L. H. BENNETT.

WIND-MILL.

No. 191,299. Patented May 29, 1877.

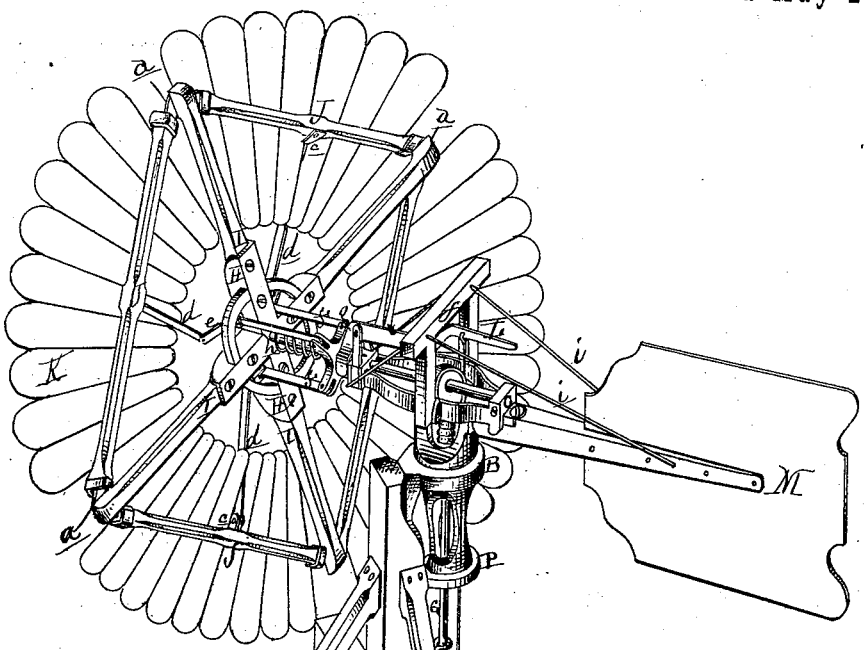

Fig. 1.

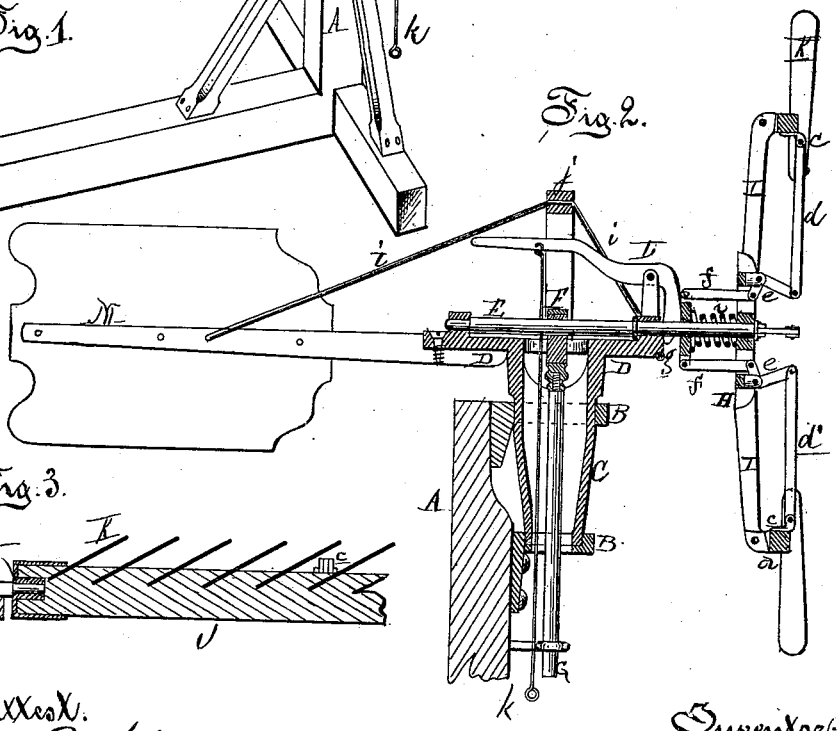

Fig. 2.

