

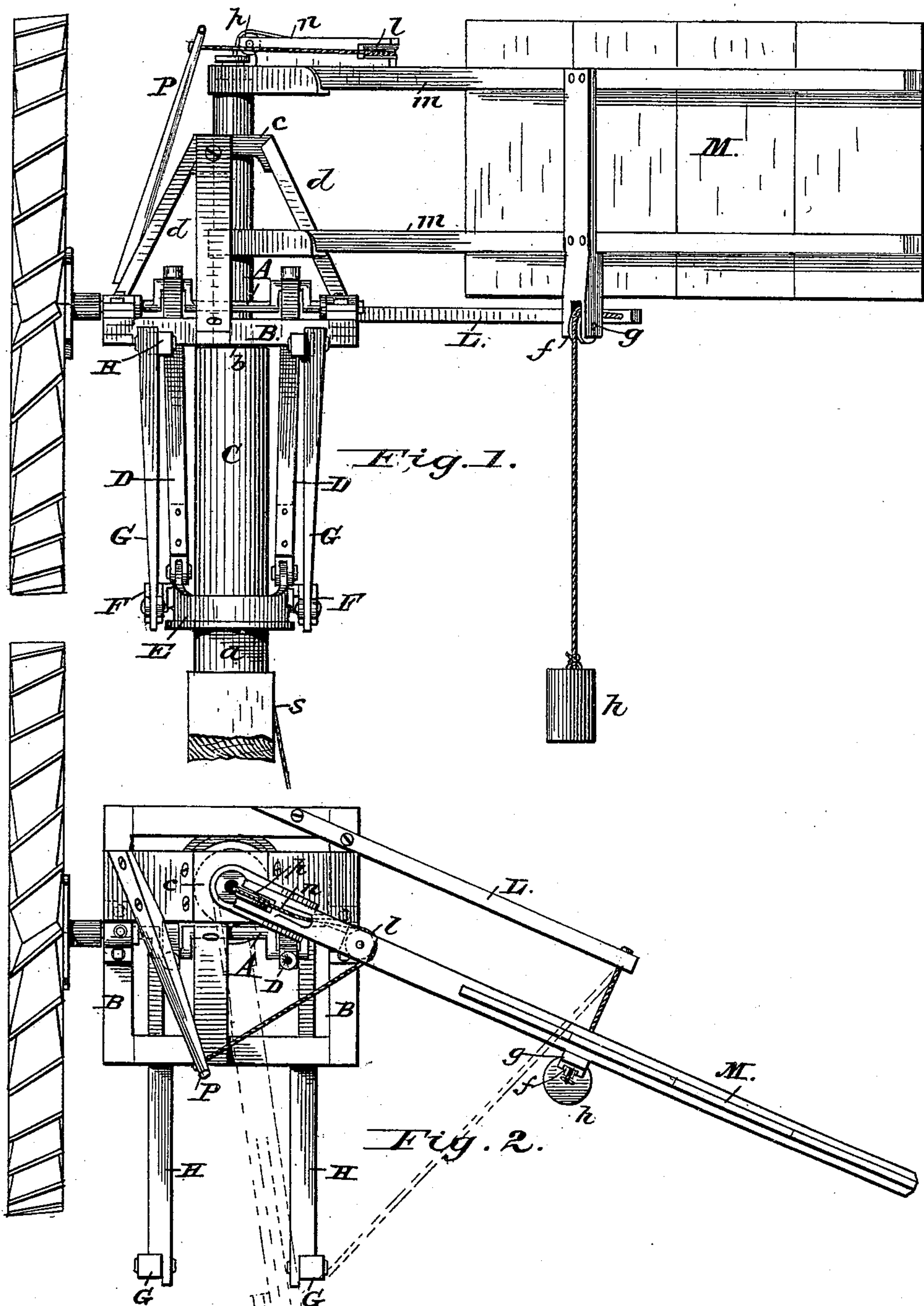
(No Model.)

2 Sheets—Sheet 1.

E. DICE.
Windmill.

No. 230,928.

Patented Aug. 10, 1880.



Attest:
H. D. Perrin
Geo. J. Fennell.

Inventor.
Ephraim Dice,
By A. A. Symon,
Atty.

