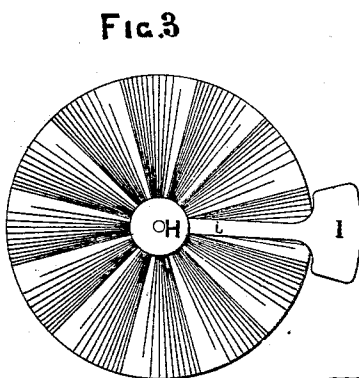
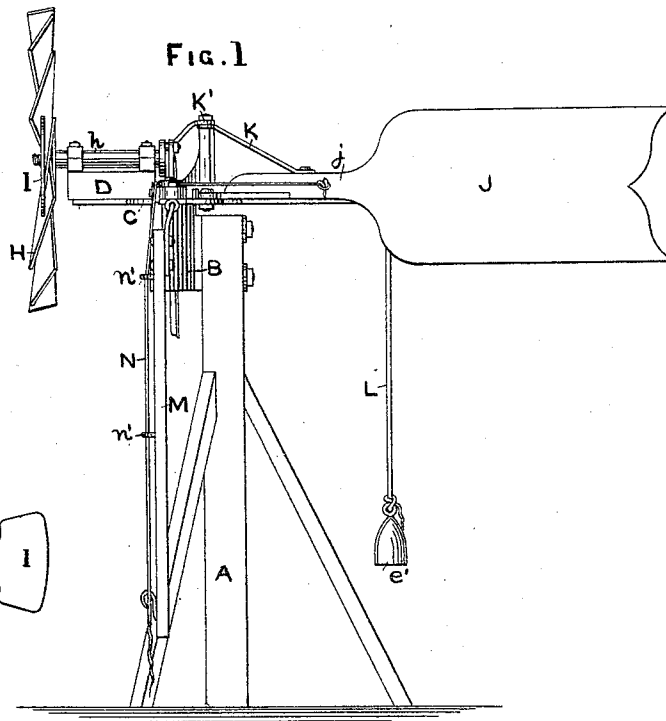
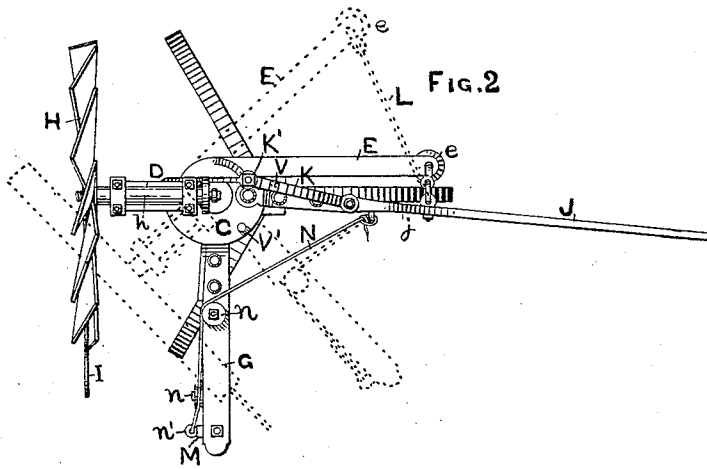


C. STEWART.
Wind-Mills.

No. 149,419.

Patented April 7, 1874.



Witnesses.
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L. Hannay

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att'y.

UNITED STATES PATENT OFFICE.

CHARLES STEWART, OF MUSCATINE, IOWA.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **149,419**, dated April 7, 1874; application filed February 7, 1874.

To all whom it may concern:

Be it known that I, CHARLES STEWART, of Muscatine, county of Muscatine and State of Iowa, have invented certain Improvements in Windmills. The following description, taken in connection with the accompanying plate of drawings hereinafter referred to, forms a full and exact specification, wherein are set forth the nature and principles of the invention, by which the same may be distinguished from others of a similar class, together with such parts thereof as are claimed as new and are desired to be secured by Letters Patent of the United States.

My invention relates to improvements in that class of machines whose motive power is the wind acting upon a set of sails, commonly known as windmills; and the nature thereof consists partly in improvements in the details of construction and arrangement of devices for adjusting the wheel of sails to regulate the velocity thereof in varying currents of air or wind, all as hereinafter fully described.

In the accompanying drawing, which illustrates my invention, the similar letters used as marks of reference apply to the like parts in all of the figures.

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a top plan or view of the same, and Fig. 3 is a front elevation of the wheel of sails.

Referring to the parts by letters, letter A represents the tower, which may be constructed in any desired manner, so as to form a cheap and substantial support for the working devices. B is a cylindrical tubular bed-plate attached to the top of the tower A, and receiving the turn-table C, which is provided with three arms, D, E, and G. H is the wind-wheel of any ordinary construction, and mounted on the arm D, where its horizontal shaft *h* has suitable bearings. I is a small sail extending beyond the periphery of the wheel of sails H, and carried on an arm, *i*, in such manner as not to interfere with the movement of the sails on their axes. J is the vane, its stem *j* pivoted upon one side and the top of the flange of the turn-table C, with a brace, K, extending from the arm *j* upward, and pivoted to the top of a standard, K', a little to one side of the pivot-point of the stem

j. L is a cord attached to the side of the vane J at one end, and, after passing through a pulley, *e*, on the outer end of the arm E, has a weight, *e'*, attached thereto. M is a bar pivoted at its upper end to the outer end of the arm G, and pendent therefrom, the arm G being long enough to swing it clear of the braces to the tower in the rotation of the mill on its vertical axis. N is a cord, one end of which is attached to the side of the vane J, and then, passing through pulleys *n n* on the arm G, is continued through eyebolts *n' n'* down the side of the bar M.

The operation is as follows: The stop V may be placed, as in ordinary windmills, to hold the vane a little out of a direct line with the wheel-shaft *h*, to throw the wheel H always slightly oblique to the direction of the wind, (see Fig. 2,) and thereby cause it to swing out of the wind when the velocity increases above a certain extent. It is desirable, however, in order to get the full force of the wind when it is low, to have the vane and shaft *h* as nearly in line as possible; and, in order to turn the wheel out of the wind with them in line, I add the supplemental sail I, which, when the wheel in its revolution is brought on the side toward the arm G, will act to turn all the parts, except the vane, towards the positions shown by dotted lines at Fig. 2, when the wind is high, and the weight *e'* will tend to oppose said movement and return the wheel to its original position as the wind falls, thus preserving uniform velocity of the wheel in varying currents of wind. It will also allow the weight *e'* to be used heavy enough to return the wheel quickly into and facing the wind, when it has been thrown entirely edge to the same by a violent blast.

The cord N may be drawn down and secured to the bar M to hold the wheel H at any desired obliquity to the wind, and thus enable it to be run at a low speed in comparatively high wind; and in very high wind, when the wheel is turned edge to the direction of the same, and it is desired to run the wheel for a short time for any purpose, a person may take hold of the pendent rod M, and force the wheel into the face of the blast enough to run it with a moderate velocity.

The stop V' limits the relation of the parts by striking the side of the vane-stem, when the wheel is driven edge to the wind by a violent blast.

I claim—

The bar M and cord N, when arranged to operate with the wheel H, vane J, and weighted

cord L, substantially as described, and for the purpose specified.

CHARLES STEWART.

Witnesses:

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