(No Model.)

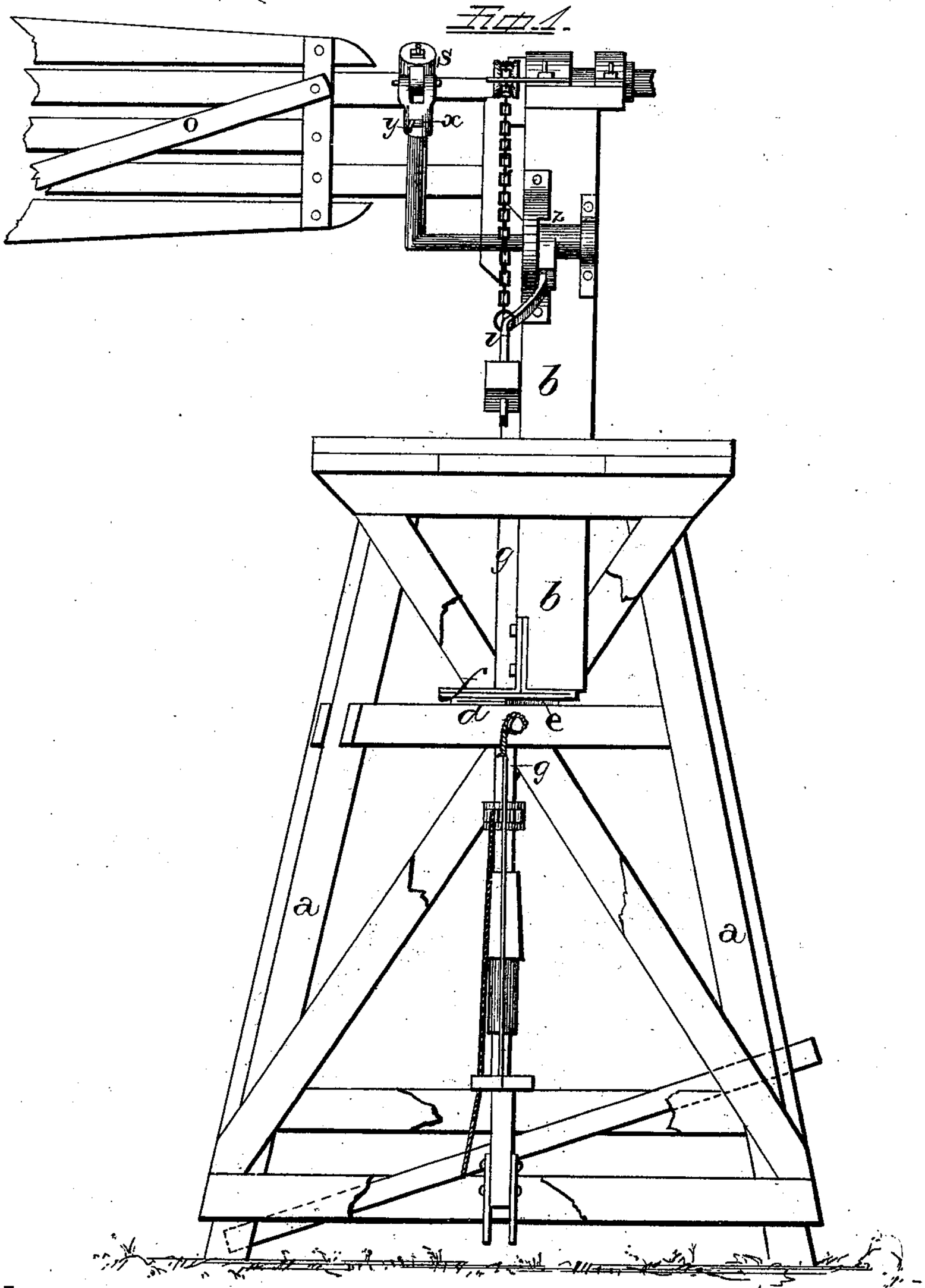
3 Sheets—Sheet 1.

A. JUELFS.

Windmill.

No. 227,540. **Patented May 11, 1880.**

FIG. 1.



