

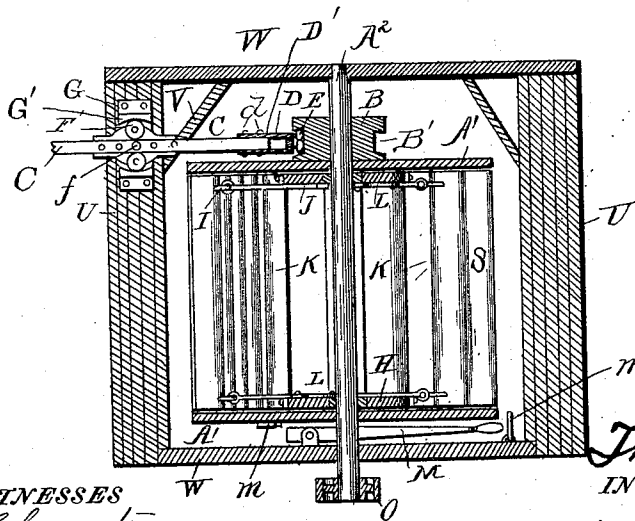
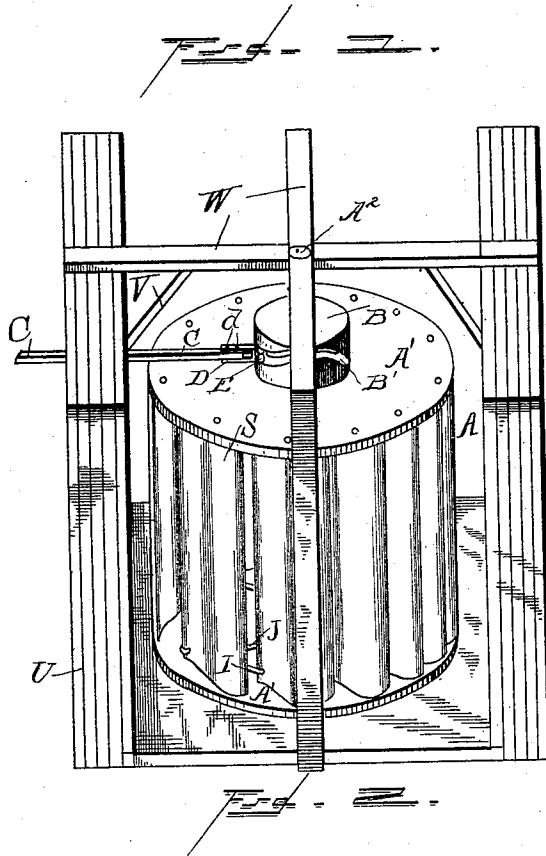
(No Model.)

2 Sheets—Sheet 1.

# T. PEPPER. WINDMILL.

No. 455,858.

Patented July 14, 1891.



