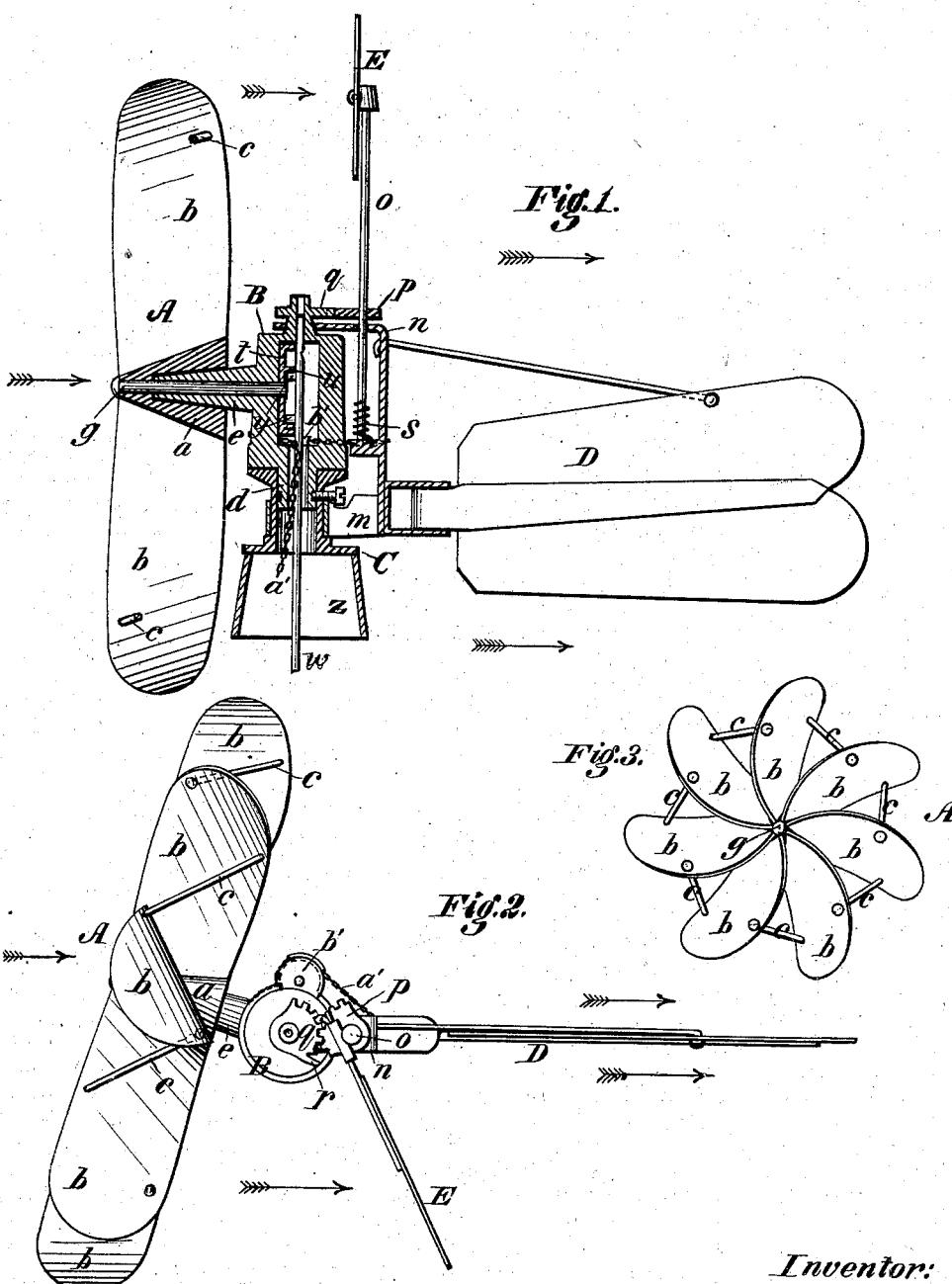


C. LOHNES.
Wind-Wheels.

No. 217,125.

Patented July 1, 1879.



Witnesses:

John R. Twitchell.

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UNITED STATES PATENT OFFICE.

CONRAD LOHNES, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. **217,125**, dated July 1, 1879; application filed October 2, 1878.

To all whom it may concern:

Be it known that I, CONRAD LOHNES, of Springfield, in the county of Clarke and State of Ohio, have invented certain Improvements in Wind-Wheels, of which the following is a specification.

This invention relates more particularly to that class of wheels which are governed or regulated in their speed by swinging them laterally in relation to the wind and the tail-vane by means of an auxiliary side vane; and the invention consists in a peculiar construction of the wheel itself, in a special construction and arrangement of the turn-table and the tail-vane supports, in a special arrangement of connecting devices between the governing-vane and the tail-vane, in providing the wheel with a double bearing, and in other details.

