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G. F. ROUNDS.

Wind-Mill.

No. 160,237. Patented Feb. 23, 1875.

Fig 1

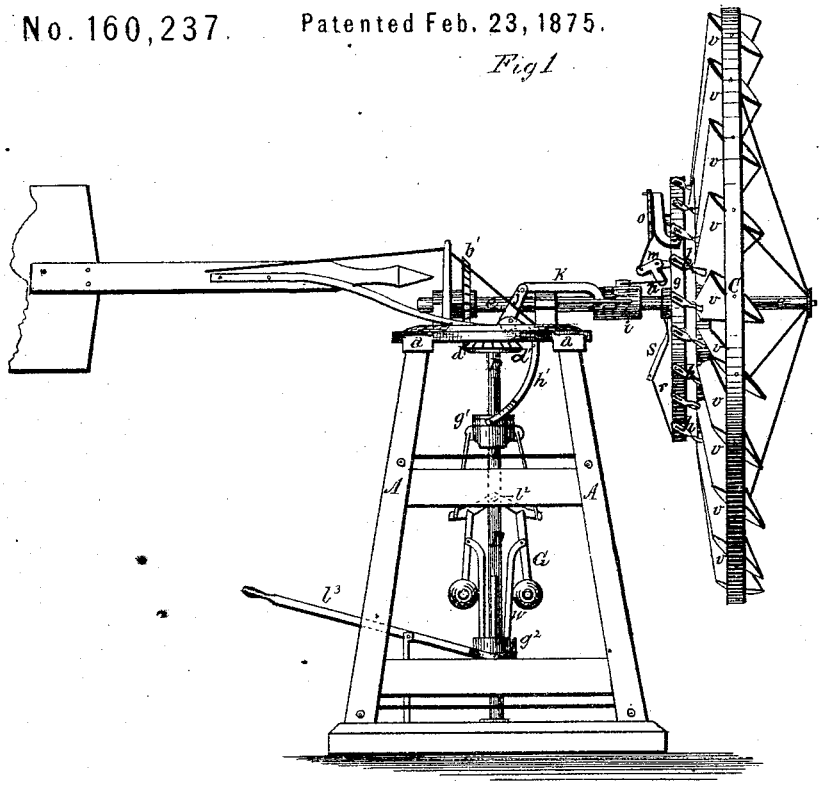
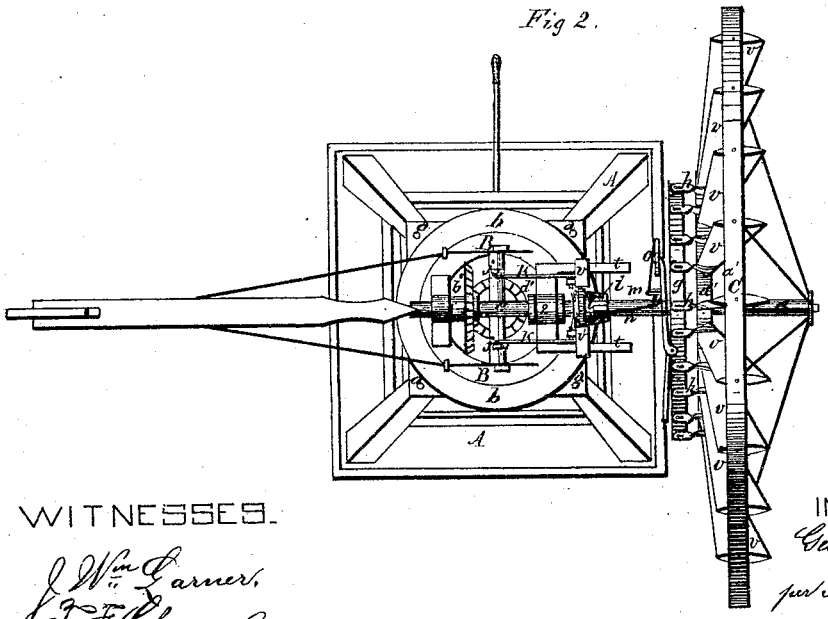


Fig 2.



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per F. A. Lehmann

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G. F. ROUNDS.
Wind-Mill.

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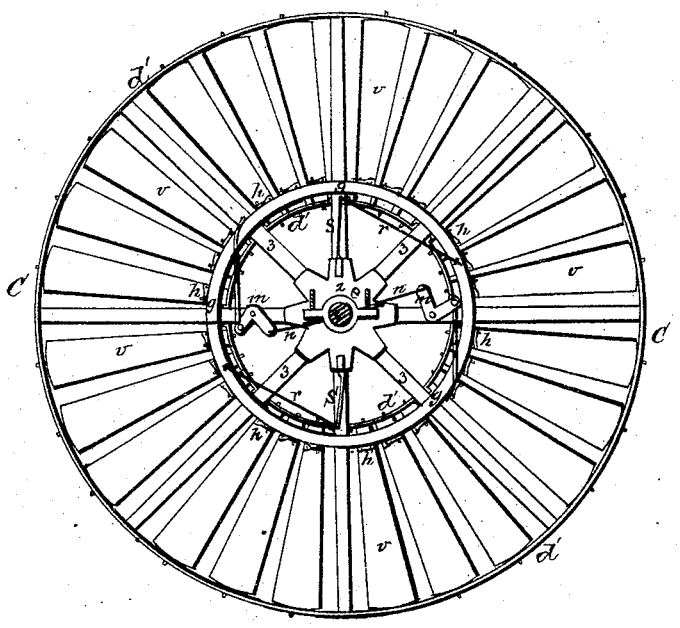
Fig. 3.



