

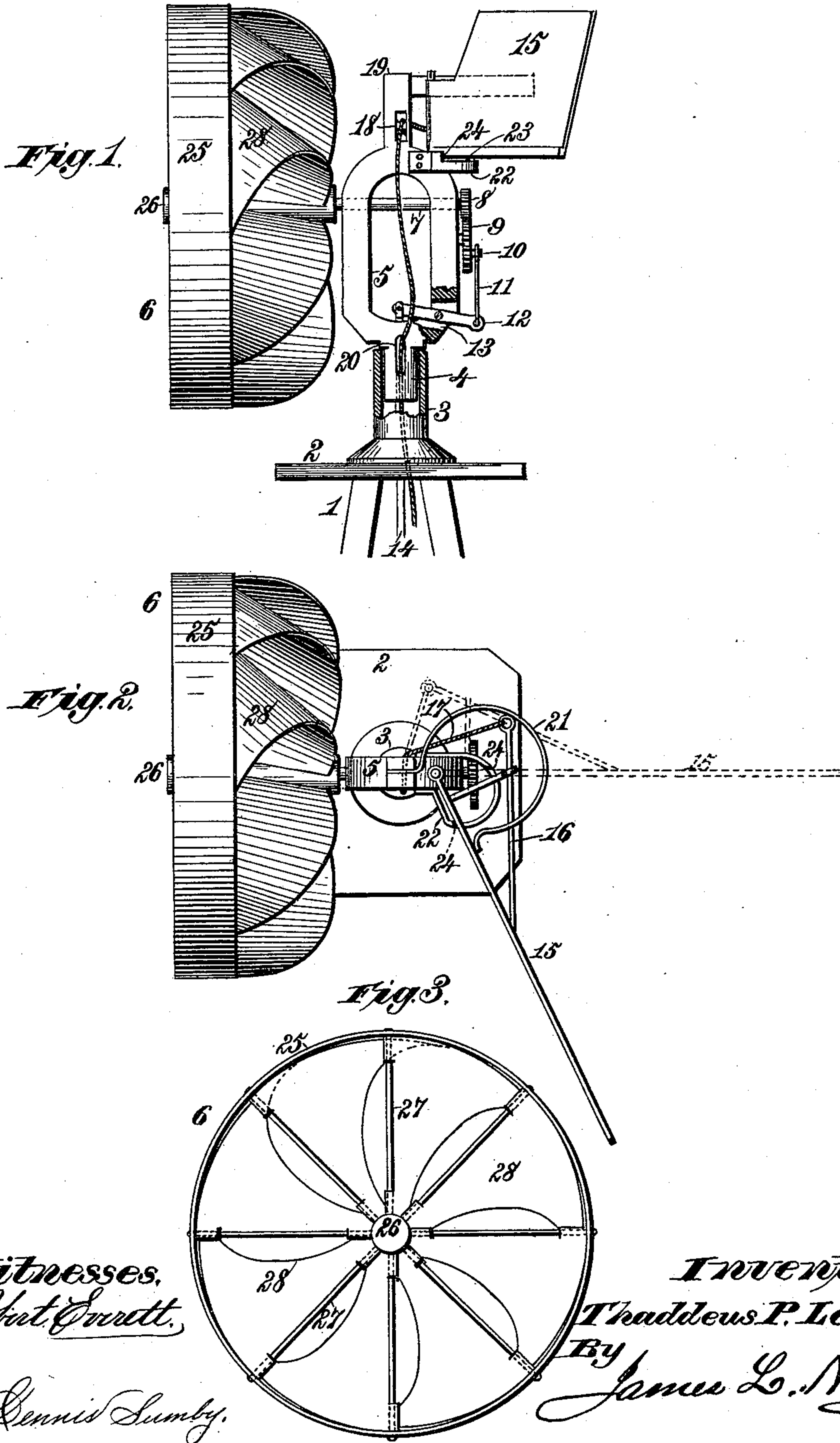
(No Model.)

T. P. LEVAN.

WINDMILL.

No. 338,532.

Patented Mar. 23, 1886.



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By

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Atty.

UNITED STATES PATENT OFFICE.

THADDEUS P. LEVAN, OF NESS CITY, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 338,532, dated March 23, 1886.

Application filed August 15, 1885. Serial No. 174,481. (No model.)

To all whom it may concern:

Be it known that I, THADDEUS P. LEVAN, a citizen of the United States, residing at Ness City, in the county of Ness and State of Kansas, have invented new and useful Improvements in Windmills, of which the following is a specification.

My invention relates to improvements in the construction and combination of certain parts of a windmill, as hereinafter set forth, whereby the durability and efficiency of the mill are increased with diminished liability of disarrangement of parts while in operation.

