

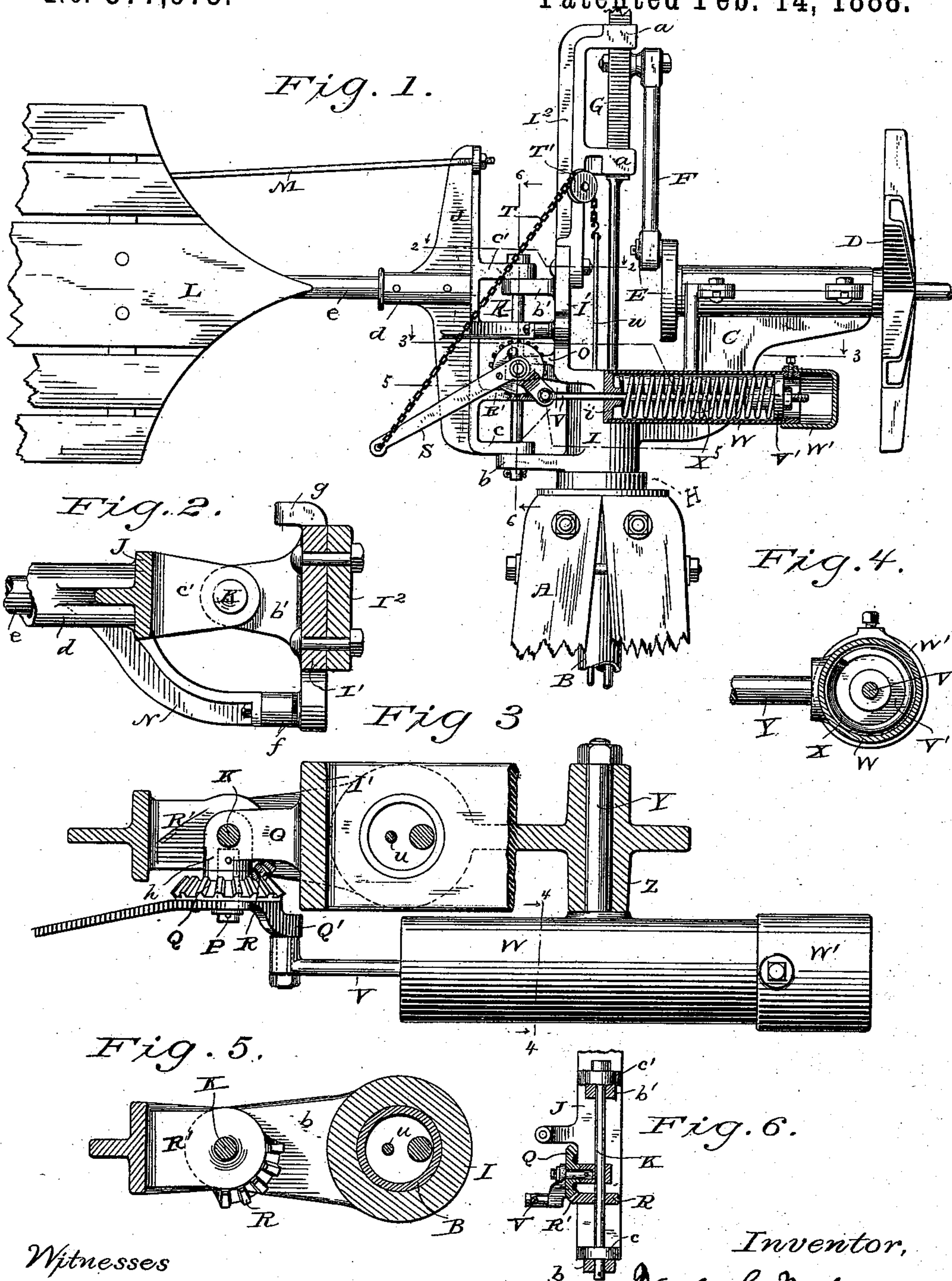
(No Model.)

W. C. WESTAWAY.

WINDMILL.

No. 377,973.

Patented Feb. 14, 1888.



Witnesses
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UNITED STATES PATENT OFFICE.

WALTER C. WESTAWAY, OF DECORAH, IOWA, ASSIGNOR OF ONE-HALF TO
ANDREW J. BENNETT, OF SAME PLACE.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 377,973, dated February 14, 1888.

Application filed September 17, 1887. Serial No. 249,928. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. WESTAWAY, of Decorah, in the county of Winneshiek, and in the State of Iowa, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to windmills; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a side elevation, partly in section, of a windmill constructed according to my invention; Fig. 2, a section taken on line 2 2, Fig. 1; Fig. 3, a similar view taken on line 3 3, Fig. 1; Fig. 4, a vertical transverse section taken on line 4 4, Fig. 3; Fig. 5, a horizontal section taken on line 5 5, Fig. 1; and Fig. 6, a vertical transverse section taken on line 6 6, same figure.

Referring by letter to the drawings, A represents the tower, B the mast, C the casting that supports the wheel-shaft, D the wheel-spider, E the eccentric, F the pitman, and G the pump-rod, all these parts being of the ordinary construction and operative arrangement.