WITNESSES  
*A. J. Schwartz*  
*A. E. Grant*

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 INVENTOR

By *W. J. Fitzgerald*  
 Attorney

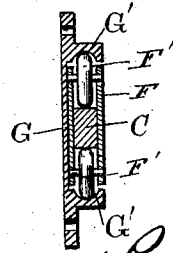
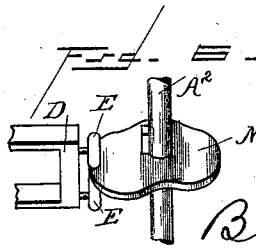
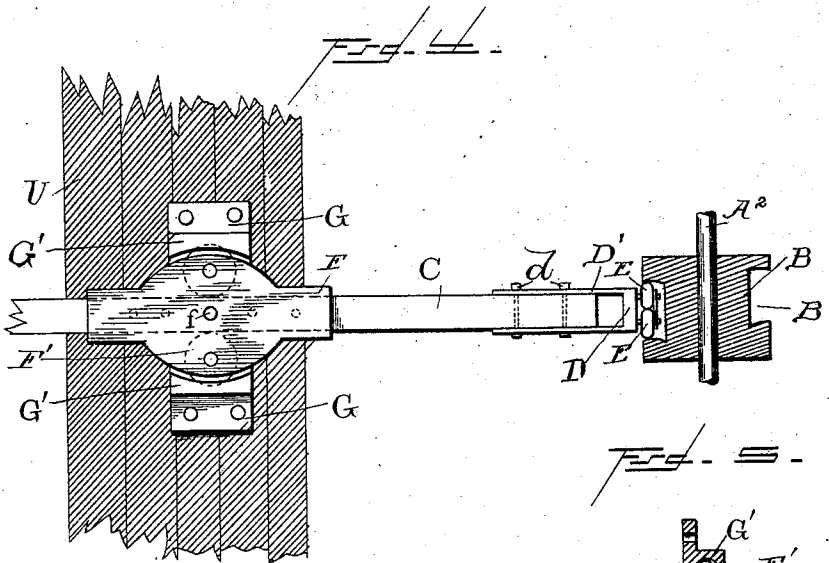
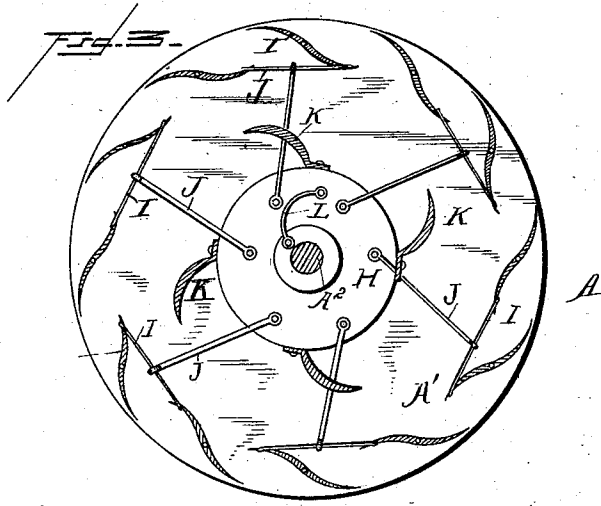
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2 Sheets—Sheet 2.

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WINDMILL.

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WITNESSES  
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 Attorney

# UNITED STATES PATENT OFFICE.

THOMAS PEPPER, OF SAN DIEGO, CALIFORNIA, ASSIGNOR OF THIRTY-FIVE FORTY-EIGHTHS TO H. T. CHRISTIAN, EDGAR W. BURNHAM, AND HENRY B. SHEPPARD, ALL OF SAME PLACE.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 455,858, dated July 14, 1891.

Application filed May 24, 1890. Serial No. 353,090. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS PEPPER, a citizen of the United States, residing at San Diego, in the county of San Diego and State of California, 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 appertains to make and use the same.

My invention consists in certain new and useful improvements in a wind-wheel, which will be hereinafter fully described and claimed.

Referring to the accompanying drawings, Figure 1 is a perspective side view of my new and improved wind-wheel motor. Fig. 2 is a central vertical sectional view of the same. Fig. 3 is a horizontal sectional view of the wind-wheel. Fig. 4 is a side view, on an enlarged scale, of the walking-beam and its adjacent parts. Fig. 5 is a sectional view taken on line 5 5 of Fig. 4, and Fig. 6 is a detail view of a modification hereinafter described.

The same letters of reference indicate corresponding parts in all the figures.

Referring to the several parts by letter, A indicates the wind-wheel, which is preferably pivotally mounted in a frame composed of the cross-beams W and the inclined braces V, and having the wind-shields U, formed of vertical planking, as shown. In a circle *a* between the outer circumferences of the heads A' of the wind-wheel are pivoted and work a series of blades or fans S, which are curved so as to be somewhat S-shaped in cross-section, and are pivoted at the center of their ends, as shown.

The drum or wheel A is secured upon a vertical revolving shaft A<sup>2</sup>, and upon this shaft, upon the top of the drum, is secured a circular cam-block B, which is formed with the curved cam-groove B'.

C indicates a walking or vibrating beam, which is pivotally mounted, as hereinafter described, usually in the casing U, and to the inner end of this beam is secured a block or casing D, in which are journaled two anti-friction rollers E E, arranged vertically one

above the other, and these rollers travel in the curved groove B' of the cam-block B, which is secured on the wheel-shaft. To the casing D are secured arms D', which are formed with a series of apertures and extend on both sides of the walking-beam, as shown, to which they are secured by bolts *d*, and a sufficient space is left between the end casing and the end of the beam to permit of the beam being adjusted in and out between the said arms to regulate the length of the stroke of the beam.

