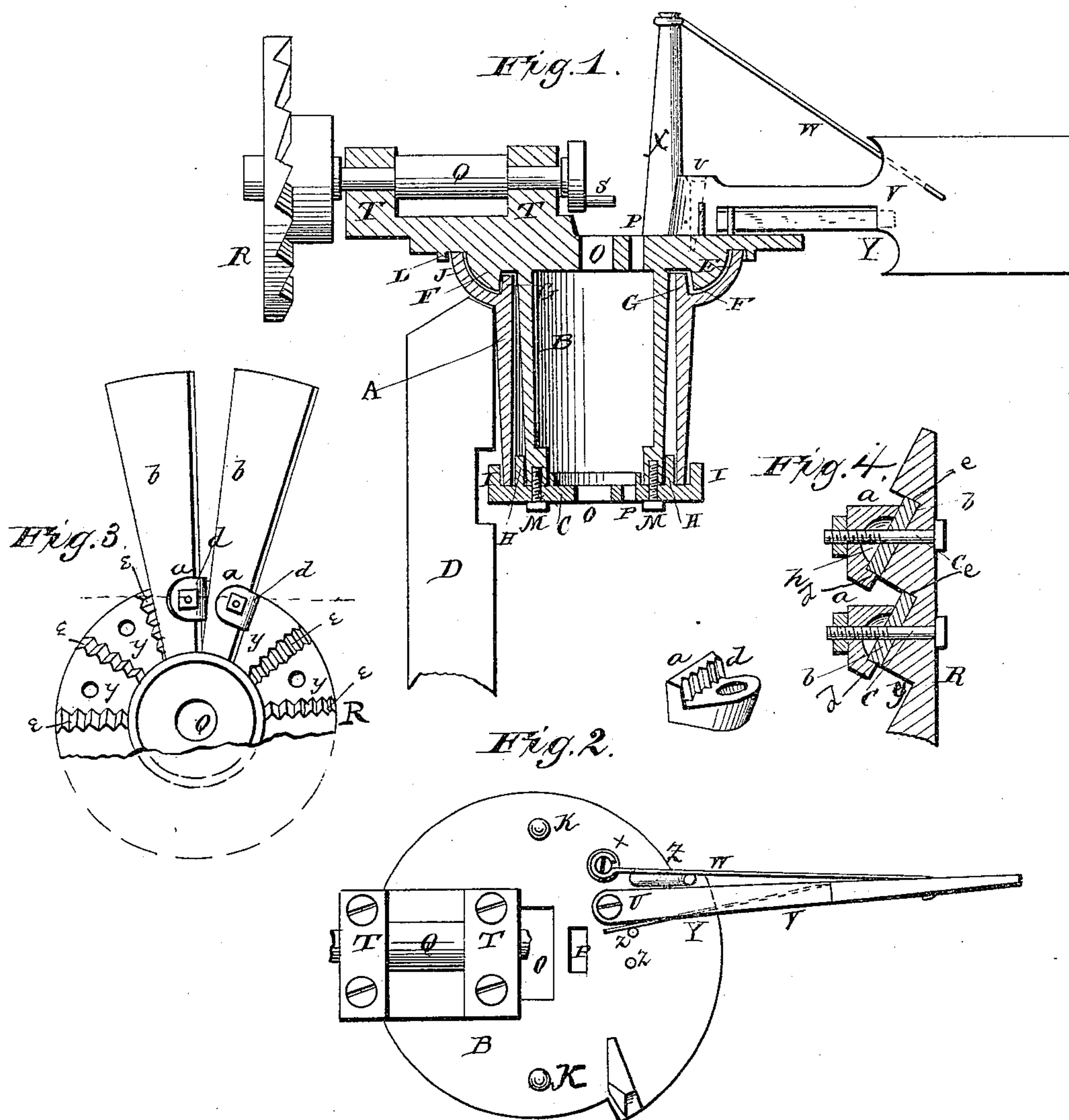


(Model.)

J. M. MAY.
WINDMILL.

No. 246,173.

Patented Aug. 23, 1881.



WITNESSES
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JOHN M. MAY, OF CEDAR RAPIDS, IOWA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 246,173, dated August 23, 1881.

Application filed January 18, 1881. (Model.)

To all whom it may concern:

Be it known that I, JOHN M. MAY, of Cedar Rapids, in the county of Linn, and in the State of Iowa, have invented certain new and useful
5 Improvements in Windmills or Wind-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked
10 thereon, making a part of this specification.

The nature of my invention consists in certain improvements in windmills, as will be hereinafter more fully set forth, and pointed out in the claims.

15 Figure 1 is a vertical sectional view cut through the center of the turn-table, shaft-wheel, and vane. Fig. 2 is a plan view of the turn-table. Fig. 3 is a vertical view of the center piece, which I call the "center head" of
20 the wind-wheel, with fans fastened by means of a double corrugated clutch or clamp. Fig. 4 is a detailed view of a part of the wind-wheel.

