J. H. PAINTER.

WIND-MILL.

No. 181,278. Patented Aug. 22, 1876.

Fig. 3.

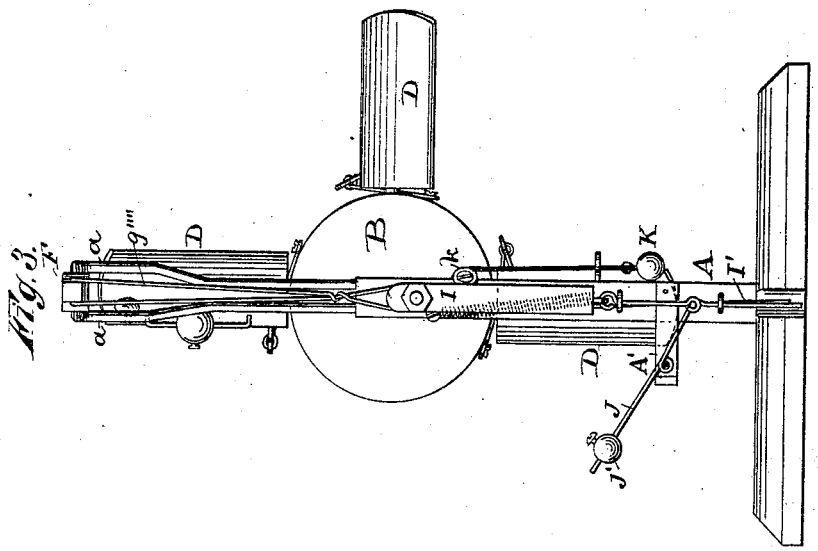


Fig. 2.

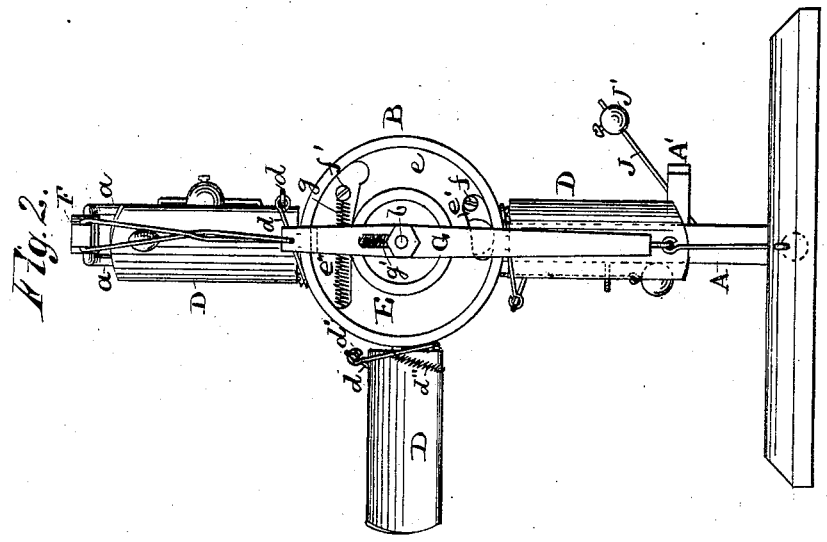
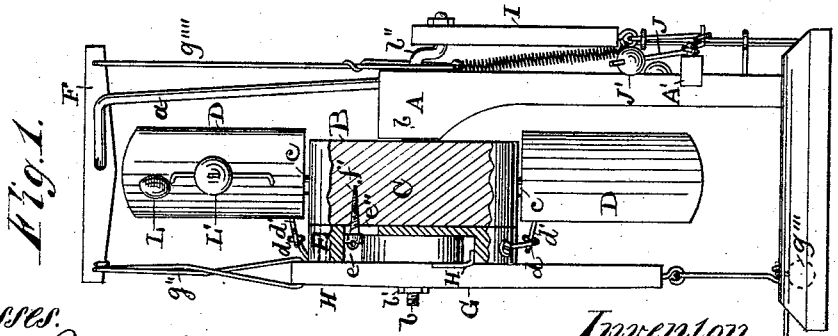


Fig. 1.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN H. PAINTER, OF MUSCATINE, IOWA.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **181,278**, dated August 22, 1876; application filed February 14, 1876.

To all whom it may concern:

Be it known that I, JOHN H. PAINTER, of Muscatine, county of Muscatine and State of Iowa, have invented certain Improvements in Windmills; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification, and in which—

Figure 1 is a side elevation of my improved windmill. Fig. 2 is a view taken from the front side of the wind-wheel. Fig. 3 is a view taken from the rear side of the wheel.

My invention relates to windmills, the object being to obviate the jerking motion in mills which are used for pumping, and like uses, where the weight and strain come upon the lift or upward stroke of the pump-rod, while they are little or nothing on the return stroke, so that the wheel moves rapidly on the downward and slowly on the upward stroke, the movement resulting in a series of jerks.

