(No Model.)

J. BENOIT.

WINDMILL.

No. 312,795. Patented Feb. 24, 1885.


Fig. 4.

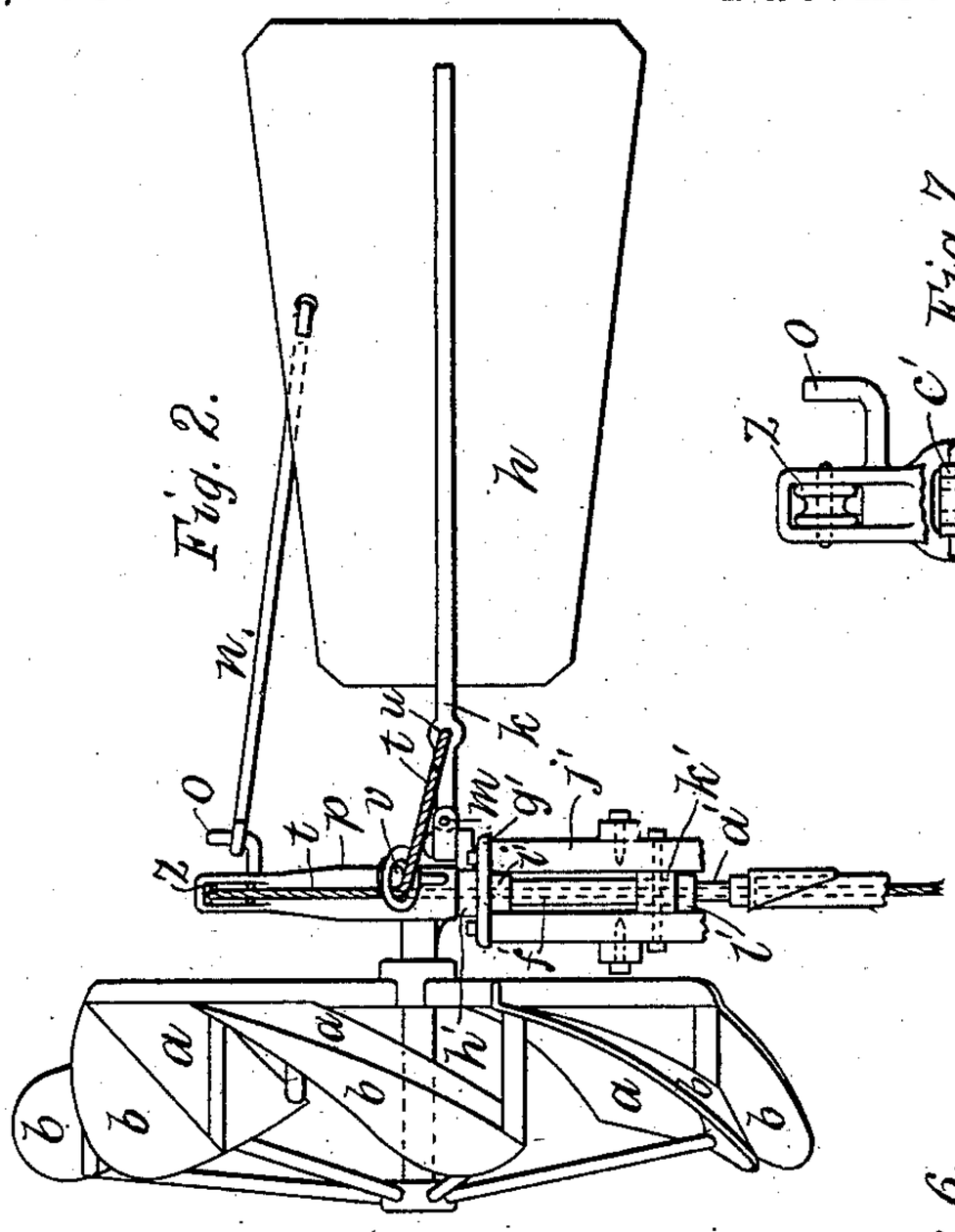
Fig. 2.

