L. C. CORIELL.
Windmill.

No. 218,715. Patented Aug. 19, 1879.

Fig. 1.

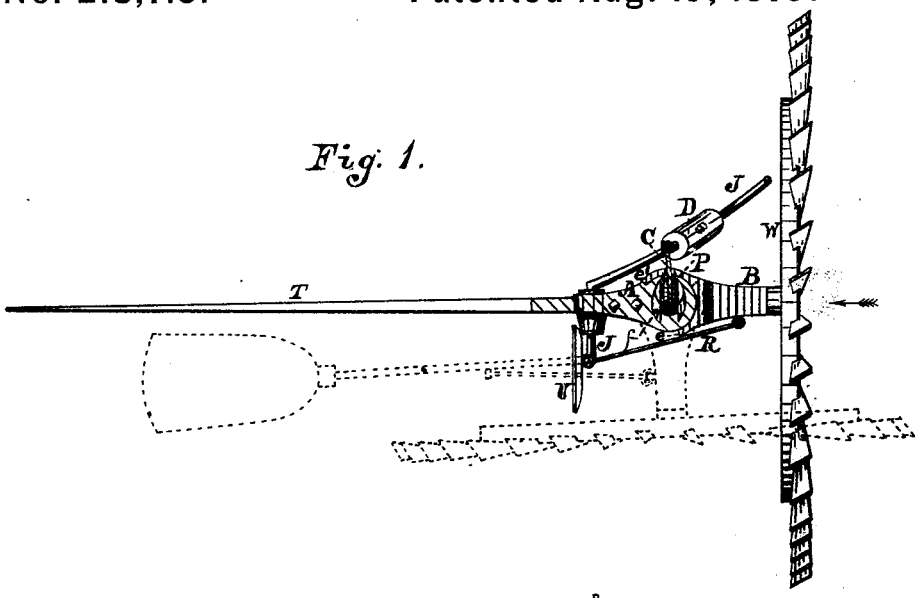
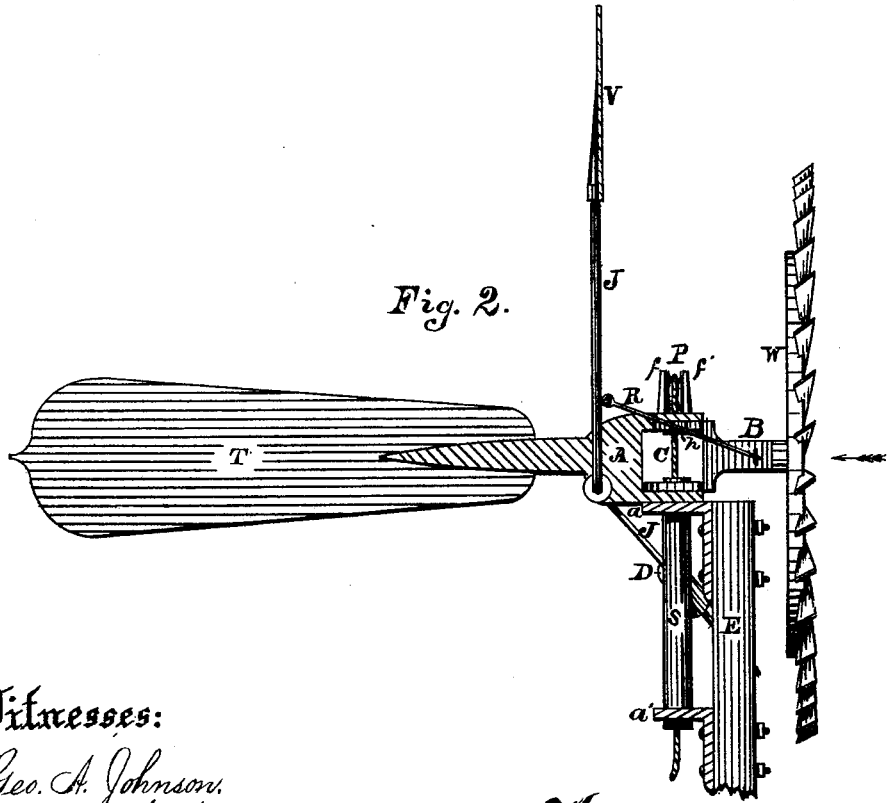


Fig. 2.



Witnesses:
Geo. A. Johnson.
W. W. Yckoff.

Inventor:
Lewis C. Coriell, per.
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UNITED STATES PATENT OFFICE.

LEWIS C. CORIELL, OF MARSHALL, MICHIGAN.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **218,715**, dated August 19, 1879; application filed August 3, 1878.

To all whom it may concern:

Be it known that I, LEWIS C. CORIELL, of Marshall, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of windmills governed by a perpendicular vane moving backward to a horizontal position, and brought forward by a weighted lever as the wind decreases in velocity; and it consists in the general arrangement and special construction of the operating parts as embodied in the drawings, in which—

Figure 1 represents a plan view, and Fig. 2 a side elevation.

In the drawings, in which similar letters of reference indicate like parts, S is a cylinder revolving freely in plates *a* and *a'*, bolted to the post E, the shank B firmly fastened to or cast in one piece with the vertical cylinder S. This cylinder usually consists of a short section of gas-pipe.

The head A is similar in shape to the shank B, and is provided with a short section of gas-pipe, *h*, which pivots it to the shank.

Between the lugs *f* and *f'*, cast on the upper side of the head, is hung the pulley P. To the rear end is bolted the vane T, and to the under side of said head A is journaled the lever J, made in one piece; but I usually make the arms of gas-pipe. The upper arm is provided with a vane, V, for governing the motion of the wind-wheel W, and the lower arm of said lever carries the weight D, for righting the vane as the wind's velocity decreases.

R is a link-rod joining or connecting the upper arm of the lever J with the shank B.

e and *e'* are stops (clearly shown in Fig. 1) for limiting the motion of the shank, as will be seen by the dotted lines.

I do not allow the wind-wheel to reach a point where it would be in a parallel plane with the vane T.

In constructing my improved mill I have had special reference to the counterpoising of the several parts, so that the mill may rest evenly on the bracket *a*, and thus obviate unnecessary binding or friction on its central axis, and also in the arrangement of the governing lever and rod R so that they may be in line and nearly parallel with each other when the mill is out of gear, for the purpose of forming a lock with stop, and thus prevent undue oscillation with the governing-lever in high winds, when a counter-current is so liable to strike the rear side of the wind-wheel.

The wind-surface of the vane V on the governing-arm of the lever J and the position of the weight D on the lower arm of said lever should be so proportioned that the wind moving in the direction of the arrow will not have the power on said vane V to overbalance the weight D and oscillate said governor from a vertical position until the wind-wheel W begins to be driven beyond its maximum velocity, and then the governing-lever as it moves down, being connected by the rod R to the shank B, carries the wind-wheel round, and thereby presents a diminished surface of the wheel to the wind, and thus preserves a proper uniform velocity.

In heavy gales, which would endanger the mill, the governing-lever will have been oscillated to a horizontal position, and arrested by the stop *e* of the shank B. As the wind dies down, the weight D will overbalance the resistance of the wind on the vane V and bring said wind-wheel again into the wind. By the cord C, which reaches from the mill to the ground, it can at any time be thrown out of gear and stopped.

Having thus described my invention, I claim—

In a windmill, the wheel W, shank B, stops *e e'*, head A, rod R, vane V, and cord C, in combination with the vane T, governing-lever J, and weight D, as herein described and set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

LEWIS C. CORIELL.

Witnesses:

IRA SHOLER,

GEO. A. JOHNSON.