

G. STEARNS.
Wind-Mills.

No. 143,308.

Patented September 30, 1873.

Fig. 1.

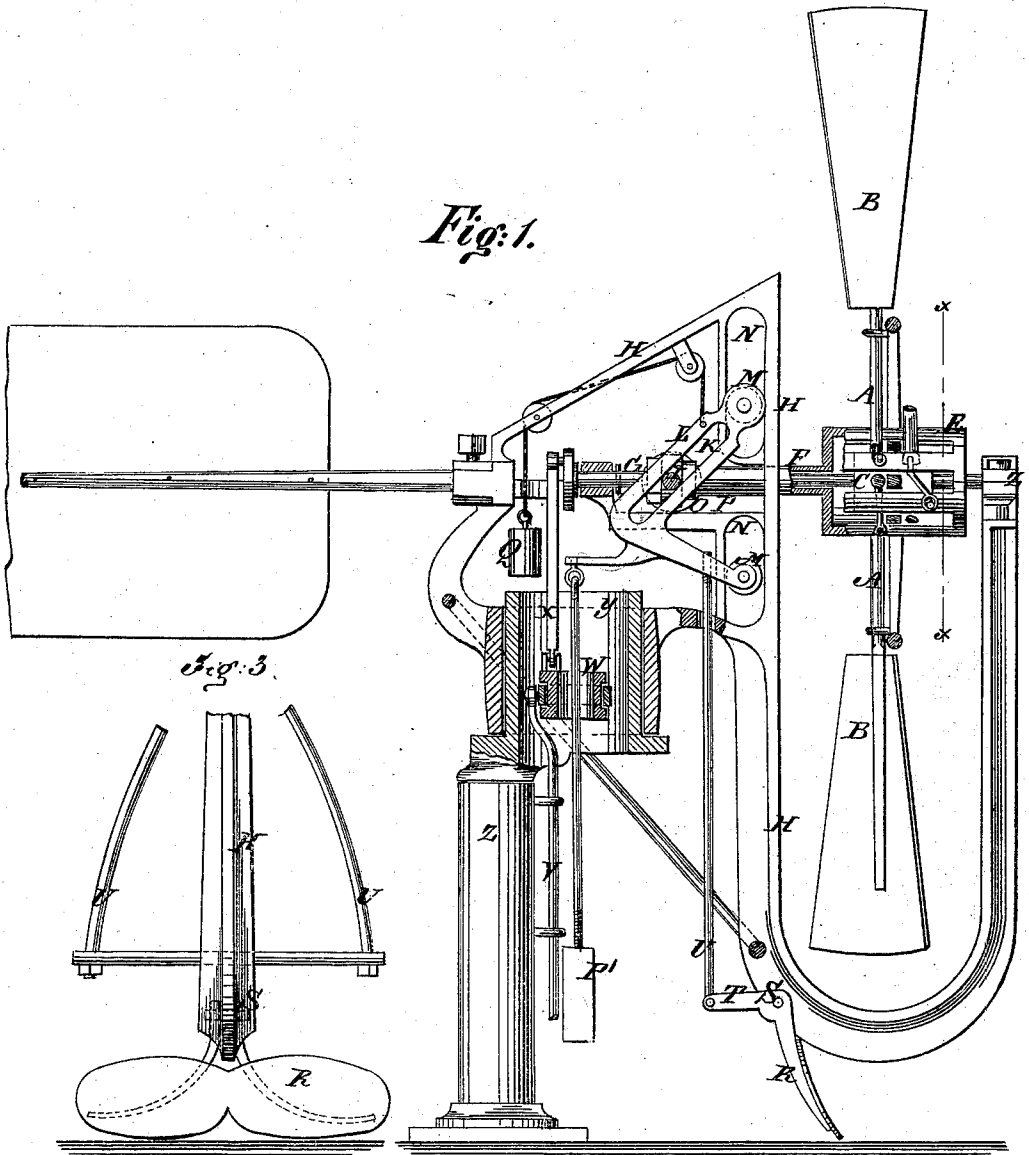


Fig. 3.

