G. LAUBY.

Wind-Mills.

No. 164,923. Patented June 29, 1875.

Fig. 2.

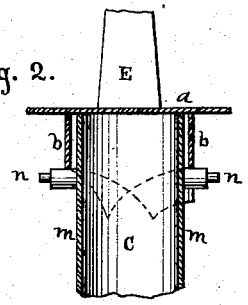
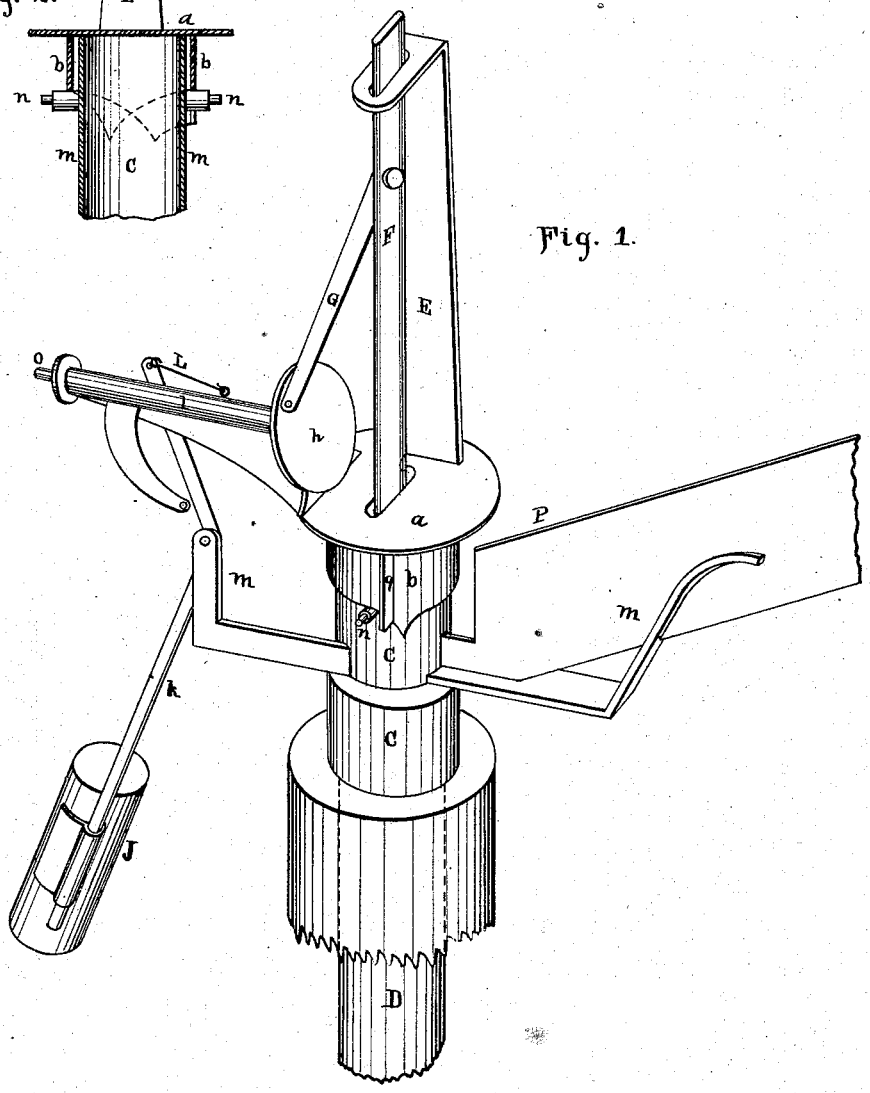


Fig. 1.



WITNESSES.

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UNITED STATES PATENT OFFICE.

GODFRED LAUBY, OF BROADHEAD, WISCONSIN.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **164,923**, dated June 29, 1875; application filed December 22, 1874.

To all whom it may concern:

Be it known that I, GODFRED LAUBY, of Broadhead, in the county of Green and State of Wisconsin, have invented an Improved Windmill, of which the following is a specification:

The nature of my invention relates, first, to the combination of a dead weight attached to a flexible lever, and an adjustable vertical shaft, with cams and the vane, in such a manner that the said weight shall be capable of regulating the motion of the said mill under all circumstances of high or low wind.