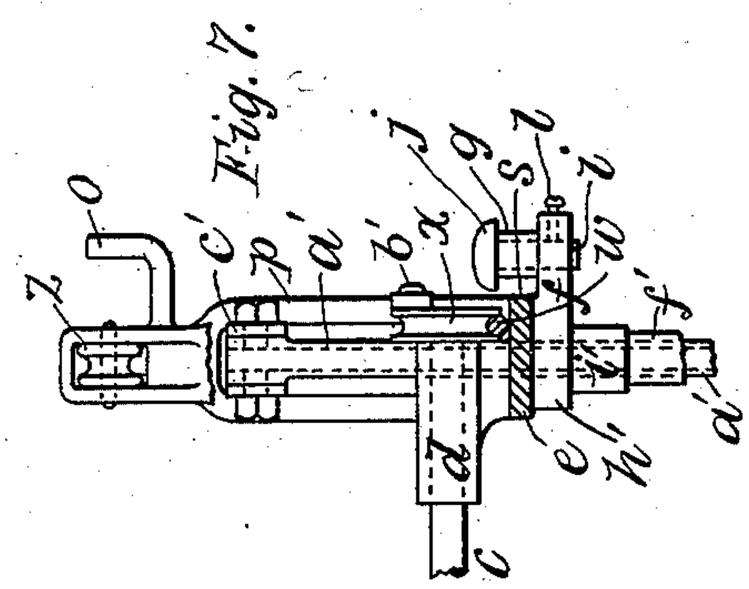
Fig. 7.


Fig. 6.

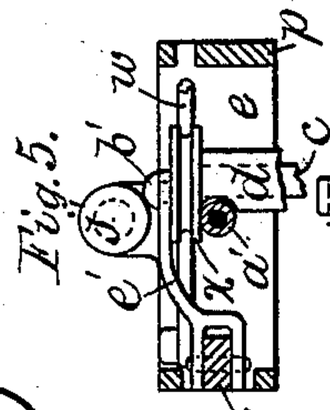
Fig. 5.

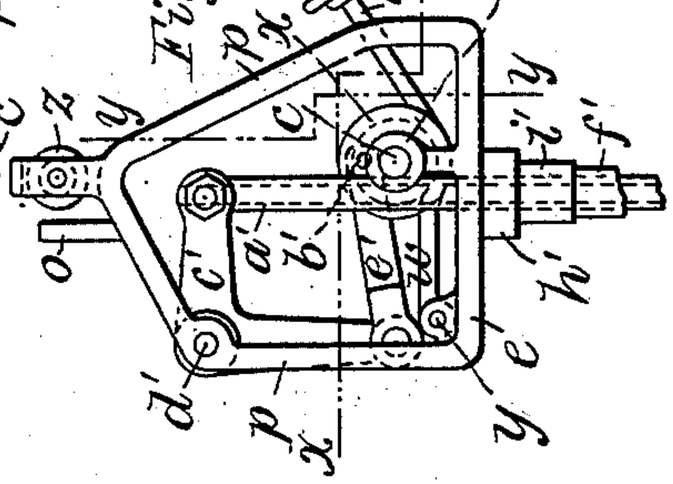
Fig. 8.

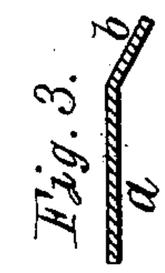
Fig. 3.

