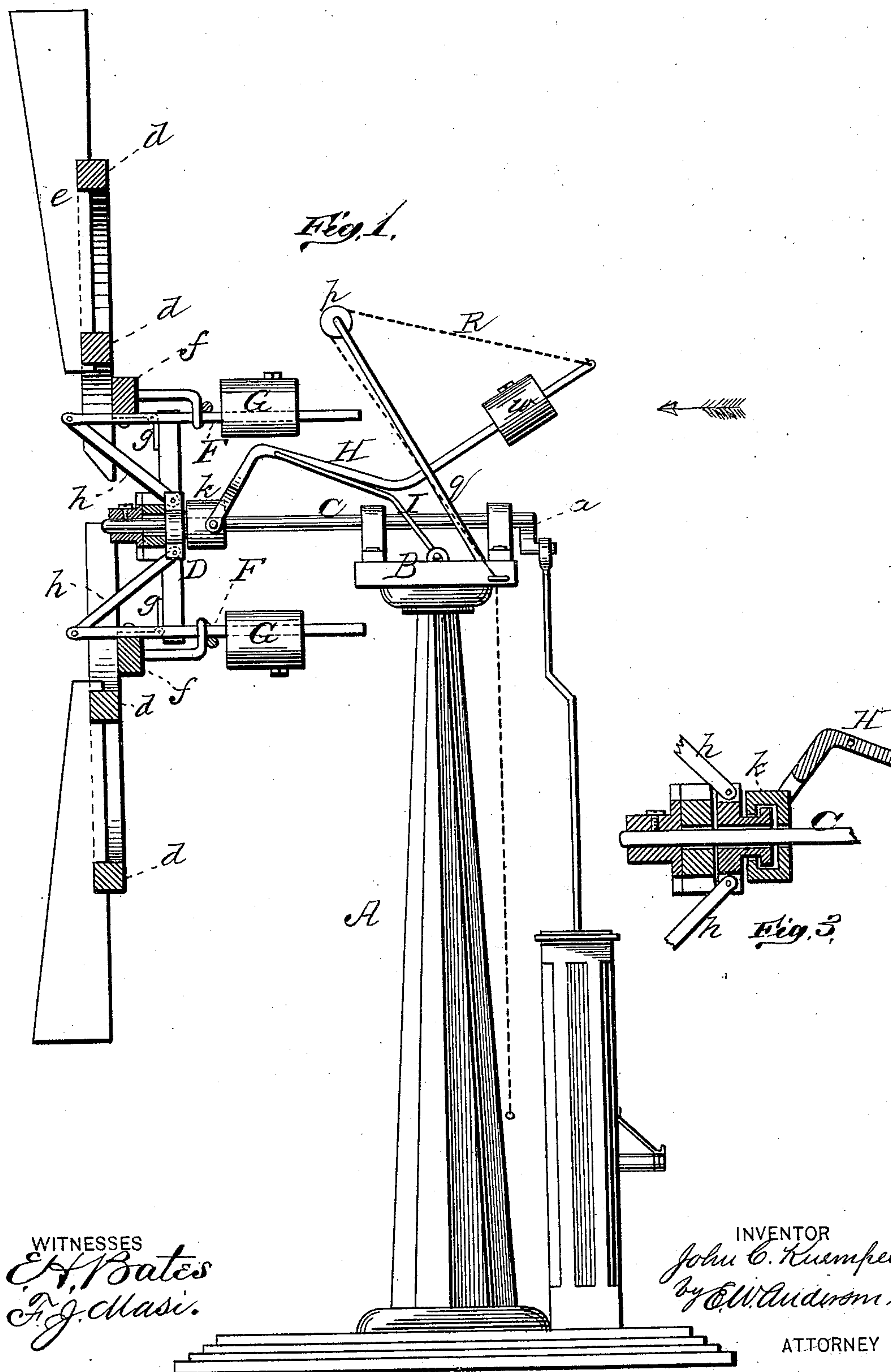


J. C. KUEMPEL.
Wind-Engine.

No. 212,236.

