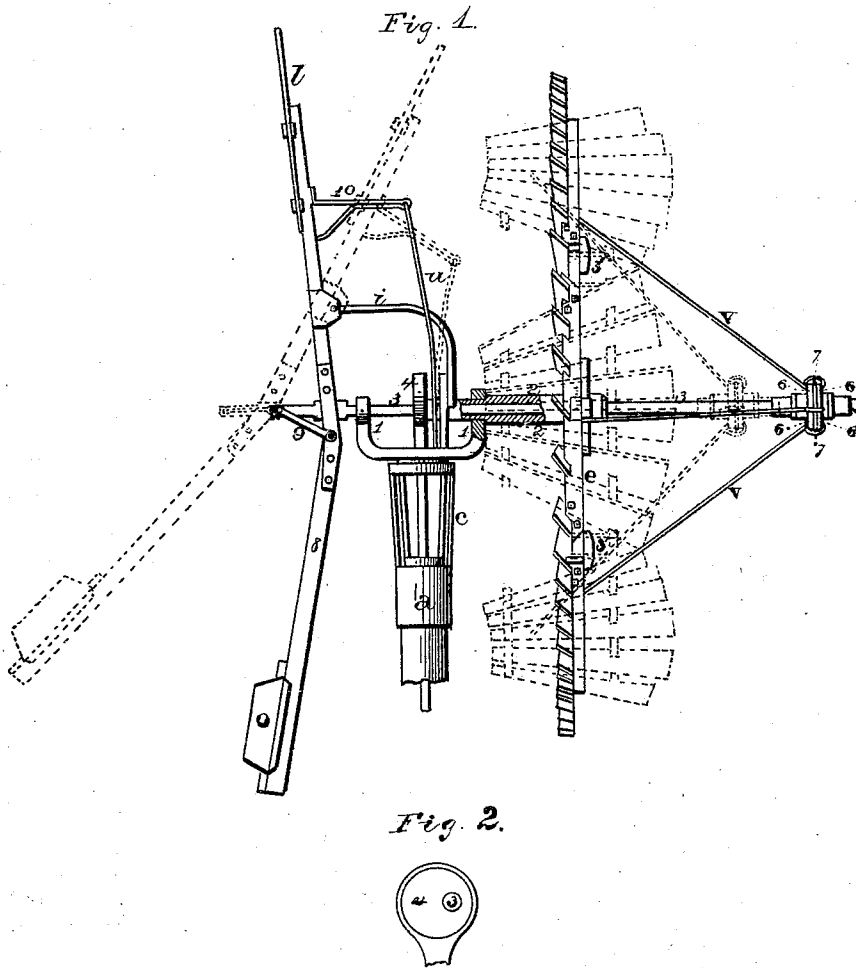


P. A. SPICER.
Wind-Mills.

No. 147,188.

Patented Feb. 3, 1874.



WITNESSES.
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UNITED STATES PATENT OFFICE.

PRATT A. SPICER, OF MARSHALL, MICHIGAN.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **147,188**, dated February 3, 1874; application filed June 21, 1873.

To all whom it may concern:

Be it known that I, PRATT A. SPICER, of Marshall, county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Windmills, of which the following is a specification:

The nature of my invention relates to an improvement in windmills; and it consists in a sliding bar passing through the sleeve on which the wind-wheel is secured, and which has a number of connecting-rods, connected to the sections of the wheel, secured to its rear end, and a weighted and winged lever to its front one, by means of which the wind-wheel is made self-governing, or can be thrown out of action by manual power, whenever desired. It also consists in the arrangement and combination of parts, which will be more fully set forth hereafter.

The accompanying drawings represent my invention, in which—

Figure 1 is a side elevation, partly in section. Fig. 2 is a detail view.

a represents the mast, made hollow so that the pitman can work therein, and having a suitable turn-table or pivot, *c*, secured to its top. This pivot has two raised bearings, 1, formed upon its top to receive the hollow sleeve 2, to which the wheel *e* is secured, and through which the sliding bar 3 passes. The wheel has its sails divided into sections, in the usual manner, and is secured to the shaft so that it will always assume and rotate in a position back of the mast with reference to the direction where the wind blows from, and this entirely dispenses with the heavy cumbrous vane to guide or govern it in its movements. The vane always requires special parts to support it, and, being very heavy, always weighs down the turn-table unnecessarily. By hanging the wind-wheel so that it will adjust itself to stand squarely to the wind, its cost is lessened, its construction rendered more simple, and the wheel is just as effective in every way. Where the wind-wheel is hung so as to stand back of the mast, light winds, which would not affect a wheel controlled by a vane, will readily operate it, and drive the machinery attached to it. Near the front end of the sleeve is secured an eccentric bevel-gear, or any other suitable device, 4, for driving the pitman,

through which the sliding bar passes. This bar extends through the bearings 1, eccentric, and hollow sleeve, and projects out in rear of the wind-wheel to any desired distance, and has two collars, 6, secured loosely to its end, which clasp a ring, 7, between them, to which the connecting-rods *v*, for operating the sections of the wheel, are secured. To the front end of the bar is secured the winged and weighted lever 8 by means of a short connecting-rod, 9, so as to allow the lever or bar an endwise movement. Extending upward and forward from near the center of the turn-table, and which also forms a bearing for the front end of the sleeve, is the arm *i*, to which the lever 8 is fulcrumed, so that it can vibrate back and forth.

During a calm or light wind, the sections of the wheel and lever 8 remain in the position shown by solid lines in Fig. 1; but, as soon as the wind begins to blow too hard, it, acting on the wing *l* of the lever 8, leans it backward and downward, and at the same time elevates the weight *o*. This movement of the lever, through the connecting-rod 9, draws the sliding bar forward, which, acting on the connecting-rods *v*, draws the sections of the wheel in the position shown by dotted lines, so as to present less surface to the action of the wind. During a storm or hurricane, these sections will be held in such a position as to present little or no surface at all to the wind, and then all motion will cease; but as soon as the force of the wind decreases, the weight *o* shoves the sections into position again.

In case it is desired at any time to stop the wheel, by pulling upon the wire or cord *u*, fastened to the arm 10, extending out from the upper part of the lever 8, the sections of the wheel will be acted upon as by a high wind—thrown up so that the wind passes through without acting on the sails.

The sliding bar, as here shown and described, only has an endwise motion; but, if it should be desired to have it revolve, by changing the collars on its rear end, and one or two other changes which will readily suggest themselves, it may be made to revolve, and also have an endwise movement.

Secured to the inner end of each section of the wind-wheel is a weight, 3', which assists in

restoring the sections to position after having been moved by the action of the winged lever. Their centrifugal force, when in motion, also assists in throwing the sails out of the wind.

Having thus described my invention, I claim—

In combination with the sections of a rosette-wheel, arranged to revolve behind its vertical axis, the connecting-rods *v*, sliding bar 3,

and winged and weighted lever 8 *l o*, arranged in front of said axis, substantially as described.

In testimony that I claim the foregoing as my invention I hereunto affix my signature this 10th day of June, 1873.

PRATT A. SPICER.

Witnesses:

JONT. MILLER,
E. MORSE.