

H. W. BOLENDER.
WIND MILL.

No. 180,744.

Patented Aug. 8, 1876.

Fig. 1.

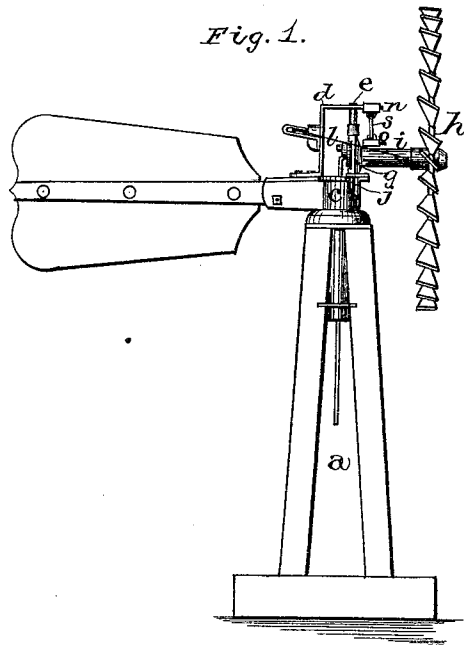


Fig. 2.

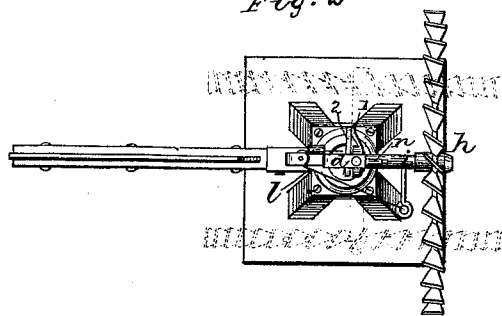
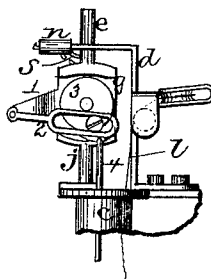


Fig. 3.



WITNESSES.

Wm. Garner.
J. H. Burnham.

INVENTOR=

H. W. Bolender.
per
F. A. Lehmann, Atty.

UNITED STATES PATENT OFFICE.

HARRISON W. BOLENDER, OF ORANGEVILLE, ILLINOIS.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **180,744**, dated August 8, 1876; application filed June 13, 1876.

To all whom it may concern:

Be it known that I, HARRISON W. BOLENDER, of Orangeville, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Windmills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in windmills; and it consists in the arrangement and combination of parts, that will be more fully described hereinafter, whereby the wheel will swing around in either direction from the force of the wind, or can be drawn around toward the vane by means of a rope or chain, and in its movement be raised upward, so that when free to return to its first position it will move from its own weight alone.

Figure 1 is a side elevation of my invention. Fig. 2 is a plan view of the same. Fig. 3 is a detail view.

a represents the derrick, which may be constructed in any manner that may be preferred, and upon the top of which is placed the turntable *c*, which may also be of any desired construction. Extending upward from the top of this table is the bent arm or brace *d*, which serves as a bearing for the upper end of the vertically-moving journal *e* of the head *g*, in which the solid wind-wheel *h* revolves. This head consists of a horizontal sleeve, *i*, through which the shaft of the wheel *h* passes, and the vertical part *g* having a journal, *e*, projecting from its upper edge, and a second one, *j*, projecting downward into the turn-table. On these two journals *e j* the head can be turned

freely around in either direction when the wheel is acted upon by the wind in the usual manner; or it can be drawn around in one direction only, by means of the rope or chain *l*, when it is desired to stop the motion of the wheel. On the front end of the arm or brace *d* is formed a suitable joint, *n*, which may be as here shown, or a ball-and-socket joint, or any other kind that may be preferred, and attached to the head *g* below this joint is another similar one, *o*, and the two are connected together by means of a link or rod, *s*.

As soon as the wheel begins to turn around in either direction, the upper joint being stationary, the link or rod begins to raise both the head and wheel upward. As soon as the wind ceases to blow, or the cord *l* is released, the wheel begins to sink from its own weight, and swings around back to its first position.

Extending outward from one side of the head *g* is an arm, *1*, to the outer end of which is pivoted the slotted lever 2. On the end of the wheel-shaft is placed a disk, 3, having a crank-pin, which passes through the slot in the lever, so as to give it a reciprocating motion, and secured to the free end of this lever is the pump-rod 4.

Having thus described my invention, I claim—

The combination of a revolving head, which carries the wind-wheel, a brace or arm, *d*, and a connecting-rod that is jointed at each end, substantially as shown.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of June, 1876.

HARRISON W. BOLENDER.

Witnesses:

ROBT. M. BARR,
F. A. LEHMANN.