

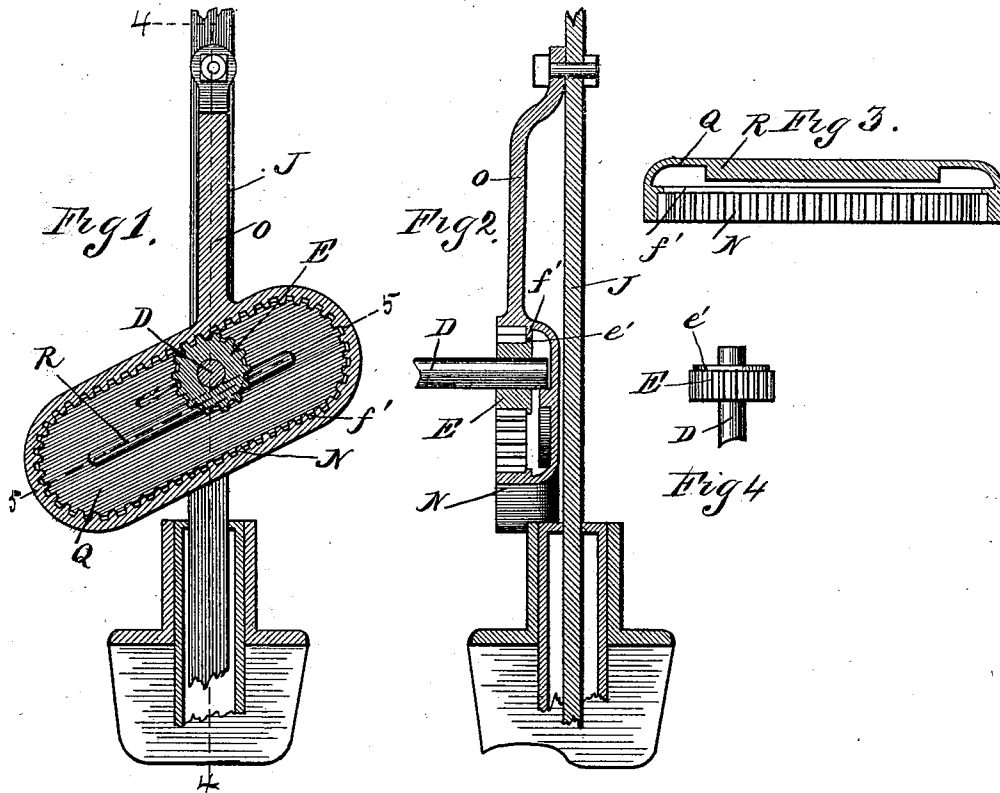
(No Model.)

J. H. MILLER.

TRANSMITTING MECHANISM FOR WINDMILLS.

No. 508,144.

Patented Nov. 7, 1893.



Witnesses.
W. C. Collier
J. L. Tunison

Inventor
John H. Miller.
By C. D. Kline Wheeler
Attys

UNITED STATES PATENT OFFICE.

JOHN H. MILLER, OF BATAVIA, ILLINOIS, ASSIGNOR TO THE UNITED STATES
WIND ENGINE AND PUMP COMPANY, OF SAME PLACE.

TRANSMITTING MECHANISM FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 508,144, dated November 7, 1893.

Application filed April 4, 1891. Serial No. 387,583. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. MILLER, a citizen of the United States, residing at Batavia, in the county of Kane and State of Illinois, have invented a certain new and useful Improvement in Transmitting Mechanism for Windmills, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of my transmitting mechanism as applied to a wind mill. Fig. 2 is a vertical, central view of the same, taken at the central, vertical dotted line shown in Fig. 1. Fig. 3 is a longitudinal, sectional view, taken through the cogged rack N on the dotted line shown in Fig. 1. Fig. 4 is a detached view of the end of the wind wheel shaft with the pinion attached thereto.

The object of my invention is to transmit the rotary motion of the wind wheel shaft to the reciprocating motion given to the pump-rod, without the use of the ordinary attachments of a wrist pin to the crank-wheel attached directly to the pump-rod.

My invention consists in the special construction of the cogged rack and pinion, and the combination of mechanisms hereinafter fully described and made the subject matter of the claims.

D, is the wind-wheel shaft.

E, is a cogged pinion rigidly attached to the wind wheel shaft which has its bearing on the casting or turn-table which freely turns on the tower, and to which the tail-vane is pivoted. This turn-table has in its bearings for the wind wheel shaft, and it also has an arm provided with a socket, through which the pump-rod J passes, and by which it is kept in place.

N, is an internally cogged, endless rack, which is carried on the cogged pinion E that is rigidly attached to the wind wheel shaft D. It is provided with an arm O which is attached to the pump-rod at its upper end by means of a bolt and nut. This cogged rack N is reciprocated back and forth by the cogged pinion E as it revolves, and the arm O is caused to move up and down by such reciprocation, thereby giving a vertical motion to the pump-rod J. The cogged rack N has a plate or cap Q, extending entirely over the

cogged rack and carrying on its under side a rib R, which rests against the end of the wind wheel shaft D, and keeps the pinion E in contact with the cogs on the cogged rack. As the pinion revolves the cogged rack moves until the end of the shaft D passes the end of the rib R, and immediately the direction of the cogged rack is changed and caused to move in the opposite direction, the rib R always holding the cogged rack in mesh with the pinion. The rib R is above the ends of the shaft D in one motion of the rack and below it upon the other motion of the rack. The cogged rack N has a flange *f'* extending part-way up the cogs on the rack, and the cogged pinion E has also a flange *e'*. These two flanges rest against each other and hold the cogs in their proper relative position when in operation.

I could construct an externally cogged rack with the proper flanges to rest on the wind wheel shaft to guide the cogs of the rack in contact with the cogged pinion, which would be an equivalent to the one here shown, but I prefer the one herein shown and described. The cogged rack is so constructed that it rests upon the end of the shaft and on the pinion, and does not reciprocate within an exterior frame, and is so connected with the pump-rod by means of a pivotal joint that the cogged rack can reciprocate and communicate the rotary motion of the pinion and give the pump-rod a reciprocating motion, without any intervening mechanisms between the cogged rack and the pump-rod, excepting a rigid arm pivoted to the pump-rod.

My invention is very simple, consisting of only a few parts, and can be easily made and applied to any ordinary wind mill.

Having fully described the construction and operation of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a transmitting mechanism for wind mills, a wind mill shaft; a pinion rigidly secured to said shaft so as to rotate with it; a cogged rack, the cogs of which engage with said pinion; the guide-rib R attached to and supported from the cogged rack by a plate Q; the arm O rigidly attached to the cogged rack; and pump-rod J, pivotally attached to the arm O of the rack, substantially as specified.

2. In a transmitting mechanism for wind mills, the wind wheel shaft, carrying a cogged pinion rigidly attached thereto near its end; the cogged pinion provided with a flange; an
5 endless cogged rack also provided with a flange to engage with the flange on the cogged pinion; the cogged rack having guide-rib R secured thereto and bearing against the end of the wind wheel shaft whereby the cogged rack is held in mesh with the cogged pinion, substantially as specified.

JOHN H. MILLER.

Witnesses:

ALOYSIA HELMICH,
H. H. TALCOTT.