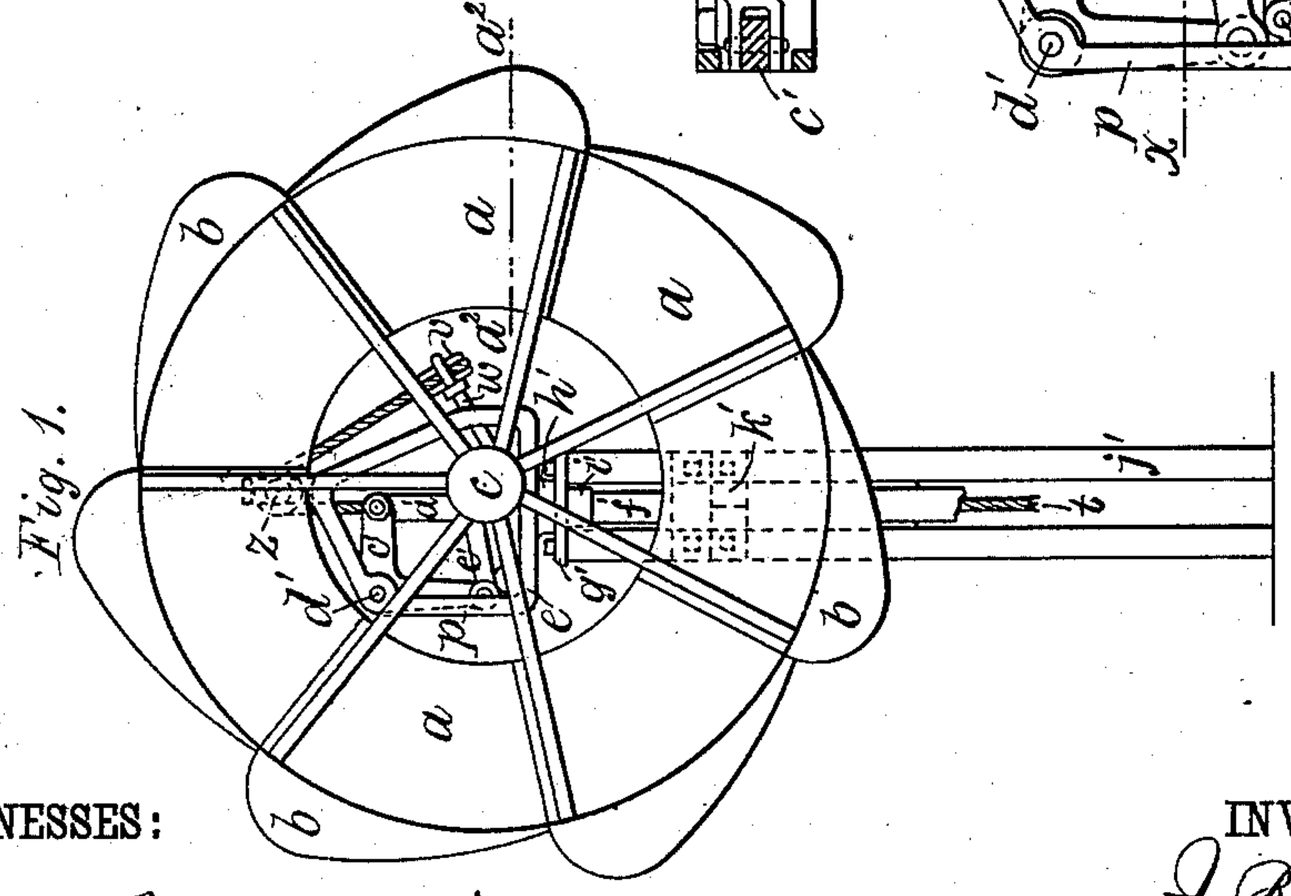
Fig. 1.

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JOSEPH BENOIT, OF NEW BRAUNFELS, TEXAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 312,795, dated February 24, 1885.

Application filed March 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BENOIT, of New Braunfels, in the county of Comal and State of Texas, have invented a new and Improved Windmill, of which the following is a full, clear, and exact description.

My invention consists of the construction and arrangement of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of my improved mill. Fig. 2 is a side elevation. Fig. 3 is a section of the wheel on the line a^2 a^2, Fig. 1. Fig. 4 is a detail of the regulating-vane in plan view. Fig. 5 is a horizontal section of the turn-table frame on the line x x of Fig. 6. Fig. 6 is a side elevation of the turn-table frame, and Fig. 7 is a vertical section on the line y y of Fig. 6.

