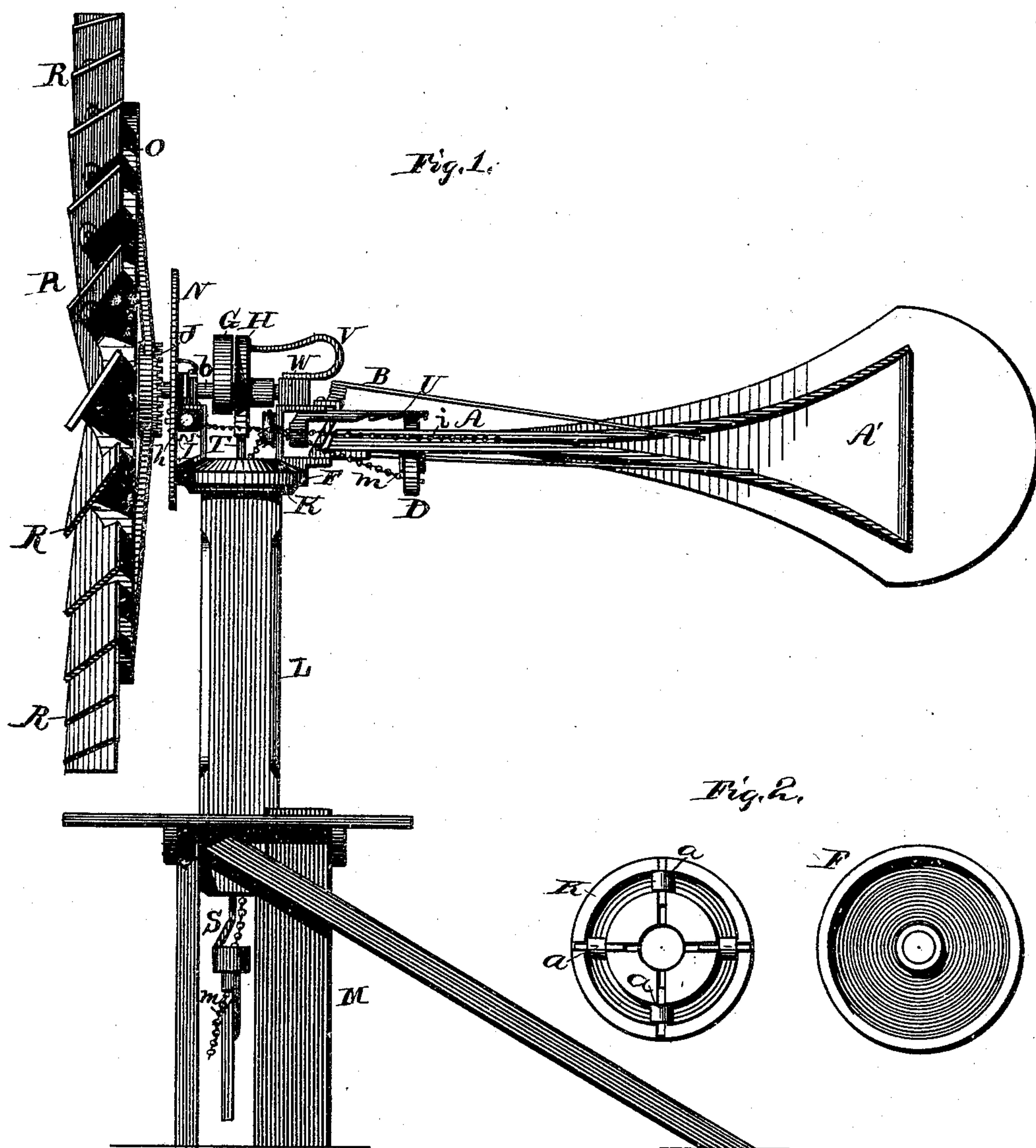


W. F. CORNELIUS.
WIND-MILL.

No. 170,992.

Patented Dec. 14, 1875.



