

(No Model.)

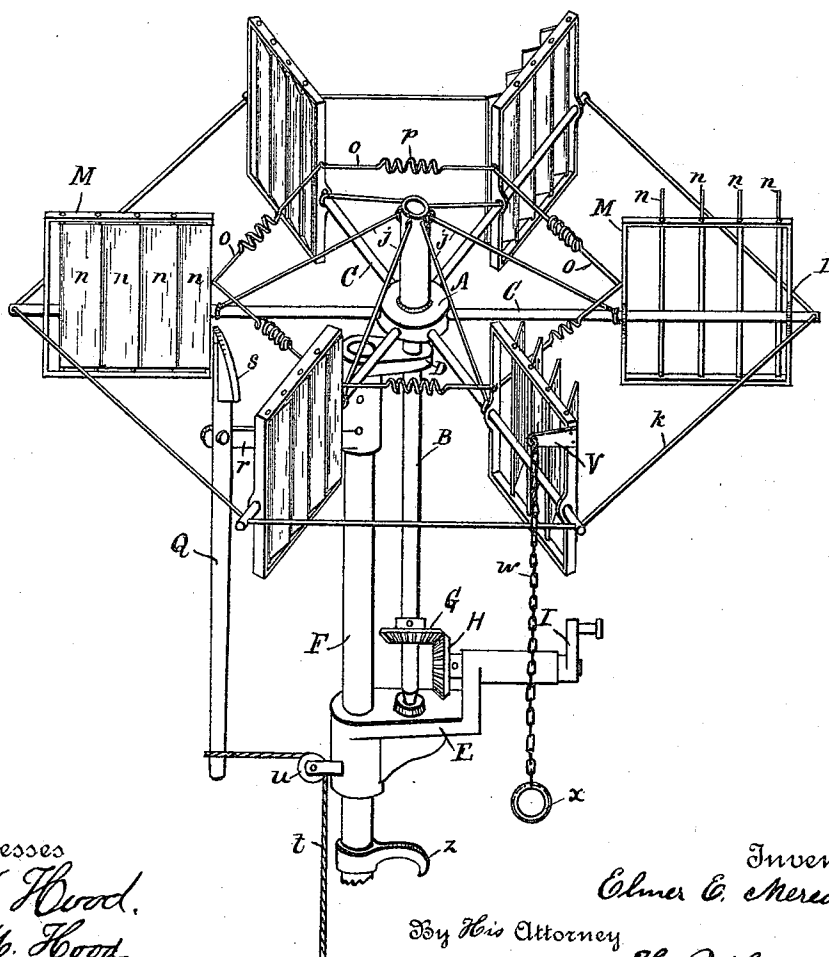
2 Sheets—Sheet 1.

E. E. MEREDITH.
WINDMILL.

No. 440,266.

Patented Nov. 11, 1890.

Fig. 1.



Witnesses
S. H. Hood.
V. M. Hood.

Inventor
Elmer C. Meredith
By His Attorney
H. P. Hood.

(No Model.)

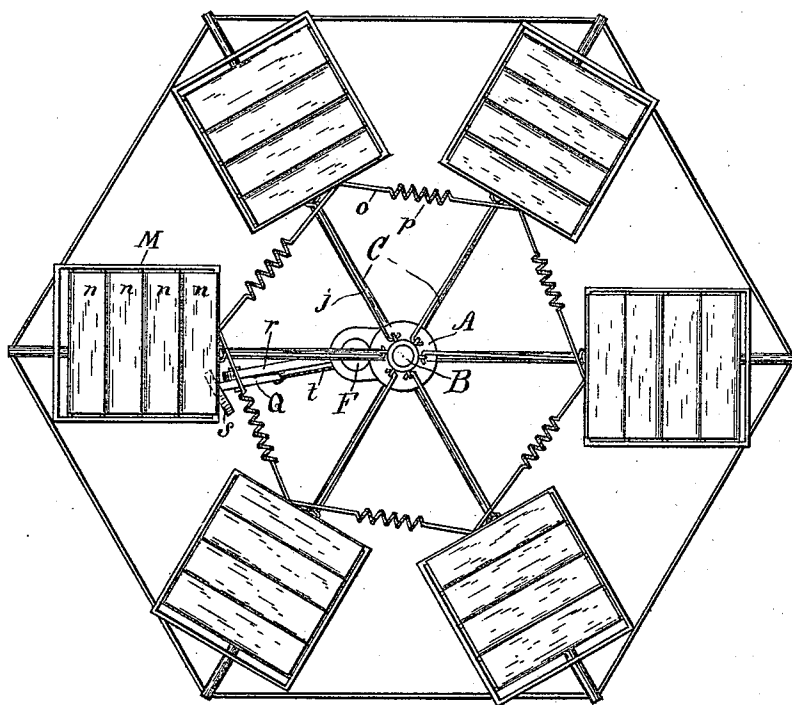
2 Sheets—Sheet 2.

