March 31, 1931. T. E. LAW 1,798,211

WINDMILL

Filed April 22, 1926

Fig. 1.

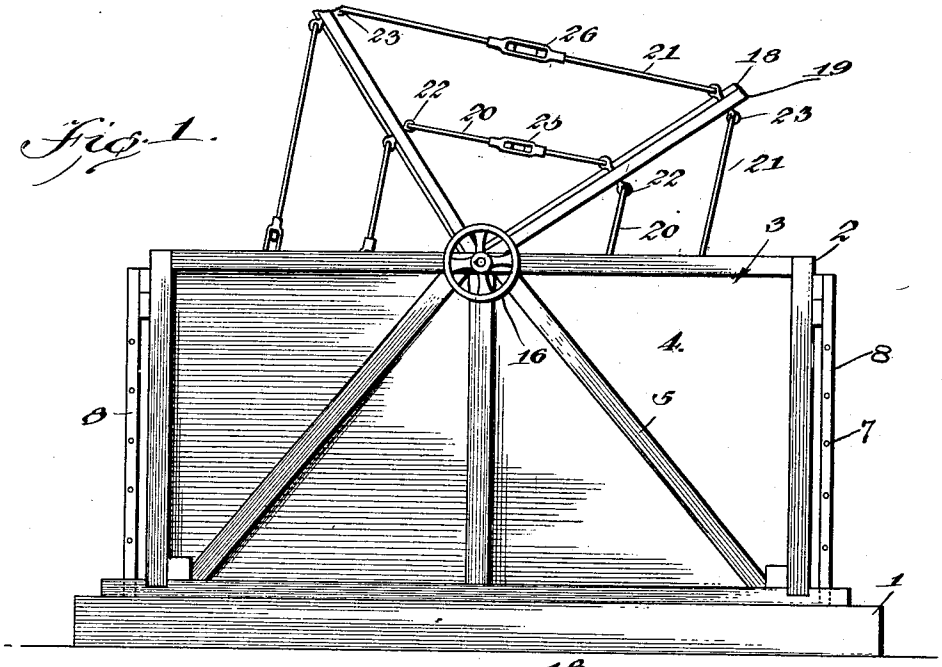


Fig. 2.

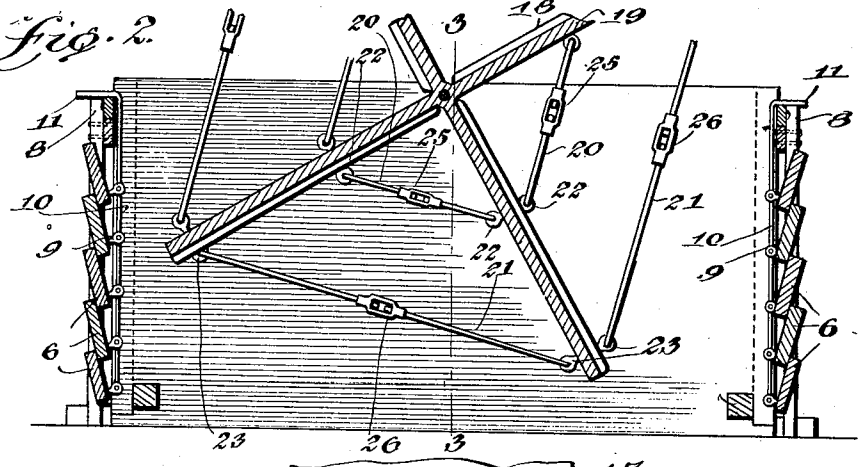
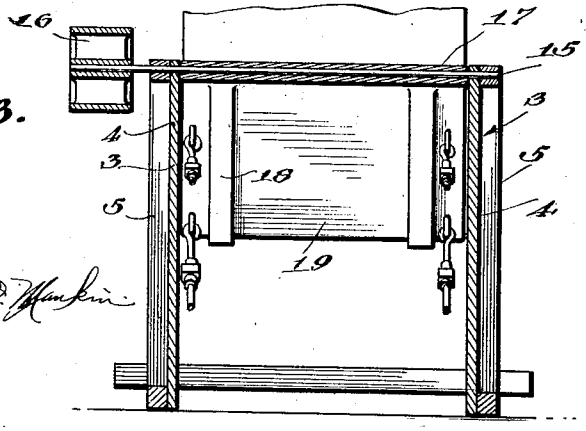


Fig. 3.