WITNESSES;

John F. Duhamel,
Thomas, Byrnes,

INVENTOR:

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PER

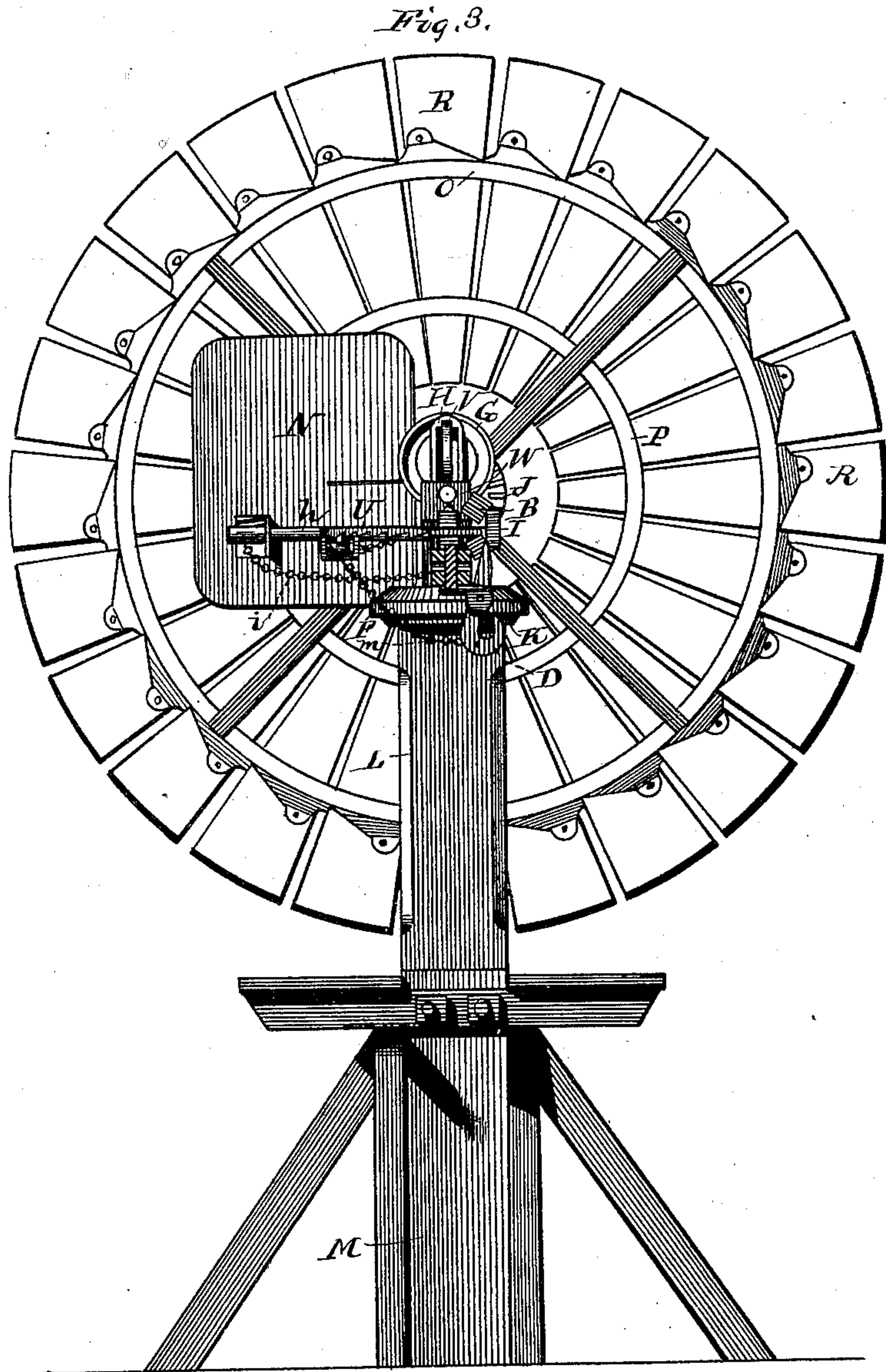
H. J. Abbot,

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Fig. 4.