E. E. MEREDITH.
WINDMILL.

No. 440,266.

Patented Nov. 11, 1890.

Fig. 2.



Witnesses

S. K. Hood.
V. M. Hood.

Inventor
Elmer E. Meredith

By His Attorney

H. P. Hood.

UNITED STATES PATENT OFFICE.

ELMER E. MEREDITH, OF ROCHESTER, INDIANA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 440,266, dated November 11, 1890.

Application filed October 23, 1889. Serial No. 327,969. (No model.)

To all whom it may concern:

Be it known that I, ELMER E. MEREDITH, a citizen of the United States, residing at Rochester, in the county of Fulton and State of Indiana, have invented a new and useful Improvement in Windmills, of which the following is a specification.

My invention relates to an improvement in that class of windmills in which the several sails are hinged to horizontal radial arms swinging thereon in a vertical plane, so as to regulate the rate of the movement of the wheel by turning the sails at a greater or less angle to the plane of rotation of the arms.

The objects of my improvement are to dispense with a vane and a governor, to provide means whereby the position of the sail is automatically adjusted to the force of the wind, and to provide means for stopping the wheel at the will of the operator, all as hereinafter fully described.

The accompanying drawings illustrate my invention.

Figure 1 represents a view in perspective of my improved windmill in working position. Fig. 2 is a plan showing the position of the sails when at rest.

The wheel consists of a hub A, rigidly secured to a vertical shaft B, and having a series of horizontally-radiating arms C C. Shaft B is mounted in suitable bearings D and E on the mast F, and is provided with a miter-gear wheel G, which intermeshes with a corresponding gear-wheel H, and thus imparts motion to the horizontal crank-shaft I. Arms C are supported by braces j, and are stiffened laterally by braces k. The sails L, of which there is one to each arm C, each consists of a rectangular frame M, preferably formed of wrought-iron and having its open interior space filled with a series of light slats n n, preferably of sheet-iron, each pivoted at one edge to the frame, so as to swing freely thereon and arranged so that the free edge of one slat overlaps the pivoted edge of the next. Frames M are hinged to arms C, so as to swing easily thereon in a vertical plane, and the arrangement of the hinge is such that the surface of the sail is unequally divided above and below the arms. As shown, the larger surface is above the arm; but it may be below instead, the purpose being to cause the sail to be turned on the arm by the unequal

pressure of the wind. This tendency of the sails to turn on the arms is resisted, and the sails are held normally in an upright position by elastic coupling-rods o o. A portion of each rod consists of a spiral spring p, and the arrangement is such that the sails are all connected on their longer side, and must consequently all swing together on their respective arms.

For the purpose of turning the sails on their arms at the will of the operator, I pivot to an arm r, projecting from the mast below the wheel, a lever Q, having on its upper end a cam-shaped wing s, the arrangement being such that the cam s stands normally out of the path of the lower part of the sail, its upper end just clearing the arms C. A cord t, secured to the lower end of the lever and passing downward over a pulley u, enables the operator to throw the cam s into the path of the sails, which, coming in contact with the cam, are turned to a horizontal position, and the wheel stopped.

For the purpose of holding the sails in a horizontal position and the wheel at rest, I secure to the upper edge of one of the sails a short arm V, from which a chain w depends, terminating in a ring x, which engages hook z, secured to the mast.

It will be understood that the frames M are all hinged to the same side of the arms C, and that the slats n swing outward from the arm, so that in whatever direction the wind strikes the wheel the slats in the sails are closed on one side of the center, while those on the other side are swung open by the wind, thus destroying the balance of force on the wheel and setting it in motion.

So long as the force of the wind is moderate the tendency of the sails to turn on their respective arms is resisted by the springs p, as before explained, and the sails retain an upright position at right angles to their path of revolution and wind-current; but when the force of the wind increases, the tension of the spring is more or less overcome and the sails are inclined at a greater or less angle to the wind-current and the movement of the wheel is thereby regulated. By this construction a wheel is provided which may be cheaply made, and which has no need of a vane or special governing mechanism.

I claim as my invention—

In a windmill, the mast, the wheel having radial arms and mounted on the mast so as to rotate in a horizontal plane, the sails each
5 consisting of a rectangular frame pivoted eccentrically to one of the radial arms and having its open interior space filled with a series of light slats, each pivoted at one edge to the
frames so as to swing freely thereon, the springs
10 connecting said frames and arranged to hold

them normally in a vertical position, arm *r*, projecting from the mast below the wheel, lever *Q*, pivoted to the arm and provided with a cam-shaped wing *s* and projecting into the path of the sails, all combined and arranged 15 to co-operate substantially as specified.

ELMER E. MEREDITH.

Witnesses:

M. L. ESSICK,
HARRY BERNETHA.