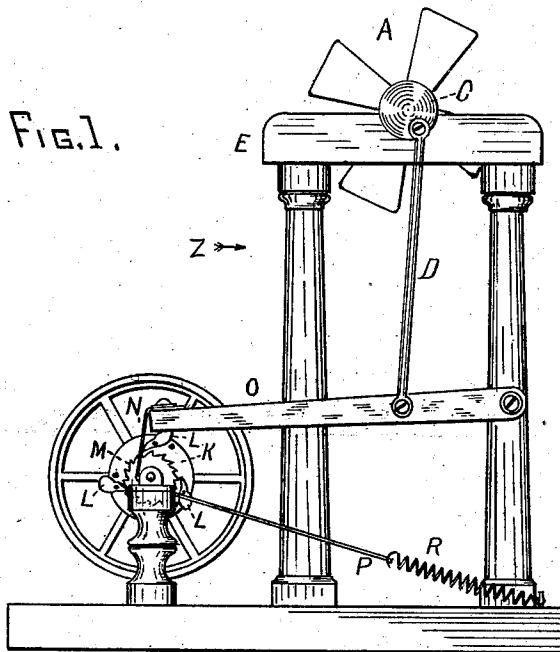
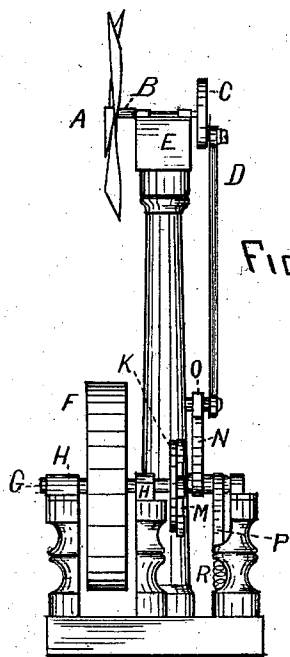


(No Model.)

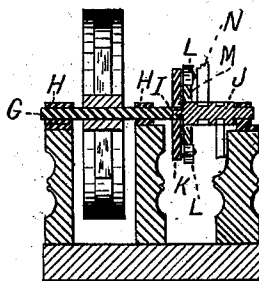
W. S. MARSHALL.
Mechanical Movement for Windmill.

No. 227,909.

Patented May 25, 1880.



DETAIL A.A.



WITNESSES.

Arthur G. Morey.
William R. McIntire.

INVENTOR.

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UNITED STATES PATENT OFFICE.

WILLIAM S. MARSHALL, OF BATAVIA, ILLINOIS.

MECHANICAL MOVEMENT FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 227,909, dated May 25, 1880.

Application filed March 8, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. MARSHALL, of Batavia, in the county of Kane and State of Illinois, have invented a new and Improved Mechanical Movement for Windmills, of which the following is a specification, reference being had to the accompanying drawings, illustrating the improvement, in which—

Figure 1 is a side elevation of a mechanism embodying my improvement; Fig. 2; an end elevation looking in the direction of dart *z*, Fig. 1.

The object of the present invention is to produce rotary motion from the pitman of a windmill for the purpose of driving light-running machinery at considerable speed.

The nature of the invention consists in an oscillating shaft, ratchet-wheel, and pawls, combined with the shaft and disk to be driven, so that the pitman from the main shaft of the wind-wheel, putting in motion an oscillating lever with a strap attachment wound on the oscillating shaft, will put said shaft in motion in one direction, and a spring attached to the other end of another strap will put the shaft in motion in an opposite direction, during which movement the pawls (one or more) engage the ratchet-wheel and turn the disk and shaft thereto continuously in one direction, the power coming from the upstroke of the pitman to the main shaft of the wind-wheel, as the whole is hereinafter fully described and shown.

A represents the wind-wheel, B its shaft, C the crank-wheel, and D the pitman, of an ordinary windmill.

E represents the frame which supports the wind-wheel.

F represents the wheel to be rotated, and it may be a grindstone or a wheel for driving machinery. This wheel runs on a shaft, G, which is supported in suitable boxes H, and whose inner end projects through the box, and is provided in said end with a recessed step to support the pivot-point I on the inner end of the shaft J. The step, however, may be formed in the shaft J and the pivot-point on the shaft G.

A disk, K, is attached to the shaft G, and to it are pivoted three pawls, L, which are

weighted at their outer ends, so that by centrifugal force their inner ends will be kept to the face of the ratchet-wheels when the device is in motion, and so that some one pawl will engage the ratchet-wheel when the device is not in motion, and be ready to move the disk K till the other pawls come to their work by centrifugal force. By this means the noise of spring-pawls is obviated and the ratchet removed greatly from wear, and the friction is reduced. This shaft is rigidly attached to ratchet-wheel M, and it is driven in one direction by means of a strap, N, wound round it and attached to the lever O, which is pivoted to frame E and driven by the pitman D in its upstroke.

The oscillating shaft J has given to it a reverse motion by a strap, P, also attached to it and drawn upon by a spring, R.

From this construction it will be seen that the strap N only operates for half of the time to turn the shaft J. Consequently the power to be driven must act as a balance-wheel, or a balance-wheel must be employed to continue the other half-revolution.

Detail A A is a vertical longitudinal section of the oscillating shaft J, and also the shaft G to wheel F, showing how they are connected.

The lever O may have any form best adapted to communicate power where the device to be driven has another position relative to the wind-wheel than the position shown.

I of course do not claim to have been the first inventor of mechanism for obtaining rotary motion from reciprocating motion, or vice versa.

I however claim as new—

1. The disk attached to the shaft G, and the weighted pawls L, pivoted to said disk, so as to be acted on by centrifugal force, as specified, in combination with the ratchet M, as specified.

2. The combination of crank-wheel C, pitman D, lever O, straps N P, spring R, shaft J, disk K, pawls L, ratchet-wheel M, and shaft G, as specified and shown.

WILLIAM S. MARSHALL.

Witnesses:

ARTHUR G. MOREY,
G. L. CHAPIN.