

(No Model.)

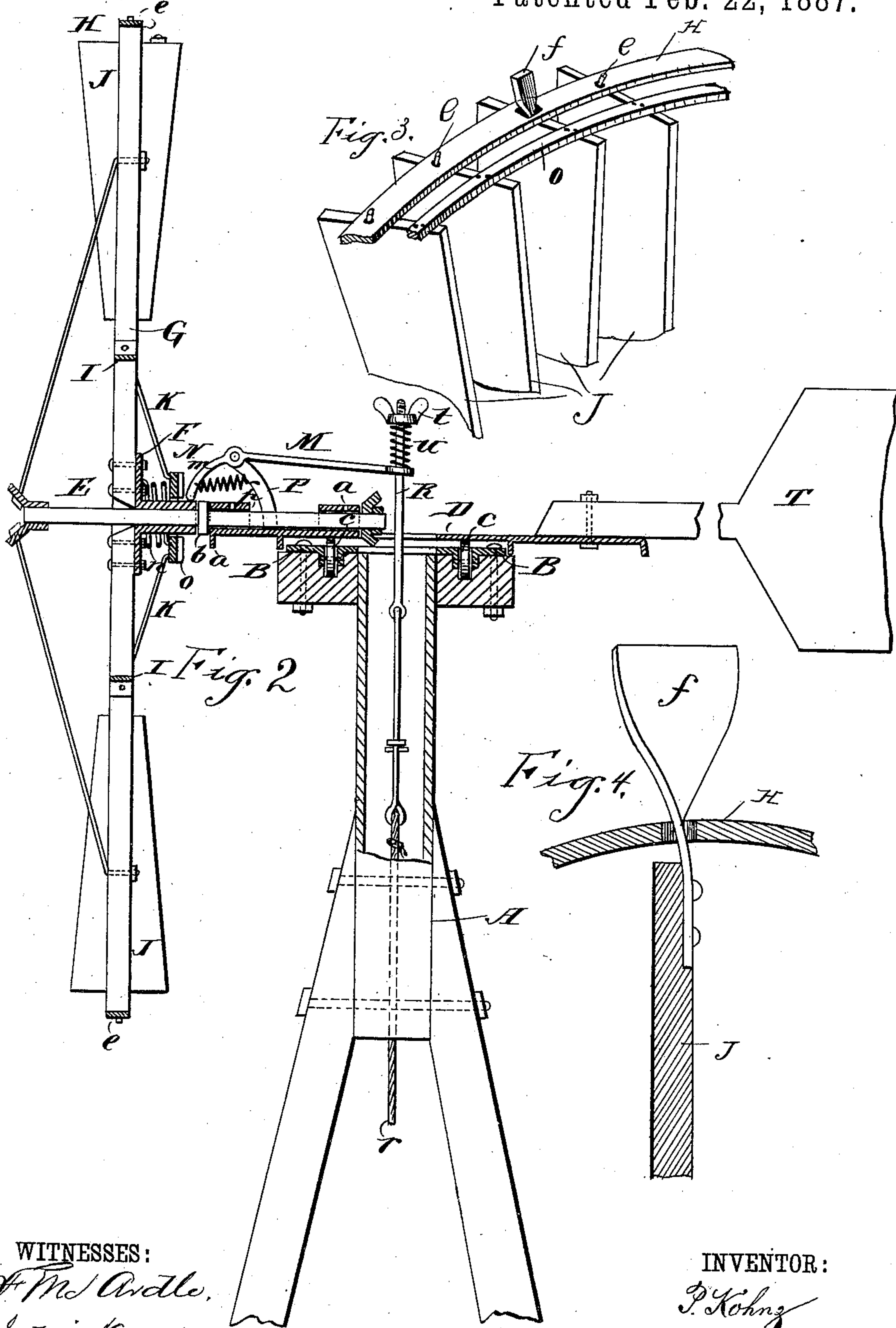
2 Sheets—Sheet 2.

P. KOHNZ.

WINDMILL.

No. 358,205.

Patented Feb. 22, 1887.



WITNESSES:

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PETER KOHNZ, OF AVON, OHIO, ASSIGNOR TO HIMSELF AND JOHN URIG,
OF SAME PLACE.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 358,205, dated February 22, 1887.

Application filed July 3, 1886. Serial No. 207,086. (No model.)

To all whom it may concern:

Be it known that I, PETER KOHNZ, of Avon, in the county of Lorain and State of Ohio, have invented a new and Improved Windmill, of which the following is a full, clear, and exact description.

The object of my invention is to provide a self-governing windmill wherein all the sails of each section will have a uniform motion in moving in or out of the wind.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a view of the rear side of the mill, the upper portion of the figure representing the parts as they appear when the sails are in the wind, while the lower portion of the figure represents the parts as they appear when the sails are thrown out of or when their edges are to the wind; and Fig. 2 is a sectional elevation of the wheel and its tower. Figs. 3 and 4 are detail views.

Referring now more particularly to the construction illustrated in Fig. 2, A is the tower, to the upper end of which there is secured a platform, B, said platform being bolted to the upper end of the tower, as clearly shown in the drawings. The platform B carries a number of rollers, *c c*, upon which there is mounted a turn-table, D, that is provided with two boxes or bearings, *a a*, in which I mount the main shaft E, said shaft being formed with a collar, *b*, that abuts against the face of the outer bearing, and to the shaft E there is rigidly secured a spider, F, which serves as the inner support for the main arms G G of the wheel. To the outer ends of the arms G there is secured a circular hoop or band, H, while at a point somewhat removed from the spider the arms carry circular bracing-strips I I.

