2 Sheets—Sheet 1.

D. LAMPSON.

WIND-MILL.

No. 170,676. Patented Dec. 7, 1875.

Fig. 1.

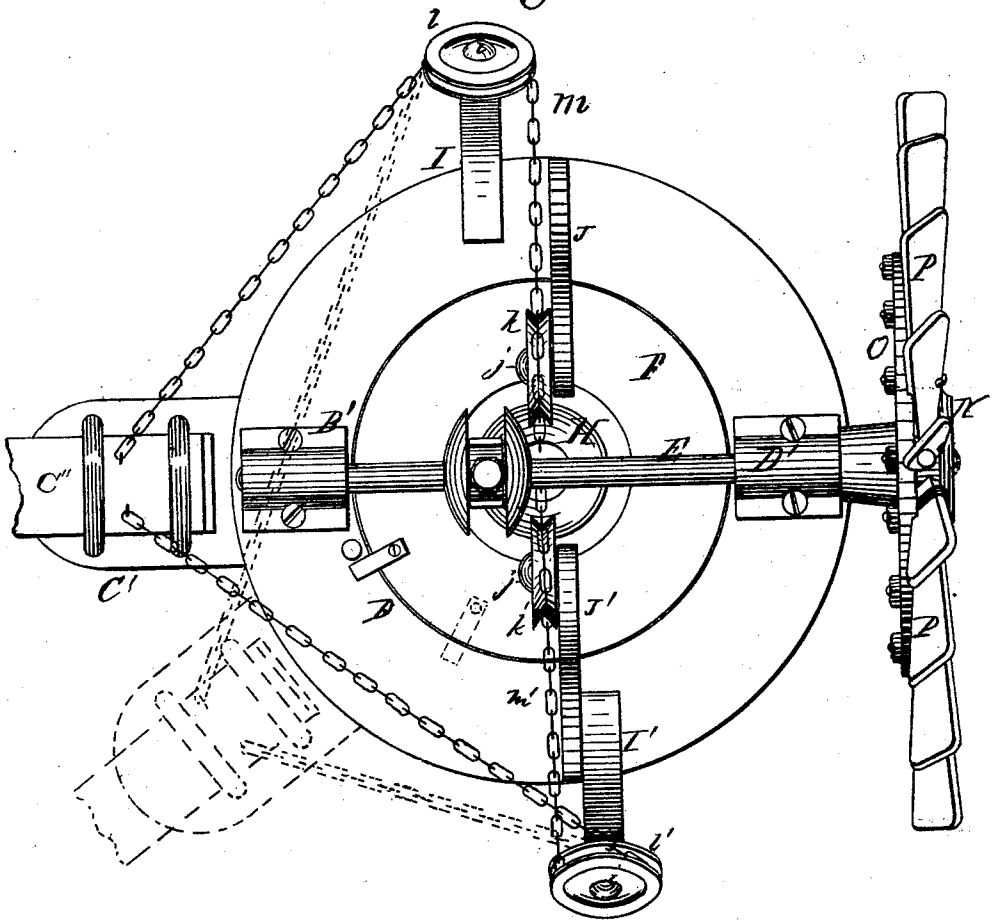
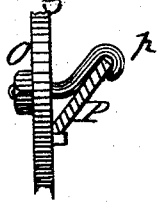


Fig. 4.



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2 Sheets—Sheet 2.

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Fig. 2.