The second part of my invention relates to the combination of a vertical standard attached to the upper end of the said vertical shaft—to hold and to guide the pump-rod—with the horizontal shaft and crank, the object of which is to acquire a smooth and gentle action of the said rod by the use of a long crank connecting-rod.

The third part of my invention relates to the combination of the said weight with the vane, in such a manner as to preserve the equipoise of the said vane.

The fourth part of my invention relates to the peculiar construction of the said cams in a tubular form, to cover the apex of the said vane, in such a manner as to be capable of shedding rain, and preventing ice from freezing between the said vertical shaft and the tube or cylinder of the said vane.

The fifth part of my invention relates to the combination of stops or ears attached to the said cams with an inner wing or projection of the said vane, for the purpose of checking the vibratory motion of the said mill.

Figure 1 is a perspective view of the said mill embodying my inventions. Fig. 2 is a transverse vertical section of the same.

A is a horizontal plate, which I call the top of the said mill. I is an attachment to the said top, to which the horizontal shaft O is attached. *h* is a crank. G is a coupling-rod, connecting the said crank with the pump-rod F. E is a vertical standard, attached to the said top, and terminating in angle at the top thereof, and through which a slot is made for the said pump-rod, and which operates as a guide or support thereof. O is a shaft, to which the mill and the said crank *h* are attached.

It is, therefore, obvious that when the mill is running, a reciprocating motion is communicated to the said pump-rod.

L is a rod, and couples the said mill with a weight, J, suspended upon the rod K. M is an arm of the said vane, to which the said rod K is pivoted. *b* is a tubular cam, attached to the under side of the said top, and works upon rollers attached to the arms *n n*. C is the central body of the said vane *m*, and rests upon a common standard. D is the main upright shaft. P is an inner projection of the vane.

Now, it is obvious, that, whereas the said horizontal shaft O is arranged a little out of the center of the said upright shaft, as usual in such cases, the said mill inclines to reciprocate upon its axis as the wind rises and falls; and it has long been a desideratum with inventors to acquire a practicable governor or regulator in this matter, and divers kinds have been invented. Nor do I expect that I have discovered anything new, except as it relates to the combination of certain parts, when constructed and arranged substantially as herein described. Now, mark, the said weight is suspended to an arm of the said vane on the opposite side to the rudder, which balances it nicely, and throws the whole weight on its own natural axis, and this destroys the lateral friction on the inside of the said vane-cylinder, and renders the adjustment of the said mill much easier. Now, again, the said tubular cams are peculiarly constructed and arranged to bear equally on the said arms *n n*, and I regard this, both for utility and order, as far superior to any other mode of adjusting the said mill now in use.

Now, as it relates to the use of the said standard E, it is obvious that it is of great value in rendering the motion of the said mill smooth and gentle, because of the mechanical arrangement thereof with the said pump-rod F, and the said coupling-rod G. It will be noticed that the said pump-rod is raised when the said coupling-rod G begins to approach a vertical line with the pump-rod, and it is obvious that a very great purchase or leverage

is acquired in this arrangement upon the pump-rod.

Now, the tubular form of the said cams performs the double office of adjusting the said mill and shedding rain, so that no ice can accumulate around the shaft D on the inside of the vane. The said cams are provided with stops—or, in other words, lateral projections—to operate as checks to the said mill in its reciprocating horizontal motion.

Now, I am aware that weights and cams, and divers other mechanical devices, are used in windmills to regulate the motion thereof.

I claim as my invention—

1. The combination of the weight J and the adjustable vertical shaft D, provided with tubular or cylindrical cams *b b* at the top thereof, and the said vane, substantially as and for the purpose hereinbefore set forth.

2. The combination and arrangement of the said stops *q* with the said inner projection P of the said vane, substantially as and for the purpose hereinbefore set forth.

GODFRED LAUBY.

Witnesses:
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DANIEL CLOW.