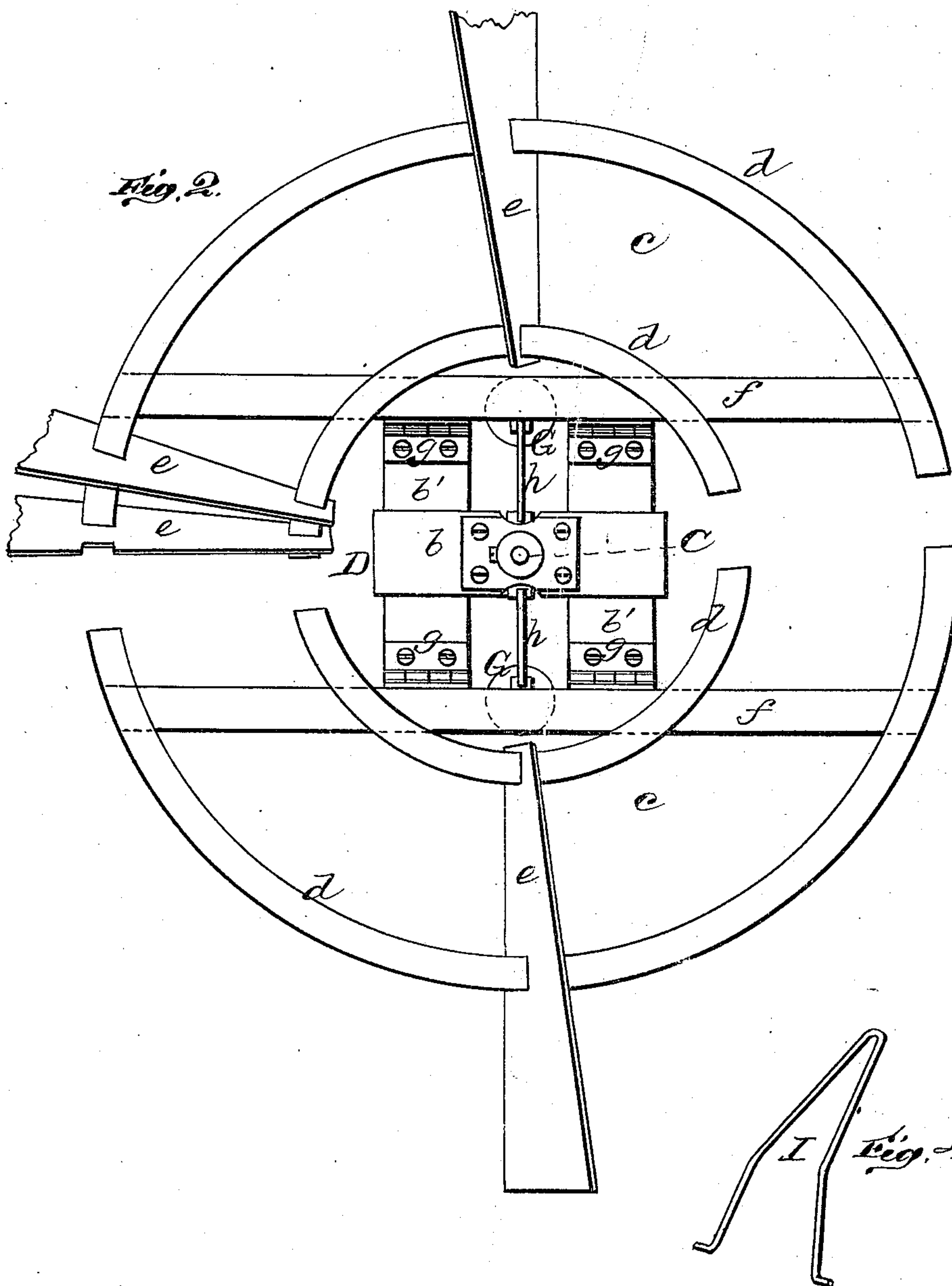
Patented Feb. 11, 1879.



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WITNESSES
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UNITED STATES PATENT OFFICE.

JOHN C. KUEMPEL, OF CLAYTON, IOWA.

IMPROVEMENT IN WIND-ENGINES.

Specification forming part of Letters Patent No. **212,236**, dated February 11, 1879; application filed September 14, 1878.

