

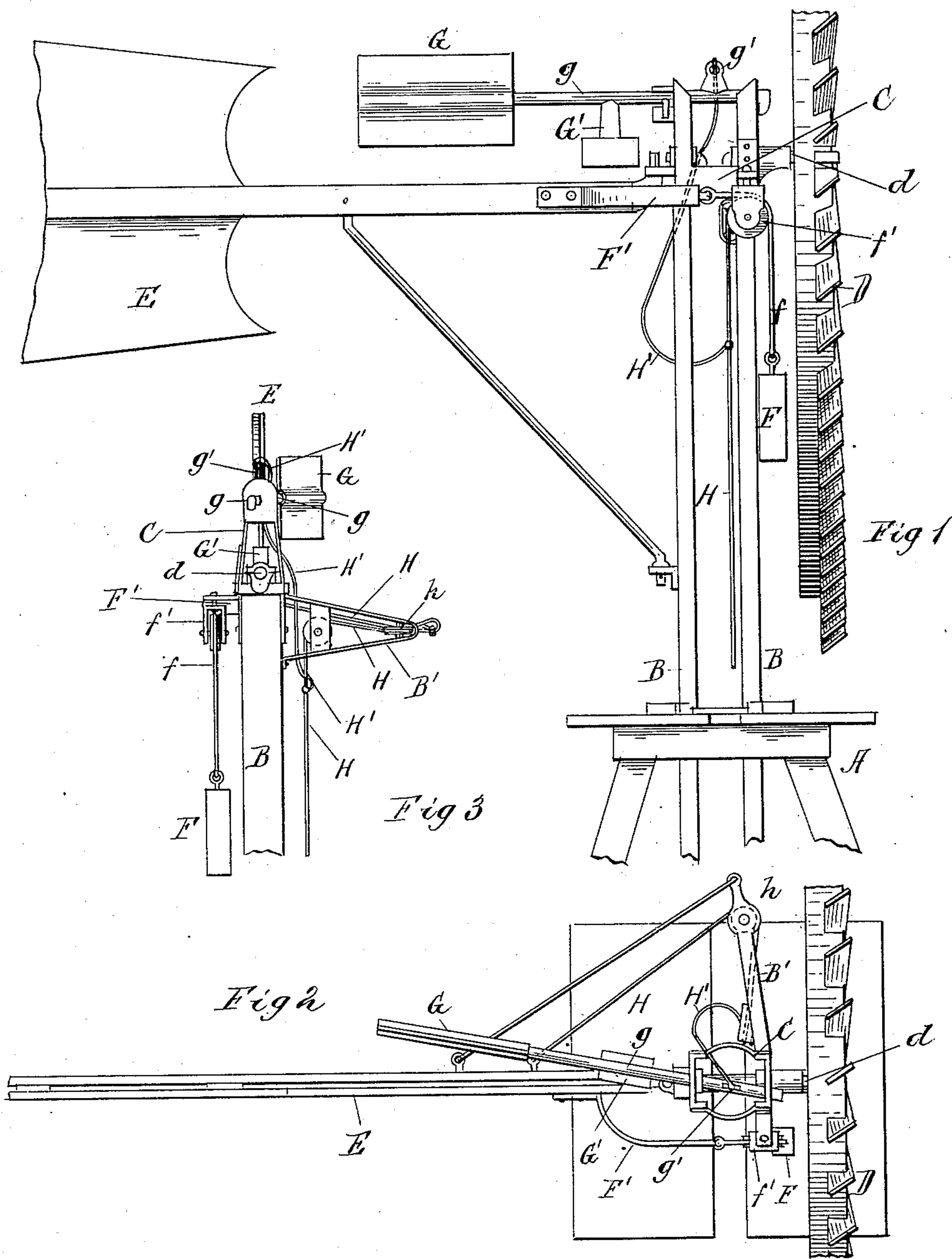
(No Model.)

C. V. STEVENS.

WINDMILL.

No. 333,567.

Patented Jan. 5, 1886.



Witnesses
W. C. Corlies
A. M. Best

Inventor
Charles V. Stevens
By *Edmund Whasler*
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES V. STEVENS, OF SOMONAUKE, ILLINOIS, ASSIGNOR OF FOUR-FIFTHS
TO JOHN CLARK AND HARRISON WRIGHT, BOTH OF SAME PLACE.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 333,567, dated January 5, 1886.

Application filed October 22, 1885. Serial No. 180,676. (No model.)