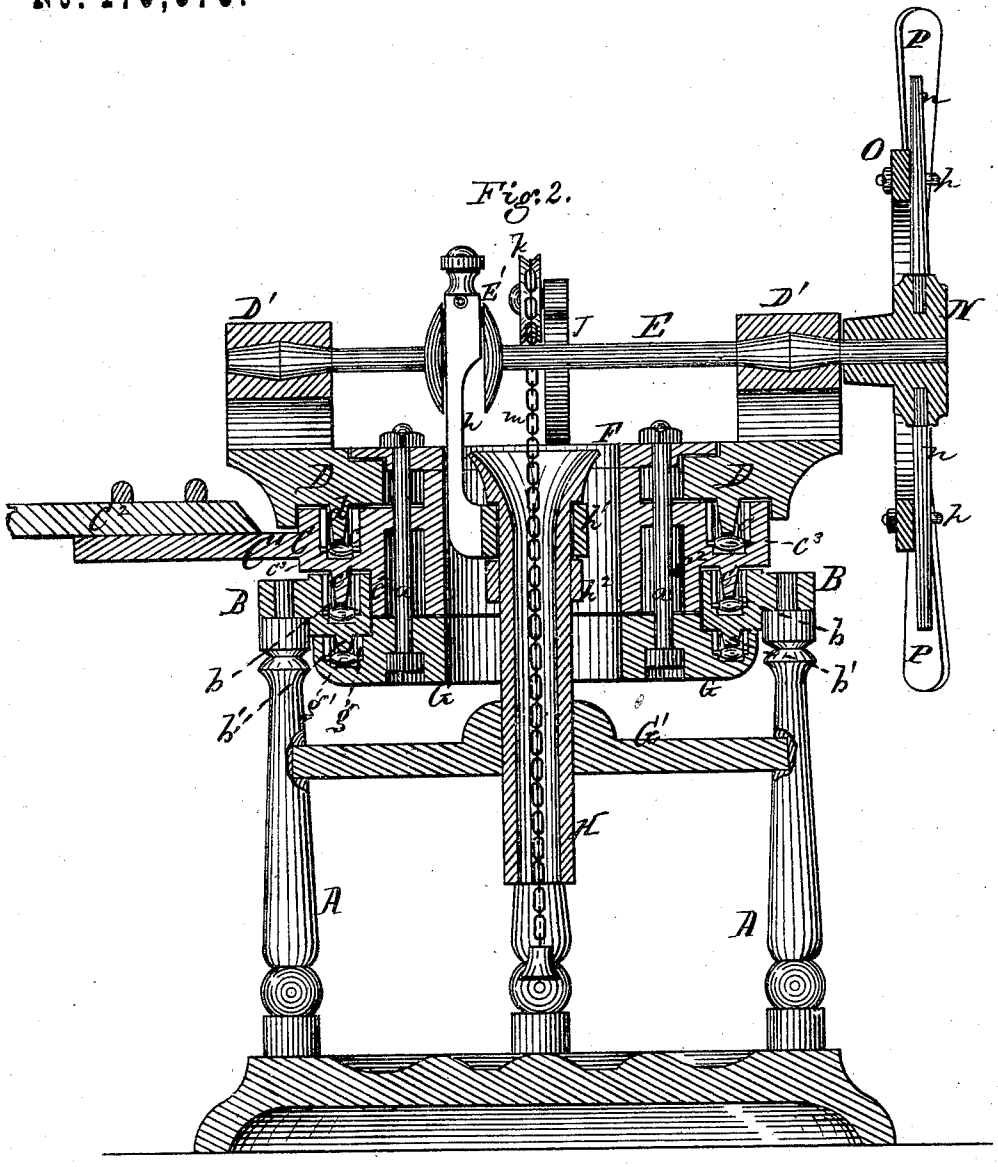
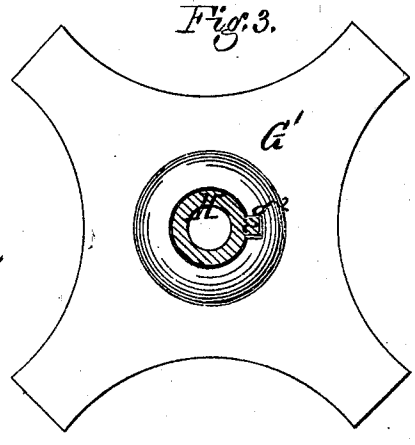


Fig. 3.



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UNITED STATES PATENT OFFICE.

DANIEL LAMPSON, OF ROCKFORD, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO MILTON POTTINGER, OF SAME PLACE.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **170,676**, dated December 7, 1875; application filed April 16, 1875.

To all whom it may concern:

Be it known that I, DANIEL LAMPSON, of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Windmills; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a plan or top view of my improved windmill. Fig. 2 is a vertical section through the same, and Figs. 3 and 4 are detached views of parts hereinafter referred to.

Similar letters of reference denote corresponding parts in all the figures where used.

The first part of my invention relates to a novel construction and arrangement of the turn-table which carries the wind-wheel, whereby the frictional resistance to the movement of the table is greatly diminished, and whereby, also, it is made self-lubricating in those parts which are in frictional contact with each other; and the second part of my invention relates to a novel construction of the wind-wheel, and to the arrangement of means for throwing the same into and out of action, as hereinafter explained.

