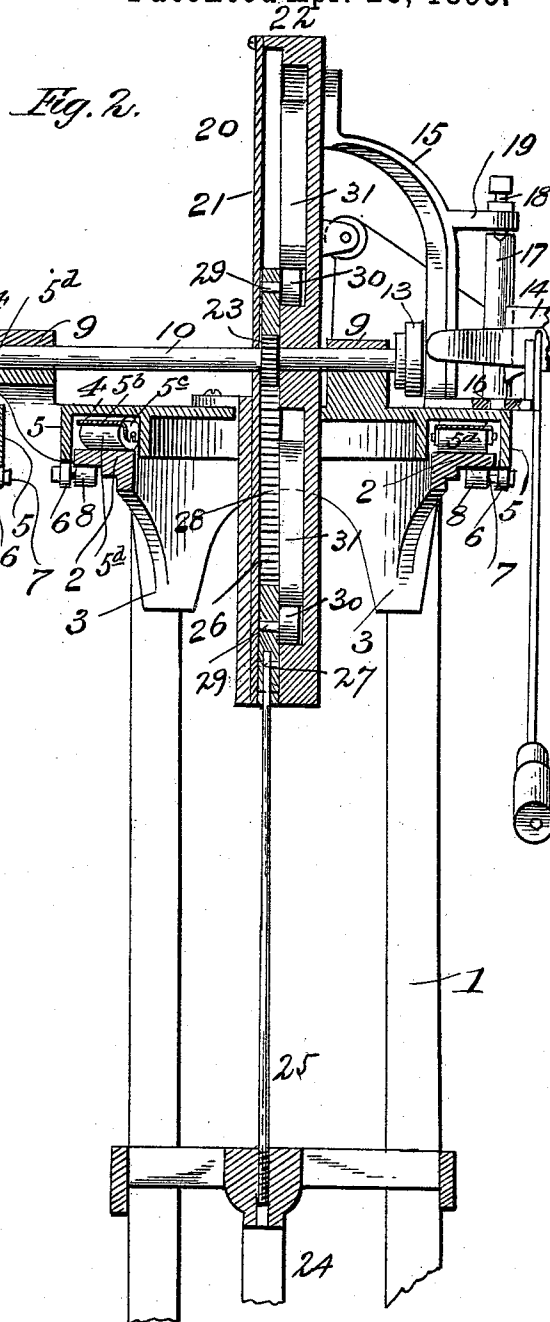
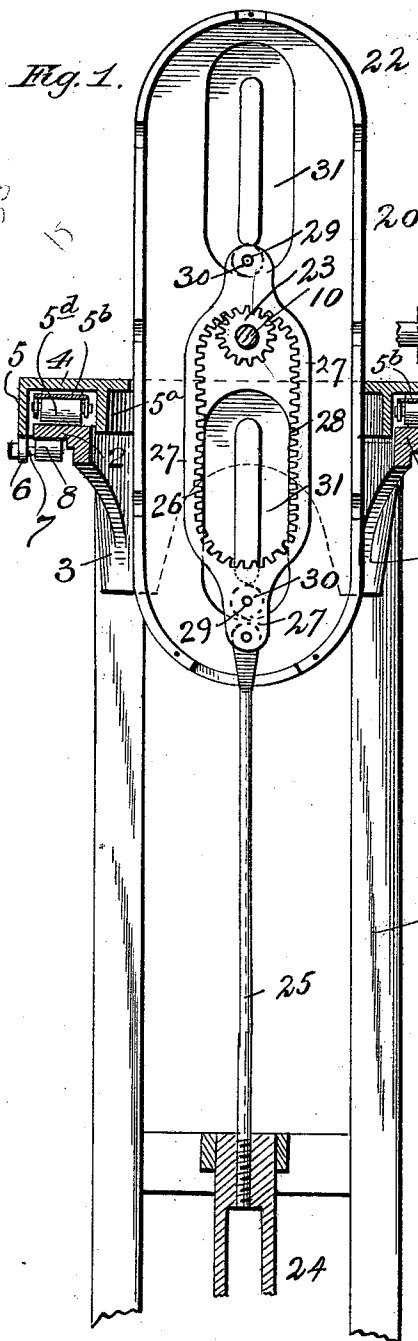


(No Model.)

M. KEYS.
GEARING FOR WINDMILLS.

No. 537,982.

Patented Apr. 23, 1895.



WITNESSES:
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UNITED STATES PATENT OFFICE.

MILTON KEYS, OF FORT WORTH, TEXAS.