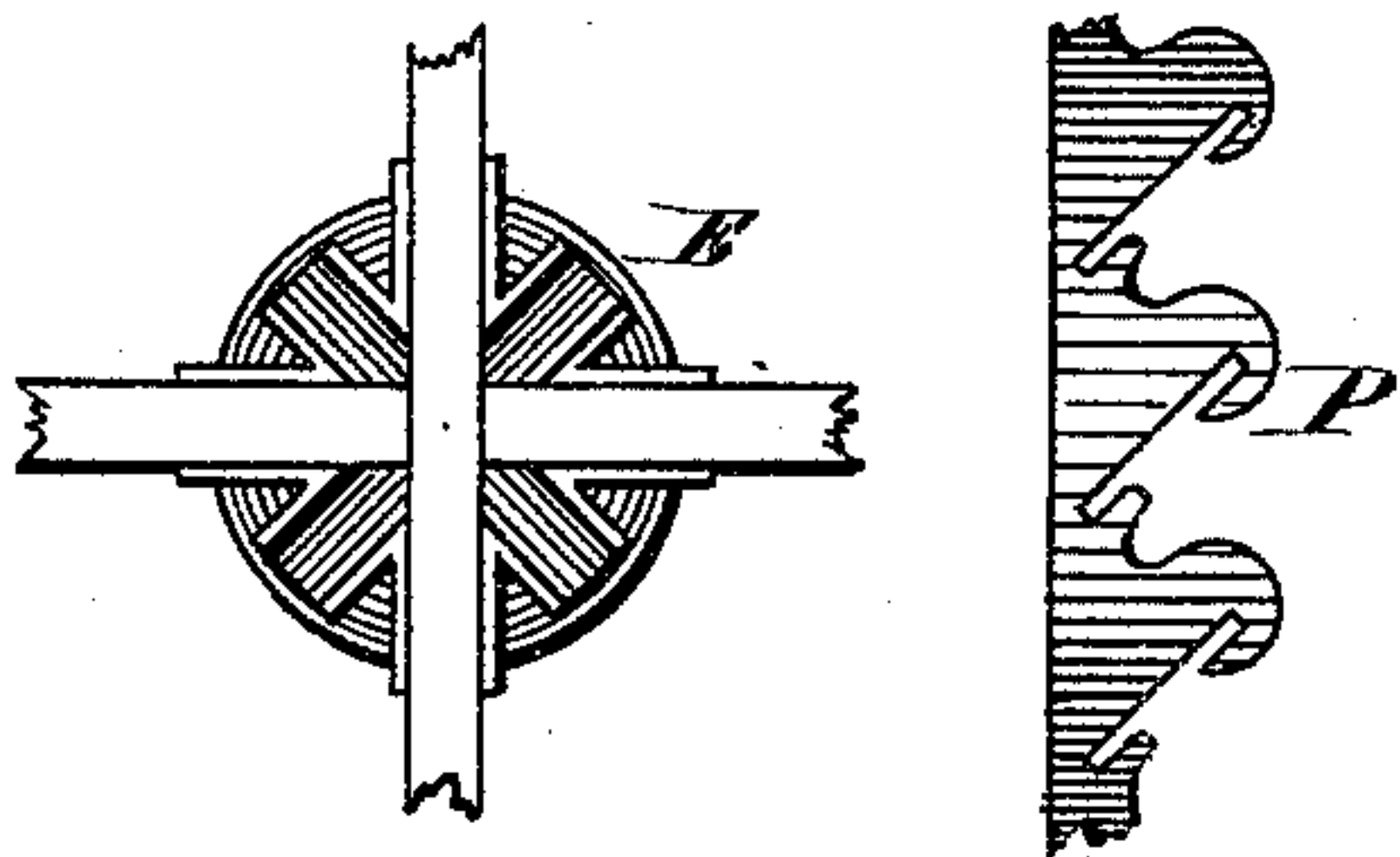


Fig. 5.

