2 Sheets—Sheet 1

S. E. JARVIS.
Wind-Mill.

No. 202,825. **Patented April 23, 1878.**

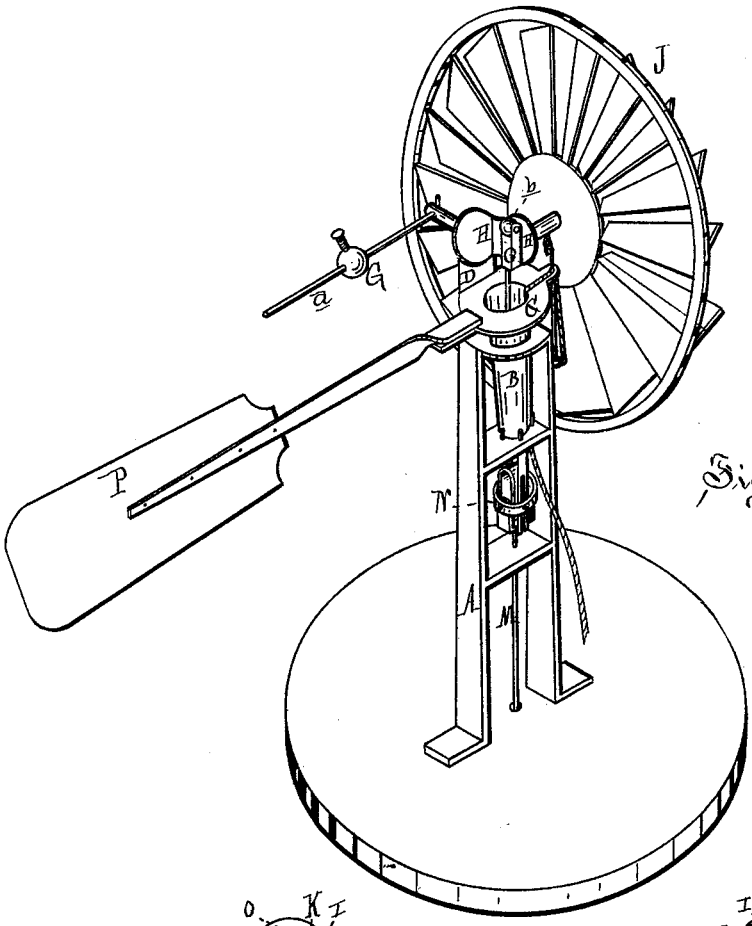

Fig. 1.

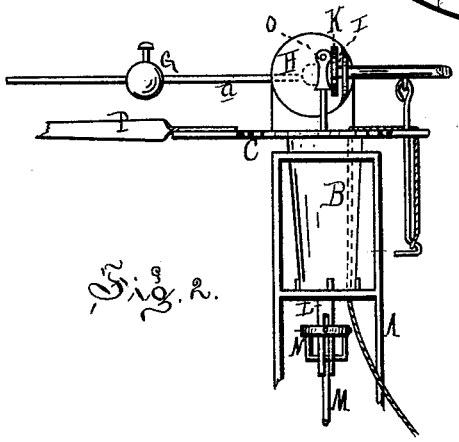

Fig. 2.

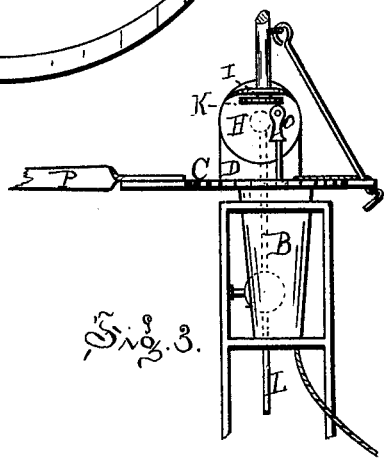

Fig. 3.

