PATENTS.

Applicant: R. NICHOLAS. No. 14929

Invention: WIND MILL. Date:

APPLICATION—

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Accepted, : : Acknowledged, 10/11 : 6 : 02 Gazetted, 12 : 6 : 02

COMPLETE SPECIFICATION (if left subsequently)—

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COMPLETE SPECIFICATION.

"IMPROVEMENTS IN MECHANISM, MORE PARTICULARLY APPLICABLE TO WIND-MILLS".

I RICHARD NICHOLAS, of Christchurch, in the Colony of New Zealand, Engineer, do hereby declare the nature of my invention for "Improvements in mechanism, more particularly applicable to windmills", and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:-

My improvements have been devised for the purpose of simplifying the driving mechanism of windmills and for rendering the parts more convenient of approach for repairs. The improvements severally consist of, 1. a special bearing for the pump rod connection with the connecting rod, for taking up the wear, 2. a fastening for holding the connecting rod pin in its bearing, and 3. the adjustment of the vane rod so that in a gale or sudden gust the mill will run out of the wind.

In the accompanying drawings:-

Figure 1 is a side elevation of my apparatus.

Figure 2 is an enlarged view of the forked end of the connecting rod shewing the special bearing.

Figure 3 is a side elevation of same shewing means for preventing the connecting rod pin turning in its bearings.

Figure 4 is a side elevation of the special bearing device.

Figure 5 is a plan of the top plate shewing vane and connections, and

Figure 6 is a rear elevation of same.

A is a U shaped bracket that supports the crank and bearings of the mill-wheel and vane. Set in the bottom of said bracket is a split bush the wear upon which can be taken up by the set screw a of which there are two on opposite sides of the bracket. In the figure the rear set screw is not shewn. Said bracket is integral with a hollow downwardly projecting tube that is provided with the usual turn table upon which the mill swings. The pump-rod and rope for hauling mill out of gear are each contained within the hollow tube.

Referring now to figure 3, B is the forked end of the connecting rod and C is the connecting rod pin. Upon the face of one or both forks of said rod is a boss D and rib E that is bored to receive a split pin e which passes through the pin C and holds it rigidly and prevents its turning in its bearing. The wear upon the parts comprising the bearings is thus reduced to a minimum.

My improvements further comprise a special bearing for the connecting rod pin. The device is illustrated in figures 2 and 4 in which F is a casting preferably of brass, into which the pump rod G is screwed. The casting almost envelopes the pin C and is filed flat upon its rear part so that it will be susceptible of spring when the inverted stud f is turned. By this means any wear that takes place upon the pin C or its bearing can be readily taken up and attended to by anyone not possessing any special mechanical knowledge.

A further improvement provided by my invention is illustrated

in figures 5 and 6 and refers to the adjustment of the vane so that the mill will automatically run out of the wind in a sudden gust or gale. In the drawing, H is the vane rod which, for the purpose of effecting my invention, is mounted at a point on the top plate of the bracket A, not in the same straight line as the axis of the mill wheel spindle. In mounting my vane in this way I have found that it is more susceptible to wind pressure, and I further adapt the vane to more quickly indicate any changes in the direction of the wind by slightly inclining the vane rod outwards so that it shall make a slightly acute angle with the mill wheel spindle. In order to compensate for the irregular mounting of the vane the mill sails are set at such an angle on the wheel, that the wheel shall always be dead in the wind while its vane will always be slightly in the wind. The effect of this arrangement is that the vane will feel any increase of wind pressure sooner than it would if mounted directly in line with the crank, and the mill will be thereby caused to turn out of the wind. The vane rod H is socketed in a link J that is pivotally mounted on the top plate of the bracket A. Said link carries a rocking lever K to one end of which is attached a counterbalance weight L while the other end is connected to a projection on the top plate by a special shaped S hook 1. When the vane feels a sudden gust it is blown backwards and as it moves it brings the rocking lever K to the horizontal thereby causing the whole bracket A to revolve on its pivot in a direction opposite to the movement of the vane. When the force of the wind abates the balance weight L causes the vane to return to its normal position and the mill will also come to its position dead to the wind.

