

(No Model.)

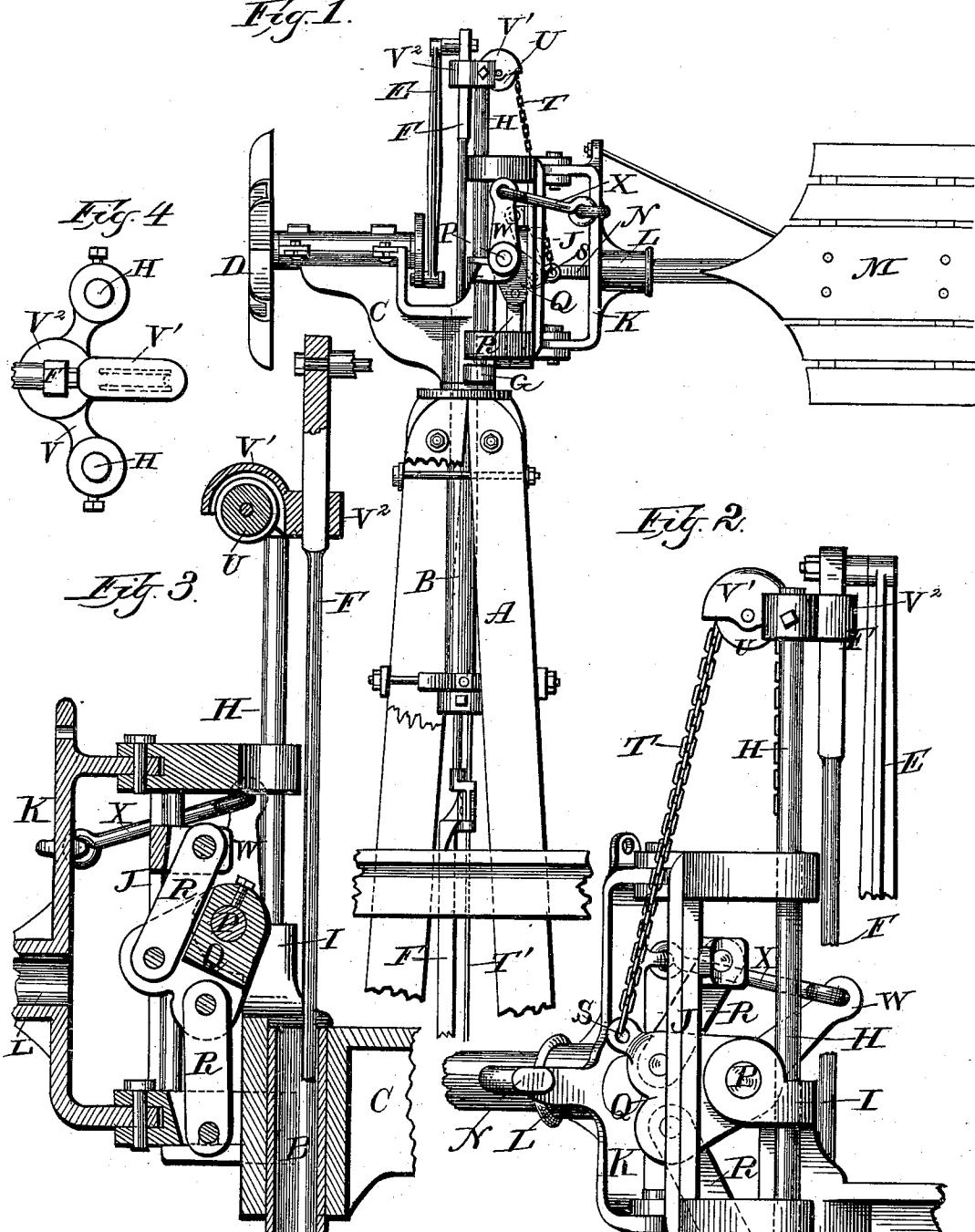
W. C. WESTAWAY.

WINDMILL.

No. 355,236.

Patented Dec. 28, 1886.

Fig. 1.



Witnesses:

E. J. Morris

M. E. Elephant

Inventor:

Walter C. Westaway
By stout Underwood
Attorneys

UNITED STATES PATENT OFFICE.

WALTER C. WESTAWAY, OF BELOIT, WISCONSIN.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 355,236, dated December 28, 1886.

Application filed September 9, 1886. Serial No. 213,093. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. WESTAWAY, of Beloit, in the county of Rock, and in the State of Wisconsin, 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, as will be hereinafter described with reference to the accompanying drawings, in which—

Figure 1 represents a side elevation of a portion of a windmill having my invention applied thereto; Fig. 2, an enlarged elevation of the side opposite that shown in the preceding figure; Fig. 3, a vertical central section, and Fig. 4 a top view of the cross-head.

