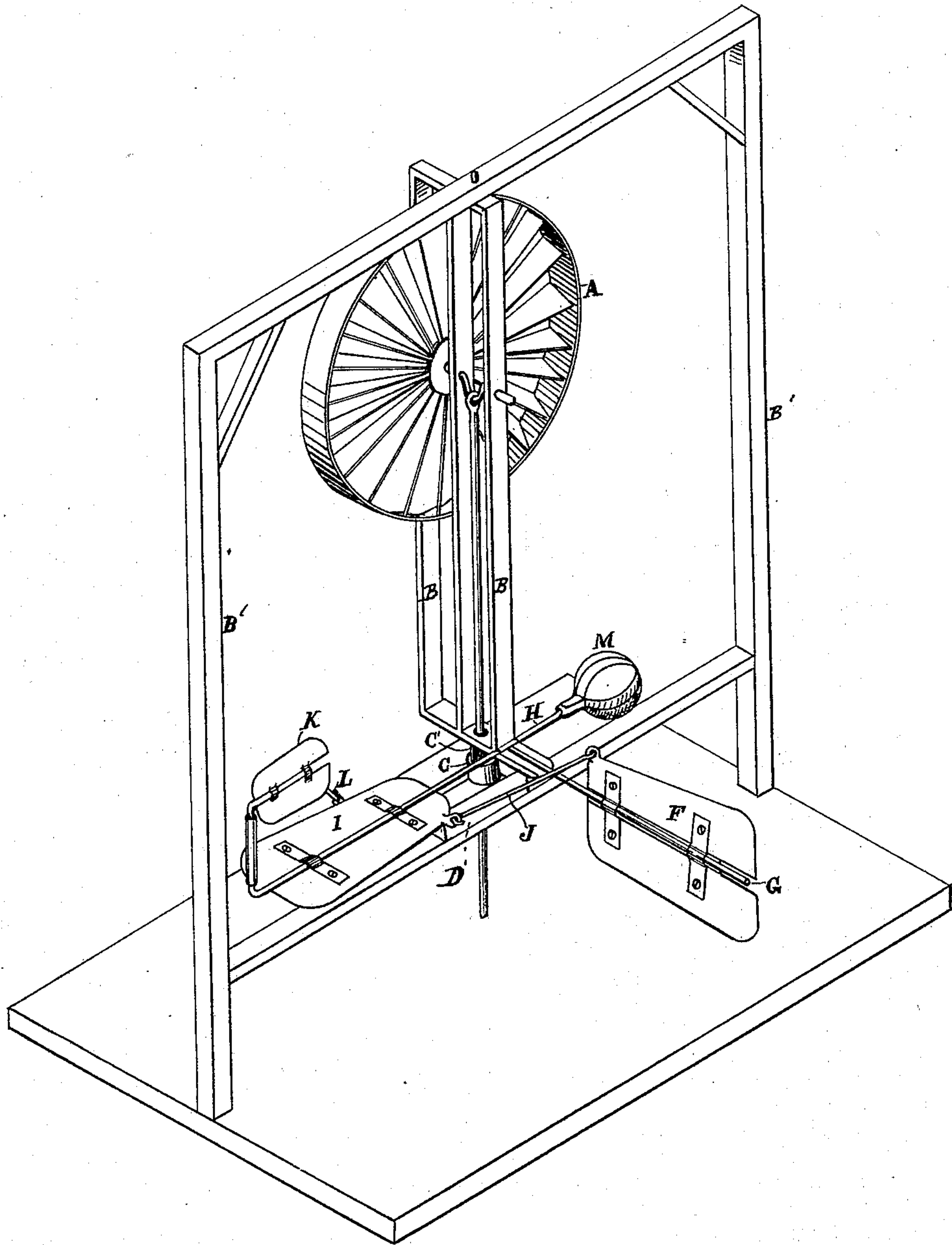


R. R. LANDER.
Windmills.

No. 198,029.

Patented Dec. 11, 1877.



Witnesses

Geo. H. Strong
Frank A. Brooke

Inventor

R. R. Lander
By his Atty's
Dewey & Co.

UNITED STATES PATENT OFFICE.

RICHARD R. LANDER, OF TURLOCK, CALIFORNIA.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **198,029**, dated December 11, 1877; application filed August 24, 1877.

To all whom it may concern:

Be it known that I, RICHARD R. LANDER, of Turlock, county of Stanislaus, and State of California, have invented an Improved Windmill; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing.

My invention relates to certain improvements in windmills and regulating devices, which will be better understood by referring to the accompanying drawing, in which the figure is a perspective view.

A is the wind-wheel of my mill, which may be of any suitable or known form. This wheel is mounted in a wheel-frame formed of the uprights B, united at top and bottom, and the wheel-frame journaled in the outer frame B' B', so as to turn in any direction. The lower journal consists of two cups, C C', one standing upon the plate D of the mill, and the other, which is inverted so as to fit into it, is secured to the lower cross-bar of the wheel-frame by a plate or otherwise. A hole through this lower bar and through the plate D allows the pump or connecting rod from the crank E to pass through the double cup or step.

The main vane F of the mill consists of two halves, with strap-boxes, by which they are united together, and these boxes fit upon a hollow pipe, G, which supports the vane, and around which it turns. Another pipe, H, extends out at right angles with the first one, and carries the side vane I, which rotates upon it. This vane is intended to lie flat and present but little surface to the wind, while the main vane is vertical and holds the wheel to the wind; but when this vane is turned up the main vane is laid flat.

To make these movements together I have united the inner corners of the two vanes by means of a link, J, so that any movement of either will be communicated to the other. The

axis H of the side vane I is turned up at the outer end, and thus furnishes a socket into which a stem from the small supplemental vane K fits, and the vane K can thus turn about its point of suspension. The object of this vane is to assist in turning the vane I, to which its movable end is connected by a link, L. The arm or axis H extends out upon one side, opposite to the vane, and at this end carries a counter-balance, M, upon it.

It will now be seen that while the wind blows with moderate strength the main vane F will hold the wheel into the wind; but as it increases beyond a certain point it turns the small vane K, and this acts to turn the vane I up to face the wind.

By means of the connecting-link J the main vane F will be correspondingly turned down, and the action of the wind upon the vanes I and K will throw the wheel out of the wind.

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

1. The wheel-frame consisting of the uprights B B, and carrying the wheel A, and the outer frame B' B', in combination with the open-bottomed cups C C', the one cup inverted into the other, and the connecting or pump rod P, all constructed and arranged substantially as and for the purpose set forth.

2. The vanes F and I, standing at right angles with each other and united by a link, J, together with the swinging supplemental vane K, linked to the vane I, the whole operating as a regulator, substantially as herein described.

In witness whereof I have hereunto set my hand.

RICHARD R. LANDER.

Witnesses:

E. D. GIDDINGS,
J. F. WARD.