

(No Model.)

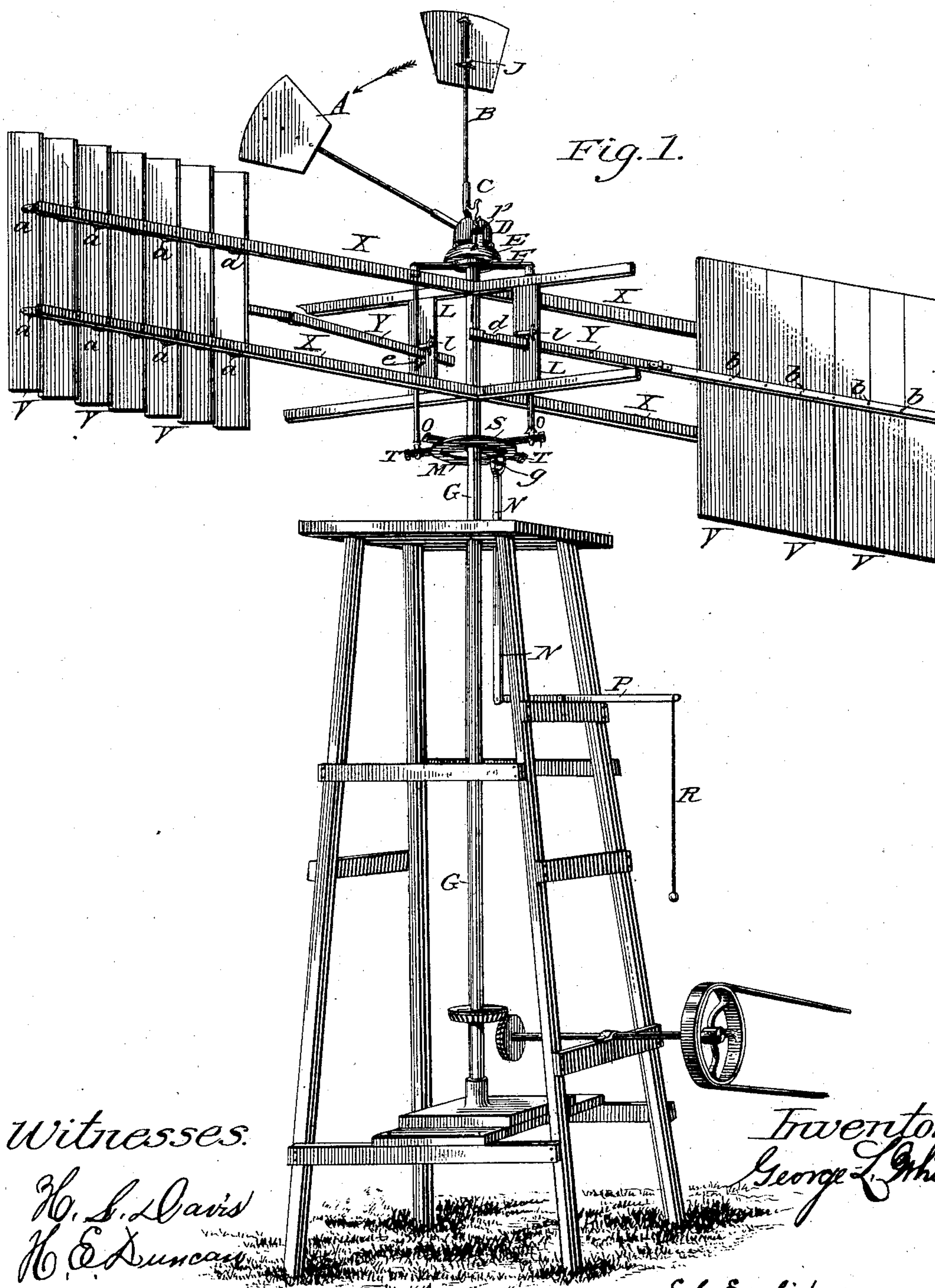
2 Sheets—Sheet 1.

G. L. WHITE.

WINDMILL.

No. 367,687.

Patented Aug. 2, 1887.



