E. STATA.

WIND-MILL.

No. 189,146. Patented April 3, 1877.

Fig. 1.

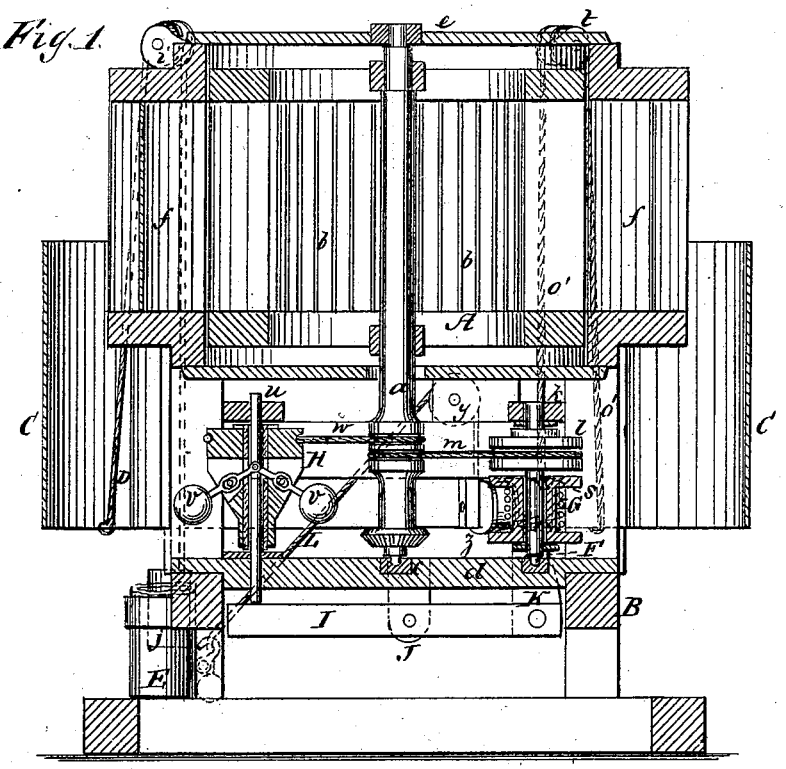
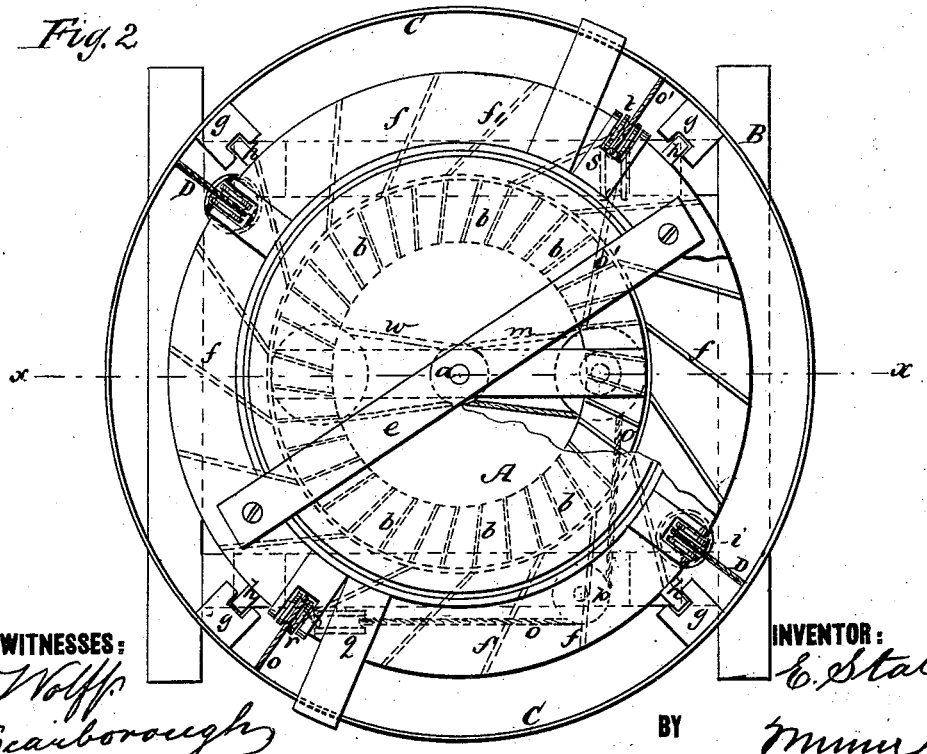


Fig. 2.