Upon the central part of the walking-beam is secured by a transverse bolt *f* a sleeve-box F. In this sleeve-box are pivoted the upper and lower anti-friction rollers F' F', which work between curved bearing flanges or ways G', formed on the side of a bracket-plate G. These ways G' G' are curved not only longitudinally, but also transversely, as shown in Fig. 5, thus retaining the sleeve-box F in position, while the friction is reduced to the minimum. It will thus be seen that as the wind-wheel revolves the anti-friction rollers E E on the inner end of the walking-beam traveling in the cam-groove B' of the block B, which groove is curved, as shown, will alternately raise and lower the inner end of the walking-beam, which will turn freely on its fulcrum-point, and will thus be rapidly reciprocated, giving an up-and-down motion to its outer end, which is connected to the pump or other object to which such vertical motion is to be applied.

Upon the vertical wheel-shaft A<sup>2</sup> is loosely mounted, within the circle of the fans or blades, a disk H. Each pair of fans are pivotally connected at their inner ends by coupling-rods I, and to the center of each of such rods is pivoted the outer end of a rod J, the inner end of which is pivoted on the disk H, as shown. To this disk are rigidly secured the curved inner fans K, and the operation of this mechanism is as follows: In case of a storm the unusual pressure of the wind blowing against the curved faces of the storm-fans K will cause the said fans to turn, carrying with them the inner disk H, and as the inner ends of the rods J are pivoted to this disk it will be seen that the outer blades F will be

turned by the rods I and J, so as to present their edges to the heavy wind, thus automatically bringing the wind-wheel A to a stop. When the storm decreases, the disk II is turned back automatically to its normal position by a spring L, the inner end of which is connected to the shaft A<sup>2</sup>, while its outer end is connected to the independent disk II, as shown. Should any of this inner automatic mechanism fail for any reason to work, the wheel A can be instantly stopped by means of a brake-lever M, which is pivoted on the lower cross-beam W, as shown, so that by pressing down its handle end its outer end will catch in a recessed block m, secured on the lower head of the wheel A, and the motor will thus be brought to a complete stop and held rigidly until released from the brake. The brake can be held in its locked position by slipping a pivoted bail m' over its handle end.

Instead of the block B, provided with the curved cam-groove B', I may substitute a cam-plate N, curved, as shown, and secured on the wheel-shaft A<sup>2</sup>, in which case the anti-friction rollers E E at the inner end of the walking-beam are arranged on the end of the casing D sufficiently far apart to enable the edge of the cam-plate to enter freely between them, as shown in Fig. 6.

On the projecting lower end of the wheel-shaft A<sup>2</sup> a suitable pulley O may be secured, around which may be passed a belt for transmitting power.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that my new and improved wind-wheel motor is simple, strong, and durable in its construction, and can be made and

sold at a comparatively small cost, while it is very effective in its operation, the revolving wheel A and grooved cam-block B reciprocating the walking-beam with great power.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the pivoted shaft A<sup>2</sup>, the heads A', the series of pivoted blades S, the inner independent disk II, the coupling-rods I, pivotally connecting the inner ends of the pairs of blades, the connecting-rods J, pivoted to the rods I and to the disk II, the storm-fans K, secured to the disk II, and the spring L, substantially as and for the purpose set forth.

2. The combination of the head-plates A' and the curved blades S, S-shaped in cross-section and pivoted at the center of their ends between the said head-plates, substantially as set forth.

3. The combination of the pivoted shaft A<sup>2</sup>, the heads A', the pivoted blades S, the independent disk II, the connecting-rods I and J, the storm-fans K, secured to the inner disk, and the spring L, the grooved cam-block B, the walking-beam pivotally supported near its center and having at its inner end the rollers running in the groove of the cam-block B, the recessed block m, secured to the lower wheel-head, and the brake-lever M, substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS PEPPER.

Witnesses:

A. B. SMITH,  
A. FOORD.