Witnesses=

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Wells F. Kern

Inventor=

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per

F. A. Lehmann,

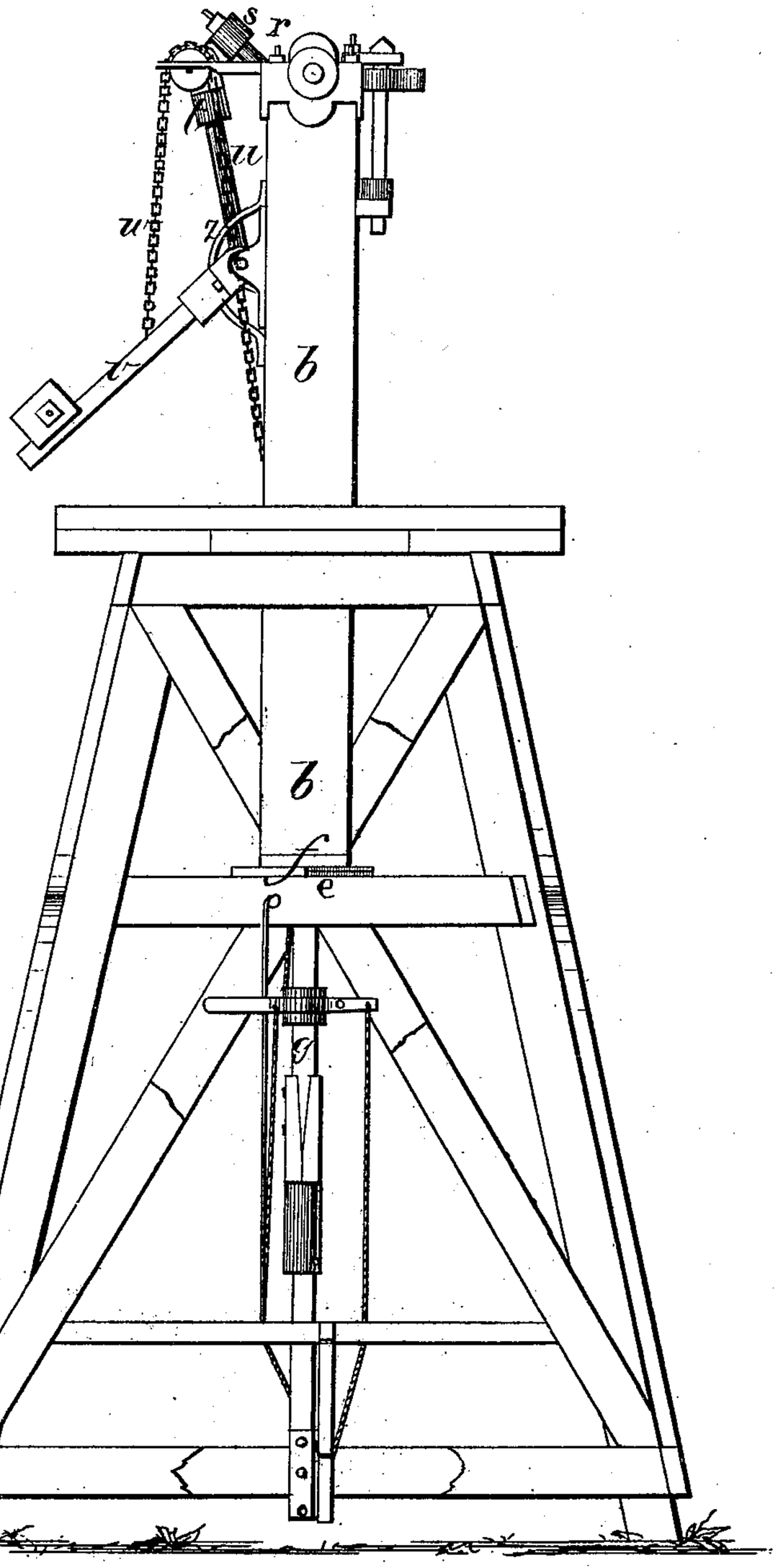
Atty.

(No Model.) 3 Sheets—Sheet 2.

A. JUELFS.
Windmill.

No. 227,540. Patented May 11, 1880.

Fig. 2.



Witnesses=
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(No Model.) 3 Sheets—Sheet 3.

A. JUELFS.
Windmill.

No. 227,540. **Patented May 11, 1880.**

Fig. 3.