Witnesses:
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Inventor:
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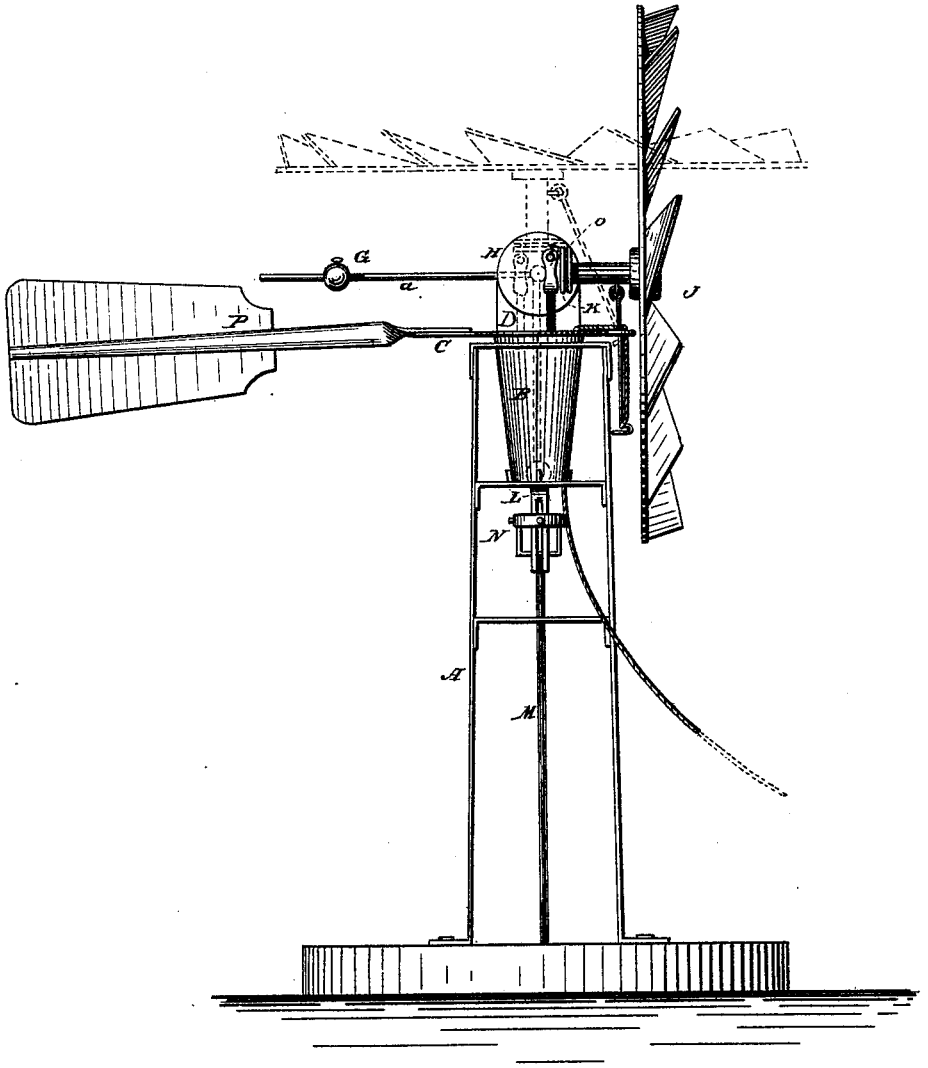
By Atty
Thos. S. Sprague

2 Sheets—Sheet 2.

S. E. JARVIS.
Wind-Mill.

No. 202,825. Patented April 23, 1878.

Fig. 4.



Attest
R. F. Dyer.
L. M. Sills

Inventor:
S. E. Jarvis
by Geo. W. Dyer & Co
Attys.

UNITED STATES PATENT OFFICE.

SAMUEL E. JARVIS, OF LANSING, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO E. BEMENT & SONS, OF SAME PLACE.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **202,825**, dated April 23, 1878; application filed October 24, 1877.

