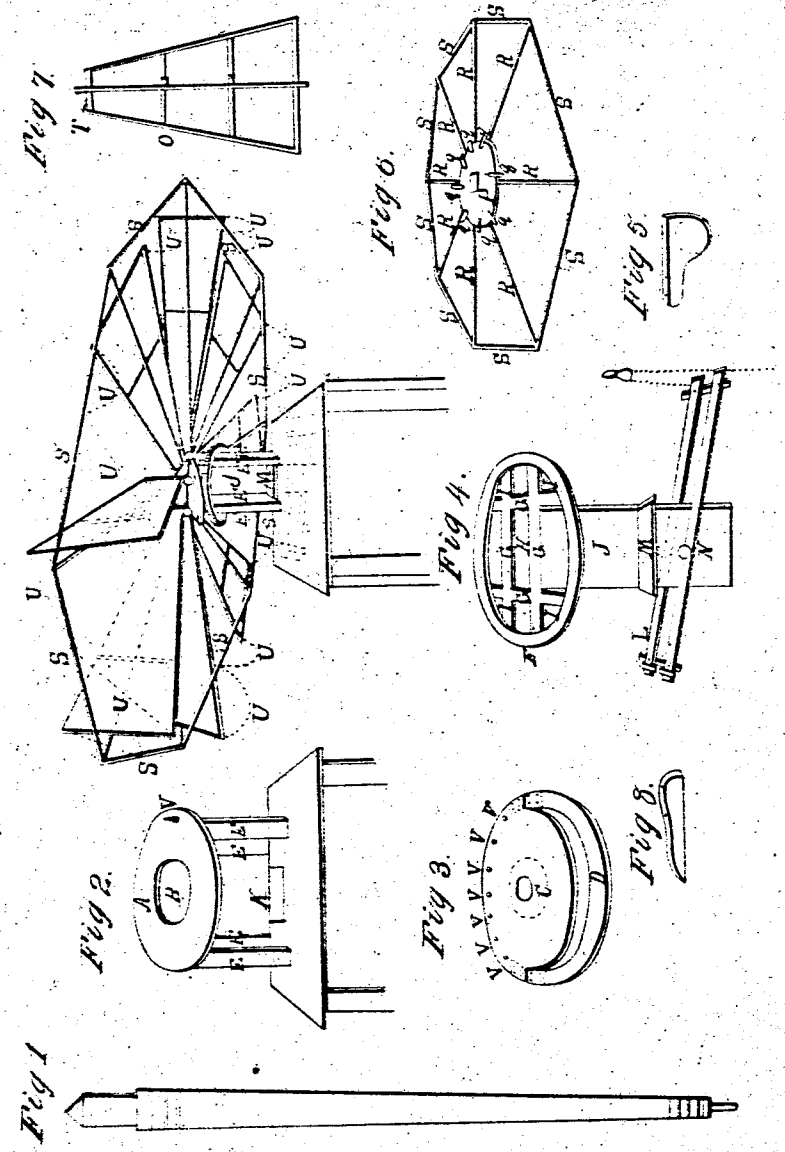
W & T. J. Lewis

Wind Wheel.

No. 583. Patented Jan. 27, 1838.



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WILLIAM LEWIS AND THOMAS J. LEWIS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HORIZONTAL WINDMILLS.

Specification forming part of Letters Patent No. **583**, dated January 27, 1838.

To all whom it may concern:

Be it known that we, the said WILLIAM LEWIS and THOMAS JOHN LEWIS, of Boston, in the county of Suffolk and State of Massachusetts, have jointly invented, constructed, made, and applied to use a new and useful Improvement in the Windmill which we call the "Horizontal Windmill;" and our said invention or improvement is by us plainly and fully specified and set forth in the words and figures following, which may be best understood by reference to the drawings, as follows, to wit:

Figure 1 represents the shaft on which is to be placed the arms and the wings, as represented in Fig. 9. They may be made of any length, according to the power required.

Fig. 2 represents the section of a roof, above which is a platform A with a circular hole B in the center of it for the admission of a circular board C, as represented, underneath the center of the horizontal board, Fig. 3, and to which is attached the double-inclined plane D. This platform A is supported by four uprights E E E E, and on which is to be placed said horizontal board and its double-inclined plane.

Fig. 3 represents the horizontal board and double-inclined plane, attached to it by hinges. Its situation is on the platform A, Fig. 2, where it is securely kept by the circular board C, Fig. 3, underneath its center. Its use is to open and close the wings, which is effected by the raising or falling of the regulator, Fig. 4, viz., when the collar F of the regulator is raised by the operation of the lever L, Fig. 4, parallel to the platform A, Fig. 2, the inclined plane D will be parallel to its horizontal board, Fig. 3. Consequently all the wings will be parallel and horizontal also, and the wind will have no power on them; but on lowering the regulator by the lever L the inclined plane D, Fig. 3, will fall, thus permitting three of the wings to lose their horizontal position and become vertical, and will then receive the full force of the wind, as seen in Fig. 9.