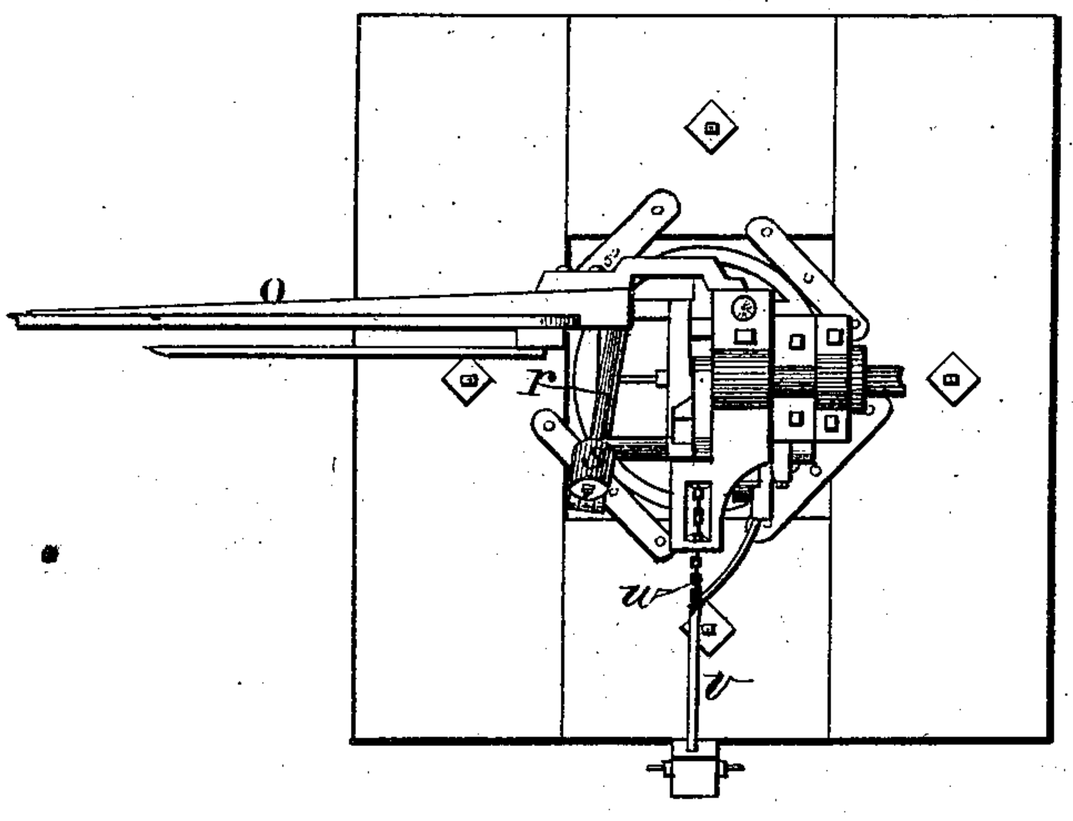


Fig. 4.

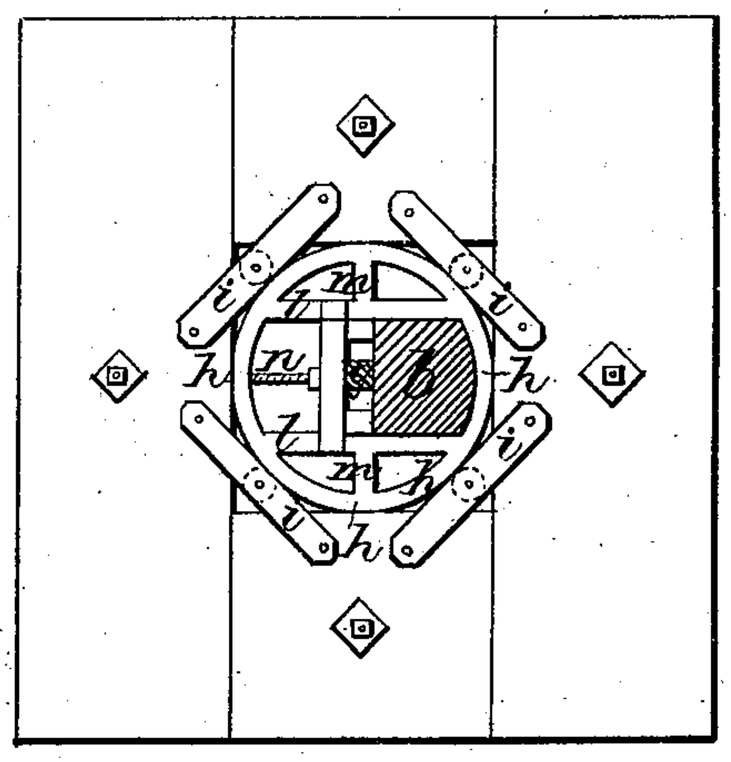
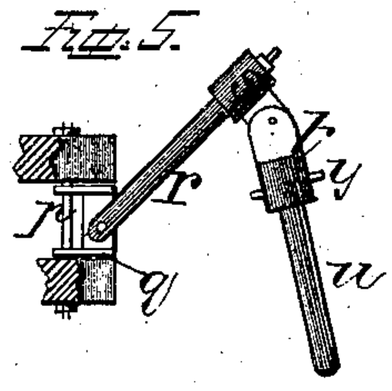


Fig. 5.