Witnesses:

H. S. Davis
H. E. Duncan

Inventor:
George L. White

E. C. English Attorney

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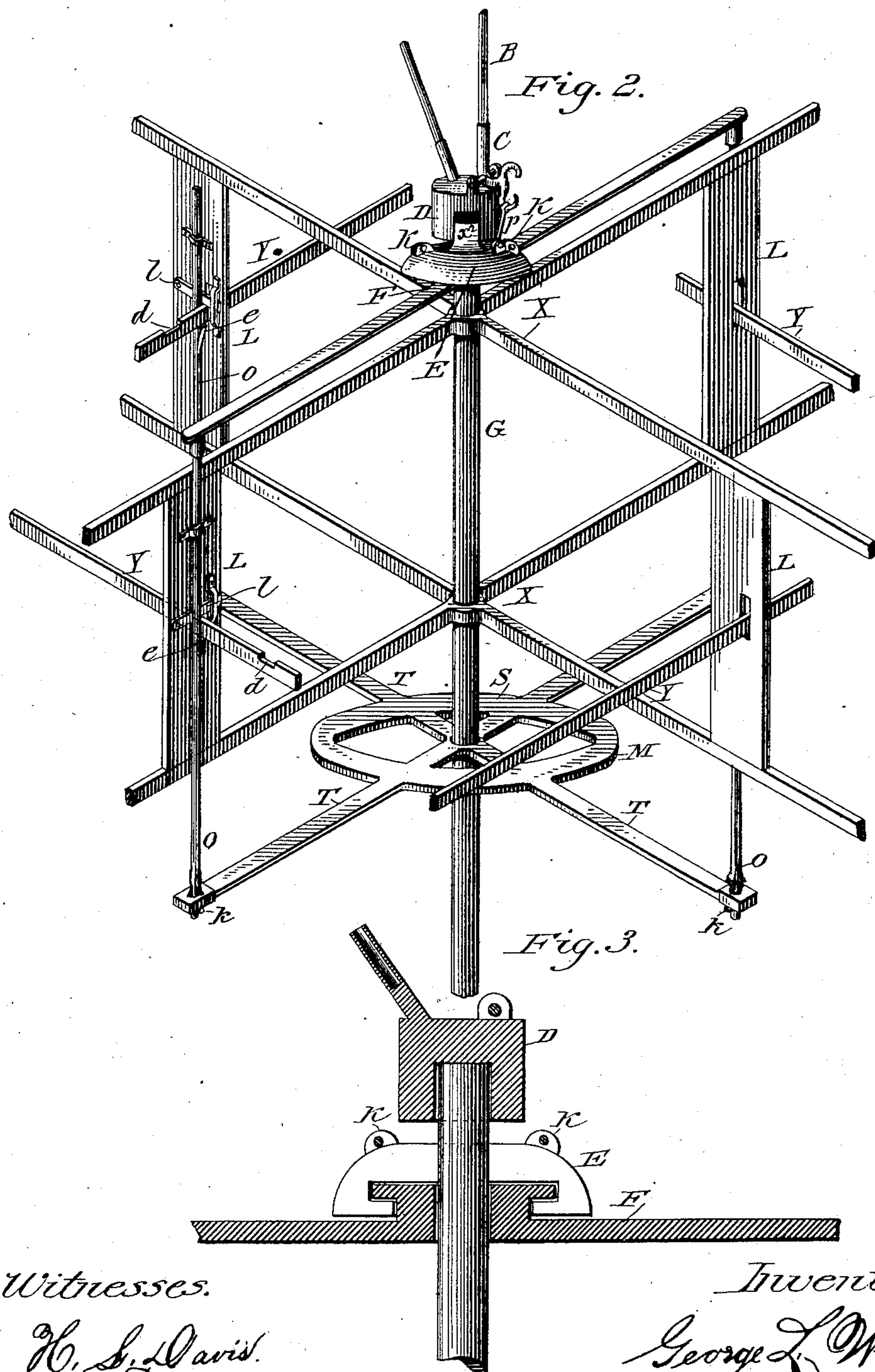
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UNITED STATES PATENT OFFICE.

GEORGE L. WHITE, OF CATON, NEW YORK.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 367,687, dated August 2, 1887.

Application filed September 22, 1886. Serial No. 214,284. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. WHITE, a citizen of the United States, residing at Caton, in the county of Steuben and State of New York, have invented a new and useful Windmill, of which the following is a specification.

My invention relates to improvements in wind wheels or mills in which a series of vertical fans are attached near their extremities to a series of horizontal arms in such a manner as to automatically present their faces to the wind, in connection with an automatic brake, by the action of which the speed of the mill is completely governed. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of a windmill embodying my invention, a portion being broken away so as to show the other parts more clearly. Fig. 2 is an enlarged perspective of the operating parts. Fig. 3 is a vertical section of the brake.

G represents the vertical shaft, which is journaled in suitable bearings in the derrick, and to which the arms X X are rigidly secured, so as to revolve therewith.

Hinged to the outer ends of the arms X X, at *a a*, are the fans V, which are made to open and close in the usual manner. When they are closed, the shaft is made to revolve by the pressure of the wind against them, and when they are open they present their edges to the wind, and the shaft ceases to revolve.