Fig. 4 represents the regulator. It is a collar F, of wood or metal, the same diameter as Fig. 3, resting on four cross-bars G G G G, forming a square hole in the center H. The apertures I I I I, formed by the cross-bars of the regulator, are intended for the uprights E E E E, Fig. 2, to pass through and must be made to move freely upward or downward before the platform A, Fig. 2, is placed on the tops of the uprights E E E E, Fig. 2. The box J is fastened inside the square hole H and descends through the aperture of the section of the roof K, Fig. 2, for the purpose of having a lever L, Fig. 4, attached to it, in order to raise or let fall the double-inclined plane D, Fig. 3, which when the mill is not in motion will rest on it. On this box is a shoulder M, which will prevent its dropping lower than the aperture K, Fig. 2, in the section of the roof, where it is intended to rest when the mill is in motion. The lever L, Fig. 4, is attached to two opposite sides of the box J by pins or screws N, Fig. 4. One extremity is to be fastened underneath the roof, Fig. 2. The other extremity is to be raised or let fall by a pulley for the purpose of raising or lowering the regulator by which the opening or closing of the wings is effected.

Fig. 5 represents a friction-roller. It is to be placed underneath the right-hand corner of the wing O, Fig. 7. Its use is to prevent friction, which would (without it) be caused by the corners of the wings passing round the horizontal board, Fig. 3, and prevents them from jerking when descending and ascending the double-inclined plane D, Fig. 3.

Fig. 6 represents the crown-piece P, Fig. 6, with cleats *q q q q q q q q* attached, the arms R R R R R R R R, Fig. 6, and the bands S S S S S S S S, Fig. 6, by which bands the whole of the frame for the wings is strengthened.

Fig. 7 represents the under side of the frame of one of the wings O with its friction-roller T. They are to be appended to the arms R R R R R R R R, Fig. 6, by wings, so far from their centers of gravity as to cause the right-hand half to fall from their horizontal position when leaving their horizontal board, Fig. 3, and descending the double-inclined plane D, Fig. 3, by which operation they will receive the full force of the wind in succession, and on ascending the left side of the double-inclined plane will again be placed in their horizontal position, cutting the wind and making but little resistance to those which are coming into and receiving its full force.

Fig. 8 represents one of the cleats. They

are to be fixed stationary on the upper side of the crown-piece P, Fig. 6, extending about one-third of their length beyond the periphery of said crown-piece. These are to be so placed that when the wings are successively brought up by the friction-rollers ascending the double-inclined plane D, Fig. 3, to a horizontal position the after part of the wings will strike the projecting ends of the cleats, which will prevent the after part of the wings from rising above a horizontal position.

Fig. 9 represents a general view of the mill as seen from its base, and shows the manner in which the wings are braced and kept firm by the cords or chains U U U U U U U U, Fig. 9, attached to their corners and extended and made fast to the center of each rod or division of the octagon frame S.

The letters V, Figs. 2 and 3, represent holes in the platform and horizontal board, under which is to be an iron pin or screw which is intended to penetrate through the platform into the holes of the horizontal board, by which it is kept in its proper place during the time that the mill is in motion. When a change of wind takes place, the pin or screw must be loosened and the horizontal board moved, so that the wings may receive the force of the wind from its changed point.

The principal advantages of this mill over other windmills are:

First. It may be placed on a building of much less strength than other mills.

Second. It is not so liable to be injured by squalls and high winds, as by raising the lever the wings are all brought into a horizontal position and the mill is instantly stopped.

Third. There will only be (in addition to the wings) one spur-wheel and pinions necessary for the machinery. The large bevel and crown wheels near the top of the shaft in other mills in this mill is unnecessary.

Fourth. By the effect of the horizontal board and its double-inclined plane the counteracting force of the wind (experienced in other windmills) is obviated, the wind only acting on those wings which by the falling of the double-inclined plane are made to receive its full force, while the others traversing the horizontal board are cutting the wind and making but little resistance.

Fifth. There will be a great saving of labor and time in not having to take in or put out cloth, as the wings are permanently covered.

What we claim as our invention or improvement in horizontal windmills is—

The manner in which the opening and closing of the wings is effected, as described and shown in the annexed specification and drawings.

In testimony that the above is a true specification of our invention or improvement we have hereunto set our hands this 14th day of September, in the year of our Lord, 1837.

WILLM. LEWIS.
THOMAS J. LEWIS.

Witnesses:
AUGUSTUS PEABODY,
OLIVER WENDELL WITHINGTON.