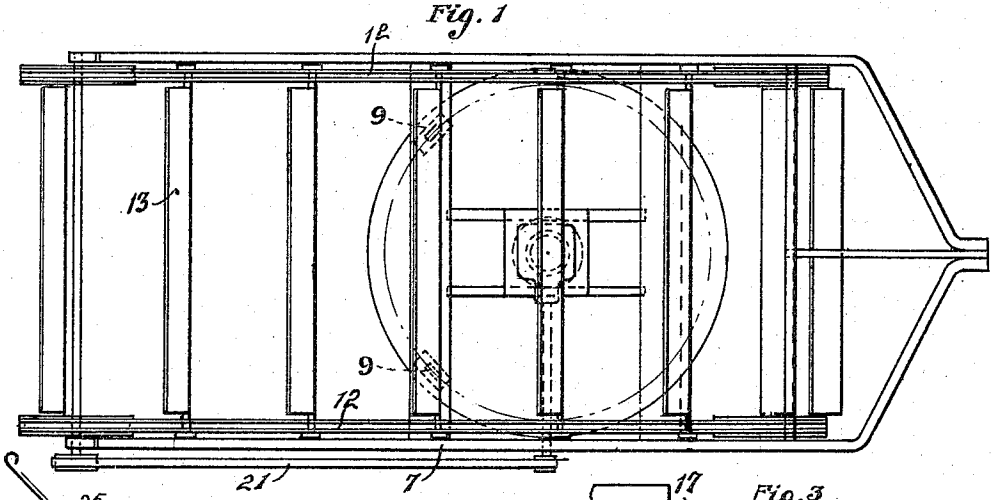
W. BLACKMORE.

WIND MOTOR.

APPLICATION FILED JULY 7, 1914.

1,187,601. Patented June 20, 1916.

Fig. 1



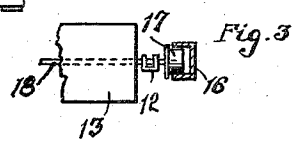


Fig. 3

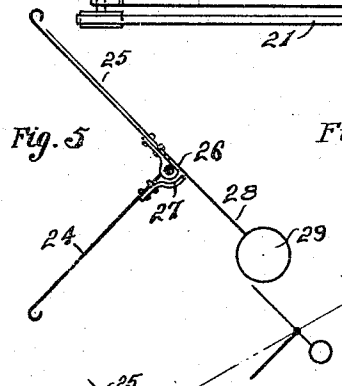


Fig. 5

Fig. 4

Fig. 2

WITNESSES

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WILLIAM BLACKMORE, OF CLEVELAND, OHIO.

WIND-MOTOR.

1,187,601. Specification of Letters Patent. Patented June 20, 1916.

Application filed July 7, 1914. Serial No. 849,543.

To all whom it may concern:

Be it known that I, WILLIAM BLACKMORE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Wind-Motors, of which the following is a specification.

The invention relates to wind mills or motors; and has for its primary objects: the provision of a motor of compact form and having a high degree of efficiency. Certain embodiments of the invention are illustrated in the accompanying drawings wherein—

Figure 1 is a plan view of the apparatus, Fig. 2 is a side elevation of the apparatus with certain of its parts broken away to more clearly disclose the details in the construction, Fig. 3 is an enlarged detailed section showing the means for preventing endless carrier from sagging, Fig. 4 is a diagrammatic side elevation of a modification and Fig. 5 is an enlarged detailed view of one of the features of construction shown in Fig. 4.

Referring first to the general arrangement of the parts as shown in Figs. 1 and 2, 1 is a supporting base which may be masonry or any other desired construction and is provided upon its upper face with the metal plate 2. The supporting base is provided with an upright pivot member 3 which serves as an axis of rotation for the framework of the motor permitting such framework to swing in a horizontal plane, depending upon the direction in which the wind is blowing.

The framework 4 of the motor may be of any desired construction, but is preferably built of commercial sections and includes horizontal members 5, upright members 6 and inclined members 7, these parts being connected by the diagonal braces illustrated, giving a truss construction of the necessary rigidity. The lower portion of the framework is provided with a bearing member 8 fitting over the pivot member 3 and also carries roller 9 leaning upon the metal plate 2, so that the framework may move about its vertical axis with a minimum amount of friction. At the two ends of the framework are the sprocket pulleys 10 and 11, over which rides an endless carrier consisting of the chains 12. The chains 12 carry a plurality of transversely extending vanes 13, such vanes each comprising the upright wing and a laterally extending wing so that the vane is substantially V-shaped in cross-section.

