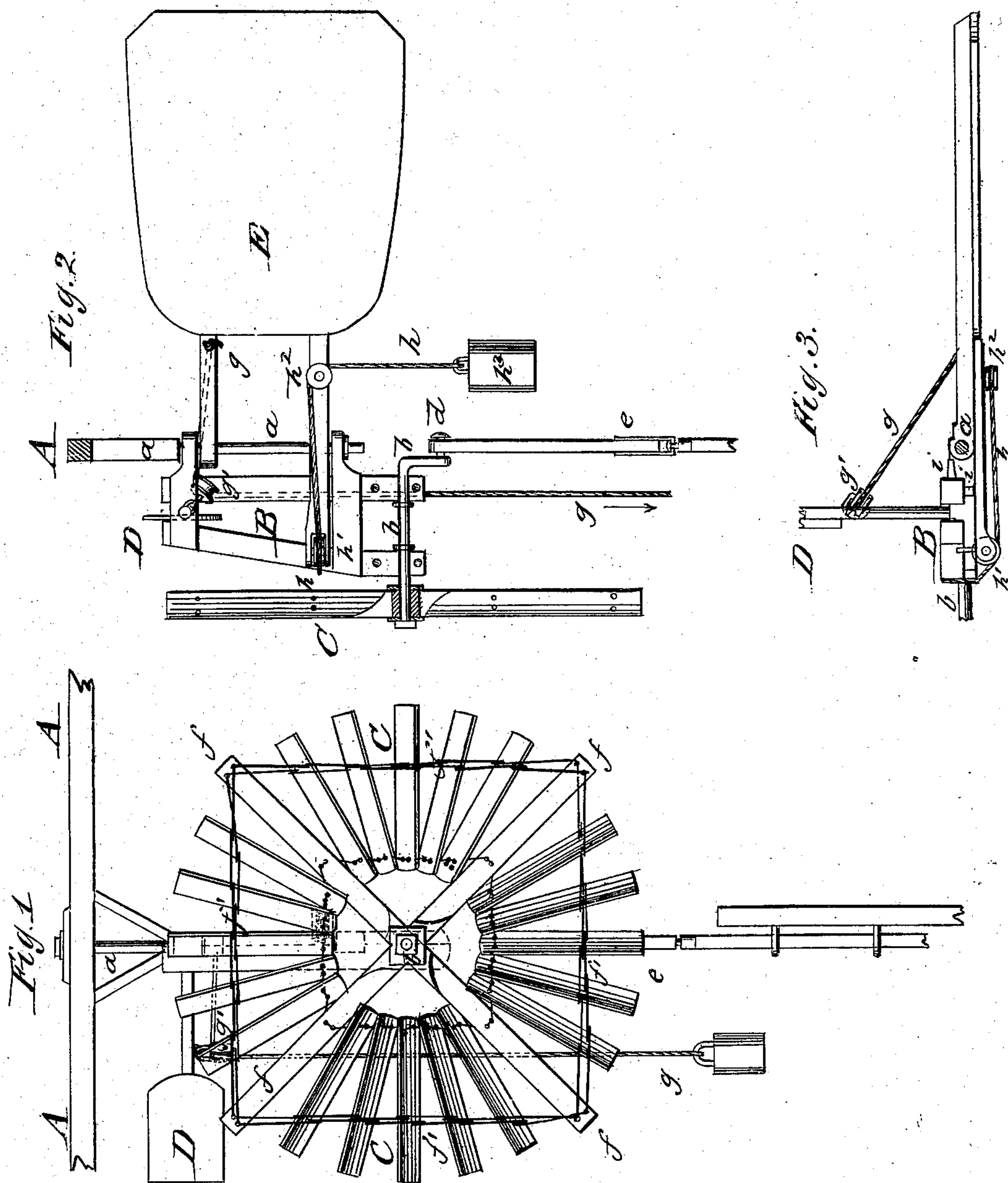


J. L. RUST.
Wind-Mills.

No. 154,719.

Patented Sept. 1, 1874.



WITNESSES:

E. Wolff.
Chudginsk

INVENTOR:

J. L. Rust
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JACOB L. RUST, OF MILLERSBURG, ILLINOIS, ASSIGNOR TO HIMSELF AND
OLIVER A. BRIDGFORD, OF SAME PLACE.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. 154,719, dated September 1, 1874; application filed
April 25, 1874.

To all whom it may concern:

Be it known that I, JACOB L. RUST, of Millersburg, in the county of Mercer and State of Illinois, have invented a new and Improved Self-Regulating Device for Windmills, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a front elevation of a windmill with my improved self-regulating device attached; Fig. 2, a sectional side elevation, and Fig. 3 a top view, of the same.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claim.

In the drawing, A represents a strong frame, made of vertical side pillars with top connecting-piece, from which the main pivot-bolt *a* is centrally suspended. The wheel-supporting frame B is hung to pivot-bolt *a*, and turns freely thereon, being also made of sufficient strength for the wheel. Frame B carries in suitable bearings at its lowermost points the horizontal shaft *b* of wheel C, transmitting, by means of crank or eccentric *d* and pitman and swivel-point *e*, the motive power of the wheel to the gearing below for pumping or other work, in whatever position the wheel may be, as the swivel-joint connection allows the ready turning of the pitman with the wheel. Wheel C is constructed of strong diagonal main wings, *f*, placed under right angles to each other, to which the intermediate wings are rigidly connected under the required angle by means of wire rope *f'*, or in other suitable manner, as indicated in Fig. 1. To the upper or top part of wheel-supporting frame B is firmly attached, under right angles thereto and parallel to the plane of wheel C, a small side vane, D, while the main vane E is hung to pivot-bolt *a*. A cord or chain, *g*, passes from some point near the ground over a pulley, *g'*, of the side vane D

to the upper beam of main vane E, and serves to regulate the speed of the wheel from below, as desired. A second cord, *h*, is attached to the front part of wheel-frame, passes then over a pulley, *h'*, at the end of the forward-extended lower beam of main vane E, over a second pulley, *h''*, of the same, and is provided with a weight, *h'''*, which is proportioned to the size of the wheel, and to a fixed degree of the wind.

The regulating device begins to operate when the wind strikes the face of the wheel and side vane with such force that the action of the weight on the same is overcome, throwing thereby the wheel back toward the main vane. The greater the power of the wind the smaller becomes the angle between the wheel and the main vane, till the same assumes at last a position parallel to the wheel. The wheel turns thereby more and more the outer edge of its wings toward the wind, so that its effect on the wheel is not increased, but the speed of the wheel kept up at a regular rate. When the wind diminishes the weight carries the main vane gradually back in its old position, regulating thus the speed of the wheel in a simple and very effective manner. Stops *i* of wheel-supporting frame B define the extent of motion of the main vane E, and give the necessary stability to it when in vertical or parallel position to wheel C.

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

As an improvement in windmills, the wheel C and wheel-supporting frame B, pivoted to a vertical bolt, *a*, and suspended from a top frame, A, substantially in the manner and for the purpose set forth.

JACOB L. RUST.

Witnesses:

W. A. BRIDGFORD,
H. BETHURAM.