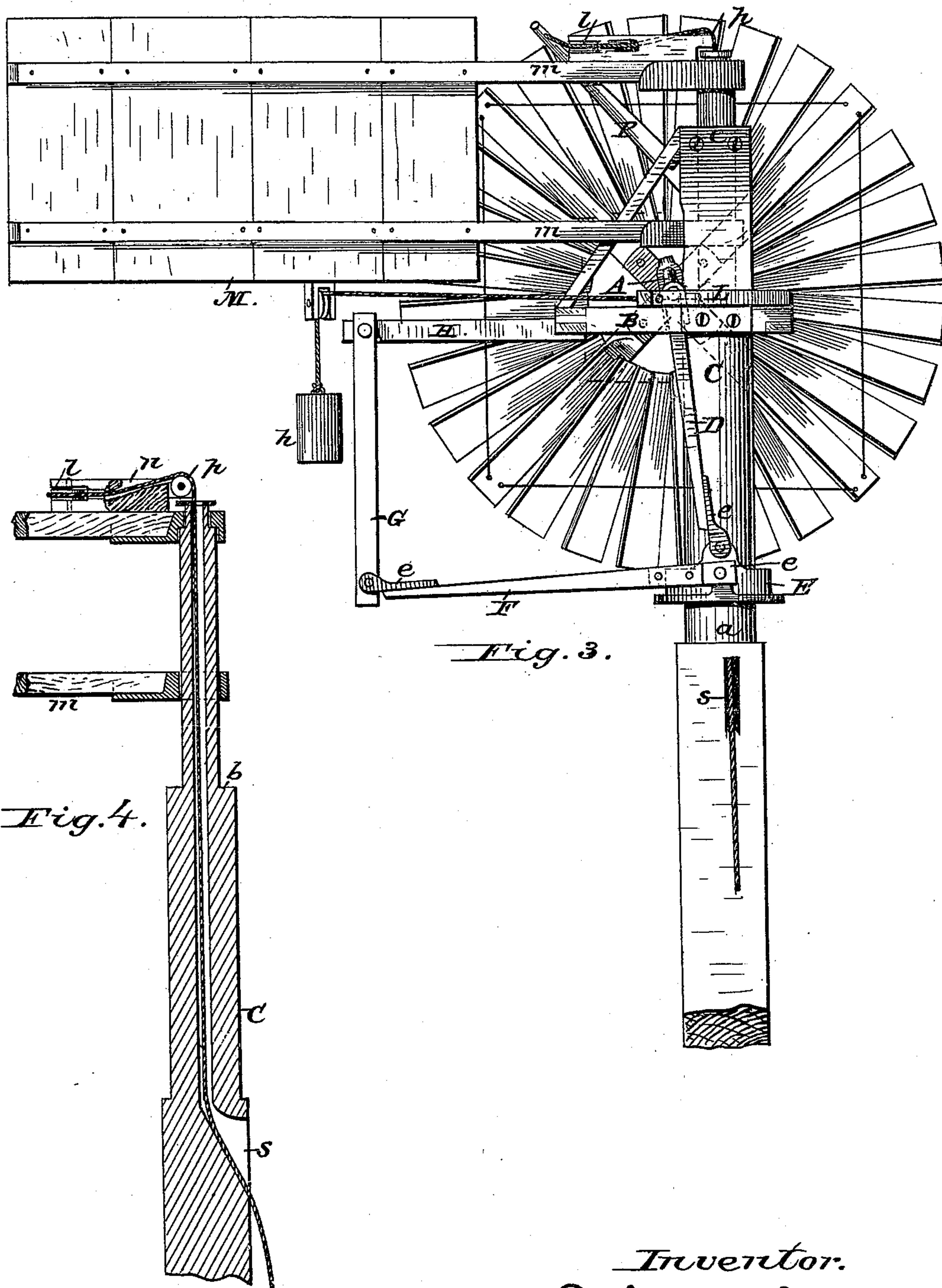
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2 Sheets.—Sheet 2.

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Windmill.

No. 230,928.

Patented Aug. 10, 1880.



Attest:
H. L. Perrin,
Geo. J. Seymour

Inventor.
Ephraim Dice.
By H. A. Seymour,
Atty.

UNITED STATES PATENT OFFICE.

EPHRAIM DICE, OF SCIOTA, ILLINOIS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 230,928, dated August 10, 1880.

Application filed May 31, 1880. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM DICE, of Sciota, in the county of McDonough and State of Illinois, have invented certain new and useful Improvements in Windmills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to certain improvements in windmills, and is intended to provide such a form thereof as will be simple in construction, efficient in operation, and durable in use.

The invention consists, first, in the combination, with a double crank-shaft, two depending pitmen, and a turn-table having bearing on a shoulder of the standard, of a ring loosely fitted about the latter and connected to the lower extremities of the pitmen, horizontal bars connected to opposite sides of the ring at points in line with the pitmen, and vertical bars which connect the outer extremities of said horizontal bars with like horizontal bars projecting from the turn-table; second, in the combination, with a turn-table provided with a vertically-inclined arm projecting laterally from its forward portion, a longitudinally-grooved arm on the vane-bar, and a slotted standard, of a cord or chain connected to the inclined arm at one end, thence passing about a roller and along the grooved arm, thence over a roller and down through the slotted standard, the lower end of the cord or chain extending out through a hole formed in the standard; third, in the combination, with a turn-table provided with a horizontal arm projecting diagonally from its rear portion, a weight cord or chain connected to said arm and passing over a roller journaled in bearings depending from the vane, of a draw cord or chain passing over a roller journaled on the vane-bar and connected to an arm of the turn-table, said weight cord or chain and draw cord or chain being adapted to move the turn-table in opposite directions.

