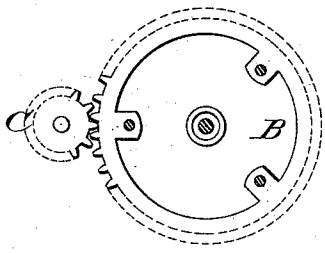
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J. J. REED.
Windmill.

No. 217,147. Patented July 1, 1879.

Fig. 3.



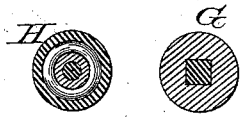


Fig. 2.

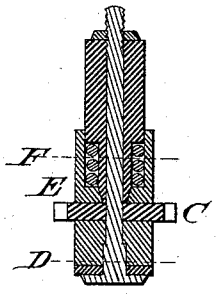


Fig. 1.

Witnesses:

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J. B. Howe

Inventor:

John James Reed

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Attorneys.

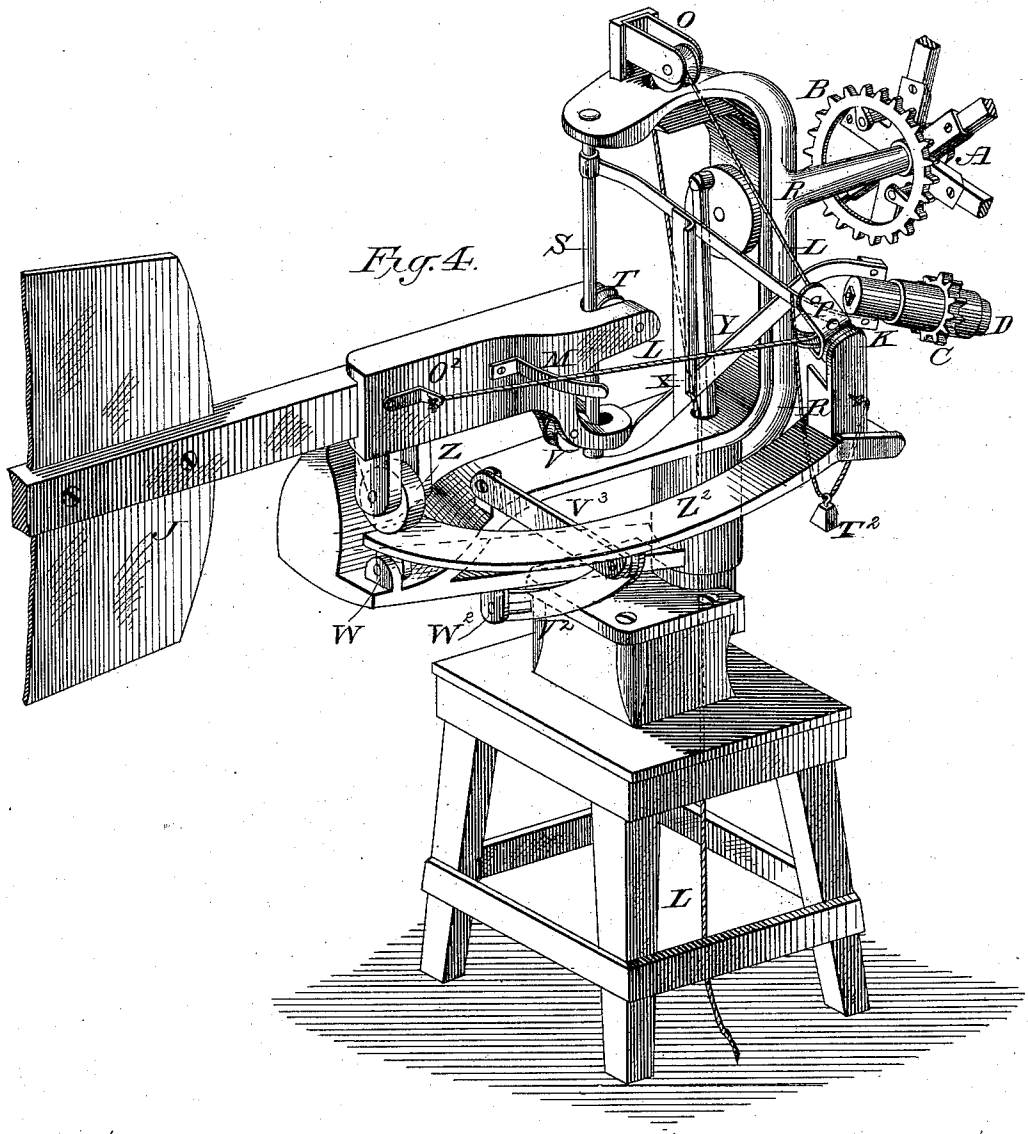
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2 Sheets—Sheet 2.