The counterbalance weight may be adjusted so that the mill can be made to run in almost any steady wind, the object of my

invention being to so control the whole apparatus that the occurrence of accidents shall be reduced to a minimum.

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

1. In mechanism of the class described, means for holding the connecting rod pin which consists of forming a boss or bosses upon the face or faces respectively of the forked end of the connecting rod and a rib through which a split pin passes to pierce said connecting rod pin, as described and illustrated.

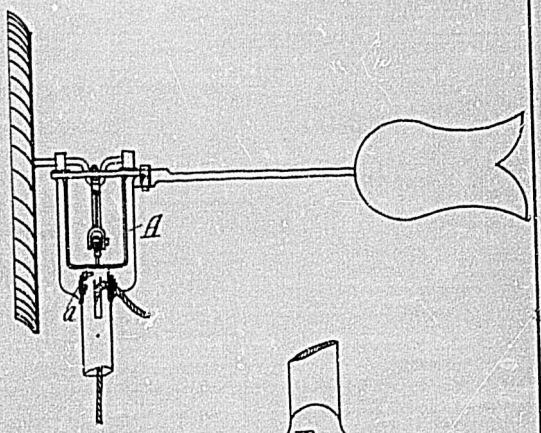
2. In mechanism of the class described, the specially constructed bearing for the connecting rod pin, consisting of a casting as F that is adapted to nearly envelope said pin and which is provided with a flat upon its rear part and a set screw as f, as described and illustrated and for the purpose set forth.

3. In mechanism of the class described, mounting the vane of a windmill at a point not in the same straight line as the axis of the mill wheel spindle as shewn, and inclining the vane rod slightly outwards so as to make with such axis a slightly acute angle, as described and for the purposes set forth.

Dated the 27th day of May 1902.

R. Nicholas
By his Agent
Henry Hughes
F.P. Newton

FIG. 1



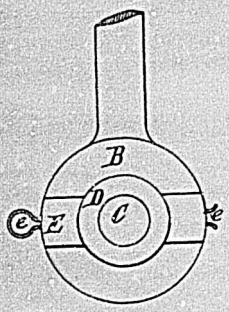


FIG. 3

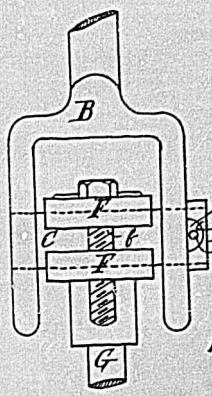


FIG. 2

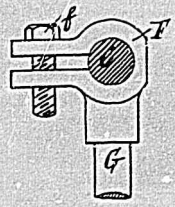


FIG. 4

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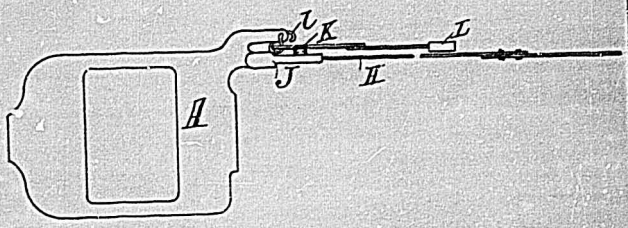


FIG. 5

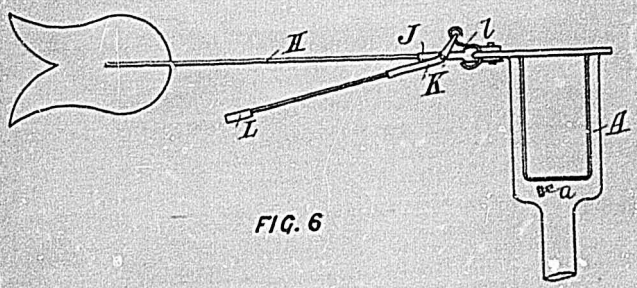


FIG. 6

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