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 pitman and F the pump-rod, these parts, with the exception of said casting, being of the ordinary construction, while all are in the usual operative arrangement.

The casting C has socket-studs G laterally projected from its base, and these studs receive the lower ends of vertical rods H, that are passed through bracket-extensions I of said casting to serve as guides for a sliding gate, J, the latter having a pivotal member, K, that is provided with a socket, L, for the shaft of a vane, M, and a stop, N, to limit the lateral movement of said vane when the wheel comes full in the wind.

The bracket-extensions I of the casting C are provided with bearings for a horizontal shaft, P, to which is rigidly connected a lever-block, Q, the latter being toggled by links R to the sliding gate J, said links being oppositely arranged, and the block provided with an eye, S, to which is attached one end of a chain, T, that passes up over a sheave, U, journaled in a bracket, V, of a cross-head, V, secured to the upper ends of the rods H to hold the latter in position, and said chain finally connects with a pull-rod, T', that is intended to be united in the usual manner with a lever at the base of the tower. The cross-head V is also provided with a central guide, V', for the pump-rod F, below the connection of the latter with the pitman E. One end of the horizontal shaft

has fast thereon a lever-arm, W, that is connected with the pivotal member K of the sliding gate J by means of a link, X.

When the wheel is full in the wind, the several parts of my device stand in the position as 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, through the link-connection X, cause the pivotal member K of the gate J to exert pressure against the lever-arm W on the shaft P, to thereby operate the lever-block Q, the latter in turn, through the toggle-links R, causing the main portion of said gate to have an upward movement on the guide-rods H, that are permanently retained in position by the studs G and bracket-extensions I on the casting C and the cross-head V. The resistance to the movement of the wheel is least at the time the latter first starts out of the wind, for the reason that the lever-block Q is approximately vertical, and this resistance is correspondingly increased in proportion as said wheel and the vane approach toward the same relative plane, owing to the fact that the leverage becomes momentarily greater as said block approaches toward a horizontal position, as shown by Fig. 2.

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 the wheel entirely out of the wind. When the velocity of the wind decreases, the weight of the sliding gate and the vane will aid to lessen the leverage of the block, and the latter will be automatically forced down toward its original position in proportion to such decrease until the wheel is again full in the wind, the stop on said gate serving to limit this return movement.

It will be noticed that the toggle-links R exert their force in opposite directions to prevent the gate J from binding on the guide-rods H, thereby lessening the friction between said parts.

At any time it is desirable to throw the wheel out of the wind for the purpose of stopping the mill, the lever-block Q is operated by its chain-and-rod connection T T' to bring the vane 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 gate arranged to slide vertically on suitable guides, and having a pivotal member attached to a vane, a lever-block fast on a suitable shaft and operatively connected with the main portion of the gate, and means, substantially as described, for uniting the shaft with the pivotal member of said gate, as and for the purpose set forth.
2. In a windmill, the combination of a gate arranged to slide vertically on suitable guides, and having a pivotal member attached to a vane, a lever-block fast on a suitable shaft and toggled to the upper and lower ends of the main portion of the gate, a lever-arm keyed to the shaft, and a suitable link that unites the arm and pivotal member of said gate, substantially as and for the purpose set forth.
3. In a windmill, the combination of a gate arranged to slide vertically on suitable guides, and having a pivotal member attached to a vane, a lever-block fast on a suitable shaft and operatively connected to the main portion of the gate, a lever-arm keyed to the shaft and operatively united with the pivotal member of said gate, and a pull-out chain connected to said lever-block, substantially as and for the purpose set forth.
4. In a windmill, the wheel-shaft support provided with lateral socket-studs and bracket-extensions, in combination with vertical rods

retained by said sockets and extensions, a gate arranged to slide on the rods and having a pivotal member attached to a vane, a horizontal shaft that has its bearings in said bracket-extensions, a lever-block fast on the shaft and operatively connected to the main portion of the gate, and a lever-arm keyed to said shaft and operatively united to the pivoted member of said gate, substantially as and for the purpose set forth.

5. In a windmill, the wheel-support provided with lateral socket-studs and bracket-extensions, vertical rods retained in said studs and extensions, and a cross-head arranged to unite the rods at their upper ends, said cross-head having a pump-rod bearing and a sheave, in combination with a sliding gate loose on said rods and having a pivotal member attached to a vane, a horizontal shaft journaled in said bracket-extensions, a lever-block operatively connected to the main portion of the gate, a lever mechanism operatively uniting the pivotal member of the latter with said shaft, and a chain for connecting the lever-block with a pull-rod, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Rockford, in the county of Winnebago and State of Illinois, in the presence of two witnesses.

WALTER C. WESTAWAY.

Witnesses:

S. F. PENFIELD,
JOHN H. CARLIN.