

C. P. Chapman,

Wind Wheel,

N^o 83,928.

Patented Nov. 10, 1868.

Fig. 1.

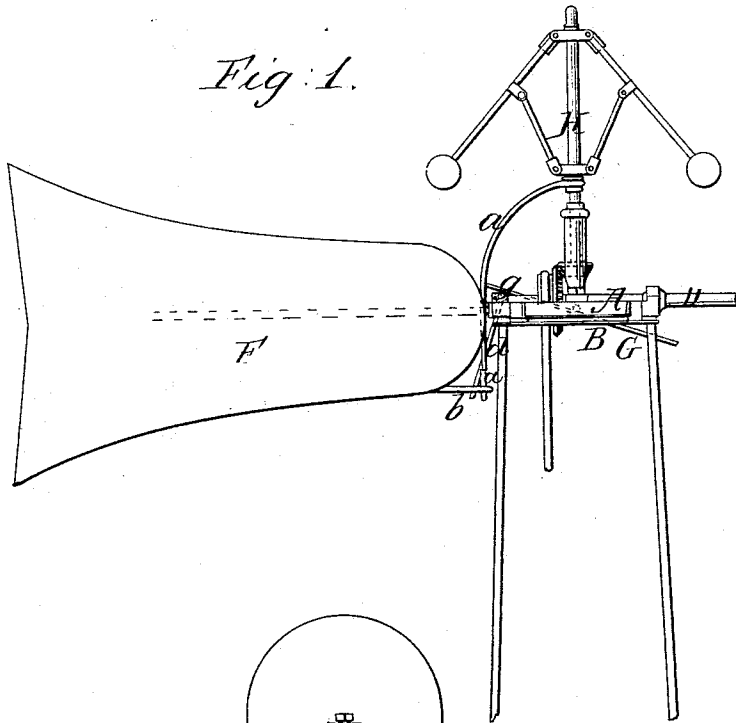
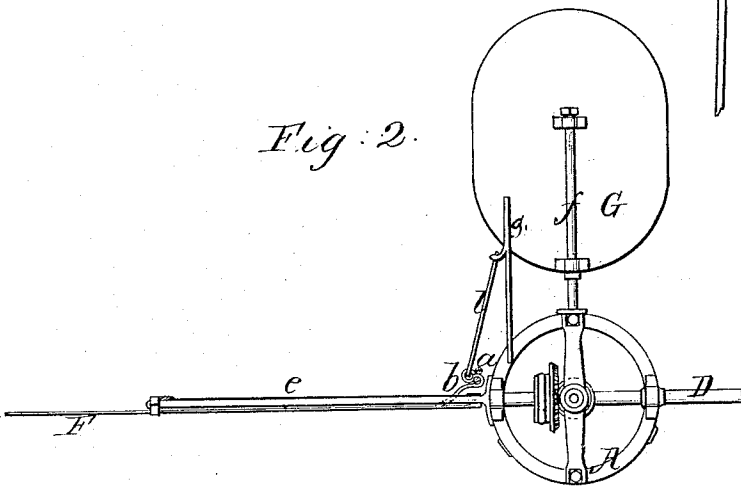


Fig. 2.



Witnesses;
A. Seelers
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CHANDLER P. CHAPMAN, OF MADISON, WISCONSIN.

Letters Patent No. 83,928, dated November 10, 1868.

IMPROVEMENT IN WIND-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHANDLER P. CHAPMAN, of Madison, in the county of Dane, and State of Wisconsin, have invented a new and useful Improvement in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents an elevation of a windmill constructed according to my improvement; and

Figure 2 represents a plan of the same with governor removed.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in the construction and arrangement of two steering-vanes, presenting surfaces of different area, hung to turn loosely upon axes arranged at right angles to each other, and so linked together that when one is vertical in its cross-section, the other is horizontal, and *vice versa*, and which are connected to and operated upon by a governor, whereby the feathering of the one or the other will be caused to throw the wheel to or from the wind, as the force of the latter diminishes or increases, and thereby be made to regulate the power.

In order that others may be better enabled to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A is a circular frame resting and sliding upon a horizontal platform, B, supported at a suitable elevation, and provided with a circular track upon which the circular frame A revolves. This frame carries the bearings of the wheel-shaft D, and the axis of the tail-vane F, so that the said vane will extend in a line with the shaft, and directly behind the wheel. This steering-vane F is connected with a governor, H, by a curved rod, *a*, linked to a projection, *b*, attached to the lower edge of the vane, and, passing upward, collars upon the governor, below the toggle-levers thereof. From the rim of the frame A, on the same horizontal plane with and at right angles to the axis *e* of the steering-vane F, projects the axis *f* of a smaller steering-vane, G, upon which is loosely hung the said vane G, and coupled with and at right angles to the main steering-vane F, relatively to their cross-sections. This coupling is effected by means of a rod, *d*, one end of which is hooked into a projecting hook or loop, *g*, attached to that portion of the edge of the vane G nearest to the vane F, and the other end hooked or linked into the projection

b upon the lower edge of the main vane F, or the rod *d* may be connected to the governor direct. These vanes are so operated upon by the action of the governor that when one is feathered the other is extended, and *vice versa*.

In describing the operation of my invention, I will omit the description of those parts in the drawings which are generally known, and confine myself to those parts which constitute my improvement, and which consist mainly in the smaller steering-vane G, with its connections, the feathering of the larger steering-vane F by the action of the governor, and the consequent results produced thereby upon the action of the mill, which is as follows:

The elevation of the governor, caused by the acceleration of the wheel, instead of feathering the paddles of the wheel, as is the case with other windmills regulated by a governor, feathers the main steering-vane F by means of the curved rod *a*. This feathering-movement of the said vane F produces a contrary effect upon the smaller vane G, its flat surface being brought to the wind by means of the rod *d*, while the larger vane F is being feathered by the increasing elevation of the governor, which operation, sooner or later, causes the wind-pressure upon the smaller vane to predominate over the wind-pressure upon the larger vane, and the circular frame A, yielding to the additional pressure against the surface of the smaller vane G, turns upon its track and presents the edge of the wheel to the wind; different modifications of this action being produced by different degrees of acceleration given to the wheel by the action of the wind. The wheel being thrown out of the wind, the speed is decreased, and the balls of the governor sinking by means of their weight, assisted, it may be, by a greater portion of the weight of the vane F being below its axis, causes it to assume its former position, thereby feathering the smaller vane, and again turning the face of the wheel to the wind.

What I claim as my invention, and desire to have secured by Letters Patent, is—

The combination of the pivoted main vane F, connected to the governor by the rod *a*, with the pivoted auxiliary vane G, connected by rod *d* to the vane F, for the purpose of changing the position of the wheel to the wind, substantially as described.

CHANDLER P. CHAPMAN.

Witnesses:

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