2 Sheets--Sheet 1.

J. M. MAY.
Wind-Mill.

No. 168,574. Patented Oct. 11, 1875.

Fig. 1.

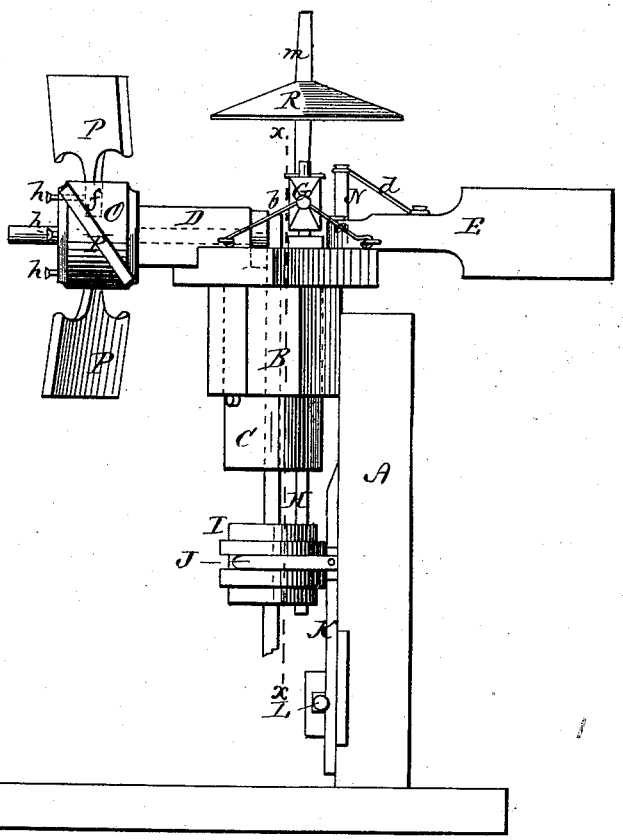


Fig. 4.

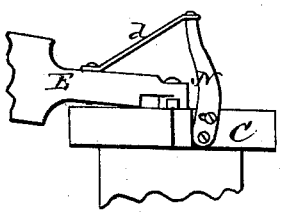
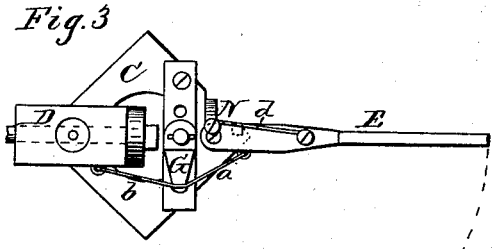


Fig. 3



WITNESSES

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2 Sheets--Sheet 2.

J. M. MAY.
Wind-Mill.

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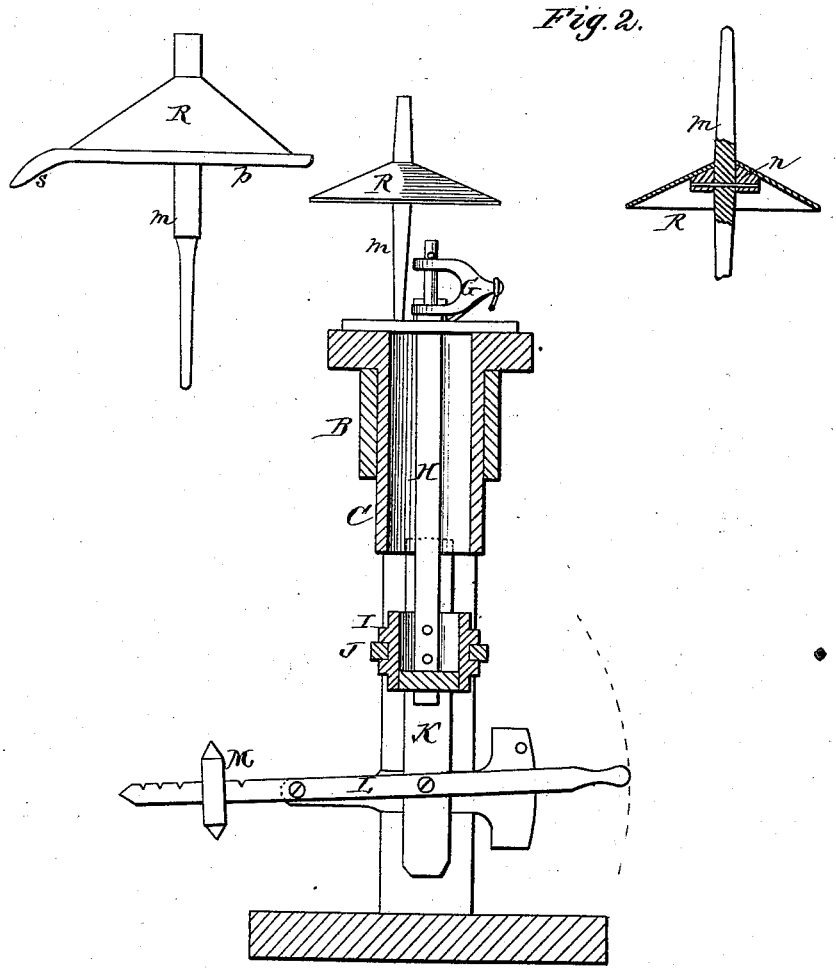
Fig. 2.



