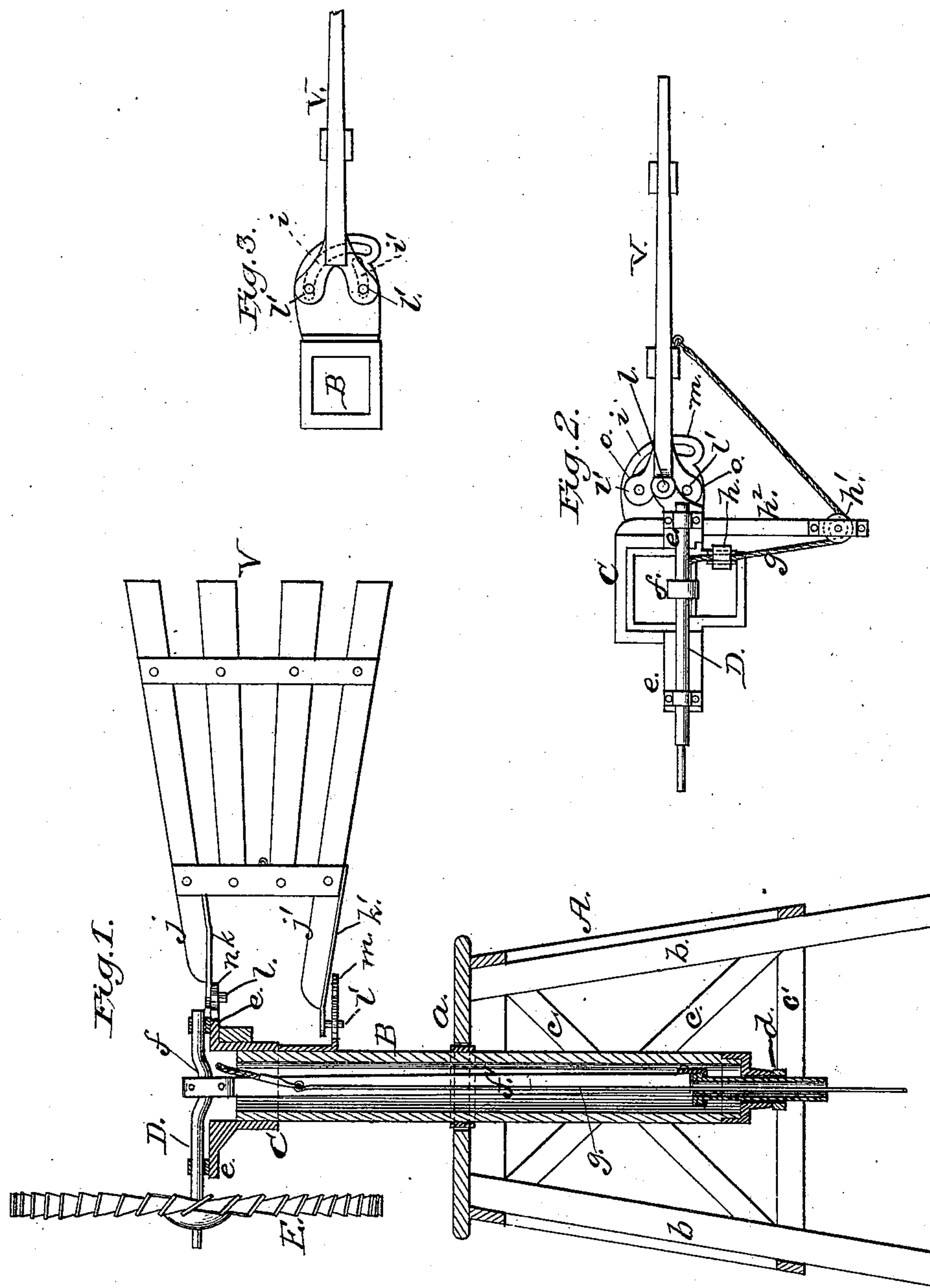


Windmill.