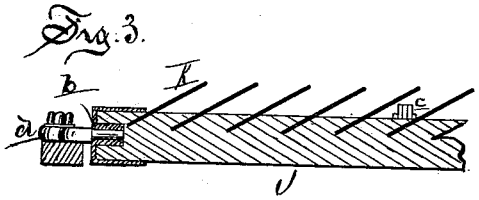

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

LEWIS H. BENNETT, OF PLYMOUTH, MICHIGAN.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **191,299**, dated May 29, 1877; application filed April 17, 1875.

To all whom it may concern:

Be it known that I, LEWIS H. BENNETT, of Plymouth, in the county of Wayne and State of Michigan, have invented an Improvement in Windmills, of which the following is a specification:

The nature of my invention relates to certain improvements in the construction of self-regulating windmills, as will be hereinafter fully described.

Figure 1 is a perspective view. Fig. 2 is a longitudinal vertical section. Fig. 3 is a longitudinal section of one end of a sail-shaft and its socket.

In the drawing, A represents a standard at the top of the tower, to which two ring-brackets, B B, are bolted, one above the other, the upper ring being the greatest in diameter. C is an inverted conical truncated cone or sleeve, stepped and journaled in the ring-brackets. D is an open frame at the top of the sleeve, forming a turn-table, the sleeve being its pivot, the sleeve and turn-table with its bearings or boxes for the wheel-shaft being cast in one piece, as clearly shown in Fig. 2. E is the wheel-shaft, longitudinally journaled in boxes at the ends of said turn-table. F is an eccentric on said shaft over the axis of the sleeve, to which is strapped the reciprocating connecting-rod G, which may actuate a pump below, or other mechanism. H is a spider at the outer end of the shaft E, having four or six flanged sockets, each of which receives a wheel-arm, I. At the outer end of each arm is an anchor-shaped socket-casting, *a*, in which, at each side, is journaled a spindle, *b*, at the end of a shaft, J, which extends to, and is in like manner journaled in, the socket at the end of the next arm I.

These shafts J also serve as braces to keep the wheel-arms in their proper relative positions.

K are sail-vanes, of wood or metal, radially inserted in grooves diagonally cut in the outer face of each shaft J, their outer ends being of greater area than the portions nearer the center of the wheel, so that the wind, acting upon them, will tend to rotate the shafts J upon their axes to turn the sail-vanes edgewise to or out of the wind, which tendency is, until the wind exceeds a given pressure or velocity, resisted by the following means: A short arm, *c*, is secured to the middle of each shaft J, projecting to the front. To it is secured a rod, *d*, whose inner end is pivoted to the outer arm of a bell-crank, *e*, pivoted at its angle to a slotted stud on the face of a segment of the hub-spider H. A link, *f*, connects the other arm of the bell-crank with one of the arms of a spider, *g*, sleeved on the shaft E, between which and the spider-hub H is interposed a strong spiral spring, *h*, which tends to force back the spider *g*, and thus keep the sail-shafts turned to present the vanes fairly to the wind, until the strength of the latter exceeds the power of the spring, when the sail-shafts will begin to turn the vanes more or less out of the wind.

M is the tail-vane, secured to the back end of the turn-table by bolting it under the end thereof, and is supported by a pair of truss-rods, *i*, passing over a hog-frame, *j*, erected over the center of said turn-table, and extending down to the front end of said table. L is a bell-crank lever, forked at the front end to embrace the shaft E, and is pivoted at its angle to a standard at the front end of the turn-table, its forked ends being interposed between the front end of said table and the back of the spider *g*. A wire, *k*, fastened to the long arm of the lever L, is carried down through the sleeve to the bottom of the tower, to enable a person, by pulling it down and securing it, to stop the mill by turning the sails out of the wind.

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

1. The combination, with the standard and ring-brackets B B, of the truncated cone or sleeve C and turn-table D, having boxes at the ends thereof, and all cast in one piece, and to which the tail-vane and shaft of the wind-wheel are secured, substantially as herein shown and described.

2. The combination of the standard A, ring-brackets B, truncated cone or sleeve C, turn-table D, having boxes at the opposite ends thereof, wheel-shaft E, tail-vane M, truss-rods *i*, and hog-frame *j*, the several parts constructed and arranged to operate in the manner herein shown and described.

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Witnesses:

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