W. H. ALDRICH.

Wind-Mill.

No. 165,292. Patented July 6, 1875.

Fig 1

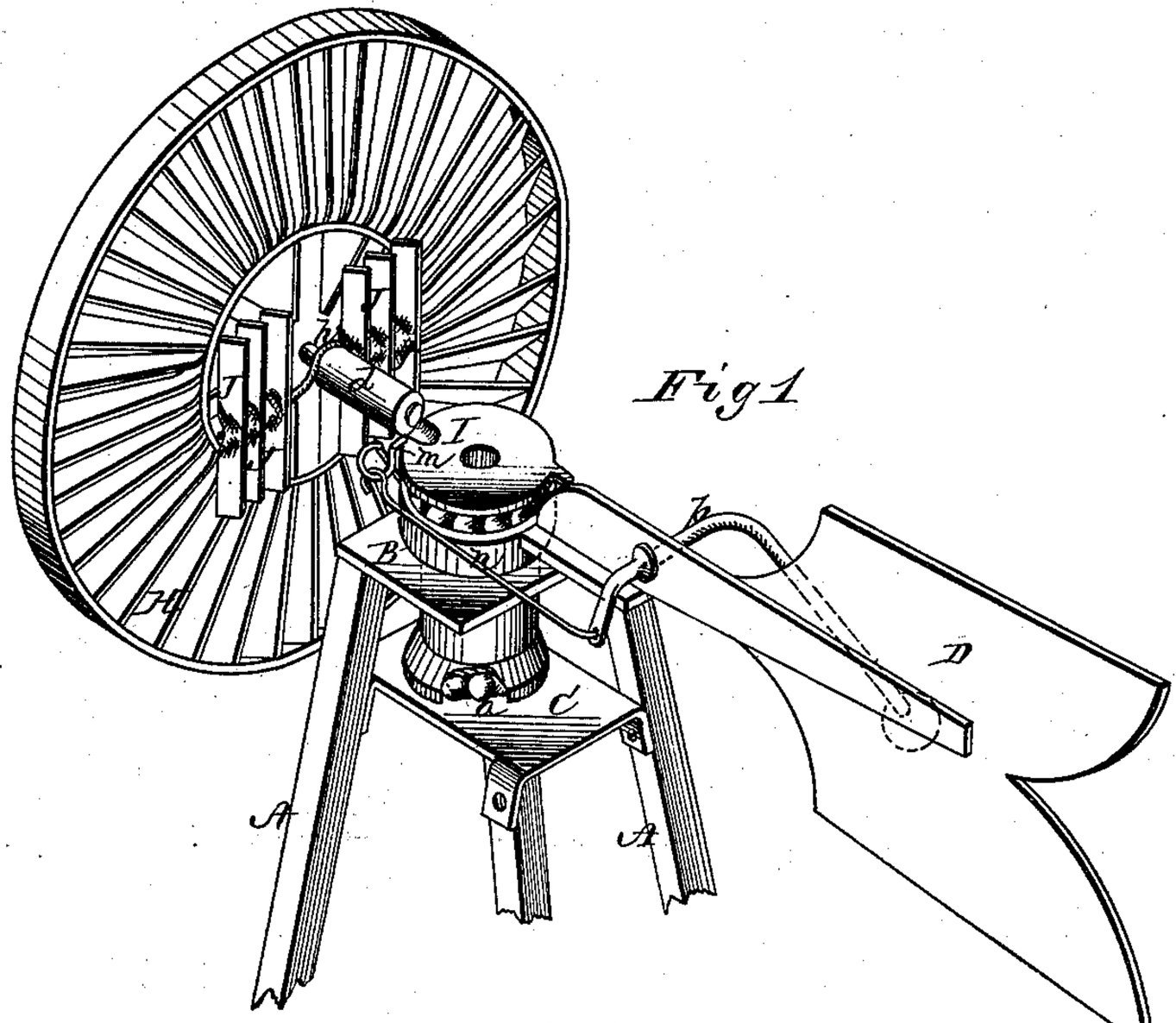


Fig 2

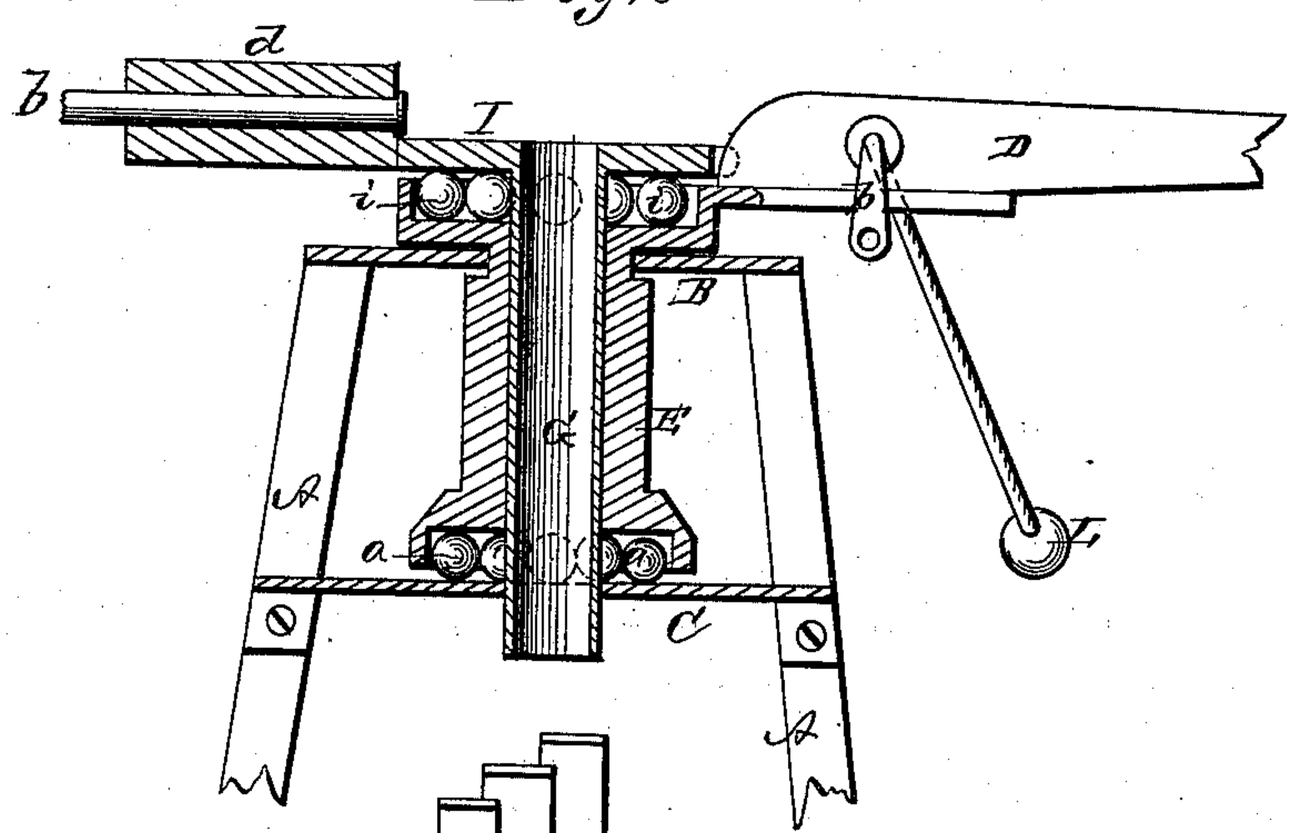
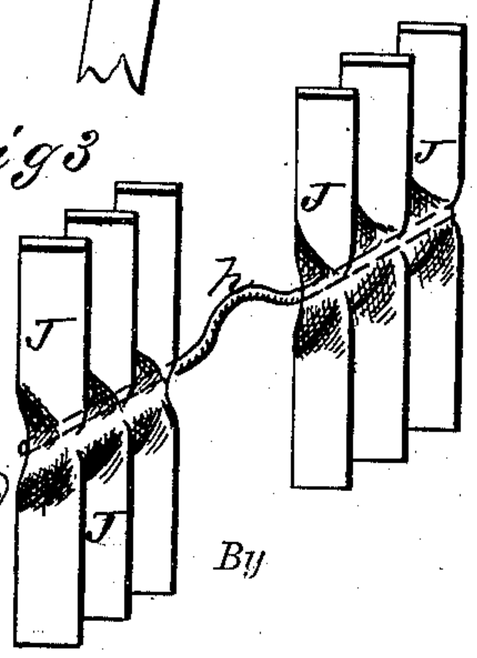


Fig 3



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM H. ALDRICH, OF BELOIT, WISCONSIN.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **165,292**, dated July 6, 1875; application filed May 3, 1875.

