



# United States Patent Office.

LEONARD FISCHER, OF SONORA, CALIFORNIA.

Letters Patent No. 97,492, dated December 7, 1869.

## IMPROVEMENT IN WIND-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LEONARD FISCHER, of Sonora, Tuolumne county, State of California, have invented a new and improved "Windmill;" and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and letters marked thereon.

The object of my invention is to provide a new and improved device, to be actuated and controlled by the wind, for causing windmills to move at a nearly uniform velocity.

The accompanying drawing represents a perspective view of my machine, in which—

A is a suitable frame.

B, an ordinary wind-wheel.

S, the wind-wheel shaft.

S<sup>1</sup> S<sup>2</sup> are two shafts situated in the same horizontal plane, having the line of their axes at right angles to each other, and provided with suitable journals and bearings to retain them in position, and allow of rotation to the extent required.

G G are toothed gears, connecting with the shafts S<sup>1</sup> S<sup>2</sup>.

To the outer end of the shaft S<sup>2</sup> is fixed a large vane, V, and this shaft is also provided with an arm, *a*, to the extremity of which a small vane, *b*, is attached.

The planes of the large and small vanes are at right angles to each other, and the axis of the shaft S<sup>2</sup> is in the line of their intersection.

The shaft S<sup>1</sup> is also provided with a large vane, V<sup>1</sup>, and a small vane, *v*, and arm *a*<sup>1</sup>, in the same manner as the shaft S<sup>2</sup>. To the opposite end of shaft S<sup>1</sup> is fixed a second arm, *a*<sup>2</sup>, and weight, *w*. From the frame A project arms *c c*, upon which the vanes *b* and *b*<sup>1</sup> rest when in a horizontal position.

The relative position of the shafts S<sup>1</sup> S<sup>2</sup> is such that when the vane *b* is in a horizontal position, the vane *b*<sup>1</sup> is vertical, and *vice versa*; and, if the vertical vane is by any force caused to move down toward its horizontal position, motion will be communicated, by means of the gear G, to the horizontal vane, and cause it to move with the same angular velocity toward the perpendicular.

The whole of the above-described apparatus, when in use, is to be free to revolve around a vertical axis passing through its centre of gravity. A windmill constructed in this manner, when exposed to the action of a light wind, would be found with the vane *b*<sup>1</sup> in a vertical position, in a plane parallel to the face of the wind-wheel B, and the corresponding position of the other vanes would be in planes parallel to the axis of the shaft S, and the vanes *b* and *v*<sup>1</sup> being in horizontal planes, would have their edges presented to the wind, and the whole apparatus would assume such a position that the action of the wind on the vanes *v* and *b*<sup>1</sup> would be equal, and, however strongly the wind might blow, it would have no tendency to change the position until it became sufficiently strong to raise the weight *w*; but when the weight also begins to rise with an increasing wind, the face of the vane *v*<sup>1</sup> becomes exposed to its action, and the vane *v*, being turned toward a horizontal position, exerts less power, and the apparatus is thus caused to turn on its vertical axis, until the force of the wind on the vanes *b* and *v* is exactly balanced by the force exerted on the vanes *b*<sup>1</sup> and *v*<sup>1</sup>, thus causing the wind-wheel to intercept a smaller area of the wind-current in inverse proportion to the force of the wind. As the wind decreases, the weight brings the vanes back toward the original position, thus equalizing the effect of high or low winds to any required degree, determined by the size and proportion of the different parts of the machinery.

Having thus described my invention,

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

The self-regulating apparatus described, consisting essentially of the shafts S<sup>1</sup> S<sup>2</sup>, the miter-gear G G, the vanes *v v*<sup>1</sup> *b b*<sup>1</sup>, and the weighted arm *a*<sup>2</sup>, the whole being combined substantially in the manner and for the purpose described.

In witness whereof, I have hereunto set my hand and seal.

LEONARD FISCHER. [L. S.]

Witnesses:

C. W. M. SMITH,  
H. S. TIBBEY.