In the annexed drawings illustrating the invention, Figure 1 is a sectional side elevation of the upper part of a windmill embodying my improvements. Fig. 2 is a plan view of the same. Fig. 3 is a face view of the wind-wheel.

Referring to the drawings, the reference-numeral 1 designates a frame supporting a platform, 2, on which is mounted a vertical hollow post, 3, that communicates with a central opening in said platform.

In the upper end of the hollow post 3 is inserted the hollow shank 4 of a rotary frame or casting, 5, that carries the wind-wheel, vane, and gearing. The wind-wheel 6 is mounted on a shaft, 7, journaled in the upper part of the rotary frame 5, the opposite end of said shaft being provided with a pinion, 8, that meshes with a gear, 9, which is loosely mounted on a stud fixed to the side of said rotary frame. This gear 9 carries a crank-pin, 10, to which is attached a pitman, 11, the lower end of which connects with one end of a rocking lever or bar, 12, that is pivoted in a slot, 13, in the lower part of the rotary frame 5 on one side. The other end of the rocking lever 12 is connected to a vertical rod or plunger, 14, which passes down centrally through the hollow shank 4 of the rotary frame 5 and through the hollow vertical post 3, and is connected at its lower end with the mechanism to be actuated by the wind-wheel.

To the upper part of the rotary frame 5 is pivoted a vane, 15, having on one side an arm, 16, for the attachment of a pull-out wire, cord, or chain, 17. This cord or chain is passed through a pulley or sheave, 18, supported by a stud or projection, 19, on the top of the frame 5, and is carried down thence through

the hollow post 3, a groove, 20, being provided in one side of the frame-shank 4, to admit the passage of said cord or chain. By means of this cord, wire, or chain 17 the vane can be actuated to turn the wheel 6 more or less inclined to the wind, as may be desired.

To the vane 15 is secured one end of a spring, 21, the opposite end of which is secured to the stud 19 at the top of the rotary frame. The tension of this spring throws the vane into a position parallel with the wind-wheel, thus bringing the latter into the wind, except as controlled by pulling on the cord 17, so as to draw the vane against the tension of its spring into a more or less inclined direction with relation to the wheel, or at a right angle therewith, if desired. The movements of the vane into and out of the wind actuate the wind-wheel in a corresponding direction by means of a guide-yoke, 22, attached to the upper part of the rotary frame 5. This yoke may consist of a strap of metal bent into a bow shape, as shown, and attached by both ends to the upper part of the rotary frame, the upper edge of said yoke being cut away for some distance at 23, to afford a track or support for the lower edge of the vane. At each end of this cut-away portion of the yoke 22 is a shoulder, 24, that serves as a stop for the vane in either direction, so that when the vane in its movements comes in contact with either of said stops 24, it will move the rotary frame 5 and the wind-wheel 6 in a corresponding direction.

The wind-wheel 6 consists of a broad band or tire, 25, connected to an elongated hub, 26, by means of spokes 27, set at one side. To these spokes 27 are attached one of the straight edges of the sector-shaped fan-blades 28, the other straight edge and the point of each blade being curved around and attached to the tire 25 on the side opposite to the spokes. It will be seen that the fan-blades thus project in curves beyond one edge of the wheel, and present a large surface to the action of the wind.

The operation of the wheel and accompaniments and the manner of actuating the connected gearing will be readily understood. By simply drawing on the cord or chain 17 the wheel can be readily thrown more or less into the wind, as desired, or be thrown out of the wind. The construction of the wheel is also such as to require less wind-power for its effi-

cient operation, and the connected gearing is also arranged in such a simple manner as to afford increased leverage with diminished friction and little liability of disarrangement of the working parts.

The machine is adapted for use in pumping water and for all the ordinary purposes of wind wheels or mills.

Having thus described my invention, what I claim is—

1. The combination of the vertical hollow post 3, the rotary frame 5, having a guide-yoke, 22, and a hollow vertically-grooved shank, 4, a wind-wheel mounted on a shaft journaled in said frame, a vane, 15, pivoted to said rotary frame above the guide-yoke, the spring 21, attached to the upper part of the rotary frame for throwing the vane in a parallel line with the wheel, and the pull-out cord 17, passed through the groove in the hollow

post to draw the vane to an angle with the wheel, substantially as described.

2. The combination of the hollow post 3, rotary frame 5, vane 15, pivoted to said frame, guide-yoke 22, shaft 7, journaled in said frame and carrying a wind-wheel, 6, gears 8 and 9, pitman 11, rocking bar 12, and plunger 14, substantially as described.

3. A wind-wheel composed of the broad band 25, elongated hub 26, spokes 27, set to one side, and the sector-shaped fan-blades 28, attached to said spokes and to the edge of the wheel-band on the opposite side, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THADDEUS P. LEVAN.

Witnesses:

JAMES N. COX,
JOHN CROSBY.