To all whom it may concern:

Be it known that I, SAMUEL E. JARVIS, of Lansing, in the county of Ingham and State of Michigan, have invented a new and useful Improvement in Windmills; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification.

The nature of this invention relates to certain improvements in the construction of windmills, which will enable the wind-wheel to turn upward out of the wind, and allow the pump to work with shorter stroke until the wind-wheel shaft is in a vertical position, at which the pump-rod will remain stationary, thus dispensing with brakes on the wheel and the necessity of disconnecting the pump-rods in cold weather; and it consists in the peculiar construction and arrangement of the various parts, as is more fully hereinafter set forth.

Figure 1 is a perspective view of my improved windmill. Fig. 2 is a side elevation with wind-wheel in vertical position. Fig. 3 is a similar view with the wind-wheel in horizontal position. Fig. 4 is a side view of the windmill, showing in dotted lines the wheel when tipped to a horizontal position.

Like letters refer to like parts in each figure.

In the drawing, A represents a standard, in the top of which is properly stepped and journaled an inverted truncated cone, B, supporting a turn-table, C.

D is an upwardly-projecting bracket, through which a shaft is journaled. To the outer end of this shaft is secured a short rod, *d*, which carries a counter-weight, G. To the inner end of this shaft is secured a bracket, H, through the arm of which the main shaft is journaled.

I is the main shaft, journaled through the bracket H, as above described, its outer end carrying the wind-wheel J, the sails of which are stationary. Upon the inner end of the main shaft is secured a plate, K, which is provided with a crank-pin, terminating in a ball, *b*.

L is a connecting-rod, secured to the top of the pump-rod M by means of the cradle N. The upper end of the connecting-rod terminates in a fork, O, in the arms of which are formed sockets, which embrace the ball *b*, thus forming a ball-and-socket joint as a means of connection between the connecting-rod and the main shaft.

P is the tail-vane, secured to the turn-table at the opposite side from the main shaft, but is set at an angle therewith of about five degrees, so as to allow the wind to pass through the lower slats of the wind-wheel more or less, and a stiff wind, blowing against the upper slats at nearly a right angle with their surfaces, will produce more pressure thereon, and will raise the wheel from a vertical position to a horizontal one, or nearly so.

By this construction and arrangement of connection between the connecting-rod and the main shaft, the employment of brakes upon the wheel are entirely dispensed with, together with the necessity of disconnecting the pump-rods in cold weather.

When a strong wind is blowing, the greater force will be exerted against the top of the wheel, or that part above the axis of the main shaft, the effect of which will be to raise the wheel from its vertical position toward a horizontal one, the degree of pressure necessary to accomplish this end being regulated by moving the counter-weight G to or from the wheel. This change of position of the wind-wheel imparts to the pump-rod a rectilinear reciprocating motion, and in a degree lessens the length of stroke of the pump-rod as the wheel approaches a horizontal position.

What I claim as my invention is—

1. In a windmill, the combination, with the tipping main shaft I and crank-plate K, of the ball crank-pin *b* and the forked arm O on the upper end of the pump-rod M, constructed and arranged substantially as described and shown.

2. In a windmill having a tipping wind-wheel, the combination, with the turn-table C, of the bracket D at the side thereof, and the angular bracket H, supported by the said

bracket D and adapted to turn thereon, and the main shaft I, journaled in the said bracket H, constructed and arranged substantially as described and shown.

3. The combination of the wheel J, shaft I, and tail-vane P, the latter being set at an angle to said shaft, substantially as described.

4. The combination of the standard A, turn-table B C, counter-weight G, bracket H, shaft I, wheel J, plate K, connecting-rod L, and tail-vane P, constructed and arranged to operate substantially in the manner and for the purposes specified.

SAMUEL E. JARVIS.

Witnesses:
ARTHUR O. BEMENT,
GEO. A. GILLAM.