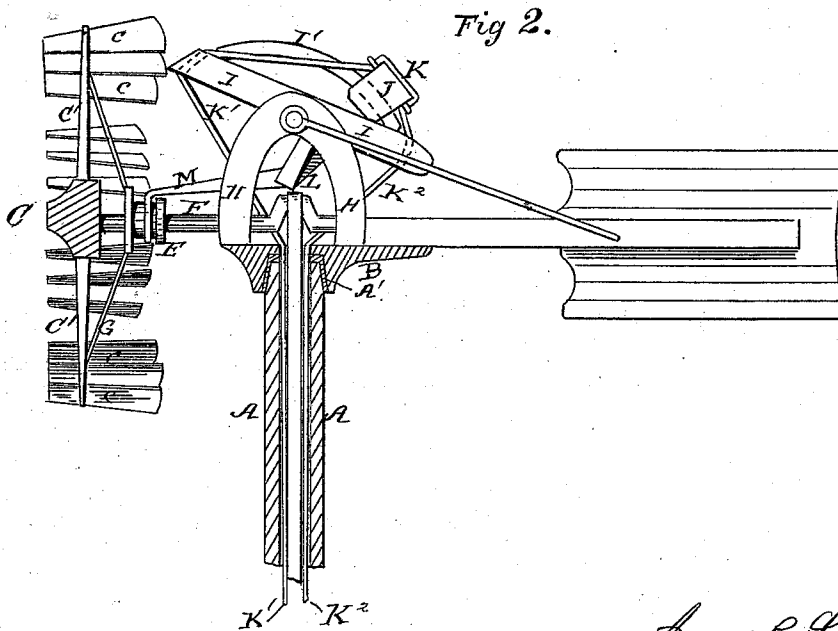
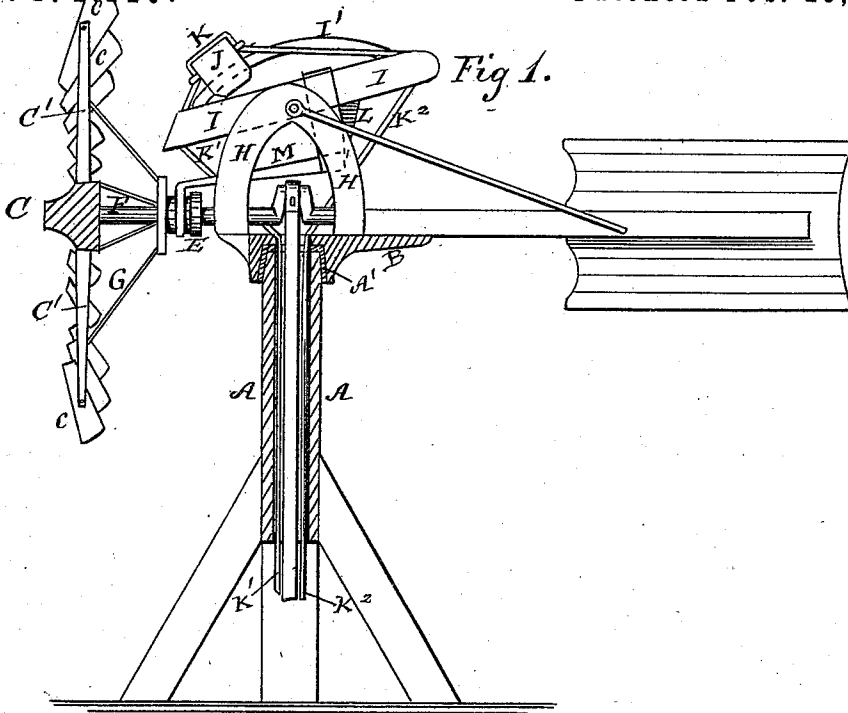


J. B. LUCAS.
WIND-WHEEL.

No. 174,140.

Patented Feb. 29, 1876.



WITNESSES:

Colborne Brookes
James Greenwood & Co.

James B. Lucas,
INVENTOR.

per R. S. & A. Lacey
ATTORNEY.

UNITED STATES PATENT OFFICE.

JAMES B. LUCAS, OF PELLSVILLE, ILLINOIS.

IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. 174,140, dated February 29, 1876; application filed February 11, 1876.

To all whom it may concern:

Be it known that I, JAMES B. LUCAS, of Pellsville, in the county of Vermillion and State of Illinois, have invented certain new and useful Improvements in Wind-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in means of regulating the position of the vanes or fans of windmills, for the purpose of controlling and equalizing the power of the machine, the nature of which will be fully explained by reference to the drawings, in which—

Figure 1 represents a side view, partly in section, of a windmill with my improvements applied thereto. Fig. 2 shows portion of a similar view with parts in a different position.

In each of the views similar letters are employed to indicate corresponding parts whenever they occur.

A represents a hollow mast or tower, the upper end of which is provided with a circular bearing, A, adapted to be received within and support the revolving bearing B, to which is connected the working parts of the device. C represents the wind-wheel, and *c* the fans thereof, which are supported with capability of movement on axes carried by the arms C'. E is a slide working on the main shaft F, and having connected thereto the compound levers G, for actuating the fans *c*, as is well understood. H is a hollow bearing supported over and revolving with the bearing B. To this bearing H is pivoted an arm, I, on the upper side of which a segmental guide-bar, I',

is attached in such manner as to allow of the free movement thereon of a balance-weight, J. To the balance-weight J is connected a rope, cord, or chain, K, the ends K¹ K² of which are conducted through guides or pulleys in the ends of the arm I, and thence down through the hollow mast or tower A. L is a lever-arm extending from the under side of the arm I, to the lower end of which is pivoted the forked lever-arm M for operating the slide E.

The operation of the device is as follows:

When it is desired to turn the vanes or fans *c*, so that they shall present the greatest surface to the action of the wind, the rope or chain K¹ is drawn upon so as to tilt the arm I into the position shown by Fig. 1, but when it is desired to turn the fans out of the wind the opposite rope or chain K² is drawn upon, and the arm I tilted into the position shown by Fig. 2. In Figs. 1 and 2 I have shown the weight J drawn to the extreme opposite ends of the guide I'. Its position may, however, be adjusted at pleasure, irrespective of the position of the arm I, in order to regulate the resistance offered to the winds by the fans *c*.

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

1. In a windmill, the arm I, segmental guide I' and weight J, substantially as and for the purpose described.

2. The combination with the slide E, levers L M, and arm I, of the segmental guide I', sliding weight J, and rope or chain K, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in the presence of two witnesses.

JAMES B. LUCAS.

Witnesses:

CHARLES BOGARDUS,
WILLIAM H. ELLIOTT.