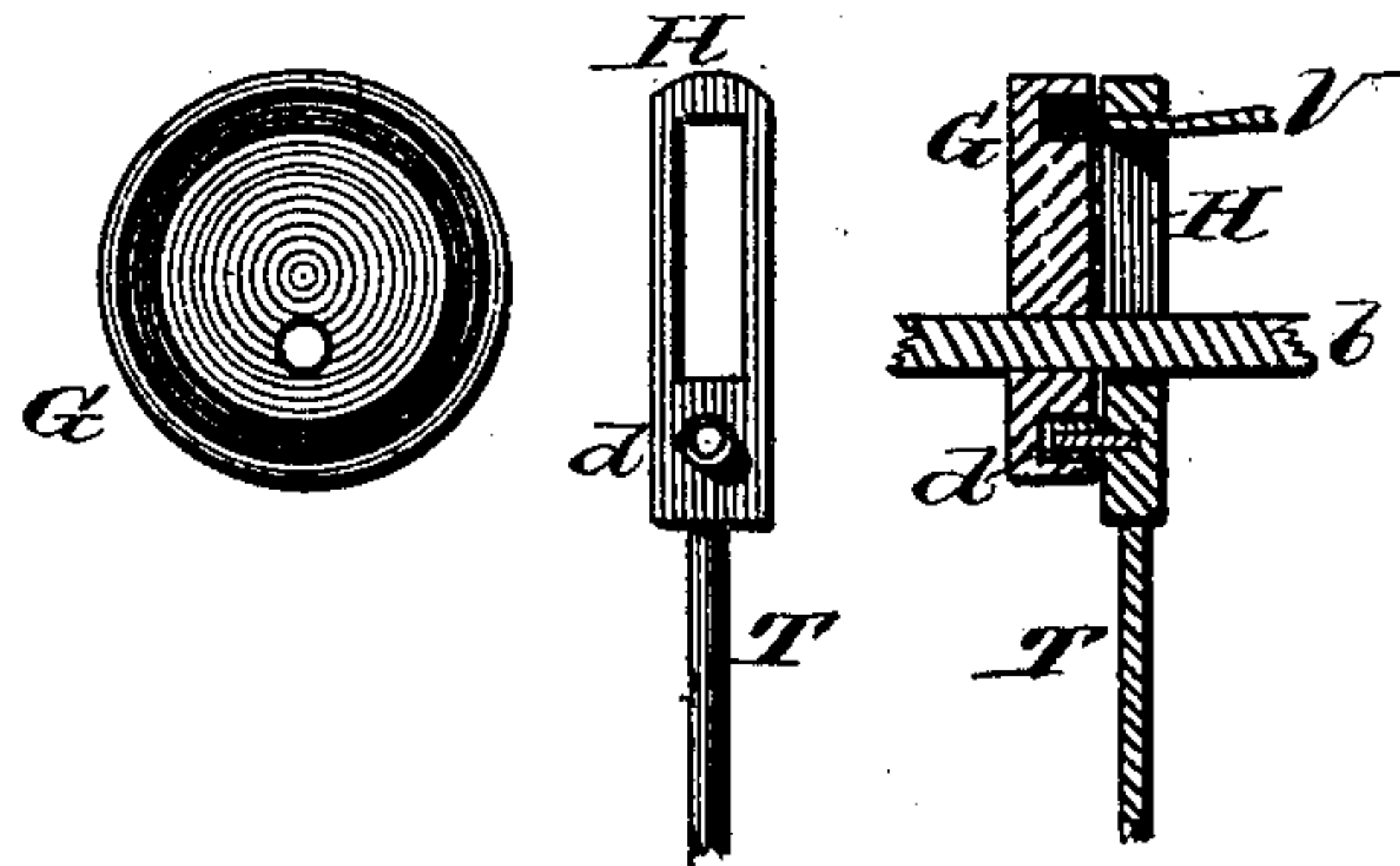
