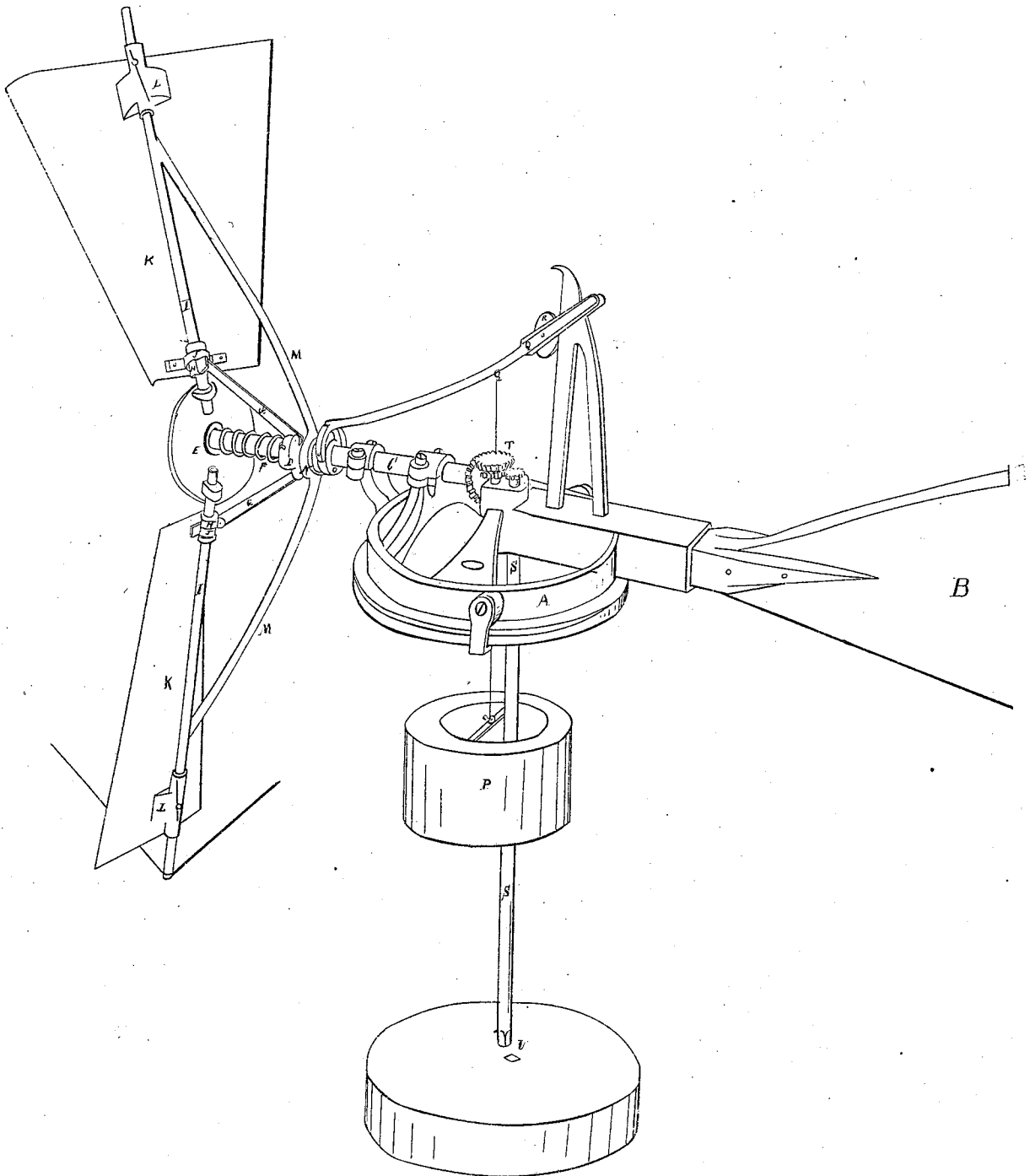


A. F. Brown.
Wind Mill.

No 13156.

Patented July 3. 1855.



Witnesses:

J. V. Stone
J. F. Stent

Inventor:

Adams P. Brown

UNITED STATES PATENT OFFICE.