The sails J J are each provided with inner pivot-pins, *d d*, which extend through apertures formed in the strips I, and all of the sails, except one in each section, are provided with outer pivot-pins, *e*, which ride in apertures formed in the outer encircling hoop or band, H, one of the sails in each section being provided with a twisted or screw-shaped supporting-point, *f*, which rides in an aperture

provided in the encircling-hoop H, which said aperture is formed to correspond with the cross-section of the twisted pin. One of the pins *d* in each section of the sail is connected by means of a rod, as K, with a sliding disk or collar, N, that is mounted upon the hub of the spider F, the connection between the pins and the rod K being a hinged connection, while the connection between the collar and the rods is secured by means of sockets *k k*, that are formed in the collar, the ends of the rods being bent over to fit within said sockets.

All of the sails in each section of the wheel are connected by curved bars O, that are carried by the sails just behind the pins *e*, connection between the sails and the bars being established by means of pins *l l'*, which are secured to the outer ends of the sails and fit loosely within apertures formed in the strips. It will be noticed that the pin *l'* is much longer than the pin *l*, this construction being adopted in order that a connection between its sail and the bar O may be obtained, the said sail being shorter than the other sails.

A spiral spring, *n*, is arranged between the spider and the collar N, one end of said spring being secured to the spider, while the other is secured to the collar, the tendency of the spring being to throw the sails into the wind—that is, into the position shown in the upper portion of Fig. 1—but as the wind freshens the sails will be turned out of the wind against the tension of the spring, to be again thrown into the wind by said spring when the force of the wind decreases, the sail provided with the twisted point *f* advancing toward the hoop H as the sails are thrown out of the wind and moving in an opposite direction as the sails are thrown into the wind, and as this sail so moves it necessarily turns upon its supports, owing to the engagement of its point *f* with the hoop H; and it will be understood that as the sails of each section are connected by the strips O, through which the pins *l l'* pass, as one sail moves so will all the other sails of the section move.

In order that the sails may be thrown out of the wind by an attendant, I provide an operating-lever, M, that is mounted on a standard, P, carried by the turn-table D, the long arm

of this lever M being apertured in order that connection with the operating-rod R may be established. This rod R is provided with a cord or rope, *r*, which extends downward to within reach of the attendant, and the top of the rod is threaded to engage with a winged nut, *t*, a spiral spring, *u*, being arranged between the nut and the upper face of the lever, as indicated.

The short arm *m* of the lever M projects forward toward the disk or collar N, which is provided with a number of radial ridges, *o*; but the arm *n* is normally held out of contact with the disk by means of a spring, *p*, arranged as indicated in Fig. 2. The collar N carries a pin, *v*, which strikes against a stop, *w*, thus limiting the motion of the disk or collar N about its axis.

Now, when it is desired to throw the sails out of the wind, the cord *r* is pulled down in order that the lever-arm *m* may be thrown forward to strike against one of the ridges on the disk N, and as the lever-arm so strikes against one of the ridges on the collar the collar will be moved forward in the direction of the arrow shown in Fig. 1, thus forcing the sails out toward the hoop or rim H, and this movement of the sails will cause them to be thrown out of the wind, owing to the partial rotation imparted to the sails in each section which carry the twisted pins *f*, and the rotation of the single sail in each section will be imparted to all of the sails in that section through the medium of the connecting-strips O. The vane T is bolted to the turn-table D, as indicated in Fig. 2.

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

1. In a windmill, the combination, with a wheel provided with an outer apertured rim and inner bracing-strips, also provided with apertures, of sails arranged in sections and provided with pins arranged to fit within the apertures, all of the sails of each section being connected by strips O, and one of the sails in each section being provided with a twisted point, *f*, which rides in an appropriate aperture formed in the outer rim, substantially as described.

2. The combination, with a wheel divided into sections and provided with an outer rim, H, and inner strips, I, of sails provided with pins *e* and *d*, mounted in apertures formed in the outer rim, H, and inner strips, I, all of the sails of each section being united by strips O, and one of the sails in each section being provided with a twisted pin, *f*, mounted in an appropriate aperture formed in the rim H, the connecting-rods K, extending from the inner pin of one of the sails of each section to a disk or collar, N, said collar N, and a spring, *n*, substantially as described.

3. The combination, with a wheel divided into sections and provided with an outer rim, H, and inner strips, I, of sails provided with pins *e* and *d*, mounted in apertures formed in the outer rim, H, and inner strips, I, all of the sails of each section being united by strips O, and one of the sails in each section being provided with a twisted pin, *f*, mounted in an appropriate aperture formed in the rim H, connecting-rods K, extending from the inner pin of one of the sails of each section to a disk or collar, N, said collar N, a spring, *n*, lever M, mounted on a bracket, P, a spring, *p*, a rod, R, and a cord, *r*, substantially as described.

4. The combination, with a wheel divided into sections and provided with an outer rim, H, and inner strips, I, of sails provided with pins *e* and *d*, mounted in apertures formed in the outer rim, H, and inner strips, I, all of the sails of each section being united by strips O, and one of the sails in each section being provided with a twisted pin, *f*, mounted in an appropriate aperture formed in the rim H, the connecting-rods K, extending from the inner pin of one of the sails of each section to a disk or collar, N, said collar N, a spring, *n*, a lever, M, mounted on a bracket, P, a spring, *p*, a rod, R, leading downward over appropriate connections passing through the apertured end of the lever M, a spring, *u*, and a nut, *t*, substantially as described.

PETER KOHNZ.

Witnesses:

HERMAN BARROWS,
ARTHUR BUCK.