

J. A. CARLSON.

WINDMILL.

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996,309.

Patented June 27, 1911.

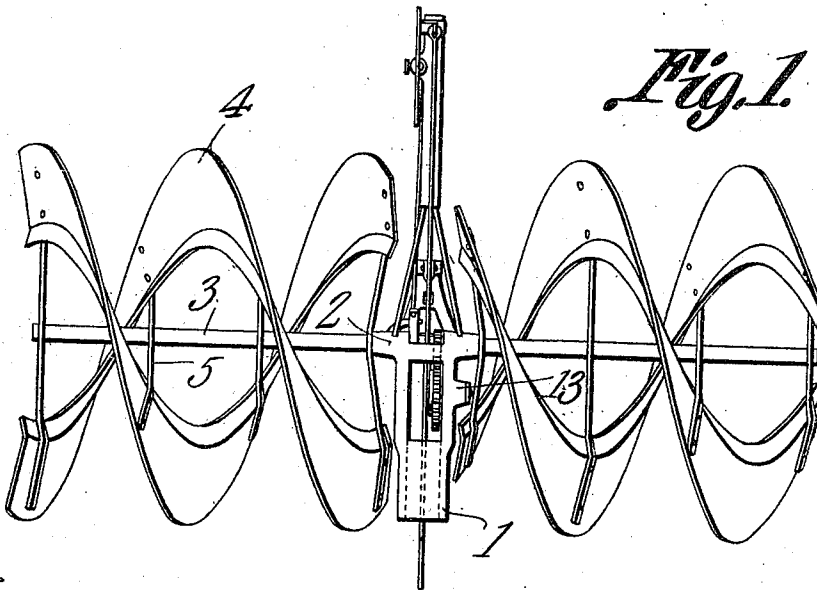


Fig. 1.

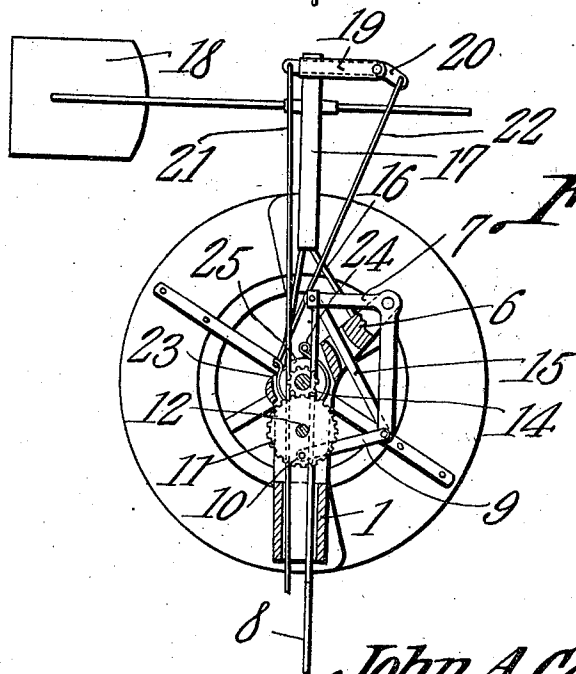


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN A. CARLSON, OF CHICAGO, ILLINOIS.

WINDMILL.

996,309.

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To all whom it may concern:

Be it known that I, JOHN A. CARLSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Windmill, of which the following is a specification.

This invention relates to windmills and is more particularly an improvement upon the structure shown in an application filed in the United States Patent Office by me on August 17, 1909, said application bearing Serial Number 513,286.

One of the objects of the present invention is to simplify the mechanism utilized for actuating the pump rod and to provide a head having elongated bearings for the shafts and whereby the said shafts are more firmly supported and better able to withstand the pressure of the wind.

A further object is to provide wheels having spiral blades, the said blades being connected to the shaft by means of spokes, the inner ones of which are so shaped as to permit the blades to work close to the head without interference by the elongated bearings.

A still further object is to simplify and otherwise improve upon the brake mechanism used in connection with the mill.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is an elevation of the head and the mechanism supported thereby. Fig. 2 is a central vertical section through the head and showing the pump rod mechanism and the brake mechanism in elevation.