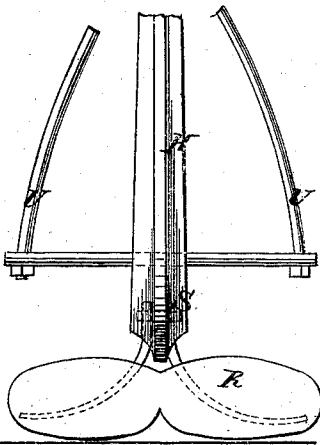
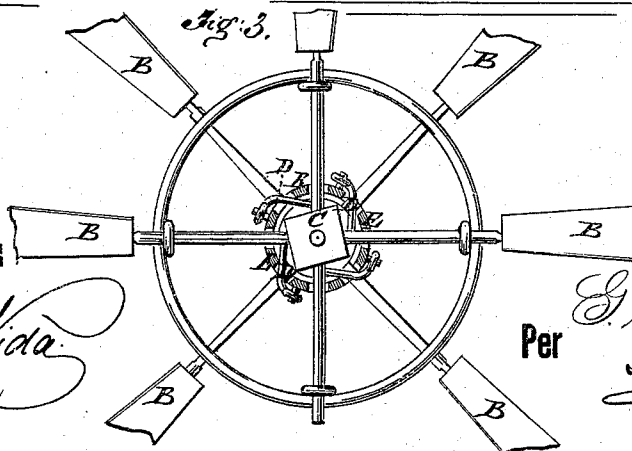


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE STEARNS, OF ELDORADO MILLS, WISCONSIN.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **143,308**, dated September 30, 1873; application filed August 23, 1873.

To all whom it may concern:

Be it known that I, GEORGE STEARNS, of Eldorado Mills, in the county of Fond du Lac and State of Wisconsin, have invented a new and Improved Windmill, of which the following is a specification:

My invention consists of novel contrivances for causing a pumping windmill to start and stop self-actingly by the influence of the water raised up into the tanks and by weights; it also consists of a new contrivance for adjusting the vanes to take the wind more or less, by the influence of the wind; and it also consists of an extension of the frame to the front side of the wheel, to furnish a bearing for the front end of the shaft.

Figure 1 is a sectional elevation of my improved mill. Fig. 2 is a section of Fig. 1, taken on the line *xx*; and Fig. 3 is a detail, showing the wind-regulator.

Similar letters of reference indicate corresponding parts.

The arms A of the vanes B of the wind-wheel are fitted in the hub C so that they can turn on their axes, and each one is connected, by a short arm, D, with a hollow sliding hub, E, fitting over hub C, and being attached to a hollow shaft, F, extending back from the wheel along the crank-shaft G beyond the frame H, and having trunnions I projecting from the inner end into the inclined slots K of the angle-bars L, which are connected, at the upper and lower ends, to rollers M, arranged in vertical ways N in the frame. Said trunnions also have rollers O arranged to run forward and backward on the way P, to relieve the crank-shaft of the friction. The slotted elbow-bars L cause the hub E to slide forward and backward to shift the vanes by rising and falling; going downward, they turn the vanes so as to take the wind and set the mill in motion, and going up they turn the vanes out of the wind and stop the mill. A weight, P', which, in practice, is to be a float upon the water in the tank or trough to be filled by the pump, is suspended from the bars L, to pull them down and set the wheel in motion when the water falls. By the rising of the water the bars will be relieved of

the weight P', and the smaller weight, Q, arranged to lift the bars L and turn the vanes out of the wind, either alone or in conjunction with the wind, will stop the mill. A wind-regulator, R, is pivoted to the frame H at S, and connected to the bars L by an arm, T, and rod U, in such manner that, when the wind blows hard against it, it will spring back and force the said bars up and turn the vanes out of the wind to some extent, and, as the force of the wind lessens, it will yield to the influence of the weight P', which will turn the vanes back into the wind again, thus automatically regulating the wheel to the varying gusts of wind. The crank-shaft is connected to the pump-rods V by a hollow swivel, W, and rod X. The rod which suspends the weight P extends down through the hollow swivel, and the latter is arranged in the hollow axis Y of the standard L, around which the frame H fits to turn as the wind shifts. The frame has a strong U-shaped piece at the front, extending down under the wheel and up to the center of the front, for a bearing, Z', for the front end of the shaft.

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

1. The combination of the hollow sliding hub E, arms D, shaft F, inclined slotted angle-bars L, and a floating weight, P', with the vanes B, arranged to revolve on their axes, substantially as specified.

2. The combination of the wheels O and way P with the hollow shaft F, crank-shaft G, and the slotted bars L, substantially as specified.

3. The combination of the regulators R with the inclined slotted angle-bars L, oscillating vanes B, and the weight P', substantially as specified.

4. The arrangement of the U-shaped portion of the frame H to form a bearing, Z', for the front end of the crank-shaft, substantially as specified.

GEORGE STEARNS.

Witnesses:

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