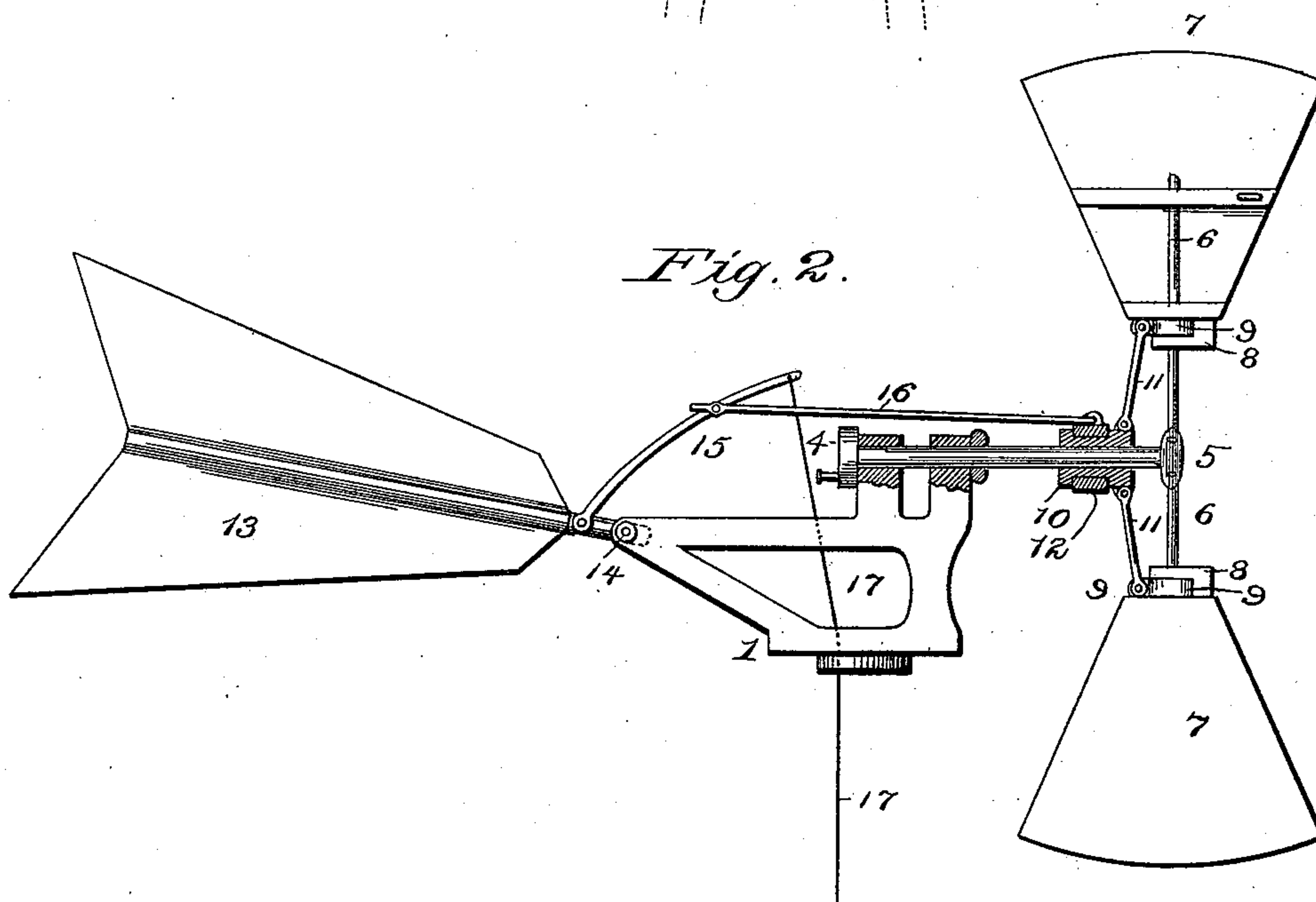