Referring to the figures by characters of reference 1 designates a tubular head mounted for rotation upon the tower of the mill in the usual manner, this head being formed with oppositely extending tubular arms or projections 2 within which is journaled the middle portion of a shaft 3. The said shaft extends entirely through the head and in opposite directions therefrom, each end portion of the head being provided with spiral blades 4 similar to the blades disclosed in my application hereinbefore mentioned. These blades are preferably connected to the shaft by means of the spokes 5, the innermost

spokes or, in other words, those spokes nearest the head 1, being preferably bowed so as to permit those ends of the blades 4 nearest the head to work in planes close to the head and without interference by the bearing arms 2.

An arm 6 extends upwardly from the head 1 and is preferably inclined relative thereto, there being a bell crank lever 7 fulcrumed within this arm and having its upper portion pivotally connected to the pump rod 8 which extends downwardly within the head 1. The downwardly extending arm of the bell crank lever is connected, by means of a link 9, with a wrist pin 10 extending from a gear 11 the shaft 12 of which is journaled within a laterally extending projection 13 formed upon the head. The gear 11 meshes with and receives motion from a gear 14 which is secured to the shaft 3 and is located within the head. The free ends of the two arms of lever 7 are preferably connected by a brace 15 which extends through the arm 6 and is movable freely therein.

Upwardly converging standards 16 are secured to the head 1 and its arm 6 and are connected to and support a tubular standard 17 which is above the head 1 and in alinement with the longitudinal axis of said head. This standard carries the vanes, one of which has been indicated at 18, it being understood that it is designed to utilize an arrangement of vanes such as has been disclosed in my application hereinbefore mentioned. Inasmuch, however, as these vanes do not constitute any part of the present invention, it has not been deemed necessary to illustrate both of them or the mechanism combined therewith. The standard 17 has an arm 19 extending therefrom and to which is connected a lever 20. One end of this lever has a rod 21 pivotally attached to it and extending downwardly through the head. The opposite end of the lever 20 is pivotally connected to a rod 22 the lower end of which is attached to one end of the band 23 of a friction brake, the other end of this band being secured to the head as indicated at 24. The said band extends partly around a brake wheel 25 which is secured to and adapted to rotate with the shaft 3.

It will be understood that when the mill is in operation the rotating shaft 3 will drive the gear 11 and the link 9 will thus be oscillated and cause the lever 7 to work

the pump rod 8. The brake can be readily applied at any time by the longitudinal actuation of the rod 21 which, when pulled downwardly, will swing lever 20 on its fulcrum so as to cause the rod 22 to bind the brake band 23 onto the wheel 25. Importance is attached to the fact that the head is provided with elongated bearing arms 2 so as to enable the shaft 3 to be held rigidly and better able to resist the pressure of the wind traveling at angles to the longitudinal axis of the shaft. By bowing the inner spokes 5 the inner ends of the blades 4 can be brought close to the head in spite of the arms 2. Moreover by employing the elongated bearing arms 2 it becomes unnecessary to utilize a frame in which the outer ends of the shaft 3 may be journaled.

It is to be understood of course that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing any of the advantages of the invention as defined in the appended claim.

What is claimed is:—

A windmill including a head mounted for rotation, oppositely extending alining tubular arms upon the head, a shaft journaled

within the head and arms and extending beyond opposite sides of the head, spokes radiating from the shaft and bearing against the outer ends of the arms, said spokes converging toward their ends, the ends of the spokes being movable around the arms and close to the head, additional spokes connected to the shaft, spiral blades secured upon the spokes and extending around the shaft, the inner ends of the blades lying close to the head and the said arms projecting between said inner ends, a gear journaled within the head, another gear secured to the shaft and meshing with the first-mentioned gear, a bell crank lever connected to the head, means for transmitting motion thereto from the gears, and a pump rod actuated by said lever, there being a brace movable with the lever and guided within the head.

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

JOHN A. CARLSON.

Witnesses:

CLAES JOHAN IVENSON,
AUGUST CARLSON.