To the ordinary sectional spiral vanes a of a wheel arranged to receive the wind directly against its face, I propose to add a flange, b, upon the outer edge, said flange being of any approved width at that end of the vane that projects toward the wind and on which the wind first takes effect, and diminishing therefrom to a point at the other end of the vane, and I pitch said flanges into or toward the wind at an inclination to the plane of the vane, calculated to more effectually hold the wind against escaping over the outer edge of the vane, and deflect it onto the face of the vane and along the same, so as to be more effective than the ordinary vanes with plane surfaces. I arrange the shaft c of the wheel in a suitable bearing, d, on the bed e of the frame, that serves for the turn-table, on which bed there is an extension, f, in the line of the shaft or thereabout, supporting the pivot g for the tail-vane h, which ranges in the line of the shaft c when holding the wheel into the wind, and gages the wheel to receive the wind directly in the line of its axis. The pivot stud g for the tail-vane is hollow, and a pin, i, having a head, j, is inserted in it after the eye of the vane arm k is put on the pivot-stud and secured by a set-screw, l, to hold the vane-arm on the stud. The vane-arm has a pivot-joint at m, and the vane is suspended by the rod n from pivot o, mounted on the top of the turn-table frame p, the pivot o being out of or to the left of the vertical plane of the shaft c and the pivot-stud g of the tail-vane. When the tail-vane is drawn to the right by the cord t, the outer end of the vane tends to rise. The pivot at m allows of this without strain on the pivot g. By this arrangement the vane has a tendency to swing automatically into line with the shaft c, or until held by the stops q s. The vane-arm also has a stop-lug, q, attached to the end having the pivot-eye, which lug comes to a bearing against a shoulder, s, of the bed e when the vane comes to its position for holding the wheel to the wind to prevent the vane from swinging beyond the right position. The cord t, for pulling the vane out of the wind, is connected to the vane-arm at u a suitable distance from the pivot for the necessary leverage, and passes thence over a guide-pulley, v, mounted on an arm, w, by which the cord is guided to a point in advance of the plane of the vane toward which the point u is to be pulled, and said arm is arranged under a grooved friction-wheel, x, on the shaft c, and extended to a pivot, y, where it is so connected to the bed e that the cord t, being extended from said pulley v to another, z, at the top of the turn-table frame p, will pull arm w against wheel x for a brake to stop the wheel by the effect of the pull on said cord for shifting the vane around parallel with the wheel, thus utilizing said cord to stop the wheel by the action of a brake at the same time that it is made to turn the wheel out of the wind, and by the same force that is applied to it for that purpose.

Instead of connecting the pump-rod a' to the crank-pin b' of the shaft c, I connect it to one arm of a bell-crank, c', pivoted to the turn-table frame at d', and having its other arm connected to the rod e', which is connected to the crank-pin b', instead of the pump-rod. This enables the pump-rod to work without the vibration due to the crank-pin, enabling it to work through a much smaller hollow spindle, f', of the turn-table, and avoids the shaking that a long vibrating rod is subject to, thus making the rod work much easier and smoother, and the rod is not so liable to break.

Besides supporting the bed *e* of the turn-table on the cap-plate *g'* by its shoulder *h'* and journal *i'*, I connect the hollow spindle *f'* to the journal *i'*, extending it down along the tower *j'* a suitable distance to a bearing between two blocks, *k'*, fitted to the spindle above the collar *l'*, and firmly bolted to the tower to provide substantial mounting of the turn-table on the tower.

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

1. The sectional spiral vanes *a* of the wind-wheel, having a flange, *b*, on the outer edge, widest at the end of the vane on which the wind first takes effect, and inclined to the plane of the vane for deflecting the wind thereon, substantially as described.

2. The brake *w*, having guide-pulley *v*, and combined with the pull-cord *t*, tail-vane *h*, and the wheel-shaft *c*, said shaft having a friction-wheel, *x*, substantially as described.

3. In a windmill, the turn-table frame and the wind-wheel journaled therein, in combination with the hollow pivot *g*, headed pin *i* *j*, passing through said pivot into the frame, a set-screw, *l*, for adjusting said pin, and a vane mounted on the hollow pivot, substantially as set forth.

4. A windmill consisting, essentially, in a turn-table frame, *p*, wind-wheel *a*, having a horizontal shaft, *c*, journaled in the frame, the vertical headed pin *i* *j*, pivot *o* on the frame above the pin *i*, the vane *h*, having a jointed arm, *k*, mounted on the headed pin, the connecting-rod *n*, the friction-wheel *x* on shaft *c*, the brake-lever *w*, pivoted at *y* below the friction-wheel, the pulley *v* on the outer end of said lever, the pulley *z* on the upper part of the frame, the rope *t*, passing from the arm *k* around the said pulleys, the bell-crank *c'*, pivoted at *d'* to the frame, the rod *e*, connecting said lever with a crank-pin on the shaft *c*, and the pump-rod *a'*, pivoted to the bell-crank lever, substantially as set forth.

JOSEPH BENOIT.

Witnesses:
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FR. A. NOEGEL.