WITNESSES:

E. Wolff.

J. H. Scarborough

INVENTOR:

E. Stata

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ELIAS STATA, OF CAPE VINCENT, NEW YORK, ASSIGNOR TO MARY E. STATA, OF SAME PLACE.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **189,146**, dated April 3, 1877; application filed February 3, 1877.

To all whom it may concern:

Be it known that I, ELIAS STATA, of Cape Vincent, in the county of Jefferson and State of New York, have invented a new and Improved Windmill, of which the following is a specification:

Figure 1 is a vertical section on line *x x* in Fig. 2. Fig. 2 is a plan.

Similar letters of reference indicate corresponding parts.

My invention consists in the combination of a hoop or shield and a governor with a vertical windmill, in such a way that the action of the governor applies a portion of the power of the mill to raise the said shield, exposing more or less of the wheel to the action of the wind, thus controlling its motion.

A is a vertical wind-wheel, supported on the shaft *a*, and provided with diagonal vanes or floats *b*. The shaft *a* rests in a step, *c*, in the cross-tree *d*, and is provided with a journal-box at its upper end in the cross-tree *e*. Chutes *f* are arranged in a frame surrounding the wheel A, which direct the current of wind upon the wheel. The cross-trees, supporting the wheel and the chutes, are supported on a solid frame, B. C is a shield or hoop that encircles the chutes, and is capable of covering them entirely. It is provided with the guides *g*, that slide easily on the ways *h*, that are attached to the corner-posts of the frame B. D D are cords attached to the lower edge of the shield C, and run over the pulleys *i i*, and are provided with counter-weights *j*, that slide in the tubes E. F is a vertical shaft, having a step in the cross-tree *d*, and a bearing at its upper end in the bar *k*, which runs across the frame A. A pulley, *l*, is fixed to this shaft, and takes motion from a pulley on the shaft *a* through a belt, *m*. G is a winding-drum, placed loosely on the shaft F, and capable of sliding up or down on it. The upper end of the drum G and the lower side of the pulley *l* form friction-surfaces, so that when the drum is forced upward against the pulley it is made to revolve with it. *o o'* are ropes running off from opposite sides of the drum G. The rope *o* runs around the pulleys *p* and *q*, and over the pulley *r*, and is attached to the lower edge of the slide C. The rope *o'* runs under the pulley *s* (shown in dotted lines) and over the pulley *t*, and is attached to the lower edge of the shield C at a point opposite the point of attachment of the rope *o*. The pulleys *p*, *q*, *r*, *s*, and *t* are all supported by the frame B.

H is a governor, having a lower bearing in the cross-tree *d*, and an upper bearing in a part of the frame B. The shaft *u* is moved up and down as the balls *v v* are acted upon more or less by centrifugal force. The governor receives its motion by means of a belt, *w*, from a pulley on the shaft *a*.

A lever, I, is placed under and parallel to the cross-tree *d*. It is pivoted in a hanger, J, that is fixed to the cross-tree, and is capable of being operated by pressure from the lower end of the governor-shaft *u*. A yoke, K, is placed under the drum C, and attached to the lever I, so that as the shaft *u* in the governor is depressed it raises the drum G. L is a rope running over the pulley *y*, and under the pulley *z*, and around the drum G.

The operation of my improved windmill is as follows: The shield C being down, so as to expose the chutes *f* to the action of the wind, the wind enters them and is directed against the wheel A, which revolves with a force and speed proportionate to the velocity of the wind.

When the mill reaches its maximum velocity any increase in speed causes the governor to raise the drum G, and press it with more or less force against the wheel *l*, which imparts its motion to the drum, and winds the ropes *o o'* more or less, thus raising the shield C, shutting off a portion of the wind-supply, and preventing an increase of speed. As the pressure of the wind diminishes the pressure of the drum G against the wheel *l* is decreased, and the shield C drops, exposing more of the wheel to the action of the wind. The shield C can be raised more or less by pulling the rope L, and it may be retained at any desired height by making the rope fast.

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

1. A wind-wheel provided with a shield,

self-regulating, and covering the whole thereof, substantially as shown and described.

2. The combination of the governor H, lever I, winding-drum G, wheel *l*, ropes *o o'*, and shield C, substantially as shown and described.

3. The combination of the rope L, pulleys *y* and *z*, and winding-drum G, substantially as specified.

4. The combination of the weights *j*, rope D, tube E, pulley *i*, and shield C, as shown and described.

ELIAS STATA. [L. S.]

Witnesses:
HENRY PEE.
WILLIAM ANTHONY.