

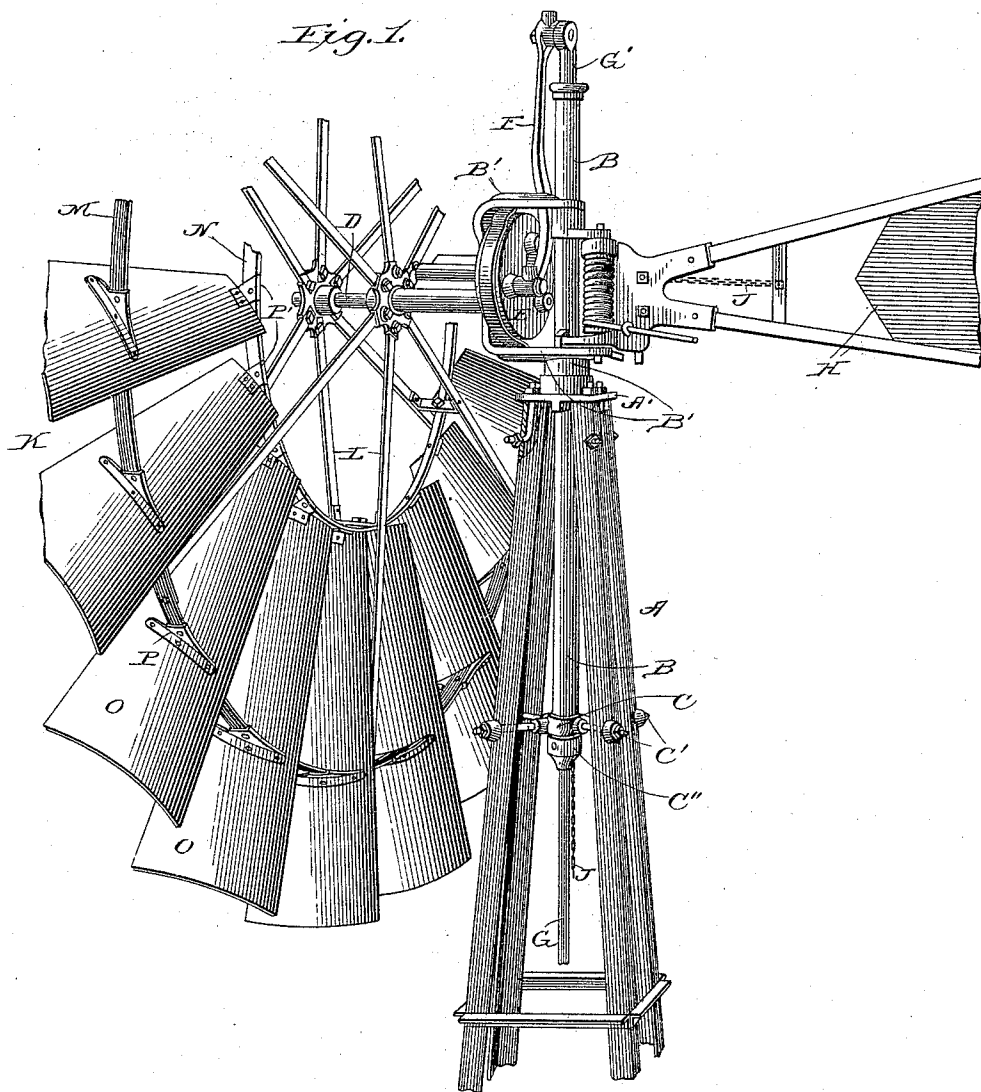
(No Model.)

2 Sheets—Sheet 1.

H. WOODMANSE.
WINDMILL.

No. 537,594.

Patented Apr. 16, 1895.



witnesses:

Harry E. Potter.
Herbert Bradley

Inventor:

H. Wordmanance
By Niles Greene,
Att'y.

(No Model.)

H. WOODMANSE.
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2 Sheets—Sheet 2.

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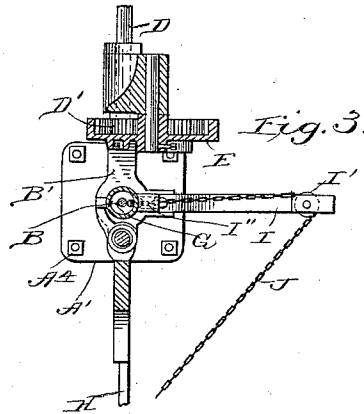
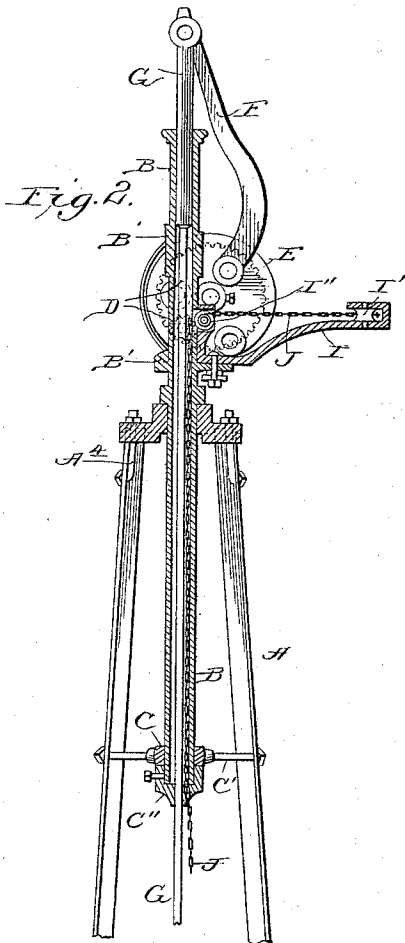


Fig. 4.

