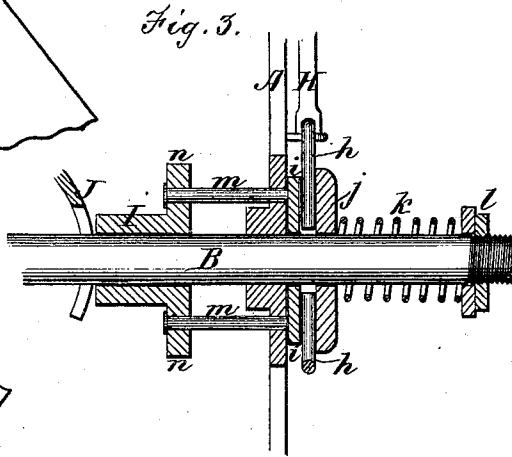
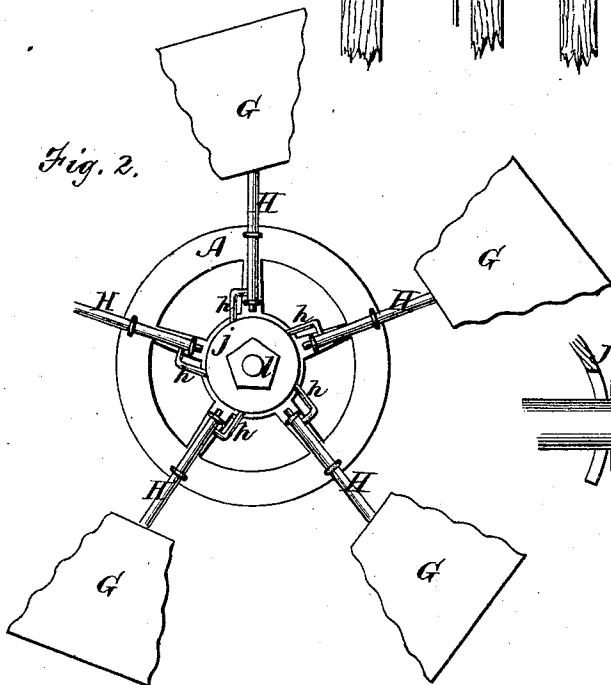
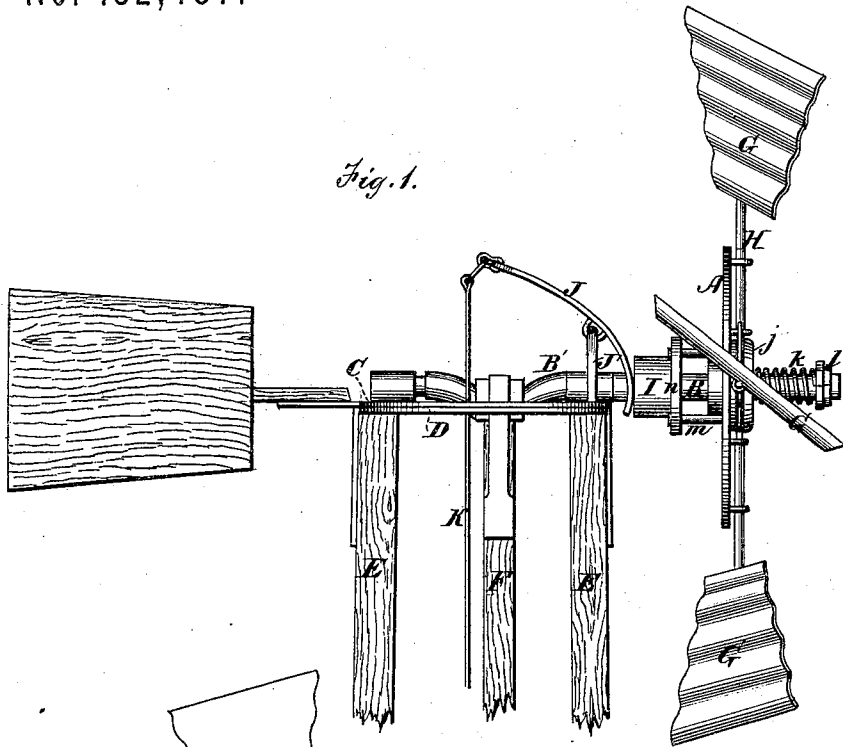


I. H. PALMER.

Improvement in Wind-Mills.