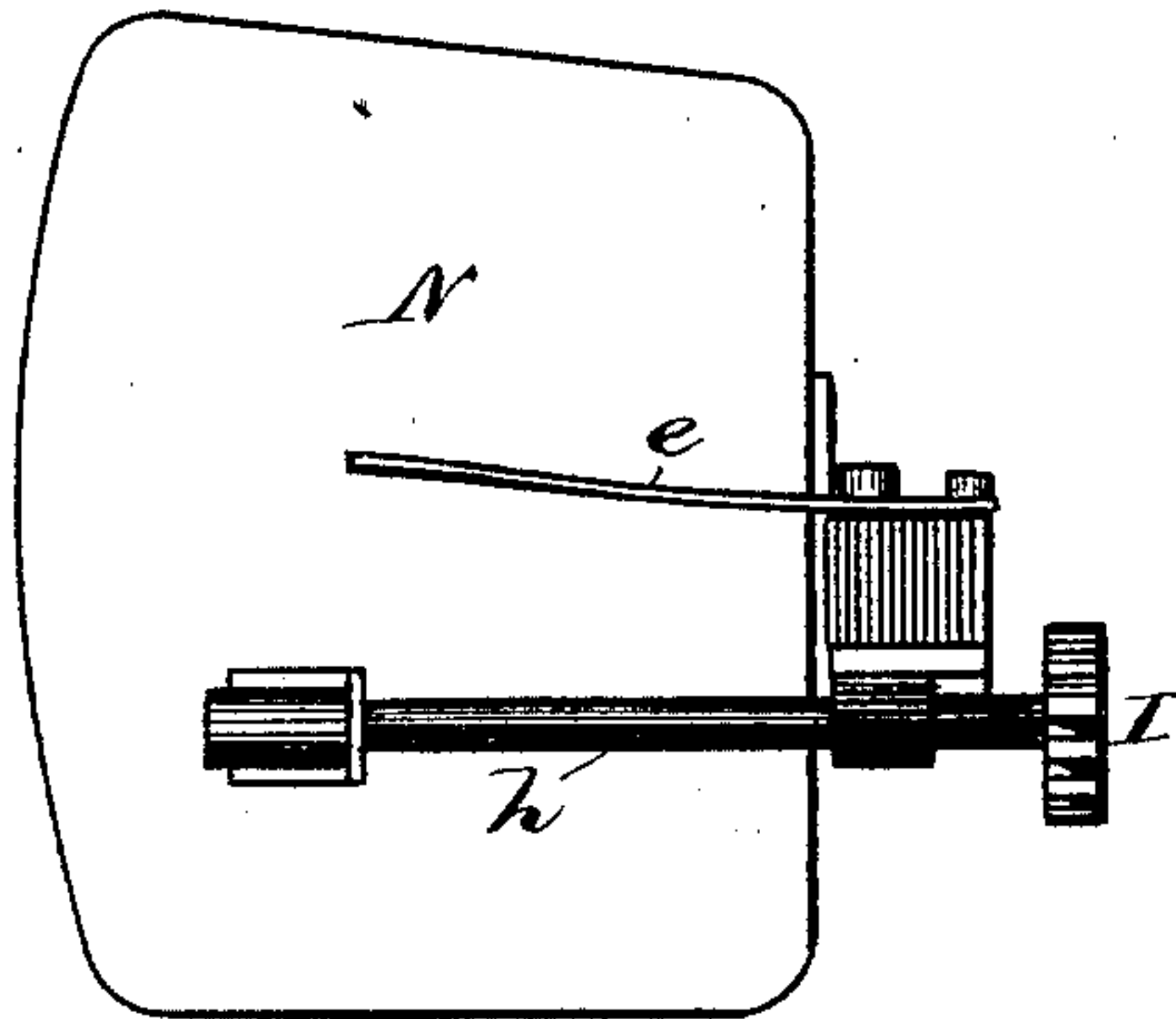