No. 226,498.

Patented April 13, 1880.



WITNESSES

John A. Ellis.
Frank J. Massi.

INVENTORS

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UNITED STATES PATENT OFFICE.

JOSEPH CUSHMAN AND JOSIAH B. CUSHMAN, OF THOMSON, ILLINOIS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 226,498, dated April 13, 1880.

Application filed January 17, 1880.

To all whom it may concern:

Be it known that we, JOSEPH CUSHMAN and JOSIAH B. CUSHMAN, both of Thomson, in the county of Carroll and State of Illinois, have
5 invented a new and valuable Improvement in Windmills; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and
10 to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical central section of our improved
15 mill. Fig. 2 is a top view thereof; and Fig. 3 is a top view of the spindle, showing the ledge with its curved slots.

This invention has relation to improvements in windmills; and the nature of the invention
20 consists in certain novel means for swinging the governing-vane into the wind for the purpose of throwing the wind-wheel out of the same and stopping the engine, as hereinafter shown and described.

In the annexed drawings, A designates the tower of our improved wind-engine, composed of the platform *a*, uprights *b*, supporting it, crossed braces *c*, and transverse braces *c'*,
25 strengthening the tower, and a sill or beam, *d*, extending across the tower and affording a lower bearing to a tubular spindle, B. This spindle has its upper bearing in the platform
30 *a*, and is provided at its top with a tubular cap, C, having arms *e*, in which the horizontal drive-shaft D has its bearings. This shaft carries at its end a wheel, E, of suitable construction, and directly over the cap is cranked,
35 as at *f*, for connection to a pitman, *f'*, extending down through the spindle and connected to the mechanism to be actuated.
40

The governing-vane is of the usual tapering form and is behind the wheel. It is hinged to the spindle so as to vibrate horizontally, and controlled from the ground by means of
45 a rope or chain, *g*, passing up the spindle over a vertically-arranged pulley, *h*, then around a horizontal pulley, *h'*, upon an arm or bar, *h²*, extending out from the spindle parallel to the wheel, thence to the vane. By drawing upon
50 this cord the vane, of which the normal posi-

tion is in a plane at right angles to the wheel, is drawn with its flat surface opposed to the wind, and the wheel is thrown at an angle to its course, thus decreasing the purchase of the wind thereon.

By drawing the vane into a position at
55 right angles to its normal position the wheel may be thrown wholly out of the wind and its motion stopped. This vane V has at its end adjacent to the spindle the upper and
60 lower projecting extensions, *j j'*, to which the hinge-plates *k k'* are respectively secured. The plate *k* has a pintle, *l*, that engages an eye, *n*, on the cap, and the plate *k'* is forked at its extremity, each branch *o* of this fork be-
65 ing provided with a pintle, *l'*, each of which is engaged in an independent slot (lettered in the drawings *i* and *i'*) formed in a metallic ledge, *m*, extending out horizontally from the
70 spindle. These slots are formed in regular curves, and their inner ends are at a distance apart equal to the distance between the centers of the pintles *l'*. They are described each
75 from the end of the other with a radius equal to the distance between the centers of the said pintles, the slot *i* being carried past the end of slot *i'*, and describing an arc of ninety degrees. The pintle *l* is between the pintles *l'*
80 *l'*; consequently when the vane is swung horizontally by drawing down upon the pull-cord its outer end is tipped up slightly, so that
when the said cord is released it gravitates back to its normal position automatically.

What we claim as new, and desire to secure
85 by Letters Patent, is—

The combination, with the spindle B, having the upper eye, *n*, and the ledge *m* below said eye, and provided with the curved slots *i i'*, of the vane V, having the pintle *l*, engaging said eye, and the lower spaced pintles, *l'*,
90 engaging each in one of said slots, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

JOSEPH CUSHMAN.
JOSIAH B. CUSHMAN.

Witnesses:

NOAH GREEN,
ELLEN A. CUSHMAN.