To all whom it may concern:

Be it known that I, CHARLES V. STEVENS, a citizen of the United States, residing at Somonauk, in the county of De Kalb and State of Illinois, have invented a certain new and useful Improvement in Windmills, of which the following is a description, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of a windmill embodying my improvement; Fig. 2, a plan view of the same, and Fig. 3 a front elevation with the wind-wheel removed.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to windmills, its object being to provide means for regulating the action of the mill under varying wind-pressure; and to this end my invention consists in certain novel features, which I will now proceed to describe, and will then specifically point out in the claims.

In the drawings, A represents the upper portion of the framing or tower which supports the mill proper, and B the revolving support mounted in the said tower or frame, and having attached to its upper end the head C, in which the shaft *d* of the wind-wheel D is mounted.

E represents the main vane, which is pivoted to the face of the revolving support B opposite to that upon which the wheel D is mounted. This vane E is arranged with its pivots in the same vertical plane with the axis of the shaft *d*, the vane being thus normally central with relation to the wind-wheel, as shown in Fig. 3 of the drawings.

F indicates a weight attached to a rope or cord, *f*, which passes over a pulley, *f'*, mounted on the support B, and is connected to an arm, *F'*, attached to the main vane E. It is obvious that this weight will maintain the vane normally in a position at right angles to the plane of the wind-wheel D. Any other similar construction may be employed for this purpose.

G indicates an auxiliary vane, which is mounted upon the head C in any suitable manner. This auxiliary vane is arranged to stand normally at a slight angle to the main vane E—for instance, about ten degrees—although the angle may be varied somewhat. It will be seen

that upon any undue increase in the force of the wind the auxiliary vane G will be forced back into line with the main vane E, thus rotating the support B and throwing the wheel D slightly out of the wind. As soon as the wheel D is thus thrown out of the wind, it has a constantly-increasing tendency to turn out of the wind to a greater extent, owing to the fact that it presents a larger surface on one side of the plane of the main vane than on the other. This tendency would eventually throw the wheel out of the wind entirely if some means were not provided for checking it. This means in the present instance consists of the auxiliary vane G, which as the wheel moves out of the wind to a greater extent is carried over to the opposite side of the main vane, where it presents its surface to the wind in such a manner that it not only checks any further movement of the wheel and rotation of the support, but also carries the two back to their original position as soon as the force of the wind diminishes. It is of course understood that the weight F is so proportioned as to hold the auxiliary vane normally in the position shown in the drawings, in which position the wheel has its maximum efficiency, and to which position it returns after yielding to any sudden gust or increase of the wind, as hereinbefore described.

H indicates a cord or rope, which passes over a pulley, *h*, on an arm, *B'*, attached to the support B, one end of the said cord being attached to the vane E, while the other end extends to the foot of the tower, so that by operating the same the vane E may be drawn into a position parallel to the plane of the wheel D, which will thus be held entirely out of the wind and remain stationary. In this position, however, the auxiliary vane G will present its full face to the wind, and will tend to bring the parts back into operative position. In order to prevent this, I mount the shaft *g*, to which the vane G is attached, in suitable bearings in the head C, so as to permit said shaft to rotate, and I connect an arm or projection, *g'*, on the said shaft to the cord H by means of a similar cord or rope, *H'*, so that when the cord H is operated, as hereinbefore described, the shaft *g* will be rotated to cause the auxiliary vane G to assume a hori-

zontal position, thus presenting its edge to the wind. A suitable weighted arm, G', is attached to the shaft g, in order to return the vane G to its operative position when the cord is released.

From the above description it will be seen that by arranging the auxiliary vane at a slight angle to the main vane I provide an efficient means for inaugurating the motion of the main wind-wheel out of the wind, while at the same time the said vane, being carried over to the opposite side of the main vane, checks the tendency of the main wheel to turn too far out of the wind, and returns it to its proper position when the force of the wind diminishes.

It is obvious that various mechanical modifications in the details of construction and arrangement of the parts may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details of construction described and shown in the drawings.

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

1. The combination, with the main wheel and its support, of the main vane pivoted to said support and an auxiliary vane mounted on said support in a position normally at a small angle to that of the main vane, substantially as and for the purposes specified. 30

2. The combination, with the main wheel and its support, of the main vane pivoted to said support, and held normally in line with the axis of the main wheel by means of a suitable weight, and the auxiliary vane mounted on said support in a position normally at a small angle to the main vane, substantially as and for the purposes specified. 35

3. The combination, with the main vane and its operating cord or rope H, of the auxiliary vane arranged at an angle to the main vane, and attached to a shaft provided with an arm connected to the said cord H, substantially as and for the purposes specified. 40 45

CHARLES V. STEVENS.

Witnesses:

GILBERT LOSER,
JAS. T. POWELL.