The tower upon which the windmill is to be placed may be either an ordinary four-post tower, or it may be of any desired construction, and provided at its top with posts or uprights A, upon the upper ends of which is secured a strong annular bed-plate, B, provided on its upper face with an annular groove, *b*, and on its lower face, directly underneath said groove, with an annular rib or flange, *b'*. Near the bottom of the groove *b* is arranged a series of friction-rollers, and upon these rests an annular rib or flange, c^1, formed on the lower face of an annular plate or turn-table, C, placed over the ring B, and, like said ring, provided on its upper face with a groove, *c*. A flange, c^2, formed on the lower face of the plate C, fits snugly within the central opening in the ring B, which thus forms a bearing for the plate C, turning freely therein. The plate or ring C has an arm, C^1, formed upon or rigidly connected with it, to which the vane C^2 (broken away in the drawing) is attached in any convenient manner. The groove *c* has a series of friction-rollers, c^3, mounted in it, as shown, and upon these a third annular plate, D, rests, through the medium of an annular rib, *d*, entering the groove *c*. The plate D is provided with standards D', in which the wind-wheel shaft E has its bearings, and around the central opening in said plate a rabbet is formed to receive an annular plate, F. Underneath the rings B and C is placed another annular plate, G, grooved on its upper face at *g*, and provided with friction-rollers g^1, adapting it to receive and move freely on the rib *b'*, and connected with the plate F by means of bolts *a*, which pass through the rings C and G and the clamping-plate F, and clamp the several rings or plates together, as shown. The ring D is held in place by the plate F and the vertical annular flanges *d* and *d'*, the one entering the groove *c*, as explained, and the other, *d'*, overhanging the outer face of the ring C. By this arrangement the rings C and D are clamped to the ring B in such manner as to permit their free rotation together therein, while at the same time their connection is such as to permit the rotation of the ring D, which carries the wind-wheel shaft, relatively to the ring C, which carries the vane. The grooves *b*, *c*, and *g* are adapted to receive and retain lubricating-oil, which, in connection with the friction-rollers arranged in said grooves, serves greatly to diminish the friction of the parts, and to facilitate their movement relatively to each other. These friction-rollers, made oblong, substantially as shown, are placed radially to the rings, and, by preference, are mounted on shafts having fixed bearings, as shown; but, if desired, they can be allowed to roll freely on the bottoms of their respective grooves. Upon the shaft E is a crank at E', to which a pitman, *h*, is connected, the lower end of which is provided with a sleeve, h^1, surrounding the tubular rod H, and forming a swiveling connection therewith. The tubular rod H, which passes through the central opening in the rings forming the turn-table, is slightly enlarged at its upper end, and made funnel-shaped, and a hub or shoulder formed thereon rests on the sleeve h^1, and below said sleeve the tube is provided with a collar, h^2, the sleeve clasping the tube-rod between the hub

and collar, and imparting a reciprocating motion to said rod. The tubular rod passes through a guiding plate or plates, G′, a feather and groove at g^2 preventing the rotation of the rod. The ring D has arms and standards I I′ and J J′ formed upon or secured to it, having stud-pivots at *i j*, upon which are mounted grooved pulleys *k k′ l l′*, and cords or chains *m m′*, connected with the vane or vane-arm C^1 on opposite sides, pass, the one around the guiding-pulleys *k l*, and the other around the pulleys *k′ l′*, as shown, and thence down through the reciprocating tube-rod H to a point within convenient reach of the attendant, who, by pulling upon one or the other of said cords or chains, can vary the relation of the vane to the wheel, for throwing the wheel more or less into the wind, or entirely out of action, as required.

The wind-wheel, which is keyed to the end of the shaft E, is constructed as follows: N is a hub, provided with fixed radial spokes or arms *n*, to the outer ends of which a broad ring, O, is secured by bolts, rivets, or otherwise. This ring is perforated at regular intervals, corresponding to the width of the fans or blades P, which are secured to the ring O by means of angular hook-bolts *p* passing through the perforations in the ring, and clasping the blades thereto in the angular or oblique relation shown in Fig. 4. The inner edge of the blades rests in notches or grooves, or against ribs formed on the side of the ring, which, in connection with the hook-bolts, serve to firmly grasp and hold the blades to the ring.

The pump-rod or other device or mechanism to be operated by the windmill may be connected with the tube-rod H in any convenient way.

Parts of the mill not specifically described may be constructed in any usual or preferred manner.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent as an improvement in windmills, is—

1. The turn-table carrying the wind-wheel and the tail or vane, consisting of two or more independently-rotating annular plates provided with the annular grooves and the friction-rollers, arranged and operating as described.

2. The grooved annular bed-plate B, in combination with the annular plates C and D, constructed, arranged, and operating substantially as and for the purpose described.

3. The combination of the annular bed-plate B, rings C, D, and G, clamping-plate F, and through-bolts, all constructed and operating substantially as described.

4. The angular hook-bolts *p*, in combination with the ring O, for securing the oblique fan-blades, substantially as described.

This specification signed and witnessed this 2d day of April, 1875.

DANIEL LAMPSON.

Witnesses:
G. W. FORD,
B. E. HOUSE.