

(No Model.)

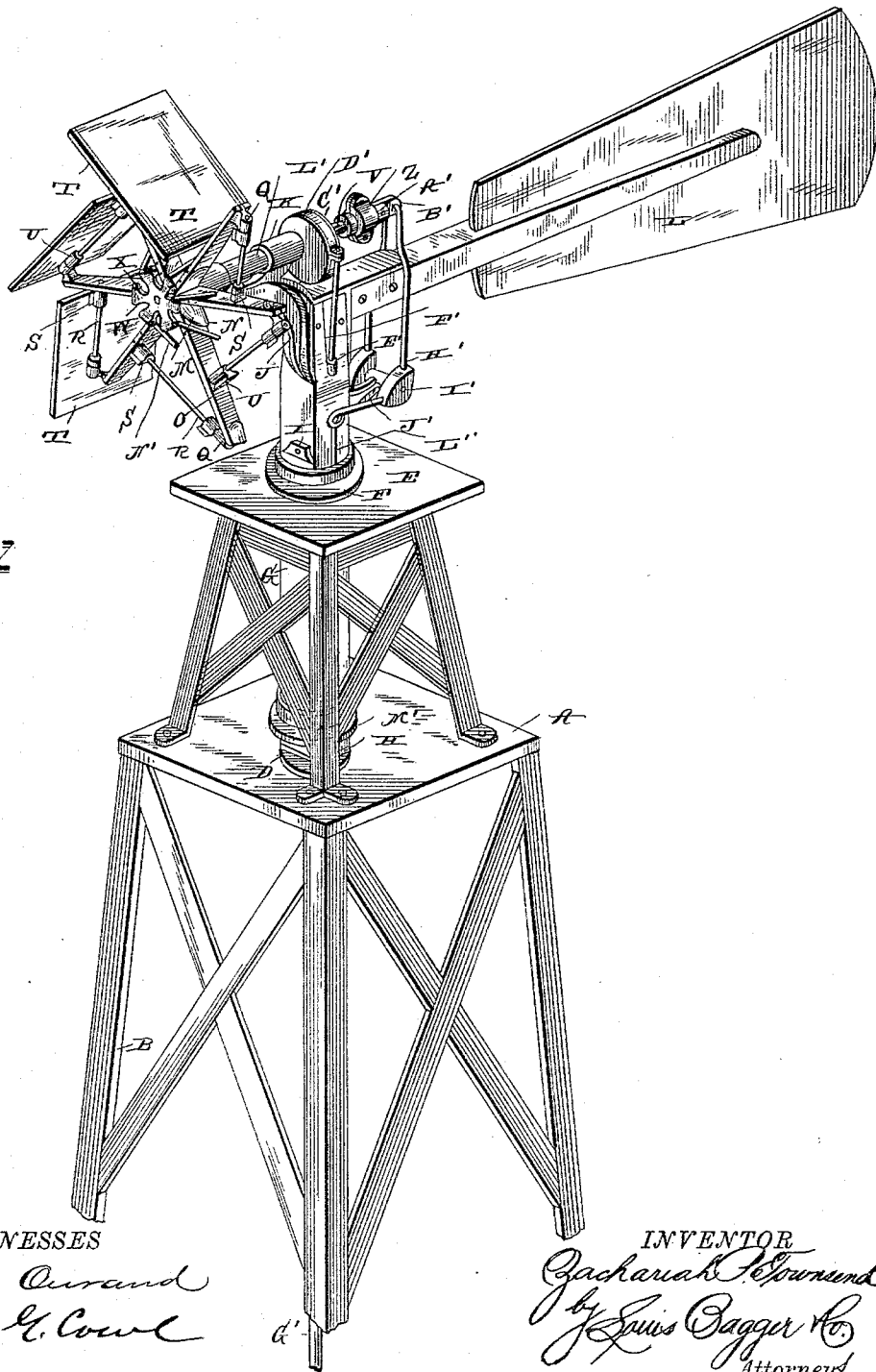
2 Sheets—Sheet 1.

Z. P. TOWNSEND.

WINDMILL.

No. 399,171.

Patented Mar. 5, 1889.



