOD, IOWA.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **153,379**, dated July 21, 1874; application filed May 22, 1874.

To all whom it may concern:

Be it known that I, R. N. ROCKWELL, of Glenwood, in the county of Mills and State of Iowa, have invented an Improved Windmill, of which the following is a specification:

The nature of my invention relates to an improvement in that class of windmills which have fixed sails and a lateral vane for turning the wheel partially out of the wind, when the force of the wind exceeds a given limit, to govern the speed of the wheel.

The invention consists in hinging the tail or guide-vane in its longitudinal axis, so that it may turn partially out of the wind when brought by a lateral vane across the course of the wind, and in providing it with an arm and an adjustable weight for adjusting it to so turn at varying pressures of wind; also, in making the lateral vane capable of longitudinal adjustment to increase or decrease its leverage upon the wheel to throw it out of the wind at varying velocities thereof, as more fully hereinafter set forth.

Figure 1 is a perspective view of my improved windmill. Fig. 2 is a plan of the same.

In the drawing, A represents the post, on top of which a turn-table, B, is pivoted. C is a wind-wheel having fixed sails, mounted on a shaft, D, journaled in bearings *a a* on top of the turn-table. E is an arm secured to the turn-table on a prolongation of the axis of the wheel-shaft, and to it is hung the tail or guide-vane F by pintles *b b* in the side of the latter. To its top inner end is secured an arm, *c*, projecting horizontally over the arm E, and on it is adjustably secured a sliding weight, *d*. As the vane is hinged to the arm above its center its natural tendency is to hang in a vertical plane, and the effect of the weighted arm is to resist the turning of the vane on its axis or hangings from the pressure of the wind on the opposite side, which resistance increases as the weight is moved out on the arm. G is an arm placed in a groove or recess in the top of the turn-table below the shaft, and at a right angle therewith, being secured by a bolt, *e*, passing through its slot *f*, which permits it to be longitudinally adjusted. H is a smaller vane, which I secure to the longer-projecting end of this arm G, but it may be hung and

weighted like the guide-vane, if it be desired to regulate the speed of the wheel with great uniformity, especially when it is erected in localities where terrific gales prevail at certain seasons; but for ordinary purposes I prefer to secure it rigidly to the arm G.

When the wind exceeds a given velocity the vane H swings the wheel partially out of the wind, which has the effect of reducing the velocity of the wheel to a normal speed. This, of course, brings the tail or guide-vane partially across the course of the wind, whose pressure turns it more or less edgewise to the wind, according to the leverage of the weighted arm, thus preventing the wheel from being turned back into the wind until the force of the latter diminishes, whereupon the guide-vane will drop to a vertical position, presenting a greater area to the wind, which overcomes the power of the vane H, and thus brings the wheel back into the wind. The greater the force of the wind the more the wheel will be turned out of it. The leverage of the vane H may be adjusted to keep the wheel to the wind until any desired velocity is attained before turning the wheel out of the wind, and the weight *d* can be so adjusted with relation thereto as to govern the movement of the wheel with an accuracy and uniformity sufficient for all practical purposes.

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

1. The arm G, having a longitudinal adjustment on the turn-table B, and having the vane H either hinged or rigidly secured to it, in combination with the guide-vane F longitudinally hinged to the arm E, as and for the purpose set forth.

2. The combination, in a windmill, of the guide-vane F, longitudinally hinged to the tail-bar E, and provided with the arm *c* and adjustable weight *d*, vane H, either hinged or rigidly secured to the arm G, having a longitudinal adjustment on the turn-table B, all constructed and arranged substantially as described and shown, for the purpose set forth.

ROBERT N. ROCKWELL.

Witnesses:

E. STARBUCK,
L. TINKEL.