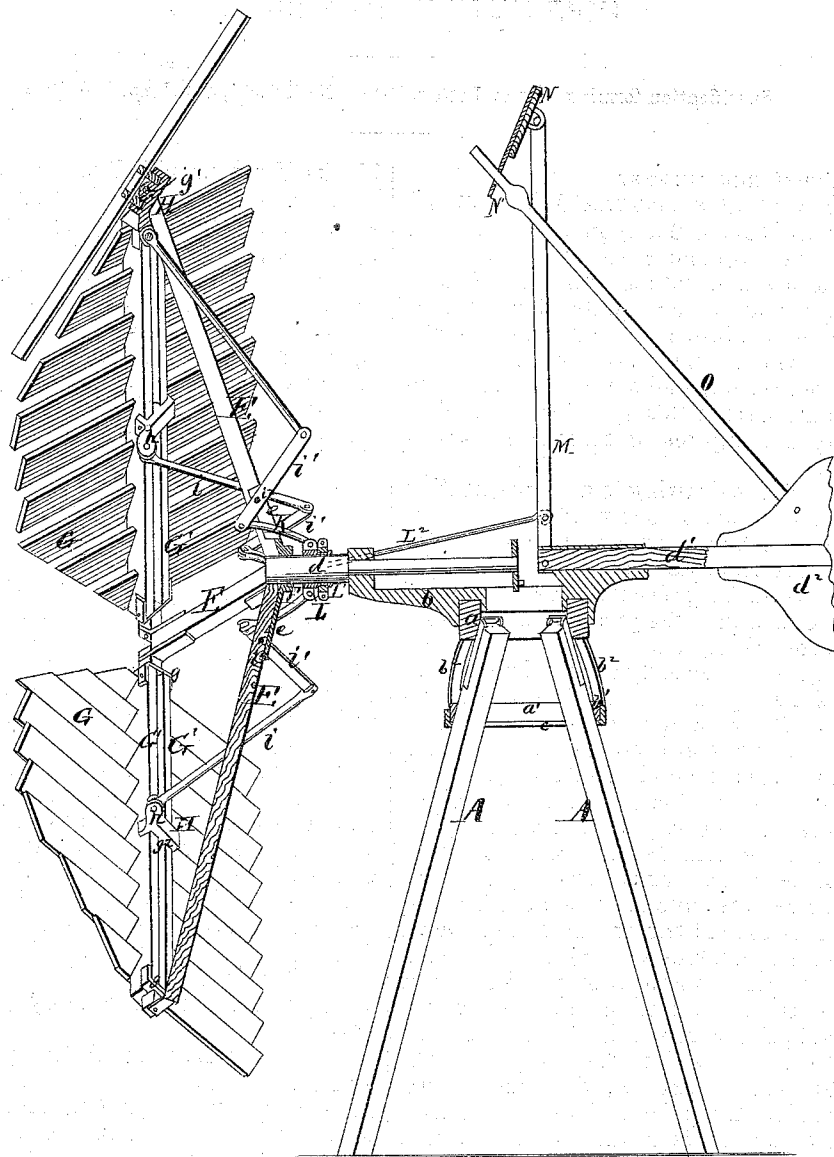


E. C. & E. D. LITTLE.
Wind Mill.

No. 125,821.

Patented April 16, 1872.



Witnesses
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UNITED STATES PATENT OFFICE.

EDGAR C. LITTLE AND EDWIN D. LITTLE, OF SHABBONAS GROVE, ILLINOIS.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. 125,821, dated April 16, 1872.

To all whom it may concern:

Be it known that we, EDGAR C. LITTLE and EDWIN D. LITTLE, of Shabbonas Grove, in the county of De Kalb and State of Illinois, have invented a new and valuable Improvement in Windmills; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical section of our windmill.

This invention has relation to windmills; and consists in the construction and novel arrangement of devices for governing the position of the sails, according to the pressure of the wind, as hereinafter described.

Referring to the accompanying drawing, A represents the supports of a horizontally-rotating frame. These supports are secured to a ring, *a*, which fits a grooved cap, *b*. Another ring, *a'*, is placed around the supports somewhat lower down, and is encircled by a collar, *b'*, connected to the cap *b* by arms *b''*. The lower part of the collar *b'* is flanged at *c* to prevent displacement of parts. The cap *b* is cast with bearings to receive the wheel-shaft *d*, and with a socket to hold the arm *d'* of the vane *d''*. The wheel is of a pentagonal form. E are radial arms inclined forward, or "dished" and secured at their inner ends to sockets *e* of a metallic hub, F, secured to the end of the shaft. The sails are composed of the oblique slats G secured to mortised bars G', which are hinged to the arms E. The shape of the sails is such as to allow them to lie toward the face of the wheel without touching one another. This result is accomplished by cutting the slats off toward the edges of the sails obliquely, as clearly shown in the drawing. There are two of the bars G' to each sail. These two bars are made secure at their ends by U-plates *g*. Between them run hinge-rods *g'*. H represents clamping-blocks, having each a lug, *g''*, which enters between the bars G, and is perforated to let the rod *g'* pass through. The clamping-

blocks H are provided with arms *h*, to which are hinged the rods *i*. These rods are hinged at their inner ends to levers *i'* pivoted to a ring, *i''*, passing through the arms E near the hub. To the inner ends of the levers *i'* are hinged the bent arms K, which pass thence to the rear of the hub, and are hinged to a sliding sleeve, L, encircling the wheel-shaft. The sleeve L is grooved, and holds a collar, L', to which are attached two rods, L'', also connected to an upright frame, M, which is pivoted to the vane-shaft *d'*. To the upper end of the frame M is hinged a board or table, N, having an arm, N', through an aperture in which passes the end of brace O, hinged at its lower end to the vane. The wheel is designed to receive the full force of the wind toward its face; consequently, in a high wind the pressure and centrifugal force turn down the forward edges of the sails, and thus present their faces to the direct force of the wind; but in the act of thus turning, the sails, through the medium of the connections described, draw the frame M forward so as to depress the board N and present it also to the force of the wind. The result is a counter-action to a sufficient extent of the effect of the wind on the face of the wheel by the turning of the edges of the sail toward it.

In a light wind the board N is not thrown forward sufficiently to be much affected by its force.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

The collar L', rods L'', frame M, boards N, and brace O, arranged as described, in combination with the sleeve L, hinged sails, and movable connections K *i'* *i*, substantially as and for the purpose specified.

In testimony that they claim the above they have hereunto subscribed their names in the presence of two witnesses.

EDGAR C. LITTLE.
EDWIN D. LITTLE.

Witnesses:

CLARK B. ALFORD,
REUEL ALFORD.