To all whom it may concern:

Be it known that I, JOHN C. KUEMPEL, of Clayton, in the county of Clayton and State of Iowa, have invented a new and valuable Improvement in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical central section of my improved wind-wheel. Fig. 2 is a front view of the same; and Figs. 3 and 4 are details.

This invention has relation to improvements in wind-engines.

The object of the invention is, mainly, to devise a wind-wheel the parts of which will automatically swing out of the wind partly or entirely, according to the force of the gust, and after the subsidence of the gale be brought back to a working position.

The nature of the invention consists in the combination, with the wind-wheel shaft and a spider secured thereto, of the sections of a wind-wheel hinged to said spider, a rod secured to the sections, a governor-ball adjustable on said rod, a slide on the wind-wheel shaft, a weighted swinging lever, having a movable fulcrum on the turn-table, and rods connecting the slide and sections of the wind-wheel, all as will be hereinafter more fully described, shown, and claimed.

In the annexed drawings, the letter A designates the tower of my improved wind-engine, the same being an upright structure, of suitable form and strength. This tower carries at its upper extremity a turn-table, B, in which the horizontal wind-wheel shaft C has its bearings. The rotary motion of this shaft transmits a vertically-reciprocating motion to a pump-plunger, or other mechanism, through the medium of a crank-arm, *a*, and a pitman, or their equivalents. At the outer end of the shaft C is rigidly secured a spider, D, composed of a hub-bar, *b*, and two parallel end pieces, *b'*, the said spider being H-shaped.

The wind-wheel E is made in two equal parts, *e*, each of which is composed of two or

more concentric ring-sections, *d*, to which are secured at the proper angle the blades *e*. These ring-sections are braced together by means of one or more chord-beams, *f*. The wheel-sections *c* are secured to the spider D by means of the hinges *g*, one of the wings of which is secured to the ends of the end pieces *b'*, and the other to the chord-beams *f*, in such manner that the said sections can swing toward or from each other, opening and closing after the manner of the backs of a book.

F represents strong metallic rods, rigidly secured to the chord-beams *f*, and projecting to the front and rear of the wheel-sections. Upon the rear extension of these rods is adjustably secured a governor-ball, G, and their front extension is connected, by means of a pivoted rod, *h*, to a sliding collar, *k*, upon the shaft C, in rear of the spider. This collar is connected pivotally to an angular vertically-vibrating lever, H, having its fulcrum in the swinging standard I on the table, and provided with an adjustable weight, *w*. The weight end of this lever is forked, the extremities of the branches of the fork being provided with eyes, in which are engaged arms upon opposite sides of the said collar.

The operation of my improved wind-wheel is as follows: It receives the wind from behind and rotates in the customary manner, the sections *c* being held to their work by the weighted lever H. When the force of the wind is such as to revolve the wheel at a speed to endanger the same, the balls G, under the influence of centrifugal motion, cause the wheel-sections to fold upon each other more or less, thus throwing them out of the wind, and bringing the blades into a position such that their flat sides are nearly parallel to the direction of the wind-currents. The blades thus act as brakes, and the harder the wind is the greater will be their braking action. Thus, in storms only so much of the surfaces of the blades are exposed as is necessary to work the driven mechanism safely. The gust having subsided or decreased, the weighted lever H throws the wheel-sections partly or wholly into the wind, as the case may be, automatically. The wheel-sections are thrown out of the wind for repairs or other purposes from the ground by means of a rope

or chain, R, fastened to lever H, passing over a pulley, *p*, upon a standard, *q*, and reaching down to the ground or platform.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a wind-engine, the combination, with a main shaft, C, having a spider, D, of the half wind-wheel sections hinged to said spider, the rods F, projecting rearwardly from said sections, and the governor-balls G on said rods, arranged and operating substantially as set forth.

2. The combination, with the main shaft C,

a spider, D, secured thereon, the half wind-wheel sections *c*, hinged to the spider, and a governor, F G, on each of said sections, of a sliding collar, *k*, pivoted rods *h*, angular lever H, and the swinging standard I, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN C. KUEMPEL.

Witnesses:

C. H. KUEMPEL,
HENRY SHARP.