No. 132,487.

Patented Oct. 22, 1872.



Witnesses
C. F. Brown.
Mechanic.

Inventor.
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his Attys.

UNITED STATES PATENT OFFICE.

ISAAC H. PALMER, OF LODI, WISCONSIN.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. 132,487, dated October 22, 1872.

To all whom it may concern:

Be it known that I, ISAAC H. PALMER, of Lodi, in the county of Columbia and State of Wisconsin, have invented a new and useful Improvement in Windmills; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a front elevation; and Fig. 3, a detached section of my invention.

Similar letters of reference in the accompanying drawing denote the same parts.

This invention has for its object to improve the construction of windmills in such manner that the wings thereof can be turned by a mechanism, so as to present a greater or less area to the wind, according to its force. To this end the invention consists in the combination of a wheel bearing radial arms which have wings hinged to their outer ends and cranks on their inner ends, with a lever used to move a sliding collar against the said cranks, and thus to turn them more or less to the wind.

In the drawing, A is the wheel, and B its shaft mounted on a ring, C, that turns on a ring, D, fixed to the top of a frame, E, said shaft having a double crank, B', within the ring C, to which crank is jointed a pitman, F, which connects with the machinery to be driven. G are the wings, made of sheet-metal, wood, or any other suitable material, and hinged to the outer ends of arms H, which are jointed to the front of the wheel A, and have cranks *h* at their inner ends, which cranks bear against a washer, *i*, on the shaft B. The washer lies in contact with the ends of pins *m* extending through the wheel A parallel with the shaft B from a flange, *n*, on a collar, I, placed on the shaft. J is a forked lever bearing against the collar I and jointed to a staple, J', set in the ring C. A rod, K, hangs from the upper end of the lever J down within reach of the operator. When the latter pulls the rod K he thereby causes the lever J to move the collar

I and washer *i* toward the end of the shaft B, and also the washer *i* to turn the arms H by means of the cranks *h*, so as to bring the edges of the wings G to the wind, thus lessening the force exerted by the latter upon the wings. The lever J at the same time acts as a brake on the collar I. When the wind does not blow hard enough to communicate sufficient power to the wheel under the circumstances, the operator loosens the rod K. On the other side of the cranks *h* is a washer, *j*, backed by a spring, *k*, surrounding the shaft B and operating from a nut, *l*. When the rod K is loosened, as above stated, the spring *k* turns the cranks *h* so as to bring the faces of the wings more to the wind, thus increasing the force exerted by the latter upon them. Whether the lever J is used or not the spring *k* holds the wings to the wind as long as any portion of their faces is turned thereto, and yields to allow their edges to turn still more to the wind whenever the force of the latter exceeds the force of the spring. By screwing the nut *l* forward, and thus compressing the spring, it renders the wings harder to turn, and therefore accommodates them to a stronger wind and the exercise of greater power. On screwing the nut *l* backward, the converse is the case. Hence, if the lever J be not used the wings may regulate themselves. The wheel is held to the wind by a vane in the usual manner. The wings are corrugated transversely, so that the grooves may catch the wind and cause it to travel across the face of the wings, and thus utilize its power more than in the case of flat-wings.

What I claim as new is—

1. The combination of the wheel A, shaft B, wings G, crank *h*, washers *i j*, pins *m*, sliding collar I, spring *k*, and lever J, all arranged as described.

2. A windmill-wing corrugated transversely, as specified.

ISAAC H. PALMER.

Witnesses:

J. M. BARTHOLOMEW,
J. H. KAYS.