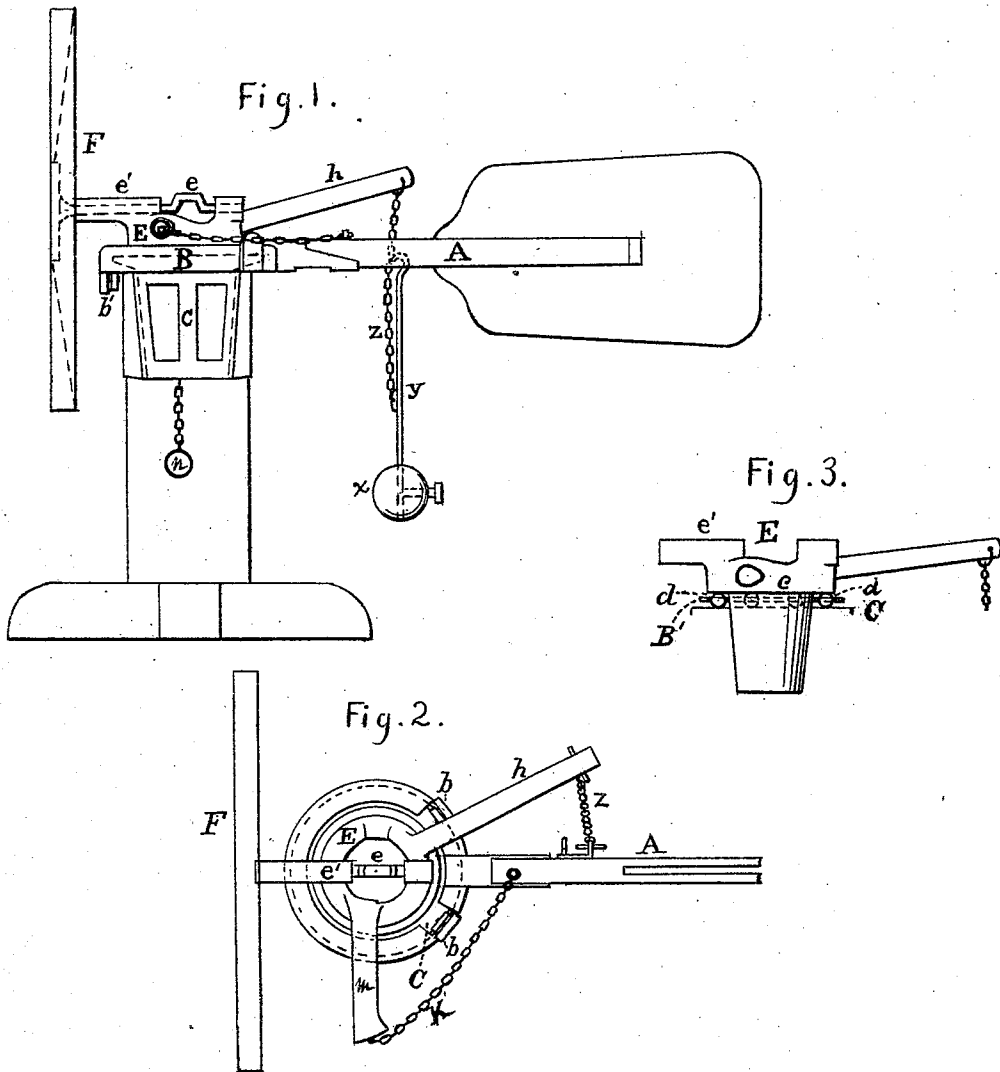


Wind-Mills.

No. 145,335.

Patented Dec. 9, 1873.



Witnesses :

Chas. H. Isham
H. A. Daniels

Inventors:

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UNITED STATES PATENT OFFICE.

MATTHEW T. CHAPMAN AND MARK C. CHAPMAN, OF AURORA, ILLINOIS.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **145,335**, dated December 9, 1873; application filed September 17, 1873.

To all whom it may concern:

Be it known that we, MATTHEW THOMAS CHAPMAN and MARK CHARLES CHAPMAN, of Aurora, county of Kane and State of Illinois, 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.

Our invention relates to 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 in certain improvements in the details of the construction of the same, hereinafter described.

In the accompanying drawing, which illustrates our invention, corresponding parts being illustrated by similar letters, Figure 1 is a side elevation. Fig. 2 is a top view. Fig. 3 is a detached view of the swivel-piece, upon which the shaft revolves.

The construction and relative arrangement of the parts of the machine are as follows: The beam A of the vane is fitted in a socket cast upon the revolving piece B, which is provided with two casters, *b*, above, and a caster, *b'*, below. The upper casters or rollers, *b*, run upon the upper rim of the flange, which forms the top of the socket-piece C, and the lower roller runs upon the under side thereof. Upon the top of the said socket-piece are placed the balls *d*, which are secured in position by the annular piece B'. The flange *c*, upon the top of the swivel-piece E, rests upon the said balls, and rotates thereon with perfect ease, the said balls acting as frictionless bearings. The crank-shaft *e* of the wheel F revolves in a sleeve or journal-box, *e'*, rigidly attached to the top of the swivel-piece E, which rotates in such a manner as to bring the wheel edgewise to the wind, when occasion requires its speed to be regulated. *x* designates a weight suspended by means of the rod *y* from the beam

A, and connected by means of the chain *z* with the arm *h*, which is rigidly attached to the swivel-piece E. The said weight serves to hold the vane in a position opposite to the wind-wheel F, except when the wind blows hard and the said wind-wheel is brought edgewise to the wind, in which case the said weight acts as a governor to regulate the position of the said wheel. K designates a chain, which is secured to the beam A, and leads through the tubular arm *m*, downward through the hollow swivel-piece E, to a point below the same, where it is terminated by the ring *n*.

It is obvious that by applying any convenient power to the ring *n*, and forcing the said chain downward, the vane, to which the beam A is attached, will be made to assume a position beneath and parallel to the tubular arm *m*, and to the plane of revolution of the wheel F. It is also plain that by means of the said chain the wheel F may be made to occupy any desired angle to the direction of the wind.

We are aware that devices have been heretofore invented for adjusting the vane so that it may be set to turn the wind-wheel in any desired direction.

Having described our invention, we claim—

1. The combination of the revolving piece B, casters *b* and *b'*, socket-piece C, swivel-piece E, having a flange, *c*, and journal-box *e'*, arm *h*, annular piece B', balls *d*, beam A, chain *z*, provided with the adjustable weight *x*, chain K, and tubular arm *m*, all operating together as described.

2. The combination of the annular piece B', casters *b* and *b'*, socket-piece C, swivel-piece E, provided with a flange, *c*, and journal-box *e'*, arm *h*, beam A, chain *z*, rod *y*, provided with the adjustable weight *x*, chain K, and tubular arm *m*, all operating together as described.

In testimony that we claim the foregoing we have hereunto set our hands this 7th day of July, 1873.

MATTHEW T. CHAPMAN.
MARK CHAS. CHAPMAN.

Witnesses:

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A. G. McDOLL.