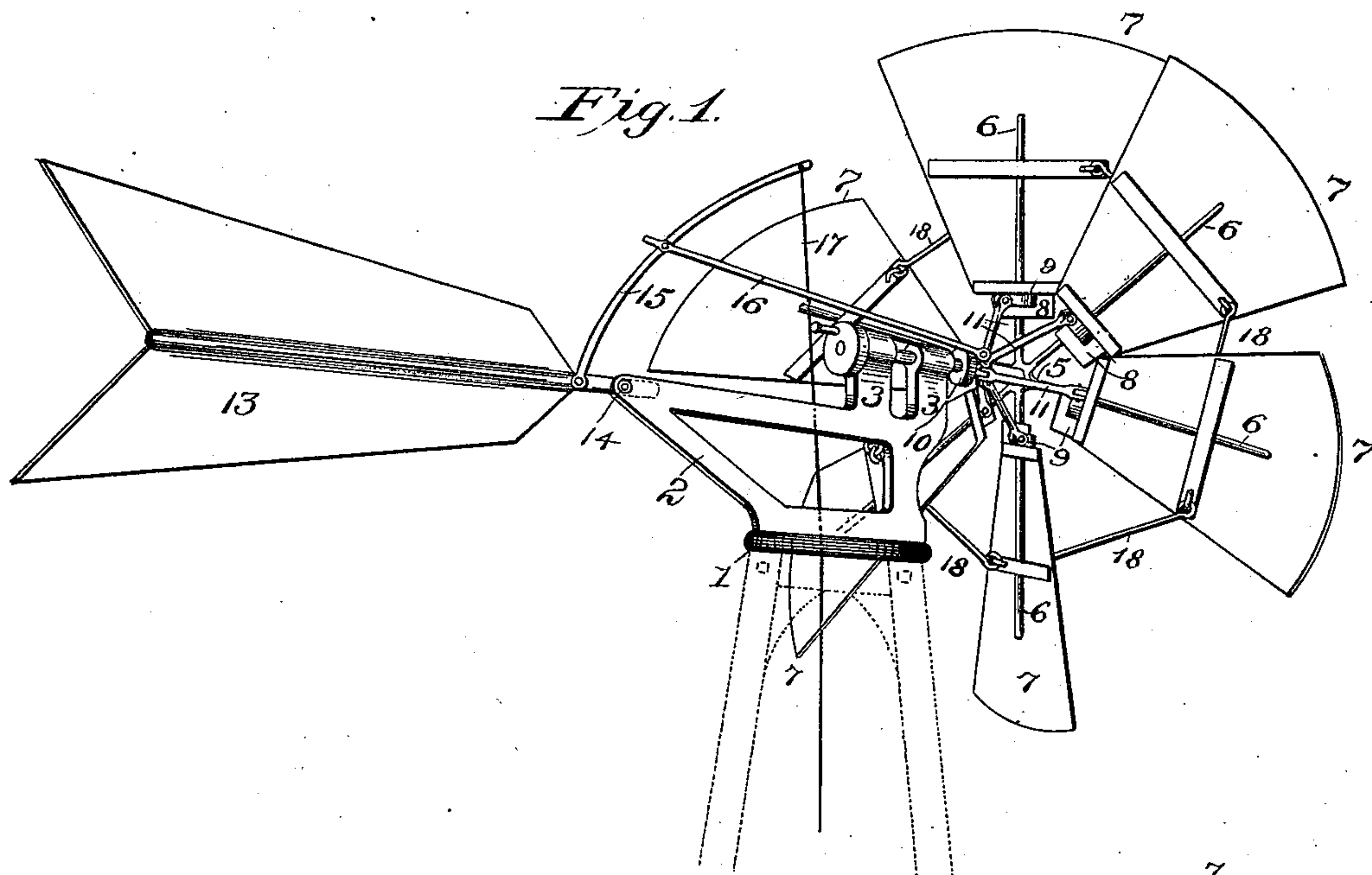