J. J. REED.
Windmill.

No. 217,147. **Patented July 1, 1879.**

Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN J. REED, OF LYONS, IOWA, ASSIGNOR TO WM. A. McCUTCHEN AND DANIEL B. SNYDER, OF SAME PLACE, ONE-THIRD TO EACH.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **217,147**, dated July 1, 1879; application filed March 5, 1879.

To all whom it may concern:

Be it known that I, JOHN J. REED, of Lyons city, in Clinton county, State of Iowa, have invented certain new and useful Improvements in Windmills, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a plan or top view. Fig. 2 is a longitudinal section of the brake; Fig. 3, cross-sections; Fig. 4, a perspective view.

Same letters in the various figures refer to same parts.

The object of my invention is to construct a windmill that will adjust itself to the force of the wind, and to avoid putting extra vanes or weights to the mill to move it in and out of the wind; also, to arrange a brake that will be automatic in its action in stopping the wind-wheel.

In the drawings, A is the spider of wind-wheel; B, a gear-wheel attached to spider A. C is a friction-pinion hung on a swinging frame, and meshes into gear-wheel B when in action. G shows sections of friction-pinion on line D, Fig. 2. H shows section of friction-pinion on line F, Fig. 2. J represents the vane or tail; K, the swinging frame that carries the friction-pinion C; L, a cord or chain that is attached to vane at O^2, runs through and over sheave at P, thence over sheave at O, thence to ground, for convenience of turning mill out of wind by hand; M, a short arm attached to the vane, which, when it is moved either by wind or by hand, engages a piece fastened to the swinging frame K, marked *x*, and as the vane continues to move around arm M will force the frame K around, carrying with it the friction-pinion C, which meshes into the gear B and effectually stops the wheel A; N, a stop to vane J, and is arranged to keep the wheel A and vane J at the desired angle in relation to each other and the wind.

R represents the bracket-frame of the mill, and I usually make it of cast-iron. S is a perpendicular bolt or rod passing through two arms of frame R, and around which the vane J and swinging frame K move as a center. T and V are anti-friction rollers in slots in the arms of vane J, to reduce the friction as the vane moves up and down on rod S; W, a hinge-joint. Y represents the pitman to operate the pump; Z, a roller on vane J; Z^2, an adjustable inclined way for roller Z to travel on; W^2, an adjustable joint for brace V^2; T^2, a small weight to draw the pinion C away from gear B.

Operation: To bring the wheel out of the wind by hand, grasp the rope or chain L, and by drawing down on it the vane J is drawn around and is raised or carried up the inclined plane or way Z^2, the vane J being always in a level position, and as it moves around the arm M forces the frame K, carrying the friction-pinion C forward till it meshes into the gear-wheel B and holds the wind-wheel stationary.

It will be seen by Fig. 2 how the friction-pinion C is arranged. A spiral spring forces the pinion C against a collar, and by turning nut at end of the bolt the friction can be adjusted.

When it is desired to let the wheel into the wind, loosen the cord or chain L, and the weight of the vane will cause it to move down on the inclined way Z^2, swinging on rod S till it is stopped by a rubber cushion at N.

When the wind blows very hard the action of the wheel is to force the vane into the wind; but the vane holds its position in relation to the wind, and the wheel turns the bracket-frame R, the vane rides upon the inclined way, engages the frame K, same as was done by hauling on the cord or chain L.

Now, it will be observed that the inclination of the way Z^2 will determine the movement of the vane, for if it is quite or nearly level a less amount of wind will move it than if it is set quite steep. For adjusting the inclination of this way, the foot of the brace V^2 is slotted, so that it can be moved on a bolt. This foot is also corrugated, and a washer, which is also corrugated, matches the brace. Now, by placing the parts together and tightening the nut, the brace will hold the way at the desired angle.

I have near the top end of way a slight curve, so when the force of the wind is lessened the movement of the vane down the plane will be aided in its movement by the roller Z, which will start down this curve quite easily.

When the vane J descends the way Z^2 the weight T^2 will draw the pinion C away from

the gear B, it being hung midway on a chain that is attached to frame K and end of way Z^2.

The brace V^3 is hinged on the bracket-frame R, and is fitted close to inclined way Z^2, and keeps it from turning.

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

1. In a windmill, the vane or tail J, provided with the anti-friction rollers T, V, and Z, when arranged substantially as and for the purpose specified.

2. In a windmill, the adjustable inclined way Z^2, provided with the hinged braces V^2 and V^3, substantially as and for the purpose specified.

3. In a windmill, the friction-brake pinion C, in combination with the gear-wheel B and the tail-vane, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand this 22d day of February, A. D. 1879, in the presence of two witnesses.

JOHN JAMES REED.

Witnesses:
A. SIDDLE,
D. B. SNYDER.