WITNESSES  
*F. L. Curand*  
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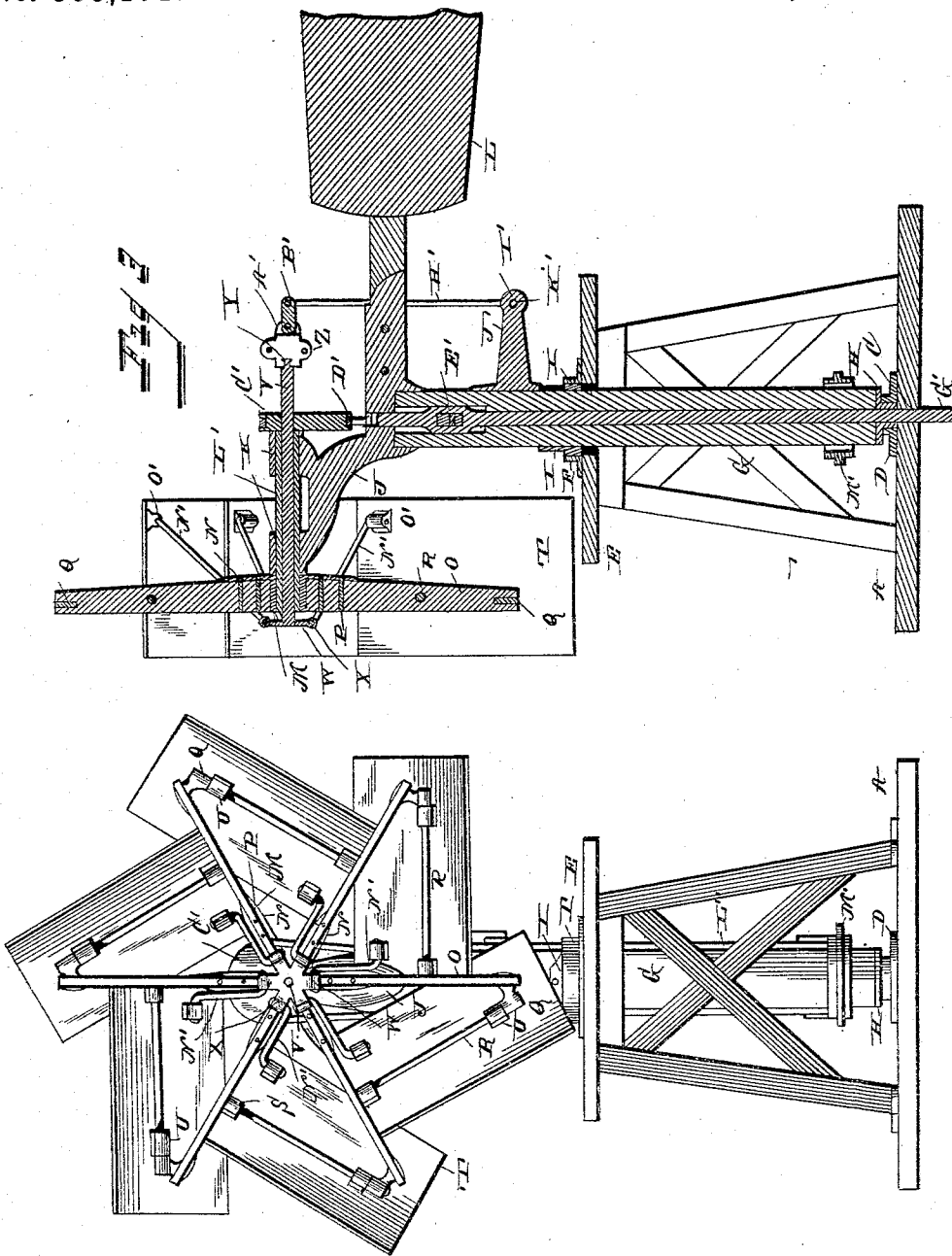
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*J. L. Curran*  
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# UNITED STATES PATENT OFFICE.

ZACHARIAH PADDOCK TOWNSEND, OF SAUQUOIT, NEW YORK.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 399,171, dated March 5, 1889.

Application filed August 18, 1888. Serial No. 283,088. (No model.)

*To all whom it may concern:*

Be it known that I, ZACHARIAH PADDOCK TOWNSEND, a citizen of the United States, and a resident of Sauquoit, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to automatic regulating windmills.

The object is to produce a device which shall be of such construction that the blades of the wheel may be automatically feathered without the employment of any intricate mechanism to produce that result, but which shall be simple of construction, efficient and durable in use, and comparatively inexpensive of production.

With these objects in view the invention consists in the combination, with the bearing-frame, of a hollow shaft journaled thereon and carrying at one end the wheel having the feathering blades, and a shaft passing through the said hollow shaft and connected to the feathering blades at one end and at the other end to a weight by suitable mechanism, the said shafts turning in unison with each other. Furthermore, in the combination, with the hollow wheel-shaft provided at one end with an eccentric, of an annular band encircling said eccentric and connected to the pump-rod; and, finally, in the various novel details of construction whereby its objects are attained.