The vanes 13 are fixed against rotation with respect to the chains 12, so that the vanes on the upper side or upward flight of the carrier catch the wind as it flows in the direction indicated by the arrow while the vanes on the lower side of the carrier present angles to the wind and therefore offer a minimum amount of resistance to the movement of the lower portion of the carrier to the left. In order to reduce still further the resistance on the vanes of the lower half of the carrier, the shielding members 14 and 15 are provided, the member 14 being located at the end of the carrier and the member 15, which is preferably of canvas, being located between the upper and lower sides of the carrier. The wind pressure is thus substantially cut off from the lower side of the carrier.

In order to prevent the carrier chains from sagging, channel guide members 16 (Figs. 2 and 3) extend along the sides of the chains, and in these guides are mounted rollers 17 carried by the vane shafts 18. This arrangement reduces the friction and serves to maintain the vanes in their proper relative positions, the requirement for a support of this kind of course becoming more imperative as the size of the machine increases. In order to keep the device toward the wind a vane 19 (Fig. 2) is preferably employed, although any other suitable means for accomplishing this purpose might be substituted.

The power generated by the apparatus may be utilized in different ways. In the construction illustrated an electric generator 20 is placed upon the framework, and this around the pulley 22 mounted upon the vane shaft which carries the sprocket 10. If so desired that the power may be used directly for pumping or for transmission in any of the ways known in the art, the means whereby the power is utilized being immaterial in so far as my invention is concerned.

The method of operation will be readily understood from the foregoing description. The vane 19 causes the framework to position itself so that the endless carrier is in alinement with the direction of the flow of air. The air currents, moving in the direction indicated by the arrow, engage the rear sides of the vanes 13 on the upper side of the carrier causing this portion of the carrier

to move to the right. The V-shaped construction of the vanes insures the efficient application of the current of air thereto, and, because of the inclined or oblique position of the carrier, each vane is exposed to an unobstructed current of air, and the work is uniformly distributed among the various vanes. The vanes on the lower side of the carrier encounter very little resistance in their movement to the left because of their shape and because of the shielding members 14 and 15. The rotation of the sprocket 10 and the pulley 22 operates the generator 20, the current being utilized for any desired purpose.

In the construction shown in Figs. 4 and 5 different types of vane are used, the construction in other respects being the same as in the one heretofore described. In this construction of Figs. 4 and 5 the vanes are made in two parts or wings 24 and 25, the wing 24 being held against rotation with respect to the vane shaft 26, while the wing 25 is mounted for limited rotative movement with respect to the vane shaft, the stop 27 preventing any movement in a clockwise direction from the position indicated in Fig. 5. The wing 25 is provided with an arm 28 carrying a counterweight 29 and adapted to hold the wing 25 in a position at substantially right angles to the carrier upon which it is mounted when the vanes are upon the upper section or upper flight of the carrier, so that the vane when in this position serves substantially the same surface to the wind as the vane in the construction of Figs. 1 and 2. When the vanes reach the under side of the carrier, the wings 24 still occupy the same relative position with respect to the carrier and with respect to the shaft on which they are mounted, but the counterweighted wings 25 move to the positions as indicated in Fig. 4, being stopped in their movement of rotation by the fixed wings 24. The vanes are at this time substantially folded, and offer less resistance to the air than the vanes in Figs. 1 and 2. When the vanes pass around the lower pulley 30 and to their position upon the upper flight of the carrier they unfold automatically to the position indicated. Other modifications of the construction might obviously be made, the structures of the construction here shown being merely illustrative of the broad invention defined in the claims.

What I claim is:

1. In combination in a wind motor, a supporting framework pivoted to swing around a verical axis, an oblique endless carrier mounted upon the framework, and vanes mounted transversely upon the carrier, the said vanes being V-shape in cross-section and being held against rotation with respect to the carrier, and having the planes midway between the sides thereof directed substantially horizontally.

2. In combination in a wind motor, a supporting framework pivoted to swing around a vertical axis, an endless carrier inclined to the horizontal and comprising two parallel flights, a shield extending longitudinally of the flights and lying therebetween, vanes mounted transversely upon the carrier and of V-shape in cross-section, arranged so that on the downward and rearward movement of the vanes their points are directed to the rear and on the upward and forward movement the points are directed to the front.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

WILLIAM BLACKMORE.

Witnesses:

ALFRED F. HOWARD,

HERBERT E. AXUP.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."