To all whom it may concern:

Be it known that I, WILLIAM H. ALDRICH, of Beloit, in the county of Rock and in the State of Wisconsin, 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.

The nature of my invention consists, first, in a stationary regulating-vane located immediately in rear of the wind-wheel, to throw the wheel wholly or partially out of the wind, according to the strength or force thereof; second, in combining therewith a counter-balance, to throw the wheel in the wind again, as the force thereof decreases; third, in the combination of parts, all as hereinafter more fully set forth.

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 drawing, in which—

Figure 1 is a perspective view of a windmill embodying my invention. Fig. 2 is a vertical section of the same. Fig. 3 is a perspective view of the stationary regulating-vane.

A represents the ordinary stand or frame-work of a windmill, provided with two horizontal plates, B and C, forming bearings for the wheel and vane-pivots. D represents the ordinary tail-vane attached to an arm formed on or attached to the upper end of a hollow or tubular pivot, E. Through this pivot passes the tubular pivot G of the wind-wheel H.

The lower end of the vane-pivot E forms a recess around the wheel-pivot, in which are placed a number of balls, *a a*, resting upon the lower horizontal plate C. Near the upper end of the vane-pivot E is a circumferential groove, in which the upper horizontal plate B fits, said plate being bisected so as to be placed in said groove.

The wind-wheel H may be constructed in any of the known and usual ways, and is made fast to a shaft, *b*, which has its bearing in a tubular box, *d*, projecting from a circular plate, I, provided with the tubular pivot G passing through the tubular vane-pivot E, as above stated.

The tubular vane-pivot E is formed with a cup-shaped recess at its top, and is provided with balls *i* in said recess, below which is a circumferential groove, around which the top plate B is fitted. The plate I of the wheel-pivot rests upon the balls *i*, and revolves on the same. The lower end of the vane-pivot E is also cup-shaped, and contains balls *a*, which are inclosed in the cup, and rest upon the plate C, thus making the movement of the parts perfectly free, and with little or no friction.

On the outer end of the box or bearing *d* is secured a rod or cross-bar, *h*, on each end of which are fastened a series of vertical blades, J J, set at an angle, as shown, and forming a vane directly behind and opposite the central opening in the wind-wheel H.

The vane J being stationary, has the effect to throw the wheel H more or less out of the wind, according to the force of the same, and as the wheel is thrown back into the wind by a counter-balance, hereinafter described, the vane J will regulate the speed of the wheel.

At or near the inner end of the box or bearing *d* is attached an arm, *m*, connected by a link, *n*, with a crank-shaft, *p*, having its bearing in the arm of the tail-vane D, and on one arm of this crank-shaft is placed the counter-balancing weight L, for throwing the wind-wheel H into the wind again as the wind slacks.

The weight L is preferably made adjustable on its arm, so as to regulate its counter-balancing effect according to the strength of the wind.

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

1. In combination with a wind-wheel, a stationary regulating-vane, located directly behind and opposite the central opening of the wheel, for throwing the same more or less out of the wind, for the purposes herein set forth.

2. The combination with a wind-wheel, of a stationary regulating-vane, located immediately in rear of the wheel, and a counter-balance connected with the wheel, substantially as and for the purposes herein set forth.

3. The combination of the vane-pivot E, having a central opening, made cup-shaped at the top and bottom, and inclosing balls *i* and *a*, the plates B and C, the wheel-pivot G, with plate I, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of May, 1875.

WILLIAM H. ALDRICH.

Witnesses:

WILLIAM L. BRAMHALL,

J. M. MASON.