J. J. KIMBALL.

Wind-Wheel.

No. 163,383. Patented May 18, 1875.

Fig. 1

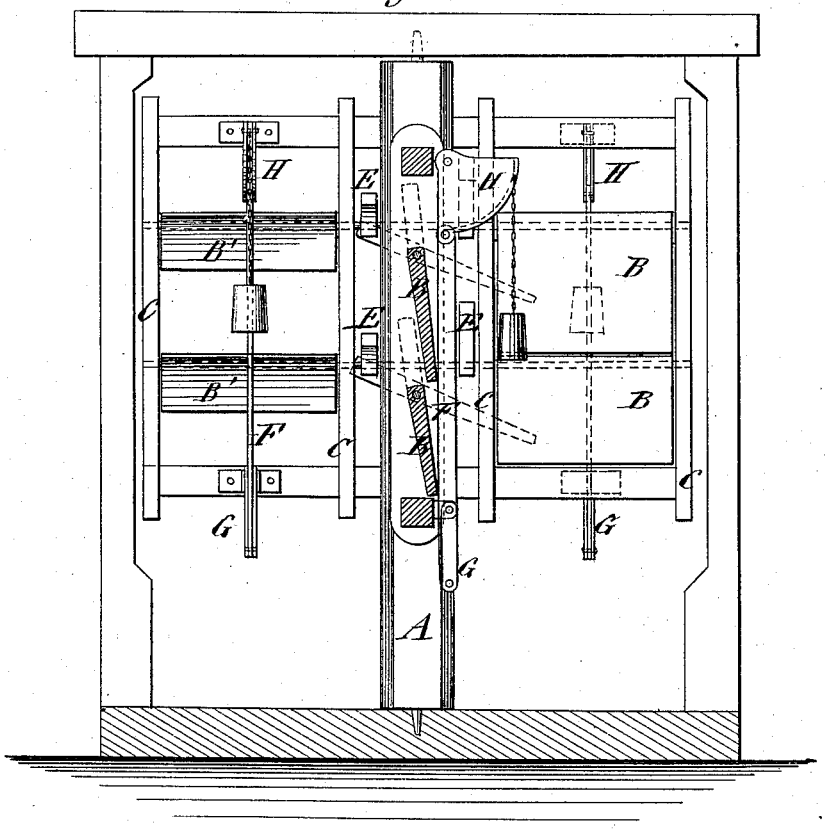
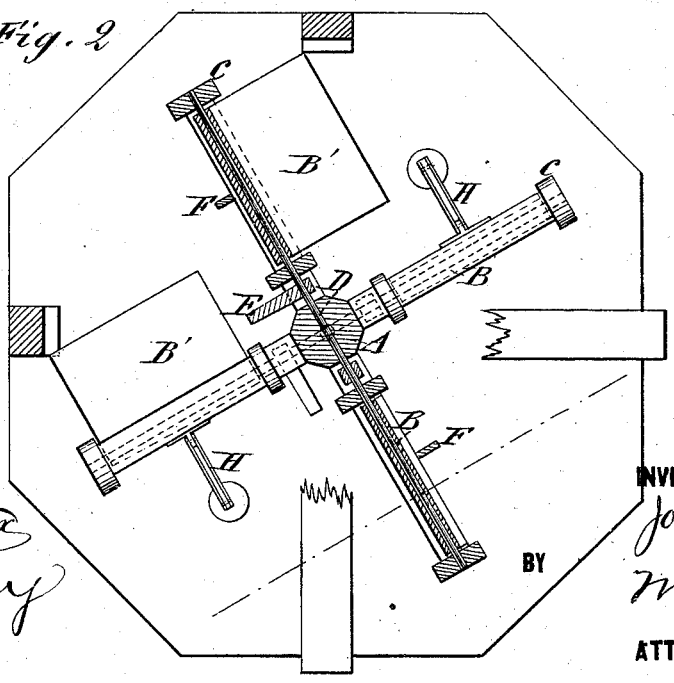


Fig. 2



WITNESSES:

E. Nereux

A. F. Terry

INVENTOR:

John J. Kimball

BY

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOHN JULIUS KIMBALL, OF NAPIERVILLE, ILLINOIS.

IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. **163,383**, dated May 18, 1875; application filed November 14, 1874.

To all whom it may concern:

Be it known that I, JOHN J. KIMBALL, of Napierville, in the county of Du Page and State of Illinois, have invented a new and Improved Wind-Wheel, of which the following is a specification:

The invention is an improvement in the class of windmills whose buckets are pivoted to and pendent from horizontal rods arranged radially to a revolving vertical axis.

The invention consists in a stop-bar applied on the lee side of the buckets to hold them to the wind, and which is controlled by a weighted lever, so as to serve as a regulator.

Figure 1 is a sectional elevation of my improved wind-wheel, taken on the line *x x* of Fig. 2; and Fig. 2 is a horizontal section.

Similar letters of reference indicate corresponding parts.

A represents the upright shaft; B B′, the horizontal vanes on opposite sides of the shaft, and C frames for supporting the vanes. The opposite vanes of each pair are attached to a shaft, D, extending through the shaft and arranged to revolve on its axis; and said vanes are arranged at right angles in respect of their planes, so that one will take the wind on its side, while the other takes it on its edge. The shaft is provided with balancing-arms E, to aid the vanes in shifting readily. The vanes are prevented from turning too far and held to the wind by the stop-bars F, against which the lower edges of the vanes rest when taking the wind; and these stop-bars are jointed to the frame at the lower end by a link, G, and at the upper end they are jointed to a weighted segmental lever, H, to be pushed back when the wind is too strong, and allow the vanes to turn far enough to be relieved of the excessive force, thus constituting a regulator for the vanes.

It will be seen that the vanes will be automatically changed by the wind as they go round from the place of receiving the force to the place for escaping from it, and vice versa. It will also be seen that the wheel requires no tail-vane to hold it relatively to the wind; nor does it have to be swiveled so as to turn round the vertical shaft or rod for transmitting the motion below, as the ordinary wheels do.

The construction is very simple and cheap, and the arrangement is calculated to be durable.

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

The combination, with the vanes B, pivoted horizontally, as shown, of the stop-bars F, pivoted and weighted segmental levers H, and links G, all as shown and described.

JOHN JULIUS KIMBALL.

Witnesses:

S. S. SINDLINGER,

THOS. W. SAYLER.