

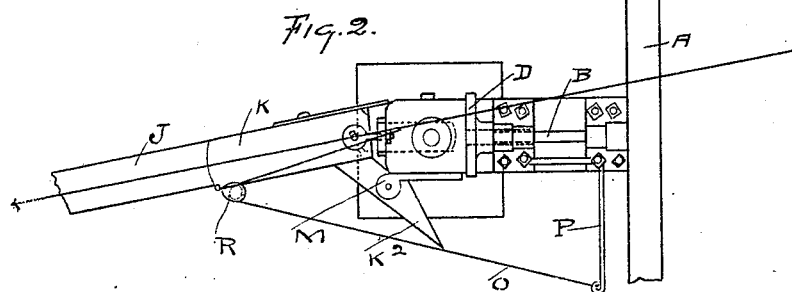
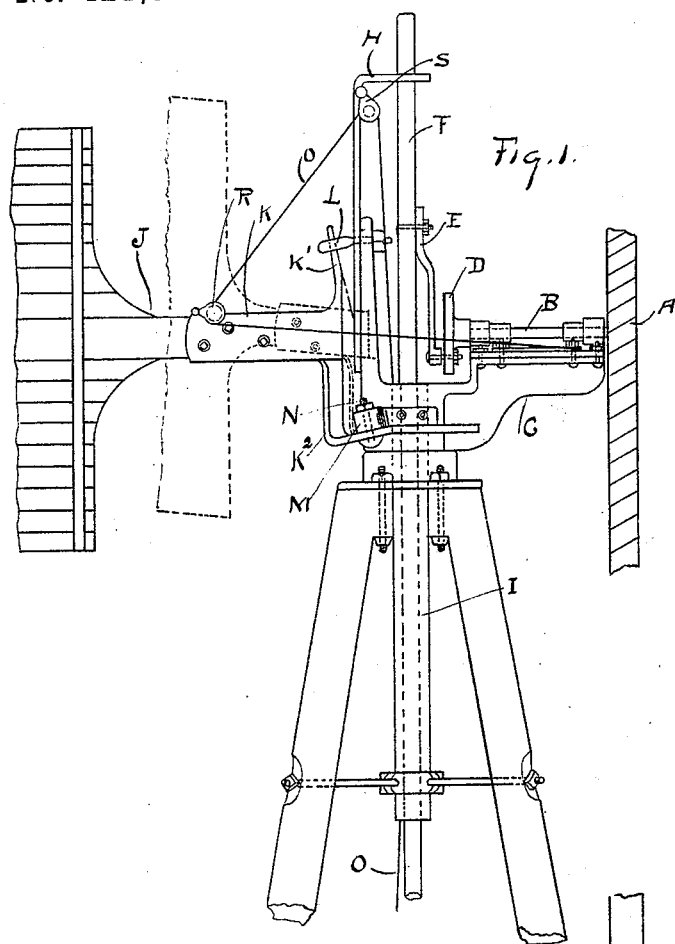
(No Model.)

2 Sheets—Sheet 1.

M. G. KENDRICK.
WINDMILL.

No. 421,580.

Patented Feb. 18, 1890.



WITNESSES:

T. F. Harvey.
J. E. Miller

INVENTOR
Melvin G. Kendrick
BY *C. F. French & Co*
his ATTORNEYS

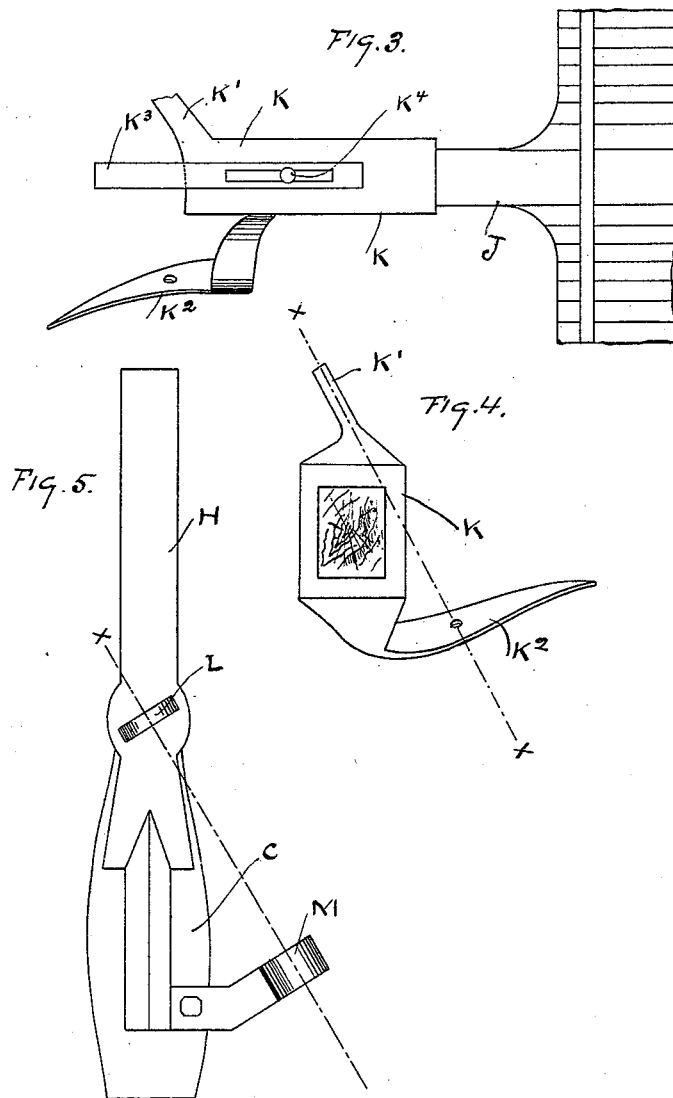
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WITNESSES:

