(Model.)

A. T. WINCHELL.

WIND ENGINE.

No. 381,313. Patented Apr. 17, 1888.

Fig. 1

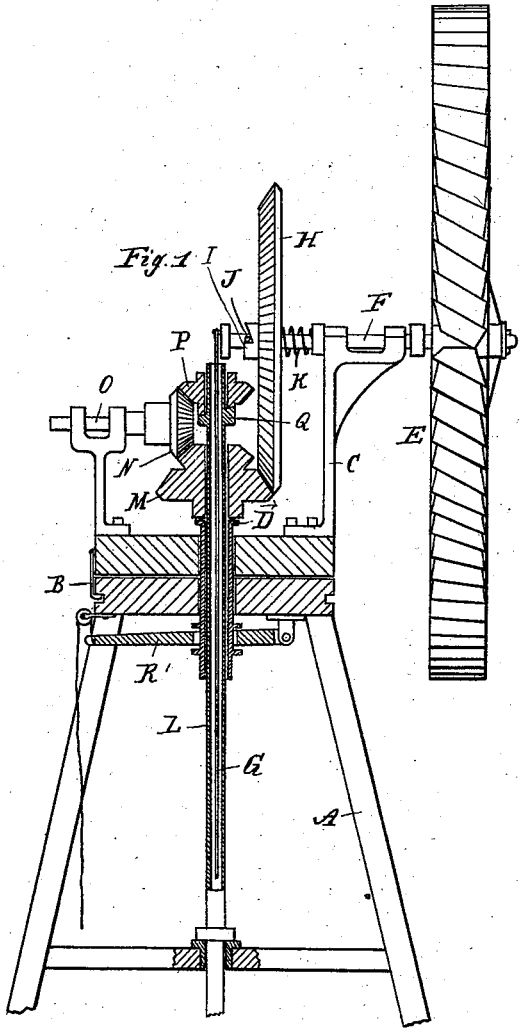
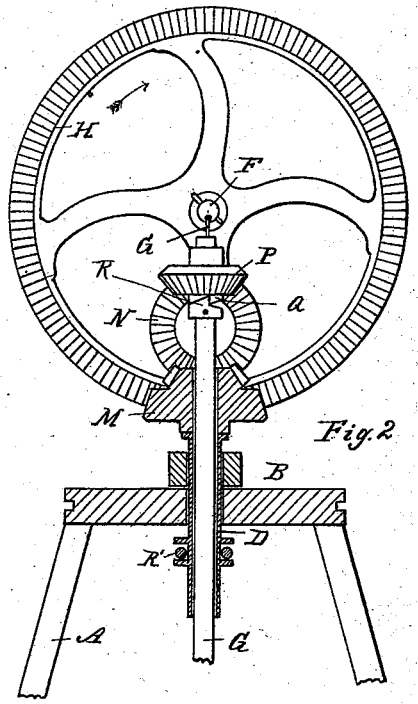


Fig. 2



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UNITED STATES PATENT OFFICE.

ALVIN T. WINCHELL, OF ALBION, MICHIGAN.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 381,313, dated April 17, 1888.

Application filed February 3, 1887. Serial No. 226,387. (Model.)

To all whom it may concern:

Be it known that I, ALVIN T. WINCHELL, of Albion, in the county of Calhoun and State of Michigan, have invented new and useful Improvements in Wind-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to new and useful improvements in wind-engines; and the object of the invention is to so construct a wind-engine that it can be used for driving machinery of all kinds without the so-called "creeping" occasioned with the present mode of gearing, all as hereinafter described.

The invention consists, therefore, in the improved construction and arrangement of the gearing for the transmission of power.

In the drawings which accompany this specification, Figure 1 is a vertical central section of my improved wind-engine, and Fig. 2 is a central section thereof.

A represents the usual derrick upon which the mill is erected. B is the turn-table, and C is the frame of the windmill, which supports the operating parts of the mill itself, and which turns in the usual manner on the center of the turn-table. This center or pivotal point is formed by the hollow vertical shaft or sleeve D.

E is the wind-wheel, provided with wings of any suitable construction.

F is the shaft of the wind-wheel, suitably journaled in the frame, and provided at its free end with the usual crank or equivalent device for operating the pump-rod G. Upon the shaft of the wind-wheel is loosely sleeved a crown-gear, H. The hub of this crown-gear is formed with one or more clutch-teeth, I, arranged to engage with the fixed pin J by the action of the spring K.

L is a hollow shaft passing loosely through the pivot-shaft D and stepped in suitable bearings at its lower end. Upon this shaft is loosely supported the double gear-wheel M, which also loosely engages with the upper end of the hollow sleeve D. The lower gearing of this double pinion meshes with the crown-gearing H, while the upper portion meshes with the beveled pinion N, which is loosely journaled on a stub-shaft, O, supported in a suitable standard of the frame.

P is another beveled pinion loosely sleeved upon the central hollow shaft, L, and meshes with the last-named bevel-pinion. This bevel-pinion P carries a clutch-tooth, Q, on its under side, arranged to engage with a corresponding clutch-tooth, R, formed on a collar fixed on the hollow shaft L underneath the pinion. The pinion P has a slight vertical play, by means of which it is enabled to lift out of engagement with the fixed clutch-tooth underneath.

The hollow vertical sleeve D passes loosely through the turn-table and through the frame, and is held vertically adjustable by means of a lever, R'.

In practice, by the operation of the lever R', the double gear-wheel M may be thrown at will in and out of operation with the crown-gear. Thus it will be seen that this combination of gearing makes a power and pumping mill combined, or a pumping-mill without running the gear, or a power-mill alone by detaching the pump-rod.

The object of the clutches between the crown-wheel and the shaft of the wind-wheel and between the bevel-pinion and the shaft L is to enable the wheel to face the wind without turning either shaft, thus acting as a perfect swivel.

By transmitting the power from one side of the turn-table to the opposite side it will be seen that the gear perfectly compensates, and there will be no creeping or climbing of the gear, which produces great irregularity in the motion of the driven shaft.

What I claim as my invention is—

1. In a wind-engine, the combination, in a power-transmitting gearing, of the horizontal bevel-pinions M P, turning in opposite directions to balance the resistance equally on the turn-table, and vertically movable on their shaft, and connections between said pinions, as set forth.

2. The combination, with the turn-table and wheel E, of the hollow sleeve D, forming the pivot-point of said table, the shaft L, passed loosely through the sleeve D, the double gear-wheel M, loosely supported on said shaft, the crown-wheel H on the wheel-shaft F, the pinion P, and the miter-pinion N, all substantially as described.

3. In a wind-engine, the vertical shaft L,

carrying the drive-pinion P and having a clutch-connection therewith, the horizontal windmill-shaft F, carrying the crown-wheel H and having a clutch-connection therewith, and the intermediate gear-wheels, M N, arranged at right angles to each other, all substantially as described.

4. In a wind-engine, the combination, with the turn-table and the frame C, of the hollow shaft D, forming the center of the turn-table, the hollow shaft L, passing loosely through the shaft D, means, substantially as described, for vertically moving the shaft D, the double gear-wheel M, loosely supported on the shaft L, the pinions N P, their shafts, the crown-gear H, and its shaft, all substantially as and for the purposes specified.

ALVIN T. WINCHELL.

Witnesses:
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E. J. SCULLY.