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G. F. ROUNDS.
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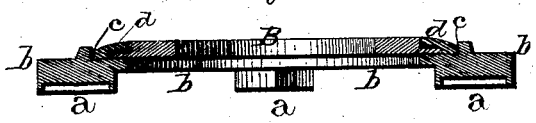
Fig. 4.



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F. A. Lehmann, Atty

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UNITED STATES PATENT OFFICE.

GEORGE F. ROUNDS, OF BENTON HARBOR, MICHIGAN, ASSIGNOR OF ONE-THIRD HIS RIGHT TO H. W. BROWN, OF SAME PLACE.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **160,237**, dated February 23, 1875; application filed November 3, 1874.

To all whom it may concern:

Be it known that I, GEORGE F. ROUNDS, of Benton Harbor, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Windmills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in windmills; and it consists in the arrangement and combination of parts that will be more fully described hereafter.

The accompanying drawings represent my invention.

A represents a derrick, the upper ends of its timbers being held in sockets *a*, formed on the under side of the ring *b*. Inside of this ring *b* is a wide flange or rabbet, *c*, which forms the seat of the turn-table B, which table is held in its place by a cap ring, *d*, bolted over a flange on the outer edge of the turn-table to the ring *b*.

Upon the turn-table is journaled a shaft, *e*, one of its ends extending beyond the table for the attachment of the wind-wheel C, which wheel has removable vanes *v*, pivoted between the two rings *d' d'*, which rings also support the braces 3 of the wheel.

Behind the vanes of the wheel C is the ring *g*, to the circumference of which are pivoted slotted straps *h*, that have their ends secured to the sides of the vanes, in such a manner that when the ring *g* is drawn back and sidewise the straps will cause the vanes to partially turn upon their pivots.

Upon the shaft *e*, behind the wheel C, is a sliding collar, *i*, provided with lugs *l*, for connecting-rods *n* to connect with bell-cranks *m*, which, by means of the rods *n*, connect with other bell-cranks, *o*, and rods *p*, which are fastened to the circumference of the ring *g*.

When the sliding collar *i* is drawn back, the ring *g* will be moved back and sidewise by the intervening rods and cranks; consequently the vanes, being attached to the ring *g* by the straps *h*, will be partly turned upon their pivots.

Near the center of the wheel C, and attached to its rear side, are springs S, with rods *r*, fastened to the ring *g*, which restore the vanes, after having been moved by the ring, to their former position by drawing the ring *g* forward and sidewise.

Upon the slides *t*, attached to the journal 2, move the guides *v'* of the sliding collar *i*. The connecting-rods *k* are pivoted to these guides and to the bell-crank *j*, which has its bearings on opposite sides of the turn-table at right angles with the shaft *e*.

Under the center of the turn-table is a vertical shaft, D, which is geared to the beveled wheel *b'*, on the rear of the shaft *e*, by the wheel *d'*.

This shaft D is provided with a feather, by which the sliding collar g^1 is turned with the shaft, and is allowed at the same time to slide up or down.

The sliding collar g^1 is connected to the bell-crank shaft *j* by a connecting-rod, *h'*, so that any movement of this collar, whether caused by the governor G, attached to it, or by the operating-lever l^2, will be transmitted to the vanes.

When it is desired to stop the mill, by bearing down upon the end of the lever l^3 the sliding collar g^1 will be raised upward through the means of another collar, g^2, and rods *w*, which have their upper ends attached to the arms of the governor, and thus the vanes will so be turned as to let the wind pass freely between them, when the wheel will cease to revolve.

The face of the wheel C is held to the wind by an ordinary vane.

Having thus described my invention, I claim—

1. The combination of the ring *b* with sockets *a*, the turn-table B, the cap-ring *d*, and a supporting-frame or derrick, substantially as described.

2. The combination of the wheel C, having the pivoted vanes *v*, ring *g*, straps *h*, rods *r*, and springs *s*, with the bell-cranks *m o*, rods *n*, sliding collars *i*, crank *j*, rods *k h'*, governor G, and lever l^3, the parts being arranged for operation substantially as shown.

In testimony that I claim the foregoing I have hereunto set my hand.

GEORGE F. ROUNDS.

Witnesses:

WENDELL P. ROBBINS,

HAZAEL W. BROWN.