Fig. 6.



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UNITED STATES PATENT OFFICE

WILBER F. CORNELIUS, OF MUNCIE, INDIANA, ASSIGNOR OF ONE-HALF
HIS RIGHT TO PHILIP F. DAVIS, OF SAME PLACE.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **170,992**, dated December 14, 1875; application filed
September 20, 1875.

To all whom it may concern:

Be it known that I, WILBER F. CORNELIUS, of Muncie, county of Delaware and State of Indiana, have invented certain new and useful Improvements in Windmills, of which the following is a specification:

The nature of my invention consists in the construction and arrangement of a windmill, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which forms a part of this specification, and in which—

Figure 1 is a side elevation, showing my invention. Fig. 2 shows detail of turn-table and cap. Fig. 3 is a rear view. Figs. 4, 5, and 6 are detailed views.

M represents the derrick-post, to which the hollow post L is secured by suitable bolts, for supporting the entire windmill on its upper end. The post L is made short and separate from, though spliced to, the derrick, making it very strong, and allowing of hanging the wheel close to the post, so as to take off the strain on the wheel and shaft when subjected to strong winds. K is the bed-plate or turn-table, secured on the upper end of the post L. The upper surface of this bed-plate is formed with a circular groove, to receive the friction-rollers *a a*, and on top thereof is placed the cap or casting F, which holds the mill, and revolves on the rollers. This cap is formed with a downward-projecting flange around its circumference, to keep rain from the friction wheels or rollers. On the plate B are boxes W, in which the wheel-shaft *b* has its bearings, the wind-wheel being secured on its outer end. This wheel is composed of a spider, E, with a series of radial arms, to which the rims O and P are secured. These rims are made of wrought or malleable iron, and the inner rim P is formed with slots, to receive the ends of the vanes or paddles R, which are fastened each, with a single rivet, to projections on the outer rim O. On the wheel-shaft *b* is secured a grooved eccentric, G, into the groove on which extends a stud with friction-roller, the stud *d* projecting from

the side of a slotted cam, H, attached to the upper end of the rod T, that passes down through the cap F, turn-table K, and posts L M. By this device the plunger or rod T is made to move vertically up and down without any lateral or side motion. In connection with this I use a spring-equalizer, V, which is arranged to lift the cam H, so that if the mill draws down a given number of pounds the equalizer assists it to draw up the same number of pounds, thereby making the draft on the mill equal both up and down. This is especially of importance in pumping water, for which my windmill is particularly intended, as it takes more power for the upstroke than for the downstroke. By the use of the equalizer the motion is made even and steady. A' is the main vane, fastened in a frame, A, made of a single piece of hickory timber, sawed longitudinally both ways nearly to its end, so that it makes four prongs. Two of these prongs are spread apart for the outside rim, and the other two are spread out sufficiently to make the center brace for the vane, thereby making the vane very strong. The vane is pivoted on the cap F, and held in position by means of a spring, B. Immediately back of the wind-wheel is a storm-vane, N, pivoted on the front box, and having an ear on its rear side, through which passes a shaft, *h*, having a pivoted bearing under the front box, and carrying upon its inner end a gear-wheel, I. The vane N is held forward by means of a spring, *e*.

When the wind blows too hard the vane N is thrown back, turning the shaft *h*, so that the wheel I will mesh with a corresponding wheel, J, on the back of the wind-wheel, thereby causing the shaft *h* to be rotated. This shaft is, by a chain, *i*, connected with the vane-frame A, so that when the shaft is revolved the chain *i* will be wound up thereon, and the vane thrown more or less to one side, thereby turning the wheel out of the wind. When the two vanes are thus brought together a catch, D, pivoted on the main vane, will engage with a ratchet, V, and hold the vane there, thus also holding the mill out of gear. This can also be done by hand by means of a chain, *m*, passing over suitable pulleys and through the posts. This chain passes through

a swivel-coupling, S, which connects the upper and lower plunger-rods, so that while the part of the rod above the coupling revolves the lower part does not revolve, thereby keeping the chain from wrapping around the rod below.

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

1. The wind-wheel constructed, as described, of the spider E, with radial arms, the inner slotted rim P, the outer rim O, with projections, as described, and the paddles R, all constructed as shown and described.

2. The vane-frame A, constructed, as described, to form four prongs, spread or extended, as shown, for the purposes herein set forth.

3. In a windmill, the combination of the storm-vane N, pivoted shaft *h*, gears I J, chain *i*, and vane A A', substantially as and for the purposes herein set forth.

4. The combination of the vane A A', catch D, ratchet V, and spring B, substantially as shown and described.

5. The combination of the vane A A', catch D, and ratchet V, with the chain *i* and shaft *h*, substantially as shown and described.

In testimony that I claim the foregoing as my invention I hereunto affix my signature.

WILBER F. CORNELIUS.

Witnesses:

WALTER L. DAVIS,
Z. COFFEEN.