Referring to the drawings, Figure 1 is a view, in side elevation, of the invention. Fig. 2 is a plan view. Fig. 3 is a view in rear-end

elevation. Fig. 4 is a detail longitudinal sectional view of the standard.

The double crank-shaft A, on which a wheel of any suitable construction may be mounted, is journaled on a turn-table, B, the latter being fitted over the standard C, and its lower portion, *a*, having bearing on annular shoulder *b*, formed on the standard. The upper portion, *c*, of the turn-table fits loosely about the standard, and inclined braces *d* connect said upper and lower portions of the turn-table. Two pitmen, D, respectively depend from the cranks of the wheel-shaft, and their lower extremities are connected to opposite side portions of a ring, E, fitted loosely about the standard. Two parallel horizontal bars, F, are connected to said side portions of the ring at points respectively in line with the pitmen, the outer extremities of said horizontal bars being pivoted, respectively, to vertical bars G, whose upper extremities are connected to two horizontal bars, H, which project from the side of the turn-table. The horizontal bars are adapted to rise and fall with the ring E, and serve as guides to prevent the latter from coming in contact with the standard C, thus preventing any undue friction and wear.

Preferably, I make the main portions of the mill of good seasoned wood, and unite such joints thereof as may be desired with metallic connecting-strips. Both extremities of the pitmen and both extremities of the lower pair of horizontal bars are provided with metallic connecting-pieces *e*.

The rear portion of the turn-table is provided with a horizontal arm, L, extending therefrom and having its outer extremity connected to one end of a weight cord or chain, *h*. Said cord or chain passes over a roller, *f*, journaled in bearings *g*, which depend from the vane M. Its lower extremity is provided with a weight. This weight cord or chain tends to move the turn-table in rotary movement upon its bearing-shoulder of the standard in opposite direction to the tendency of the draw cord or chain *h* when the latter is operated. Hence the wheel can be thrown more or less into the eye of the wind, as desired. This draw cord or chain has one end connected to a vertically-inclined arm, P, which extends diagonally from the side of the

forward portion of the turn-table. From this arm the cord or chain passes around a vertical roller, *l*, journaled in the end of an arm, *m*, formed on the upper bar of the vane. It thence
 5 passes through a longitudinal groove, *n*, in said arm, and over a horizontal roller, *p*, down through a slot, *r*, formed lengthwise in the standard.

The lower end of the cord or chain passes
 10 out through a hole, *s*, in the side of the standard. By this device the mill is adapted to automatically adjust itself. The wheel-shaft being located to one side of the standard, the wind exerts a pressure upon the wheel. If
 15 this wind-force against the wheel is sufficiently great to overcome the power and tendency of the weight cord or chain, then the turn-table swings the wheel correspondingly out of the eye of the wind.

20 The different parts of the mill not described as to their specific construction in the claims may be made as desired.

A mill constructed in accordance with this invention is believed to accomplish the several
 25 ends recited in the commencement of the specification in a satisfactory and an admirable manner.

Having fully described my invention, what I claim as new, and desire to secure by Let-
 30 ters Patent, is—

1. In a windmill, the combination, with a double crank-shaft, two depending pitmen, and a turn-table having bearing on a shoulder of the standard, of a ring loosely fitted about
 35 the latter and connected to the lower extremities of the pitmen, horizontal bars connected

to opposite sides of the ring at points in line with the pitmen, and vertical bars which connect the outer extremities of said horizontal bars with like horizontal bars projecting from
 40 the turn-table, substantially as set forth.

2. In a windmill, the combination, with a turn-table provided with a vertically-inclined arm projecting laterally from its forward portion, a longitudinally-grooved arm on the vane-
 45 bar, and a slotted standard, of a cord or chain connected to the inclined arm at one end, thence passing about a roller and along the grooved arm, thence over a roller and down through the slotted standard, the lower end
 50 of the cord or chain extending out through a hole formed in the standard, substantially as set forth.

3. In a windmill, the combination, with a turn-table provided with a horizontal arm
 55 projecting diagonally from its rear portion, a weight cord or chain connected to said arm and passing over a roller journaled in bearings depending from the vane, of a draw cord or chain passing over a roller journaled on
 60 the vane-bar and connected to an arm of the turn-table, said weight cord or chain and draw cord or chain being adapted to move the turn-table in opposite directions, substantially
 65 as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of May, 1880.

EPHRAIM DICE.

Witnesses:

JOHN W. TIPTON,
 J. R. HULL, M. D.