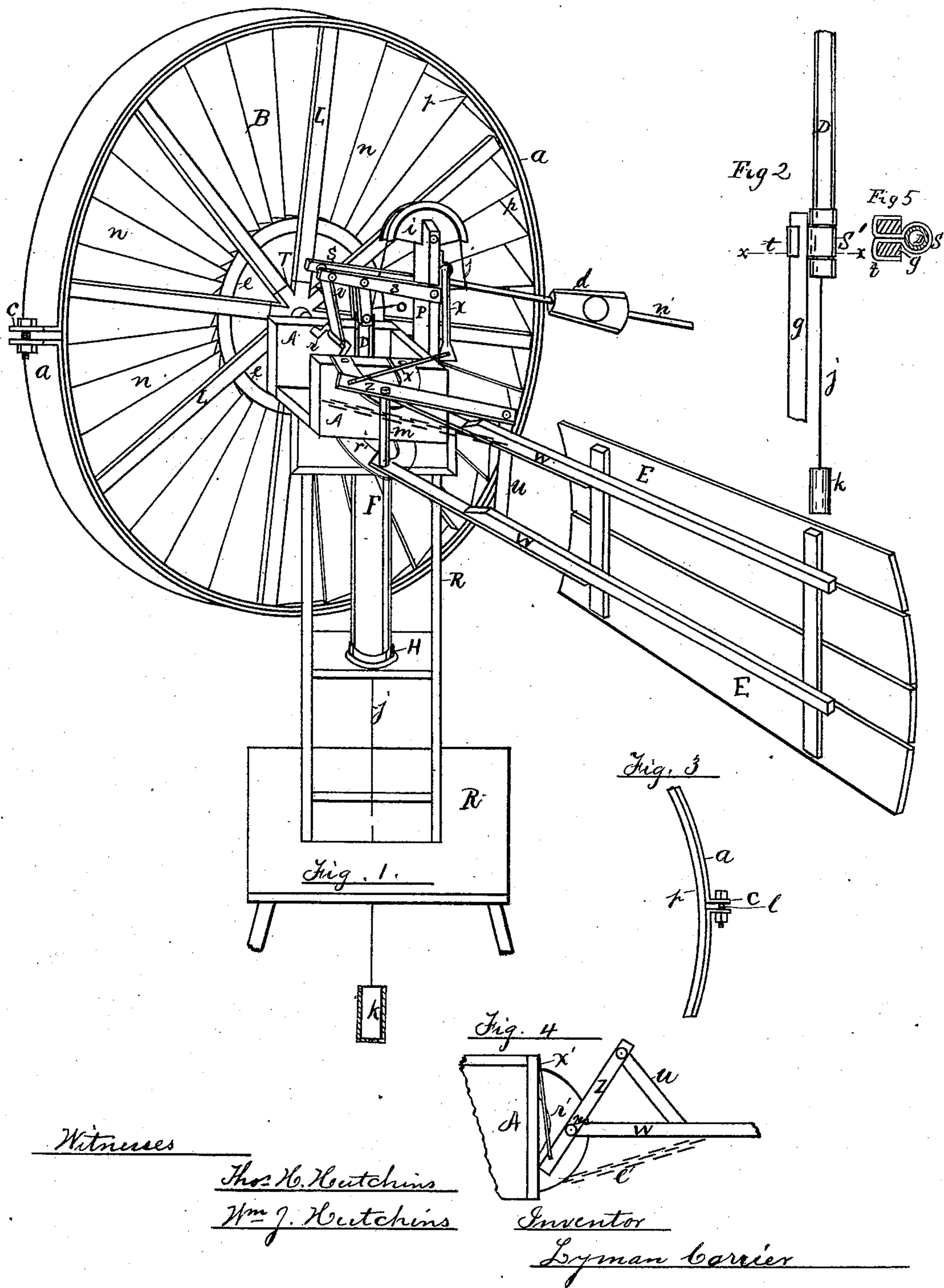


(Model.)

L. CARRIER.  
Windmill,

No. 237,959.

Patented Feb. 22, 1881.





# UNITED STATES PATENT OFFICE.

LYMAN CARRIER, OF MINOOKA, ILLINOIS.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 237,959, dated February 22, 1881.

Application filed August 30, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, LYMAN CARRIER, of Minooka, in Grundy county, State of Illinois, have invented certain Improvements in Windmills, the construction and operation of which I will proceed to explain, reference being had to the annexed drawings, making a part of this specification, and the letters thereon, in which—

Figure 1 is a perspective view; Fig. 2, vertical elevation of the pump-rod swivel-connection; Fig. 3, a side elevation of a portion of the tire around the wheel, showing how it is tightened; and Fig. 4 a plan view on the top of the hinge connecting the machine with the tail. Fig. 5 is a plan view of the swivel-connection between the hollow pump-rod and secondary pump-rod.

My invention relates to improvements in windmills; and it consists in the peculiar construction and arrangement of parts, as hereinafter more fully set forth.

In the drawings, A represents the turn-table that supports the working parts of the mill, which turn-table, in turn, is supported on and turns with the pipe F, which pipe F stands and turns in the step H in the upper part of the tower R. The turn-table A is intended to be constructed of wood, hard maple being deemed preferable, so that it may soak and fill full of oil from the cups at the journals of the main crank-shaft *r*, which obviates the necessity of oiling these journals oftener than every three to six months.