Witnesses=
W. W. Mortimer.
Will A. Kerr.

Inventor=
A. Juelfs,
per
F. A. Lehmann, Atty.

UNITED STATES PATENT OFFICE.

ALBERT JUELFS, OF DIXON, ILLINOIS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 227,540, dated May 11, 1880.

Application filed March 4, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALBERT JUELFS, of Dixon, in the county of Lee 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, first, in the arrangement and combination of devices whereby the standard upon which the wheel is mounted is made to revolve with the wheel; second, in the devices by which the hinged vane is moved so as to throw the wheel in and out of the wind, as will be more fully described hereinafter.

Figure 1 is a side elevation of my invention. Fig. 2 is a front view of the same with the wheel removed. Fig. 3 is a plan view. Fig. 4 is a horizontal section taken through the mast just above the top of the tower. Fig. 5 is a detached view of the devices for moving the vane.

a represents the tower, which may be of any suitable construction, and *b* is the mast. Extending across the center of the tower are suitable supports *d*, which are rigidly braced together, and upon the top of which is secured a suitable step, *e*, in which the lower end of the mast is journaled. This journal consists of a suitable casting, *f*, secured to one side of the lower end of the mast, and which has a flange projecting under the mast, so as to support it, and another flange projecting horizontally outward having a hole through it, so as to serve as a guide for the pump-rod *g*.

Through the top of the tower is made a large square opening, in which is placed a revolving ring, *h*, in which the mast is securely clamped. This ring is held in place by means of suitable plates *i*, having frictional rollers secured in between them, and which plates extend across the corners of this opening, through the top of the tower, in such a manner as to bring the rollers in contact with the periphery of the wheel. As the mast is supported upon the cross-pieces in the tower at its lower end, and is held in this ring, which revolves around between these friction-rollers, it is held firmly and steadily in place under all circumstances, and yet perfectly free to turn with the wheel at all times. This wheel is provided with the two guides *l*, which extend parallel across it, and which are braced rigidly in position, at or near their centers, by means of the stays *m*. The mast is placed between these two guides, and then the slide, having both of its ends recessed so as to take hold of the guides, is moved up against the mast by means of a screw-bolt and nut, *n*, having just sufficient room, which is maintained by means of wedges or stops between the mast and the slide, to allow the pump-rod to work freely up and down between them. By means of this screw-rod and nut the slide can be tightened against the mast, so as to hold it with any desired degree of rigidity.

The vane *o* is pivoted to one side of the upper end of the mast, and passing vertically down through the inner end of this vane is a rod, *p*, upon which is placed a hinge, *q*. Pivoted to this hinge is a connecting-rod, *r*, which has a flanged roller, *s*, secured to it, and this flange fits in a corresponding recess made in the upper end of the movable coupling *t*, which is placed upon the upper end of the crank *u*. This crank has a weighted lever, *v*, secured to it, and as this lever is moved up and down the upper end of the crank moves the vane back and forth upon its hinge. As the vane moves back and forth the coupling upon the upper end of the crank is given a partially-rotating movement, and in order to allow this coupling to adapt itself to this movement it has a slot, *x*, cut through one side, and through this slot is passed a pin, *y*, as shown. This pin serves to prevent the coupling from being pulled off of the top of the crank under any circumstances.

Fastened to the weighted lever, at any suitable point, is a chain or wire, *w*, which passes up over the top of a pulley, and then extends down near the bottom of the tower, so as to be connected to a suitable lever, whereby the vane can be swung around more or less into a line with the wheel, so as either to stop the motion of the wheel entirely or so as to graduate its movements according to the force of the wind.

Secured upon the side of the mast is a suit-

able stop, *z*, which serves to prevent the weighted lever from moving beyond a certain point either up or down.

Having thus described my invention, I claim—

1. The combination of the mast supported upon the cross-pieces *d* with the revolving ring which is clamped to the mast and serves to hold it steady in the top of the tower, substantially as described.

2. The revolving ring provided with suitable guides, between which the mast is held, a slide, and a clamping rod and nut, substantially as set forth.

3. The combination of a hinged vane, *o*, connecting-rod *r*, flanged collar *s*, and slotted coupling *t*, whereby as the vane is moved around the coupling is allowed to partially revolve on the upper end of the crank, substantially as specified.

4. The combination of a weighted lever, cranked slotted coupling, flanged collar, connecting-rod *r*, and hinge *q*, the lever having a chain attached to it for operating the crank from below, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of February, 1880.

ALBERT JUELFS.

Witnesses:
WILLIAM STEVENS,
ANSON JUELFS.