Surrounding the mast B above the table H is a sleeve, I, that forms part of the casting C, and has a vertical arm, I', integral therewith or bolted thereto to form a continuation, I'', the latter being provided with lateral guides *a* for the pump-rod.

Rearwardly extended from the sleeve I and its vertical arm I' are lugs *b b'*, and resting on these lugs are other lugs, *c c'*, belonging to a casting, J, a rod, K, being passed through all of said lugs to serve as a pivot for the casting. The casting J is provided with a socket, *d*, for the shaft *e* of a vane, L, and a stay-rod, M, also serves to connect the casting and vane. One side of the casting J has a stop-arm, N, preferably provided with a buffer, *f*, of rubber, rawhide, or other elastic material, that comes against the vertical arm I' of the sleeve I when the wheel is full in the wind, as shown by Fig. 1, and the opposite side of this vertical arm has a right-angular lug or stop, *g*, to prevent the vane L from describing more than

a quarter of a circle when said wheel is brought or comes out of the wind.

Projecting from the vertical arm I' of the sleeve I is a lug, O, through which passes the pivot-rod K, and this lug has a socket, *h*, for a spindle, P, the latter having loosely arranged thereon a pinion, Q, that meshes with a toothed segment, R, forming part of a lug, R', on the casting J, this latter lug being perforated to permit the passage of said pivot-rod.

Arranged on the spindle P and secured to the pinion Q is an arm, S, that has connected thereto a chain, T, that passes over a pulley, T', on the extension I'' on the arm I', and has its other end fastened to a pull-out rod, *u*, as illustrated by Fig. 1.

The pinion Q has lug Q', connected to a rod, V, that enters a cylinder, W, and this rod is provided with an adjustable head, V'. Arranged between the end *i* of the cylinder W and the head V' on the rod V is a spring, X, and said cylinder is provided with a laterally-extended stem, Y, that has its bearing in a sleeve, Z, the latter being integral with the casting C, forming the bearing for the wheel-shaft.

The cylinder W is preferably provided with a removable head or cap, W', and by removing this cap ready access is had to the head V' on the rod V, so that said head may be adjusted to tighten or loosen the spring X.

When the wheel is full in the wind, the several parts constituting the mill stand in the position shown by Fig. 1, and should the velocity of the wind increase to such an extent as to cause said wheel to start out of the wind the movement of the vane will cause the tooth-segment R on the casting J to actuate the pinion Q, and thus draw the headed rod V against the resistance of the spring X. The resistance to the movement of the wheel gradually increases as the spring is compressed, and the cylinder W being pivoted to the casting C, said cylinder will tilt in proportion to the draw of the rod, and thus the position of the latter is always horizontal to prevent cramping.

As above described, it will be readily seen that the resistance is a variable one and is proportionate to the velocity of the wind, thereby

operating to keep the wheel up to its work until the wind-currents attain a velocity sufficient to overcome said resistance and force said wheel entirely out of the wind. When the velocity of the wind decreases, the expanding force of the spring X will automatically operate the rod V to actuate the pinion Q in a reverse direction to that already described, and thus the vane L will be brought back toward its original position in proportion to such decrease until the wheel is again full in the wind, the stop-arm N on the casting J serving to limit this movement.

At any time it is desirable to throw the wheel out of the wind, and thus stop the mill, the pull-out rod T' is operated to draw up the arm S, thereby actuating the pinion Q to bring the vane L into the same relative plane with said wheel.

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

1. In a windmill, the combination of a pivotal vane-casting, a cylinder pivoted to the wheel-support, a rod having a loose bearing in one end of the cylinder, a spring inclosed by said cylinder and arranged on the rod to be actuated by a movement of the latter, and mechanism, substantially as described, for connecting said vane-casting and rod, whereby a movement of one will actuate the other, as set forth.

2. In a windmill, the combination of a piv-

otal vane-casting, a rod, a spring arranged on the wheel-support to be contracted by a movement of the rod, a toothed segment on the vane-casting, a pinion connected to said rod and arranged to mesh with the segment, an arm secured to the pinion, and a pull-out chain or rod united to the arm, substantially as set forth.

3. In a windmill, the combination of a pivotal vane-casting, a rod, a head adjustable on the rod, a spring arranged on the wheel-support to impinge against the head, and mechanism, substantially as described, for connecting said vane-casting and rod, whereby a movement of one will actuate the other, as set forth.

4. In a windmill, the combination of a pivotal vane-casting, a cylinder, a removable head or cap for the cylinder, a rod having a loose bearing in the opposite end of the cylinder, a head adjustable on the rod, a spring inclosed by the cylinder and arranged to impinge against the head, and a mechanism, substantially as described, connecting said vane-casting and rod, whereby a movement of one will actuate the other, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Decorah, in the county of Winneshiek and State of Iowa, in the presence of two witnesses.

WALTER C. WESTAWAY.

Witnesses:

C. W. BURDICK,
A. J. BENNETT.