WITNESS

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UNITED STATES PATENT OFFICE

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WINDMILL

Application filed April 22, 1926. Serial No. 103,943.

This invention relates to an improvement in windmills.

The object of the invention is to provide a windmill which presents the maximum vane area so as to develop high degree of power and which also has novel control means so as to be readily controllable to meet the varying requirements of the use to which it is put.

A further object is to provide a windmill having these advantages and which is simple and durable in construction, reliable and controllable in operation and easy and comparatively inexpensive to manufacture.

Other objects and advantages reside in certain novel features of the construction, arrangement and combination of parts which will be hereinafter more fully described and particularly pointed out in the appended claim, reference being had to the accompanying drawings forming a part of this specification, and in which:—

Figure 1 is a view in side elevation showing one embodiment of the invention,

Figure 2 is a fragmentary view in longitudinal central vertical section, and

Figure 3 is a view in section on the line 3—3 of Figure 2.

Referring to the drawings the numeral 1 designates a suitable base or foundation on which a casing 2 is erected. The casing 2 includes side walls 3 made up of panels 4 and suitable framing 5. Each end wall of the casing is constituted by a plurality of vanes or shutters 6 pivotally mounted, as at 7, on vertical side rails 8. These shutters may be turned so as to be entirely closed, as shown in Fig. 2, or to be fully opened or to be partly closed as desirable. To facilitate adjustment of the shutters 6, each shutter is provided with an eye 9 pivotally connected to a master control rod 10 having a handle portion 11 at its upper end. Any suitable means may be employed in connection with the rods 10 to hold the same in adjusted position. For instance, the rods may be formed with teeth or notches with which a spring pressed latch arm on the casing is releasably engageable. This rod 10 is so attached to the shutters beyond the ends thereof so that the edges of the shutters will not bind against the rod.

Centrally the casing is provided with a rotatable shaft 15. The shaft 15 extends at one end beyond the casing and has a pulley 16 fixed thereto and which may be used to drive any power operated mechanism. Within the casing a windwheel is mounted on the shaft and consists of a hub 17 carried or suitably fixed to the shaft. The hub 16 has a pair of radial arms 18 and on each pair of radial arms a vane 19 is secured. The vanes 19 consist of plates or panels which have an extent in one direction equal to the radial extent of the arms 18 and which extend in the other direction a distance greater than the distance between the members of each pair of arms 18. The vanes are braced and strengthened by means of brace rods 20 and 21 connected to the vanes by screw eyes 22 and 23. Each rod 21 is made up of a number of sections adjustably connected to each other by turnbuckles, the turnbuckles of the rods 20 being indicated at 25 and the turnbuckles of the rods 21 being designated at 26.

An important feature of the invention resides in the provision of the vanes which are at least co-extensive with the area defined by the arms. This feature is made possible in a practical construction by virtue of the brace and reinforcing rods 20 and 21 which resist compression as well as tensile strains. The windwheel may be braked and controlled by adjusting the shutters 6. It will be understood that the wheel acts only on the vanes which project above the casing unless the shutters 6 are opened, and the shutters are adjustable so that those on the windward side may be positioned to direct the wind inwardly and upwardly and those on the leeward side positioned to direct the wind outwardly and downwardly thereby providing additional power to the windmill.

I claim:—

A windmill comprising a casing having diametrical walls, each composed of a plurality of pivoted shutters arranged one above the other, a wind wheel rotatably mounted in said casing and having radial blades parallel therewith, means for opening and closing the

shutters, the shutters on the windward side being adjustable to direct the wind inwardly and upwardly against the blades and those on the leeward side adjustable to direct the wind downwardly and outwardly thereby providing additional power to the windmill.

THOMAS E. LAW.