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UNITED STATES PATENT OFFICE

JOHN M. MAY, OF CEDAR RAPIDS, IOWA.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **168,574**, dated October 11, 1875; application filed February 24, 1875.

To all whom it may concern:

Be it known that I, JOHN M. MAY, of Cedar Rapids, in the county of Linn and in the State of Iowa, have invented certain new and useful Improvements in Windmills; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to that class of windmills that have a solid wheel and a vane pivoted or jointed to a principal casting or part that revolves horizontally at the head of the post that sustains the mill, the face of the wheel and the vane being brought parallel when stopping the mill. To accomplish this, and to give absolute and independent control of the mill without the use of pulleys, ropes, chains, wires, or similar appliances liable to obstruction and accident, is the object of my invention.

The nature of my invention consists in a vibrating bar used to revolve a wind-wheel and vane, and to hold them in any desired position relatively to each other; also, in the devices for operating said vibrating bar.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation of a windmill embodying my invention. Fig. 2 is a vertical section of the same through the line *x x*, Fig. 1. Figs. 3 and 4 are detached views of certain parts thereof.

A represents the vertical post supporting the wind-wheel, at the upper end of which post is attached a socket or cylinder, B. In this socket or cylinder revolves the principal casting C of the wheel, on top of which is a box, D, containing the shaft of the wind-wheel. E is the vane, pivoted on top of the opposite side of the casting. These parts may be constructed in any of the known and usual ways. G represents an arm, which vibrates vertically, horizontally, and spirally, operated by suitable mechanism in controlling the mill. To one end of the arm G are loosely jointed two links or bars, *a* and *b*. The link *a* is jointed to the stem of the vane E, and the link *b* to the base or bearing D of the wind-wheel. The other end of the arm G is pivoted to the upper end of a bar, H, that moves vertically through mortises or guides in the revolving casting C, and serves to keep the bar in line perpendicularly, as the whole mechanism connected therewith revolves horizontally with the mill. The lower end of the bar H is rigidly attached to a sleeve, I, having a horizontal groove around its circumference to receive and work easily in a forked clutch, J, that allows the sleeve to rotate horizontally with the mill. A connecting-bar, K, or rod, to which the clutch is fastened, extends downward through suitable guides, if necessary, to the base of the mill, and is there jointed to a lever, L, so that by raising and lowering said lever the mill is controlled. The shaft of the wind-wheel and vane, when in working position, not being exactly in line, and the wind-pressure being greater on one side of the wheel than the other, tends to fold or double the face of the wheel and vane into parallel lines, and stop the mill; but this may be accurately regulated by a movable weight, M, on the lever L, at the base of the mill. For the purpose of increasing or diminishing the gravity of the vane, to keep it and the wheel-shaft nearly in line, I employ a movable and adjustable post, N, the lower end of which is pivoted to the horizontally-revolving casting C, and adjusted thereon by slot and screw, as shown in Fig. 4. The upper end of the post N receives a brace or bar, *d*, which extends to and connects with the vane-stem. The top of the post N, not being vertically over the pivot of the vane on the casting, causes the farthest end of the vane to rise when folding with the face of the wheel, and inclines it to return in line with the axle by its own gravity. The extent that the rear end of the vane shall rise in folding up in line with the face of the wheel is regulated by the position of the top of the post N, which is moved and kept in position by the set-screw, as shown, or other suitable means. The wind-wheel is composed of a hub, O, and sails or wings P P. These sails or wings are provided with stems *f*, which are inserted in sockets in the hub O, and held by set-screws *h*, or other suitable means, in any

desired angle with the wind-current according to the exposed or partly-sheltered location of the mill and the velocity for the revolution of the wheel. Over the mechanism of the wind-mill I use a roof, R, of suitable shape, preferably in the form of an umbrella, made of sheet metal or other suitable material. This roof is placed on a central staff, *m*, and may be raised or lowered, so as to be near the mechanism, yet not to interfere with its operation. For holding the roof on the staff a movable block, *n*, fastened to the staff, and the roof placed thereon, I consider a simple and yet effective plan. A roof of this character serves as a shelter and protection to the working mechanism the same when the wind-wheel shaft and vane are in line as when the two are folded into parallel lines, besides being adjustable in height as each case requires. The edge of the roof may be provided with an eaves-trough, *p*, and a spout, *s*, toward the rear end of the vane, to prevent the dripping rain from being blown onto the mechanism.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The vibrating bar G, having a horizontal, vertical, and spiral motion, and used to revolve a wind-wheel and vane, and to hold them in any desired position relatively to each other, substantially as herein set forth.

2. The combination of the vibrating bar G with links *a b*, the vertical bar H, and grooved sleeve I, for moving and controlling a wind-wheel and vane, substantially as herein set forth.

3. The combination of the lever L with weight M, connecting-bar K, with clutch J, grooved sleeve I, vertical bar H, vibrating bar G, and the links *a b*, connecting the same with the wind-wheel and vane, all substantially as and for the purposes herein set forth.

4. The combination of the hub O, adjustable sails or wings P, with stems *f*, and set-screws *h*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of January, 1875.

JOHN M. MAY.

Witnesses:
H. C. GILLETTE,
A. V. EASTMAN.