(No Model.)

L. A. HAIGHT.
WINDMILL.

No. 564,561.

Patented July 21, 1896.



Witnesses:
W. S. Cole
Geo. W. Cook

Inventor
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UNITED STATES PATENT OFFICE.

LEVI A. HAIGHT, OF TYNDALL, SOUTH DAKOTA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 564,561, dated July 21, 1896.

Application filed June 3, 1893. Serial No. 476,547. (No model.)

To all whom it may concern:

Be it known that I, LEVI A. HAIGHT, a citizen of the United States, residing at Tyndall, in the county of Bonhomme and State of South Dakota, have invented a new and useful Windmill, of which the following is a specification.

My invention relates more especially to the governing of a wheel having broad wings or blades, and is so arranged that the centrifugal force of the wheel directly controls the amount of surface the wings shall present to the wind, thereby preserving a uniform degree of speed and at the same time utilizing the full power of the wind when it is required to do heavy work, and without attaining any greater speed when the work is light or allowing any more wind-pressure at any time upon the wings than is required to do the work; also to simplify and cheapen the cost of manufacture.

To these ends my invention consists in the novel arrangement and construction of parts as herein described and claimed.

In the drawings, Figure 1 is a side view of a windmill constructed in accordance with this invention, having the wings turned to the wind as in operation. Fig. 2 represents a central section showing the position of the parts when the wings are thrown out of the wind, and illustrates more fully the mechanism for that purpose.

In further reference to the drawings, 1 designates the top portion of a tower, having mounted thereon a frame 2, secured to or forming a turn-table. The turn-table and head of the tower is provided with a central vertical opening through which is transmitted power by any approved connection with the shaft of the wind-wheel. The opening further affords space for the extension of a wire or cord to the bottom of the tower, by means of which the blades are thrown out of the wind when desirable.

Journalled in suitable bearings 3 at the top of the frame 2 is a shaft 4, carrying a wind-wheel at its outer end consisting of a hub 5 and spokes 6, also wings or blades 7 and certain other attachments presently to be described. The spokes are each made to carry a wing which is centrally pivotal and longitudinally movable thereon. The inner end

edges of the wings are provided with ears 8, extending toward the hub and forming also a rearward extension through which pass the spokes, leaving thereunder a space for a collar 9, which fits around the spokes. The ears thus constitute a locking device, so that the wings cannot be moved longitudinally except in connection with the collar which is adapted for that purpose.

The shaft is provided with a disk or sleeve 10, having projecting lugs on the forward end, in number corresponding with the number of spokes in the wheel. The collars are also provided with projecting lugs to connect them with the sleeve by rods 11, so that when the sleeve is moved along the shaft the collar is forced along the spokes toward or from the hub of the wheel, moving the wings therewith. The sleeve 10 is also provided with a circumferential groove, in which is fitted a yoke 12. The sleeve rotates with the shaft and the yoke is used to provide means for moving the sleeve longitudinally on the shaft.

13 represents a vane secured to the rear end of the framework of the turn-table by a pin or bolt 14, which allows the outer end of the vane to be raised or lowered by a bar or lever 15, to which is attached a rod 16 connecting it with the yoke 12, so that the weight of the vane pulls back on the sleeve and tends to draw the wings toward the hub. In lieu of the vane a weight or spring may be used to operate substantially for the same purpose. The bar 15 is made to extend beyond the point where it is attached to the rod 16, and to the end of said bar is secured a wire or cord 17, by means of pulling down on which the outer end of the vane is lifted, thereby sliding the sleeve 10 toward the hub and forcing the wings outward. The wings are connected together near their forward edge by a series of rods 18, secured by eyebolts or properly swiveled. This arrangement of the rods will admit, when the wings are face to the wind, of the expansion of the wheel to an extent sufficient to throw the wings edge to wind. Thus it will be seen that when the centrifugal force of the wheel is sufficient to overcome the weight of the vane the wings will slip outward on the spokes, which form their pivotal bearing, and they will turn to receive less wind.

Having thus fully described my invention, I claim—

1. In a windmill the combination with the wheel having radial spokes extending from the hub thereof and having the wings 7 centrally pivoted and longitudinally movable thereon, a series of rods 18 connecting said wings together, whereby said longitudinal movement operates to turn the wings on their
10 pivotal bearing.

2. In a windmill the combination with the wheel having radial spokes extending from the hub thereof and having wings 7 centrally pivoted and longitudinally movable on said
15 spokes, and having a series of rods 18 connecting said wings together whereby said

longitudinal movement operates to turn the wings on their pivotal bearing, a tail-vane pivoted so as to be capable of vertical movement and the connections of the wings with
20 the vane consisting of collars 9 rods 11 sleeve 10 yoke 12 rod 16 and bar 15 whereby the centrifugal force of said wheel tends to lift the outer end of the vane and regulate the speed substantially as described. 25

In testimony that I claim the foregoing as my own I have affixed my signature in presence of two witnesses.

LEVI A. HAIGHT.

Witnesses:

D. W. CURRIER,
T. M. HITT.