ADDISON P. BROWN, OF BRATTLEBORO, VERMONT.

SELF-REGULATING WINDMILL.

Specification forming part of Letters Patent No. 13,156, dated July 3, 1855; Reissued October 25, 1870, No. 4,169.

To all whom it may concern:

Be it known that I, ADDISON P. BROWN, of Brattleboro, in the county of Windham and State of Vermont, have invented a new and Improved Self-Regulating Windmill; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in three elements of difference from other wind mills—namely, my mode of turning the fans edge-wise when the velocity is too much increased; my mode of turning said fans edgewise when the wind suddenly strikes the wind mill even before it shall acquire its troublesome velocity; and my mode of gearing a shaft and drum or other rotary motion to the mill without impeding the free action of the vane or weathercock, or permitting the fans being presented to the wind.

In the annexed drawings, A, is the turn-table which supports the wind-mill and on which it freely turns from the effect of B, the vane or weathercock.

C, is the main shaft.

D, is a hub firmly fixed on the main shaft and neither sliding nor turning upon it after being properly adjusted by a screw.

E, is the principal hub by which the fans are carried. It is allowed to slide on the main axis, but is prevented from turning on it, and the latter is compelled to turn with this hub by a loose key and spline or slot.

F, is a spiral spring the force of which tends to separate the sliding hub E from the stationary hub D.

G and G are stiff bars of metal which connect by hinges at either end, the stationary hub D with H and H, thimbles which slide on I, the arms which carry the fans.

J and J are hinges which clasp and turn on the thimbles H but are firmly attached to K, the fans; L, the outermost hinge on each arm is heavy being virtually a weight the centrifugal force of which will govern the fan. This outer hinge is also a thimble inclosing the arm and having in it a helical slot with a pin in the arm, which turns the fan edge wise when the centrifugal form of the weight L is increased by any acceleration.

M and M, are braces which extend from

the arm I to N, a sliding hub on the other side of the stationary hub D.

O, is a sliding washer pressed up against the hub M by means of P, a weight suspended from Q, a jointed sliding brace; (or from a bent lever) thus enabling the operator to reinforce the spiral spring F to any desired amount by increasing the weight.

R, is a friction roller to secure the free motion of the sliding brace.

Any sudden impetus of the wind moves the two sliding hubs E and N, overcoming the spring F and lifting the weight P, and the bars G by means of their thimbles H push the fans K farther out upon their respective arms, while the helical slot and pin at L turns each fan simultaneously edgewise to the wind to an extent or degree proportionate to the force of the impetus. Any more gradual but still excessive acceleration of the wind mill corrects itself by means of the same helical slots at L. The weight of the fans K increased as much as may be needed by the weight of the outer hinges, at L secures (in such a case of acceleration) a centrifugal force which will slide the fans farther out on the arms, and by means of the helical slots turn the fans edge-wise: In this latter case the bars G pull upon the thimbles H on which the inner hinge of each arm turns, and this pulling overcomes the spring F and lifts the weight P; and inasmuch as the thimbles H on each of the arms are tied to the same hub D, a uniformity and concert in their motion is secured.

To prevent the gearing causing any counteraction of the vane I gear the main shaft C to the working shaft S by means of an intermediate wheel T, the perpendicular axis of which coincides with that of the turn table A, allowing the main shaft and its vertical wheel to act on one side of this contact wheel while the working shaft is geared to the opposite side thereof, or rather to the opposite side of a smaller wheel fixed on the same axis—so adjusting the relative size of these wheels that their opposite action shall balance each other, on either side of the center of the turn table and leave it unimpeded in its obedience to the vane. Inasmuch however as the working shaft would at its upper end in the turn table have an exclusive motion, I allow its lower end U to terminate in a short square

key capable of standing in a central mortise in a drum or other horizontal wheel which does the work in the building below.

What I claim as my invention and desire to secure by Letters Patent is as follows:

1. The helical slot and pin as a means of governing the degree of obliquity of the fans to the wind.

2. The combination of weights with the helical slots and pins, combined and operating in the manner and for the purpose herein specified.

ADDISON P. BROWN.

Witnesses:

J. D. BRADLEY,

J. F. STEEN.

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