G. F. Starvey
J. E. Miller

INVENTOR

Melvin G. Kendrick
BY C. F. Menzies & Co

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UNITED STATES PATENT OFFICE.

MELVIN G. KENDRICK, OF JEFFERSON COUNTY, COLORADO.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 421,580, dated February 18, 1890.

Application filed March 6, 1889. Serial No. 302,124. (No model.)

To all whom it may concern:

Be it known that I, MELVIN G. KENDRICK, a citizen of the United States, residing in the county of Jefferson, State of Colorado, have

invented a new and useful Improvement in Windmills, of which the following is the specification, reference being had therein to the accompanying drawings, in which like letters refer to like parts in the several views.
Figure 1 is a side elevation of a windmill embodying my improvement. Fig. 2 is a plan view of the same. Fig. 3 is a side view of the vane. Fig. 4 is an end view of the vane and its hinging attachment. Fig. 5 is a rear detail view showing the parts to which the vane is hinged.

In the drawings, A represents the wheel of the mill, and B the wheel-shaft suitably secured to the large casting C, which forms the frame-work of the mill mechanism.

D is the crank-wheel, and E the crank-arm connected with the pump-shaft F.

H is the guide for the upper part of shaft F. This guide is secured to the rear part of the main casting C.

I is a pipe attached to casting C and forming a guide for shaft F beneath said casting.

J is the vane, to which the hinge-casting K is securely attached. This casting is distinctly shown in Figs. 3 and 4. The upper part of casting K is formed into a pin K', which turns freely in an eye L, secured to the upper portion of main casting C. The lower part of casting K terminates in a plate K², which is bolted to an eye M. This eye is securely attached to main casting C. Bolt N is made fast to plate K² and turns freely within the eye.

The centers of pin K' and bolt N are in a direct line drawn at an angle to the perpendicular, as shown by dotted line *xx* in Figs. 4 and 5; hence this line may be considered the axis of the vane.

The position of the vane is always such that a line drawn lengthwise through its center will form an angle with a similar line drawn through the center of the wheel-shaft and produced. This angle may be increased or diminished by means of a bar K³, provided with a suitable slot and adjustably attached to casting K by means of a set-screw K⁴. The angle thus formed increases, or the wheel and the vane approach each other as the wind rises, since the wind strikes the wheel at an

angle and must force the wheel around toward the vane in proportion to the strength of the wind, the velocity of the wheel remaining the same or about the same at all times.

As the wheel and the vane approach each other in the manner just stated the vane rises, as shown by dotted lines in Fig. 1, by virtue of the inclination of the plane of its axis to that of the perpendicular, as shown by dotted line *xx* in Figs. 4 and 5; hence when the force of the wind diminishes sufficiently the weight of the vane alone will carry it back on the inclined plane of its upward movement to its original position without the aid of springs, weights, or other appliances heretofore used to accomplish this purpose.

The mill is thrown out of gear by means of a rope O, one extremity of which is made fast to an extension-rod P, which is attached at a point near the wheel to the main casting C, as shown in Fig. 2. The rope then passes over a small pulley R on the vane, thence over a similar pulley S near the top of guide H, and thence follows the pump-shaft through pipe I to any convenient point below within reach of a person standing on the ground. It is obvious that a person pulling on this rope may draw the vane and wheel-shaft into a position at right angles to each other, at which time the wheel must cease to turn, plate K² at the same time coming in contact with casting C, so that the vane and wheel can approach no nearer each other.

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

In a windmill, a vane provided with an attachment K, terminating at the top in a pin K', the lower part of said attachment being formed into a plate K², eye L, secured to the frame-work for the reception of pin K', an eye M, made fast to the frame-work, a bolt N', securing plate K² to eye M, the centers of pin K' and bolt N' being in a direct line inclined to the plane of the perpendicular, the direction of the vane being at all times at an angle with the wheel-shaft, substantially as set forth.

MELVIN G. KENDRICK.

Attest:

ISHAM R. HOWZE,
J. B. WILLSEA.