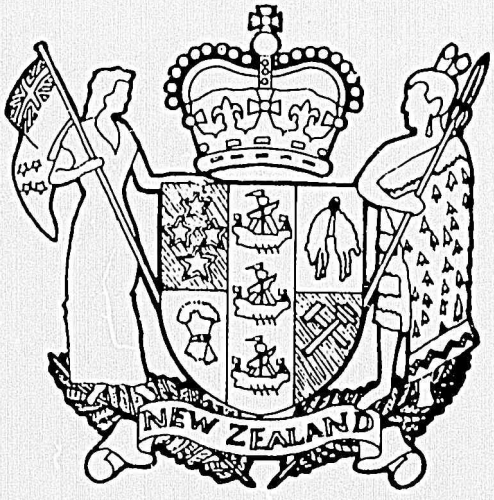


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PATENT SPECIFICATION

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"IMPROVEMENTS IN AND RELATING TO WINDMILLS AND THE LIKE".

I, JOHN HENRY TINK, 60 Douglas Parade, North - - - Williamstown, Victoria, Commonwealth of Australia, Watchmaker, - do hereby declare the nature of this invention, and in what manner in which it is to be performed, to be particularly described and ascertained in and by the following statement:-

My invention has been devised for the purpose of - - - obtaining a direct lift of the pump rod of a windmill and the - like.

This invention is adapted to give a reciprocating motion to the pump rod by means of an endless toothed rack and may be - - used in connection with windmills. According to this invention by revolving pinion, a rising or falling or reciprocating - - - - rectilinear motion is imparted to and endless toothed rack by the pinion. The rack is securely fitted in position to the pump rod. The rack is kept in position by a smooth guiding rod on a loose grooved or flanged roller.

My invention consists essentially of a base-plate with a horizontal end for the purpose of fitting upon the tower of a windmill. At or about the centre of the base-plate is a hole through which is placed a spindle or axle, to one end of which is connected the sails of the windmill, and to the other end of which fitting flush with the base-plate is a pinion, on the outside of which is a grooved roller. At the back of the base-plate is a bracket the centre of which surrounds the spindle or axle. This bracket is to assist in supporting the spindle or axle. Situated in front of the base-plate is an endless toothed rack, to the bottom of which is connected the pump-rod. Upon the face of the endless toothed rack are two brackets, supporting a guid

working within the grooved roller. Connected each or either end of the endless toothed rack are two spiral springs. These springs are for to balance the weight of the pump rod and plunger. Between the base-plate and the endless toothed rack are ball bearings.

But in order that my invention may be fully understood reference is now made to the accompanying drawings of which -

Fig. 1 is a front view, the full lines representing the mechanism at the centre of the stroke, and the dotted lines the mechanism at the full stroke.

Fig. 2 is a side view.

A is the base-plate with the horizontal end B1. B represents the bracket supporting the spindle C, to the end of which is fixed the sails D. The other end of the Spindle C comes through the grooved roller FF1 and is fastened with a pin. Between the grooved roller FF1 and the base-plate A is the pinion E. G represents the pump rod attached to which is the endless toothed rack H. J represents the supports attached to the face of the endless toothed rack H, within which is the guide rod I. This guide rod as its name indicates acts as a guide for the endless toothed rack H to revolve per medium of the pinion E around the grooved roller FF1. G1 and G2 represent the spiral springs attached to the endless toothed rack H. These springs act as a balance to the weight of the pump rod and plunger. G3 is a screwfor tensioning the spiral spring G2, whilst G4 is a dome or spring box. H1 are the ball bearings attached to the endless toothed rack H running on the base-plate A.

In use my invention operates as follows:-

The sails D upon revolving carry with them the spindle C and of course the pinion E, and the grooved roller FF1 attached to the end of the spindle C. The pinion E in revolving lifts the endless toothed rack H, to the end of

which is connected the pump rod G. On the movement of the endless toothed rack H the guiderod I is carried with it, the said guide rod I working within the grooved roller FF1. When the pinion E lifts the endless toothed rack H, the latter carries with it the pump rod G. When the pump rod G has reached the end of its stroke, and the endless toothed rack H is at its highest point, the revolving pinion E working in the endless toothed rack H, follows the guide rod I and descends on the other side of the endless toothed rack H, thus allowing the pump rod G to fall; this action being assisted by means of the spiral spring G1 or G2, the guide rod I keeping the pinion E always working in the endless toothed rack H. The same action takes place when the pump rod G is at its lowest point. The ball bearings H1 assist the endless toothed rack H in its action over the base-plate A and thus reduce the friction to a minimum.

Having now particularly described and ascertained the nature of my said invention and the manner in which it is to be performed, I declare that what I claim is:-

1. In improvements in windmills and the like a pump rod to which is connected an endless toothed rack fitted with spiral springs and working upon a pinion fixed to the driving spindle upon which is also loosely mounted a grooved guide roller, substantially as herein described and explained.

Dated this 30th day of November 1916

SIGNATURE OF APPLICANT: J.H. Link

SIGNATURE OF WITNESS: F. Hogarth

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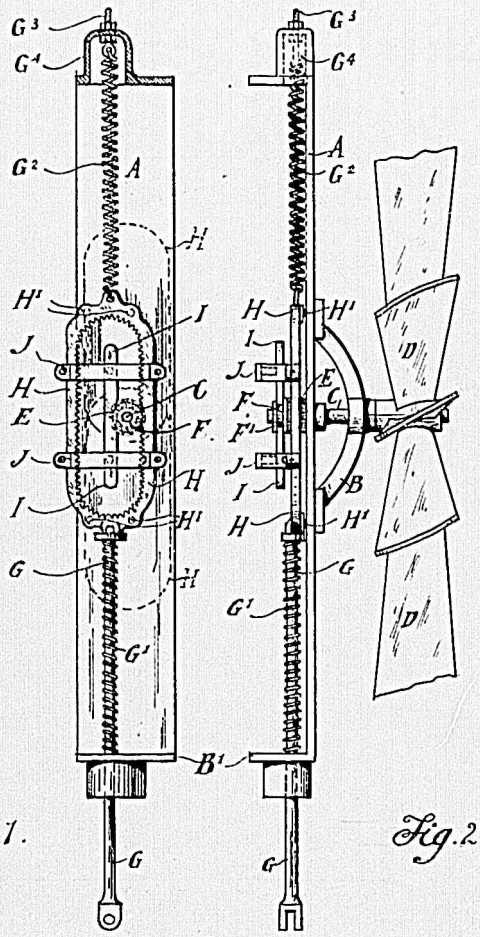


Fig.1.

Fig.2.

END