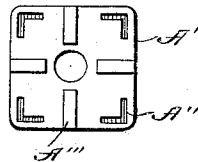
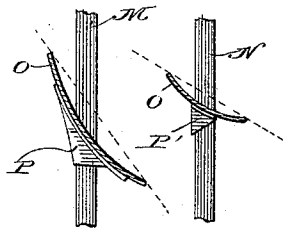


Fig. 5.



witnesses:

Harry D. Rohrer.
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Inventor:
H. Woodmanse
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UNITED STATES PATENT OFFICE.

HARRISON WOODMANSE, OF FREEPORT, ILLINOIS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 537,594, dated April 16, 1895.

Application filed November 23, 1893. Serial No. 491,781. (No model.)

To all whom it may concern:

Be it known that I, HARRISON WOODMANSE, a citizen of the United States, residing at Freeport, in the county of Stephenson, in the State of Illinois, 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

15 which it appertains to make and use the same. Windmills must be inexpensive or they cannot be purchased in sections where they are most needed; they must be simple because being somewhat inaccessible the working parts receive usually little attention; and they must be strong for not only are they occasionally subjected to enormous strain but the strain is one subject to great and sudden changes. With these points in view such novel details of construction as hereinafter appear have been employed.

In the drawings, Figure 1 is a perspective view of the principal parts of a windmill embodying my invention. Fig. 2 is a central vertical section of the same in the plane parallel to the windwheel. Fig. 3 is a horizontal section in the plane of the windwheel axis. Figs. 4 and 5 are detail views.

Referring to the drawings, A is a tower having corner posts of steel bent to the cross section of a common angle-iron and suitably connected and braced. Upon the top of this tower is placed a centrally open plate A', provided upon its lower side with recesses A'' to receive the ends of the posts, respectively, and also with strengthening ribs A''' which serve also the additional purpose of adapting the plate for use without change when common square wooden posts may be desired in place of those shown. The plate is further secured to the posts by bent bolts A⁴ passing down through the plate and then out through the posts, respectively, at their angles. Upon the plate rests a mill head which consists of an axial pipe B, a main frame B' cast about the middle portion of the pipe and forming with it a rigid whole, and of certain other parts which are detachable. The pipe projects above the part B' and also extends down through the plate A', which forms its principal bearing, into the tower where its lower end is held in line by a bearing C ad-

justably supported by threaded bolts or rods C' passing from it through the several corner posts. A collar or cap C'' secured to the pipe just below the bearing, prevents upward displacement.

In the main casting B' is mounted a wind-wheel shaft D bearing at its inner end a pinion D' and with this pinion meshes a larger crank-plate gear E bearing a long pitman F which extends above the upper end of the pipe B and there engages a reciprocating rod G whose enlarged upper end fits the interior of the tube, by which alone it and the upper end of the pitman are guided. Opposite the wheel, a vane H is pivoted to the main casting, and midway between wheel and vane, in angular distance, is a rigid radial arm I, bolted to the lower part of the main casting. The windwheel automatically swings out of the wind under the conditions that usually cause such movement in other windmills, and it is at will thrown out by a chain J secured to the vane at some distance from the vane pivot and passing around a pulley I' at the outer end of the arm I, thence over a pulley I'' which projects from the inner end of the arm into a slot cut through the wall of the pipe at this point, and thence down within the tube and out at its lower end. It is to be noted that the enlarged upper end of the rod G, even at the lowest limit of its stroke, is above the point of the chain's entrance.

The wheel K is itself wholly of metal and for the most part without novelty. Its radial arms L bear outer and inner rims M, N, each a flat bar bent into a circle. The outer one passes centrally through the whole series of bats or sails O, which are curved to approximately trough like form and are held with their outer ends much less inclined to the plane of the wheel than their inner ends by means of clips P, P' making different angles with that plane and riveted or bolted to the two rims, respectively, and to the sails.

What I claim is—

1. The combination with the axial tube and the rod therein having an enlarged upper portion fitting the bore of the tube and projecting above the latter, of a windwheel, a vane, devices connecting the windwheel with the projecting part of the rod to reciprocate the latter, and a chain connected to the vane, en-

tering the tube below the path of said enlarged portion, and passing downward in the tube alongside the body of the rod.

2. The combination with the large axial
5 tube, the windwheel casting rigidly fixed thereto, and the windwheel shaft bearing the pinion, of the crank-plate gear engaging the pinion and carrying a pitman, the small rod
10 having an enlarged portion fitting the bore of the tube, projecting above the latter and connected to the pitman, a vane, and a chain connected to the vane, entering the tube below the path of said enlarged portion and
15 passing downward in the tube alongside the body of the rod.

3. The combination with the large axial

pipe having the windwheel casting rigidly fixed upon its middle portion, of the rod lying in the same and having its upper portion enlarged to fit its bore, the vane pivoted in said
20 casting, the arm fixed to said casting and bearing at its outer end a guide and at its inner end a pulley which projects through the wall of the pipe below the lower limit of the motion of said enlarged portion of the rod,
25 and a chain attached to the vane and passing over said guide and pulley and thence downward alongside the smaller portion of the rod.

HARRISON WOODMANSE.

Witnesses:

THEO. D. HEWITT,
A. ZIMMERMANN.