The wheel B is constructed on the plan called a "solid wheel," with either ends of the fans held in gains cut diagonally in the circular wood bands *e* and *p*, in which they are held firm, while these bands are bolted and fastened to the radial arms L of the wheel centering in the metal spider T, which is attached to the crank-shaft *r*. The whole wheel B is encircled at its periphery by a metal tire, *a*, which is cut in one or more places, and the ends turned up to form outwardly-projecting flanges *c*. (Shown more particularly in Fig. 3.) These flanges *c* are provided with holes and a bolt or bolts, *l*, to draw the tire up tightly around about the periphery of the wheel B, to tighten it up in case it gets loose or shaky from any cause. The wheel B is attached to the crank-shaft *r*, which crank-shaft gives motion to the other

machinery. The pitman *v* connects the crank to the walking-beam S at its outer end, while the other end of the walking-beam S is hinged to the upright post P, forming its fulcrum, and the pitman *o* attaches the tubular pump-rod D to the walking-beam S at about the center, making a very simple device for operating the pump-rod D. The walking-beam S is constructed in two parts for the purpose of allowing the cord *j* to pass down between them through the length of the hollow pump-rod D, and also prevents the walking-beam S from bending off sidewise at the crank end on account of the wide space between the two halves at the post P.

The wheel B and crank-shaft *r* are set in the turn-table A, a little to one side of the center of the tubular post F, on which it turns, so that when the wind presses hard against the wheel it has a tendency to turn the turn-table A and double up the tail E parallel with the wheel B, so the wheel will stop, being out of the wind. This is accomplished by the manner in which the tail E is hinged to the turn-table.

At the rear of the turn-table A, opposite the wheel B, and projecting from both the upper and lower corners, are lugs *r'*, Fig. 4, to which the tail is hinged by the pin *m*, Fig. 1, passing down through the frame *w* of the tail and the lugs *r'*, about central with the turn-table, forming a hinge at that place, upon which the tail E swings. The tail E is held in proper position by means of the weight *d* on the lever *n'*, in connection with the levers *x*, *x'*, *z*, and *w*. When the weight is raised up the tail will fold up to be parallel with the wheel B, on account of the operation of the system of levers just named. This weight may be placed along on the lever *n'* at any place to regulate the amount of power necessary to fold the tail. When the wind blows too hard the wheel B, being one side of the center, will turn around, so as to bring the tail flat against the wind, the result of which will be to fold the tail up parallel with the wheel and hold it there until the wind subsides, when the weight *d* will bring the tail back again at about right angles with the wheel, as shown in Fig. 1.

The cord *j* passes through the pump-rod D its entire length over the half-circular walk-



ing-beam *i* on the upperend of the post *P*, and being attached at its upper end to the lever *n'* and at its lower end to the bucket *k*. It is intended that this bucket *k* shall fill with the  
 5 overflow of water from a trough, and when full will, by its weight, raise the lever *n'* and fold the tail up with the wheel in the manner described, to prevent the pump from running any longer. This bucket *k* is provided with a small  
 10 hole in its bottom to let the water out very gradually, so as to unfold the tail when necessary to set the wheel toward the wind and cause it to run again.

In order to allow the mill to turn without injury to the pump-rod *D*, a swivel, *S'*, is provided at its lower end, as shown in Figs. 2 and 5, the lower end of the hollow pump-rod being inserted in the cylinder *S'* and turning therein. To the back face of the hollow cylinder *S'*  
 20 are secured the rectangular hollow pieces *t t*, in which are inserted the split ends of the secondary wooden pump-rod *g*, by means of which swivel *S'* the tubular rod *D* is jointed to a secondary wooden pump-rod, *g*, which arrangement permits the pump-rod *D* to turn with the  
 25 mill.

The weight *d*, it will be observed, acts as a governor to regulate the speed of the mill, causing it to face the wind at any angle or position according to the velocity of the wind.  
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I am aware that strengthening-bands have heretofore been applied to cylinders, and I therefore lay no claim to such invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit: 35

1. The combination, with the wheel *B*, composed of the concentric bands *e h*, provided with gains, fans *n n* inserted therein, central spider *T*, and radial arms *L*, of the transversely-cut tire *a*, provided with the flanges *c* and headed bolts *l*, provided with nuts on their screw-threaded ends, substantially as described, and for the purpose set forth. 40

2. The combination, with the turn-table *A*, centrally pivoted in the tower by means of the pipe *F*, of the wheel *B*, having the bearings of its crank-shaft upon the side of the turn-table, hollow pump-rod *D*, walking-beam *S*, circular lever *i*, cord *j*, bucket *k*, provided with an orifice in its bottom, lever *n'*, provided with the adjustable weight *d*, and pivoted tail *E*, connected with the lever *n'*, substantially as described, and for the purpose set forth. 45

3. The combination, with the hollow pump-rod *D*, of the hollow cylinder *S'*, rectangular hollow pieces *t t*, secured thereto, and secondary wooden pump-rod *g*, having a divided upper end, substantially as described, and for the purpose set forth. 50

LYMAN CARRIER.

Witnesses:

THOS. H. HUTCHINS,  
 DAVID B. PRINCE.