Parts A, B, and C form the turn-table, that supports on post D the superstructure of the mill, A being in the form of a tube or socket
25 bolted firmly to D, and has in its upper end a capacious circular oil-reservoir, E, that receives the circular ledge F, that extends downward from the under side of part B. On this ledge,
30 within the oil-reservoir E, the mill rests and revolves. B and C are firmly bolted together by screw-bolts M, or in some other suitable manner. The ledge F of part B, G of part A, and H and I of part C serve to keep each part
35 in place and allow parts B and C and the entire superstructure to revolve freely in the path of a horizontal circle as the wind blows from the different points of the compass. The ledges G and J form the sides of the oil-reservoir, and
40 ledge L keeps the water from the oil-reservoir. All the ledges are circular in form. The oil is supplied through holes K in part B, Fig. 2.

O is an aperture through parts B and C for pumping-rod, and P is an aperture through
45 same parts for the governing-bar described in a patent issued to John M. May, No. 168,574, dated October 11, 1865, by which, in combination with an arm and links, the wind-wheel and vane are controlled and held in a relative position to each other, as therein described. Said
50 device in said patent or other suitable device for controlling this mill may be used.

Q is the shaft, having thereon wind-wheel R, wrist-pin S resting and revolving in bearings T T on part B.

V is the vane, pivoted at U to the part B, which vane is supported by rod W and post X.

Y is a spring attached to the vane to ease the vane as it approaches and leaves a state of inertia against gage-posts Z and Z, the tension of the spring being governed by the position on B of pins *z z* and *z z*. The spring also gives an easy gliding movement to the vane, obviating hitches and concussions that sometimes occur in high and flawy or chopping
65 winds. Two springs, instead of one, may be attached to the vane or to part B, though one, as shown and described, is cheaper and substantially serves all the purposes required.

The fans *b* are attached to the center head, R, to form the wind-wheel, the angle for the fans for the face of the wheel to meet the wind-current being governed by the angle of the large corrugations or angles *x* and *y*. The fans are held flatwise by their ends between surfaces
75 *y*, Fig. 3, on the center head, R, and the wedge-shaped washer *a*, and held edgewise between the shoulders or corrugations *e* of the center head and the arms *d* of the washers *a*, as shown in Fig. 4. The arm *d* of each washer is made
80 corrugated, so that in pressing the fan against the corrugated shoulders *e* indentations will be made in the edge of the fan to hold the same firmly to the head. Bolt *c* passes through center head, R, fans *b*, and washer *a*, and by it, as the
85 bolt is screwed firmly, the fan is held solid by being pressed in two directions—viz., flatwise, or nearly so, and edgewise—the bolt-hole in the fan being elongated laterally, and those in the center head and in the washer being bell-shaped
90 toward the fans, to allow a slight change of position as the whole are pressed together by the bolt, the small corrugations being pressed into the edges of the fans.

Instead of small corrugations, the parts of
95 the center head and washer that come in contact with the fan may be made rough in any manner to give a firm hold on the fans. In small mills the front surface of the center head may be a plane; but in large mills the weight
100 of metal should be suitably reduced. Also, in large mills a center head should be made with spokes from the hub of the center head to the corrugated rim, to receive the fans. Also, the

washer *a* should be made hollow or dish-shaped on the side next the fans, by which lightness and strength are combined.

It is obvious that the devices herein described—to wit, the weight of the mill resting and revolving in a capacious oil-reservoir—save often oiling, as required by the old styles of turn-tables, often dangerous in stormy, windy weather, and, if omitted, rapid wearing and risks to the structure are incurred; also, that the spring attached to the vane is a valuable adjunct for the safety of the mill, as great sensitiveness and ready obedience to the governing element in a mill are indispensable; also, that, dispensing with the use of arms, pivots, joints, levers, fellies, and rods in constructing a wind-wheel, a great saving of material and time is a result, and a better wheel produced; also, that a fan fastened at one end allows of elasticity, and yielding to the high chopping and flawy winds insures great safety to the structure, not attained when the fan is fastened rigidly at or near each end; and that a clamp grasping the edges as well as the flat sides of a fan, with corrugated or roughened surfaces, holds firmly, without danger of being loosened by centrifugal force, its weight or taper edges, and that an enlarged hole in the fan and inward bell-shaped holes in the castings, to allow the bolt to vary from a right angle with the face of the wheel, are

indispensable in holding the fan immovable in the clutch.

To the construction of the turn-table, &c., for oiling purposes, as well as to the vane *V* with spring *Y*, I lay no claim in this application, as I have made a separate application for the same.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the center head, *R*, constructed with corrugations, as described, the oblique fans *b*, and washer and bolt, substantially as and for the purposes herein set forth.

2. The center head, *R*, having corrugated or rough surface *e*, in combination with a washer to grasp and make indentations in the edge of a fan, for holding the same firmly to the head, substantially as herein set forth.

3. The wedge-shaped washer *a*, provided with corrugated arm *d*, in combination with the center head, *R*, fan *b*, and bolt *c*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of February, 1879.

JOHN M. MAY. [L. S.]

Witnesses:

HENRY N. CHURCHILL,
HENRY BENNETT.