In the accompanying drawings, in which the same letters of reference indicate corresponding parts in the several figures, Figure 1 is a perspective view of the windmill. Fig. 2 is a front view of the same, and Fig. 3 is a longitudinal vertical sectional view.

In the accompanying drawings, the letter A denotes the platform, secured to the top of the tower B. The base of this platform is formed with an aperture, C, which is encircled by a flanged apertured plate, D, while the elevated portion E of this platform is similarly provided with a flanged apertured plate, F.

G indicates the hollow standard, provided at its lower end with a flanged plate, H, the

flange of which fits and turns within the flange of plate of the base of the platform, which in conjunction form a turn-table. The intermediate portion of the hollow standard is provided with diametrically-opposite ears I, which turn within the flange of the plate secured to the elevated portion of the platform, thus furnishing a steady bearing for the hollow standard.

J designates the bearing-frame, which is provided with the bearings K, and which is secured to the upper end of the hollow standard. To the rear end of this bearing-frame is secured the vane L, of the well-known construction. A hollow shaft, L', is journaled in the bearings of the frame, and has secured to its outer end the metallic hub M, formed with the radiating three-side sockets N, which are open at their forward portions for the insertion of the radiating arms O, through which pass the bolts P, which then pass through the rear side of the sockets and are suitably secured in place, either by heading them or screwing nuts upon their ends. This construction will permit of the arms being readily removed when desired without removing the hub from the end of the shaft. To the outer ends of each of the radiating arms is secured a perforated lug, Q, in which is journaled one end of a rod, R, having its other end journaled in a bearing, S, in the intermediate portion of the adjacent arm. The feathering blades T are each provided with bearing-lugs U, which are secured thereto eccentrically or near the forward edge of the blade, and these lugs are mounted upon and turn with the rods R.

A shaft, V, passes through the hollow wheel-shaft, and has secured upon its outer end the disk W, formed with radiating perforated ears X, and the inner end of this shaft V is reduced and headed, as shown at Y, and turns with its headed and reduced end in a coupling, Z, formed at its rear end with perforated ears A', between which is pivoted a link, B'. The rear end of the hollow shaft is provided with an eccentric, C', the annular periphery of which is grooved, so as to enable it to receive and retain in place an annular collar, D', formed of two pieces clamped together. Secured to two diametrical opposite ears of this collar are two pitmen, which project down-

ward and are secured to the cross-head E', the ends of which project through two longitudinal slots, F', in the sides of the hollow standard. To this cross-head is secured the  
 5 pump-rod G', which is connected with its lower end to the pumping mechanism.

To the link B' are pivoted the upper ends of a double bell-crank, H', having the cross-rod I', turning in a bearing-arm, J', secured to  
 10 the side of the hollow standard. This bearing-arm is formed with an aperture, K', through which the cross-rod I' is lubricated. Secured to the lower ends of this double bell-crank are links L'', to the lower ends of which  
 15 are secured the weighted ring M', which encircles the hollow standard. Secured to the perforated ears of the disk W are rods N', which are cranked at each end. These rods are journaled with their rear ends in ears O',  
 20 secured to the blades near their rear edges.

The operation of the invention is as follows: As the wheel revolves it causes the eccentric to also revolve, which works the pump-rod. If the wind blows too hard, it will cause the  
 25 blades, which are pivoted eccentrically to the radiating arms, to feather, and which causes the revolutions of the wheel to decrease. When the wheel feathers, it causes the shaft V to slide rearward and the weighted ring to be  
 30 raised, and as soon as the wind decreases this weighted ring will cause the wheel to assume its normal position. It will be seen that by journaling the blades eccentrically the rear portions thereof will offer a greater surface

to the wind than that portion forward of the  
 journals, and that the wind will, therefore,  
 when too strong, cause these blades to feather,  
 as above stated. 35

From the foregoing description, taken in connection with the accompanying drawings, 40 the operation and advantages of the invention will be readily seen without requiring an extended explanation.

Having thus described my invention, I claim and desire to secure by Letters Patent of the  
 United States— 45

The windmill consisting of a hollow shaft carrying a hub provided with a series of radial arms, the blades connected to said arms by means of rods, upon which they are piv-  
 50 oted, the rod of each blade connecting with the outer end of one arm and to the intermediate portion of the adjacent arm, a second shaft passing through the aforesaid hollow shaft and provided upon one end with a disk  
 55 connected by cranked rods to said blades near the rear edges of the latter, and the double bell-crank connected with the opposite end of the said second shaft and to a weight, sub-  
 60 stantially as and for the purpose set forth. 6c

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

ZACHARIAH PADDOCK TOWNSEND.

Witnesses:

GEORGE MOULD,  
 WILLIAM F. MOULD.