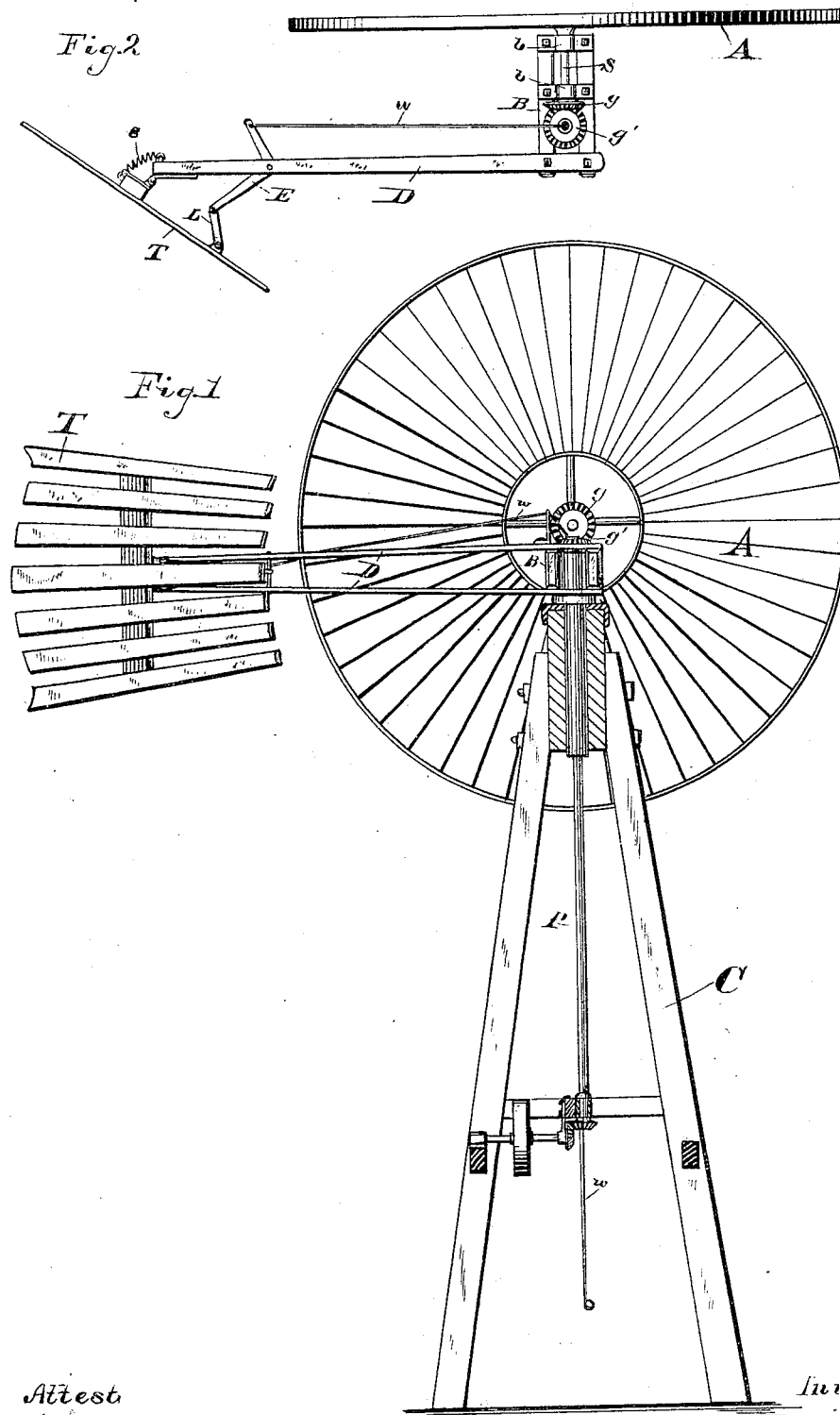


(No Model.)

W. RICHMOND.
WINDMILL.

No. 263,585.

Patented Aug. 29, 1882.



Attest
W. H. Atley
Frank Johnson

Inventor:
William Richmond
BY *H. Harrison*
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM RICHMOND, OF BRODHEAD, WISCONSIN.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 263,585, dated August 29, 1882.

Application filed May 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RICHMOND, a citizen of the United States of America, residing at Brodhead, in the county of Green and State of Wisconsin, have invented certain new and useful Improvements in Windmills, of which the following is a specification.

My invention relates to improvements in windmills; and the object of my invention is to provide a self-regulating windmill so constructed and arranged that when in use it shall be automatically thrown into or out of the wind proportionate to the amount of labor to be performed and the velocity of the wind, and at the same time be capable of being stopped or started at will. This object I attain by a peculiar arrangement of the tail, as hereinafter fully described with reference to the accompanying drawings, in which—

Figure 1 is a front elevation view of my improved windmill. Fig. 2 is a plan view of the same.

Like parts are represented by similar letters of reference in the different views.

In the drawings, A represents the wind-wheel, which may be made in any appropriate manner, and secured to the end of a short shaft, S, running in bearings *b b* on the frame B, which is supported on the frame-work or tower C in such a manner that it is free to turn in any direction on a vertical axis.

To the front end of the frame B, at right angles thereto, is secured the tail-stock D, to the outer end of which is hinged the tail T in such a manner that it may swing parallel with the plane of the wheel A or at an angle thereto, as desired, and provided with a spring, *s*, secured thereto in such a manner that it tends to keep it at all times at an angle with the plane of said wheel A.

Pivoted in the tail-stock D is a bell-crank, E, to one end of which is hinged a link, L, hinged at the other end to the tail T. A wire, *w*, is attached to the outer end of the bell-crank E, and extends downward to the foot of the tower C, and furnishes the means of turning the tail T at will.

The power from the wheel A is transmitted to the foot of the tower through bevel-gears *g* and *g'* and pipe or hollow shaft P, as shown, or in any other suitable manner. If the pipe P is used, the wire *w* is carried down through it, as shown.

If the tail T stands parallel with the wheel A, it is obvious that the wheel will stand edgewise to the wind and remain at rest. When the tail stands at an angle to the plane of the wheel, the wind striking the tail at an angle throws the wheel into the wind. If the labor to be performed is great, the wind striking the wheel A tends to throw it farther into the wind. Should the speed of the wheel or the velocity of the wind be increased, the wind striking the longer side of the tail T partially closes it, the spring *s* serving to open it again as soon as the pressure is sufficiently removed, thus keeping the wheel at all times at the required speed.

It is obvious that a weight might be used in place of the spring with the same result.

By reason of the increased leverage obtained by having the tail-stock D at an angle to the axis of the wheel A a very small tail may be used, reducing the expense of manufacture and lightening the mill.

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

1. In a windmill, the combination of the tail-stock D, tail T, hinged thereto, spring *s*, bell-crank E, link L, and wire *w*, substantially as shown and described.

2. The combination of the frame B, shaft S, wheel A, gears *g g'*, hollow vertical shaft P, tail-stock D, tail T, hinged thereto, bell-crank E, link L, and wire cord *w*, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM RICHMOND.

Witnesses:

F. E. LANGDON,
DAVID L. MILLS.