Connected to the fans V V are the jointed bars Y, which are hinged to the front edges of the fans at *b*, and are provided with the notches *d* at their inner ends. The inner ends of the bars Y pass through the perforated boards L, which are placed vertically between the arms X X, and which boards serve as guides to the movements of the bars. Pivoted upon the boards L are latches *l*, which engage with the notches *d* in the bars Y, for the purpose of holding the bars forced outward, thereby locking the fans V in an open position. When the ends of the bars Y are forced inward, so that the notches *d* do not engage with the latches *l*, the fans V are closed and the wheel revolves. When the bars are forced outward, so that the latches *l* catch in the notches *d*, the

fans are held open, so as to present only their edges to the wind, and hence the wheel is brought to a stand.

Secured to the shaft at a suitable distance below the wheel is a casting, S, which forms a circular track, M, and from which radiate the arms T, one for each set of fans. Secured to the outer end of each arm T, in suitable sockets provided therefor, are the vertical rods O, which are provided with projections *e*. These rods O extend up past the vertical boards L, and are connected thereto, as shown in Fig. 2. The projections *e* extend just under the lower edges of the bars Y, so that when the rods O are forced upward these projections force the bars Y upward with them, so as to engage the latches *l* with the notches *d*. The upper ends of the two rods O are connected together by means of the rod or bar F, which extends across under the casting E upon the top of the shaft G. The other two rods, Q, extend upward a suitable distance along the vertical boards L, but are not connected together.

Pivoted to the inner end of the operating-lever P is the rod N, which has a friction-roller, *g*, journaled in its upper end, and which roller bears against the under side of the track M. When the lever P is operated by means of the cord R, which extends down near the ground, the brake-casting S is forced upward, thereby raising the rods O with it, and thus causing the rods O to operate the inner ends of the bars Y by means of the projections *e* and force the ends of the bars upward in the slots in the boards L, so that the notches *d* will engage with the latches *l*, and thus lock the fans in an open position.

Placed loosely upon the top of the shaft G is a casting, D, which is provided with a projecting rigid socket for the arm of the vane A and a hinged socket, C, for the arm of the vane B.

To an arm projecting from the socket is loosely attached the connecting-rod *p*, which is fastened at its lower end to the casting E. The casting E may have a rib or flange, *x*, formed across its top, and this rib will catch in a corresponding socket formed in the bottom of the casting D, and thus keep the two parts always in their proper relative positions. The metallic rod or bar F, which unites the

upper ends of two of the rods O, is placed loosely upon the shaft G, and is provided with a head which revolves in the casting E, as shown in Fig. 3. The vane A, by standing
 5 with the wind, serves to hold the vane B with its face to the wind. Should a blast of wind strike the vane B, it would turn backward in the direction of the vane A, as shown by arrows in Fig. 1, and thus raise the casting E
 10 and bar F by means of the connecting-rod P. As the bar F rises it operates the brake-casting S and causes all four of the rods O to move upward, thereby forcing the inner ends of the bars Y in contact with the latches, thus bring-
 15 ing the mill to a stand. When the violence of the wind abates, the weight of the casting E and bar F, forcing downward upon the rods O, would cause the brake-casting S to drop downward, thereby withdrawing the prongs
 20 e from under the bars Y, leaving the inner ends of the vane to sink downward out of contact with the latches L, unlatching the vane and allowing the mill to resume work. The vane upon the arm B is held in any desired
 25 position by means of the set-screw J, thus enabling the vane to be set at any desired angle to the wind, and thereby regulating the amount of pressure the wind shall bring to bear upon the vane.
 30 For the sake of convenience the casting E

is made in two parts, and each part is provided with ears K, through which bolts are passed for the purpose of securing the two parts together.

Having thus described my invention, I 35 claim—

1. The combination of the vertical shaft, the arms X, secured thereto, the fans V, hinged to the arms XX, the bars Y, connected to the fans and provided with notches, the slotted 40 guides through which the inner ends of the bars pass, the latches pivoted to the guides for engaging with the notches, the casting S, which is vertically adjustable upon the shaft, the rod O, provided with projections e, and a vane 45 mechanism, substantially as shown, for operating the rods O and the bars Y, substantially as shown.

2. The combination of the vanes A B, pivoted socket C, castings D E, connecting-rod p, 50 bar F, vertical shaft G, arms X, rods Y, having the fans V connected thereto and provided with the notches d, the slotted boards L, latches L, rods O, and casting S, substantially as described.

GEORGE L. WHITE.

Witnesses:

H. L. DAVIS,
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