Figure 1 represents a vertical central section of the wheel as a whole; Fig. 2, a top-plan view of the same; Fig. 3, a face view of the wheel proper.

A represents the wheel proper; B, the mill-head or turn-table on which the wheel is mounted; C, a base-plate supporting the turn-table; D, the tail-vane, and E the lateral governing-vane.

The wheel A consists of a conical hub or center, *a*, provided with a series of rigid curved sheet-metal blades, *b*, standing obliquely to the axis, and braced at their outer ends by means of a series of rods, *c*, extending from the front edge of one to the rear edge of the next.

As shown in the drawings, each blade is curved from end to end, and also twisted or curled in such manner as to have an increasing divergence from the wind toward the outer end. By giving the blades the form shown, applying them to the conical hub, which deflects the wind outward against the faces of the blades, and bracing the blades as represented, I produce a wheel which is at once light, cheap, and strong, and which utilizes nearly the full force of the wind.

The turn-table B, on which the wheel is mounted, consists of an upright round body made in one piece, with a neck or journal, *d*, at its lower end to enter the bed-plate C, and with a horizontal neck or journal, *e*, on its front side to receive the hub of the wheel A, which is bored out and fitted over the neck or

journal in the manner represented in Fig. 1, the construction being such that the backward pressure or thrust of the wheel is received upon the end of the journal. The wheel is provided, as usual, with a central shaft, *g*, by which it is held in place, and motion transmitted from it to the pump-rod, as hereinafter described.

The tail-vane D is secured to a frame having two rigid arms, *m* and *n*, the former journaled around the bed-plate, and the latter journaled upon a stud cast for the purpose on the top of the turn-table, as clearly shown in Figs. 1 and 2, the vane being thus permitted to turn freely independently of the turn-table.

It will be noticed that the lower arm, *m*, of the tail-vane is given a very broad bearing on the base-plate, whereby the parts are held firmly and caused to work smoothly.

It will also be noticed that in order to give the turn-table additional stability and ease of action its lower end above the journal is made of large diameter, and the top of the base-plate enlarged to correspond, so as to afford a very broad bearing-surface between the two parts.

The governing-vane is secured to the upper end of a vertical shaft, *o*, which is mounted on the tail-vane support, and provided with a segmental pinion, *p*, gearing into a corresponding pinion, *q*, secured rigidly upon the upper end of the turn-table. A stop-arm, *r*, applied to one of the pinions prevents the vane from swinging except in one direction with relation to the wheel, and a spiral spring, *s*, applied to the shaft *o* holds the axis of the wheel in line with the tail-vane during light winds, and brings the parts back to that position after the action of the governing-vane.

When the force of the wind becomes so great as to drive the wheel too fast, the governing-vane is forced backward and causes to rotate the shaft *o* and pinion *p*, which latter, acting on the pinion *q*, causes the mill-head or turn-table B to swing the wheel A around obliquely to the wind, and as the force of the wind decreases the spring gradually brings the wheel back to its normal position.

The wheel-shaft is provided on its inner end, within the turn-table, with a wheel, *t*, the face of which is provided with a circular eccentric flange, *u*. A pump-rod, *w*, extending upward

centrally through the turn-table and bearing in its upper end, is provided with two rollers, y , which are acted upon by the eccentric flange, as shown, so that the rotation of the wheel t causes an up-and-down motion of the rod.

As shown in Fig. 1, the bed-plate on which the turn-table rests is cast with a socket, z , on its lower end, to fit over the upper end of the mast or tower on which the wheel is mounted. The socket thus formed upon the base-plate forms a very cheap and reliable means of securing the base-plate in position, and also serves to secure the bars or beams forming the tower securely together.

As a means of throwing the wheel out of the wind by hand, a cord or chain, a' , is secured to the tail-vane, and passed thence around a pulley, b' , on the side of the turn-table, and down through the center of the same, as shown.

Having thus described my wheel, what I claim is—

1. The wind-wheel consisting of the conical hub, the flat curved sheet-metal blades of the form shown and described, and the brace-rods c , applied as shown.

2. The combination of the wheel A , the turn-table having the journal e extended into the hub of the wheel, and a central driving-shaft, g , as shown.

3. The stationary base-plate C , turn-table B , and the tail-vane D , having the two arms m n , mounted on the base-plate and the turn-table, respectively.

4. The combination of the turn-table having the wheel mounted thereon and provided with the pinion q , the tail-vane, the shaft o , mounted on the tail-vane and provided with the side vane E and pinion p , and the spring s , as shown.

5. The combination of the turn-table provided with the central opening, the rod w , having bearings in the upper and lower ends of the head, and the eccentrically-flanged wheel t .

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Witnesses:

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