GEARING FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 537,982, dated April 23, 1895.

Application filed May 8, 1894. Serial No. 510,473. (No model.)

To all whom it may concern:

Be it known that I, MILTON KEYS, a citizen of the United States, and a resident of Fort Worth, in the county of Tarrant and State of Texas, have invented certain new and useful Improvements in Gearing for 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 which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to windmills, and is more particularly designed to provide an improved construction of gearing by which the movement of the wind wheel is transmitted to the pump rod, whereby I secure superior advantages with respect to efficiency in use. The invention consists in the novel construction and combination of parts, herein-after fully described and claimed.

In the accompanying drawings: Figure 1 is a sectional elevation of the upper portion of a windmill constructed in accordance with my invention. Fig. 2 is a similar sectional view taken at right angles to Fig. 1.

In the said drawings, the reference numeral 1 designates the uprights of the tower, which may be of any ordinary or suitable construction. Secured to the upper ends of these uprights or standards is an annulus or ring 2, provided with downwardly depending arms 3, bolted or otherwise secured to said uprights or standards. Seated and rotatable upon this ring or annulus is a rotatable circular plate 4, having a downwardly depending annular flange 5 at its periphery, formed with lugs 6, having inwardly projecting pins 7, carrying rollers 8 which engage under said ring or annulus and hold the rotatable plate or turntable in place. The turntable or plate is also formed with a central downwardly depending flange 5^a concentric with flange 5 forming a circular recess in which is seated a metal ring 5^b formed with a number of downwardly depending bearings 5^c in which are journaled rollers 5^d which rest upon the upper side of ring 2. The turntable is supported by the ring 5^b and rollers. Secured to this plate are journal boxes 9, in which is journaled the power shaft 10, having at one end a wind-

wheel not shown, which may be of any ordinary or suitable construction and at the other end provided with a friction-wheel 13, with which engages a brake-shoe carried by the vane 14. Also secured to said plate is a bracket 15, formed with a hole 16 to receive the lower end of the vertical shaft 17, to which the vane 14 is attached. The upper end of this shaft is formed with a conical recess to receive the end of a set-screw 18, passing through a lug 19, formed with said bracket. Secured to said bracket and also to the plate 4, so as to rotate therewith, is a housing 20, consisting of two plates 21, and a rim 22. Passing centrally through this housing is the power shaft 10, having secured thereto a pinion 23, by which the pump rod is actuated.

The numeral 24 designates the pump rod, having at its upper end the connecting rod 25, which in turn is pivotally connected with the vertically reciprocating slide 26. This slide consists of a metal plate recessed at its center forming a continuous bar 27, provided on its inner side with cogs or teeth 28, with which said pinion engages. The inner ends of this slide are provided with studs 29, having rollers 30, which engage in oblong cam slots 31, arranged one above the other in the same vertical plane formed in the inner side of one of the plates of the housing. The sides of each of these grooves are perpendicular and parallel with each other, forming vertical ways connected together at top and bottom, by the curved ways. The said vertical ways of one slot are aligned with those of the other.

The operation will be readily understood. As the wind-wheel revolves it will rotate the power shaft, which through the medium of the slide 26, and the cogs on the slide will reciprocate the latter up and down and impart a corresponding movement to the pump-rod which is connected therewith. The rollers 30 work in the slots or ways 31, and guide the slide in its movement.

By this construction a steady, even, uniform movement is given to the pump-rod, obviating many of the objections incident to the ordinary crank-connection, thereby rendering the apparatus much more efficient in use.

Having thus described my invention, what I claim is—

In a windmill, the combination with the ring

or annulus 2, the rotatable circular plate 4, having a downwardly projecting annular flange 5 at its periphery formed with lugs 6 having inwardly projecting pins 7 carrying
5 rollers 8, which engage under said ring or annulus, the downwardly depending annular flange 5^a, the ring 5^b located between said flanges formed with downwardly depending bearings 5^c and the rollers 5^d, loosely jour-
10 naled in slots in said bearings, of the housing passing through and secured to said plate 4, the driving shaft passing through said housing and provided with a pinion, the two ob-
15 long cam grooves formed on the inner side of said housing, one above the other, and the

sides of each of said grooves being parallel and perpendicular, the vertically reciprocating slide having rollers at top and bottom engaging with said grooves and formed with an oblong slot provided with rack teeth with
20 which said pinion engages and the pump rod connected with said slide, substantially as described.

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

MILTON KEYS.

Witnesses:

W. B. ROGERS,

J. F. HOVENKAMP.