My invention consists in the arrangement of counterpoise-weights, by means of which the movement of the wheel is rendered steady and uniform. It further consists in a new brake device for regulating the speed of the wind-wheel, and also in a new device for regulating the motion of the wind-sails, all as hereinafter more fully set forth.

Referring to the parts by letters, A represents a standard or frame for supporting the working parts of the machine, and in which the shaft *b* of the wind-wheel B is suitably journaled. C is the hub of the wind-wheel keyed to the shaft *b*. D are the wind-sails, which are pivoted to the hub C by shafts or stems *c*. E is a disk loosely journaled on the shaft *b* of the hub C, its outer face having an annular groove, *e*. *e'* is an arc-shaped slot formed through the disk E, and *f* is a pin or stud secured to the hub C, and projecting into or through the slot *e'*. *e''* is a slot formed through the disk E, and *f'* is a pin or stud secured to the hub C'. *g* is a spiral spring, one end of which is secured to the pin *f'*, and the other to the disk E. The wind-sails D are connected with the disk E by means of link-rods *d d'*, the latter being connected with the inner side or edge of the sails by spiral springs *d''*. F is a lever pivoted to and between two elevated rod standards, *a a*, or to any suitable support high enough to clear the wind-sails. G is a vertical bar or rod, having an elongated slot, *g'*, through which the shaft *b* passes, a nut, *b'*, on the end of the shaft serving to keep the bar G in position. The bar G is connected with the outer end of the lever F by rods or chains *g''*, and carries a hook on its lower end, to which a weight, *g'''*, may be suspended. *g''''* is a rod or chain secured to the inner end of the lever F, and passed down to the ground. H H' are inwardly-projecting plates secured to the bar G, and so arranged as to come in contact with the flange of the disk E when the bar is moved up or down, thereby operating as brakes upon the wind-wheel by turning the wind-sails D out of the wind. I is a connecting-rod, pivoted at one end to a crank, *b''*, on the inner end of the shaft *b*, and to the pump-rod I' at the other. A' is a bracket, secured to and projecting at right angles from the standard A. J is a lever, pivoted to the bracket A', which carries an adjustable weight, J', on its outer end, the inner end of the lever being pivoted to the pump-rod I'. K is a weight suspended by a cord or chain, which passes upward over a pulley, K, and connects the upper extremity of the pump-rod. L is a weight on the outer end of one of the wind-sails, and L' is an adjustable weight on the same sail.

The operation of the several devices is as follows: It will be seen that as the pump-rod is descending the weighted wind-sail is ascending, and continues to ascend until the pump-rod reaches the extent of its downward stroke. When the weighted wind-sail begins to descend, the pump-rod is on its upward stroke, and in this way the one counterbalances the other, and makes the motion of the wind-wheel regular. By shifting the adjustable weight upon the wind-sail the balance may be adjusted. It will also be seen that as the pump-rod descends the weight on the lever J rises, and vice versa, and also that the weight K operates in the same manner, so that should the weighted wind-wheel not be a sufficient balance, either or both of the

weights J′ and K may be added, and as the weight J′ is adjustable on the lever J the necessary adjustment of the balance can be effected. It will be obvious also that the weight K may be dispensed with, if found necessary, and when the weighted wind-sail proves sufficient the weight J′ may be removed from the lever J.

When used for pumping water, it is sometimes an objection to have the wind-wheel revolve with too great a speed, a very slow movement being generally sufficient to reduce the velocity of the wheel. I apply a weight to the lower end of the bar G, which draws down the bar and brings the brake H against the flange of the disk E, and thereby turning the sails D out of the wind, too close a contact being prevented by a spring in the slot *g*, which bears on the shaft *b* and tends to raise the bar G. The brake H may also be applied by pulling down on the cord or chain *g''''*, when the weight is not applied to the bar G, thereby throwing the sails out of the wind and stopping the wind-wheel, if desirable. The disk E, connected with the pivoted wind-sails by the link-rods and spiral springs, serves to regulate the motion of the wind-wheel in squally weather, and prevents the sails turning too rapidly on their pivots in either direction.

The motion of the disk on the shaft *b* is limited by the pin which works in the slot *e′* coming in contact with the ends of said slot.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the weighted wind-sail with one or more adjustable weights arranged upon levers or cords connected with the pump-rod, substantially as and for the purpose specified.

2. The bar G, having the slot *g* and brake H, arranged to operate in combination with h e weight *g″*, and flange disk E, and pivoted wind-sails D, substantially as and for the purpose specified.

3. The bar G, having the brake H′, operating in combination with the disk E and sails D, lever F, and rod or chain *g''''*, substantially as for the purpose specified.

4. The disk E, operating in combination with the pivoted wind-sails D, link-rods *d d′*, and spiral springs *g d″*, substantially as and for the purpose specified.

5. The disk E, having slot *e″*, operating in combination with the hub C, having pin *f′*, substantially as and for the purpose specified.

In testimony that I claim the foregoing I hereunto subscribe my name this 19th day of January, 1875.

JOHN H. PAINTER.

Witnesses:
J. J. TUNNICLIFF,
W. B. RICHARDS.