

F. J. Forsyth,

Wind Mill.

No. 92030.

Patented June 29, 1869.

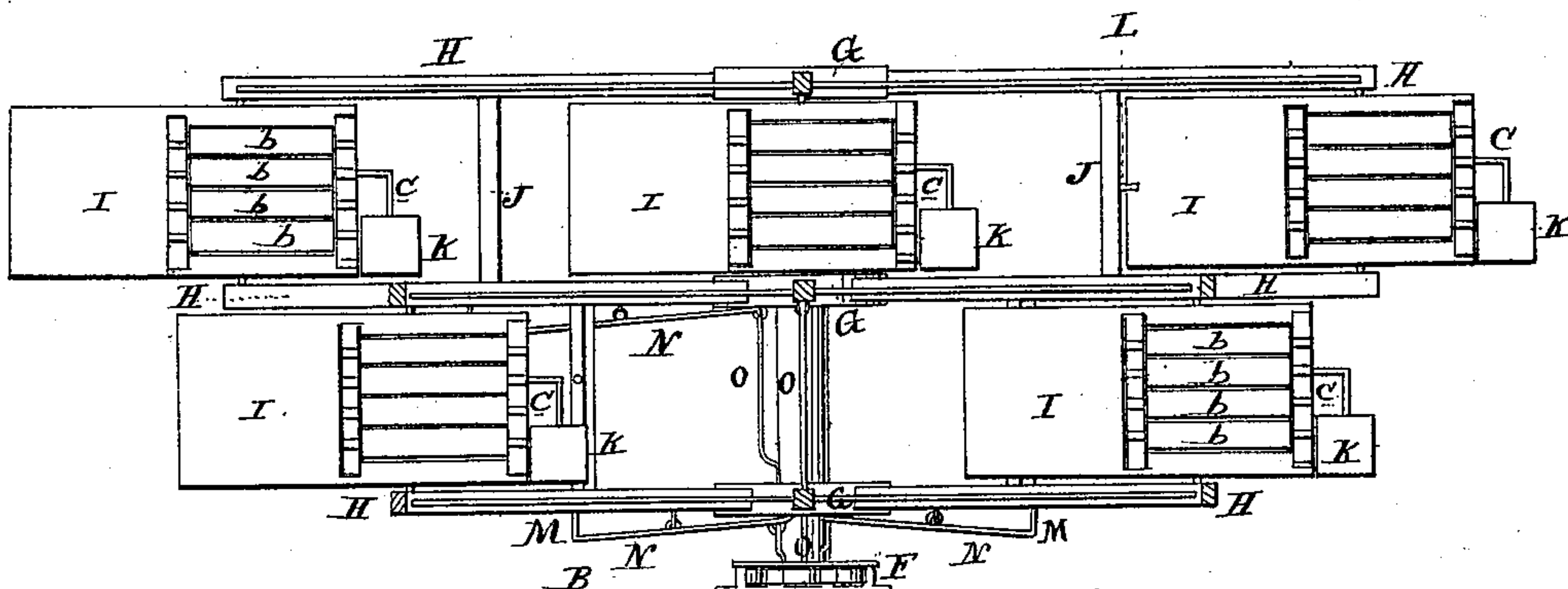


Fig. 1.

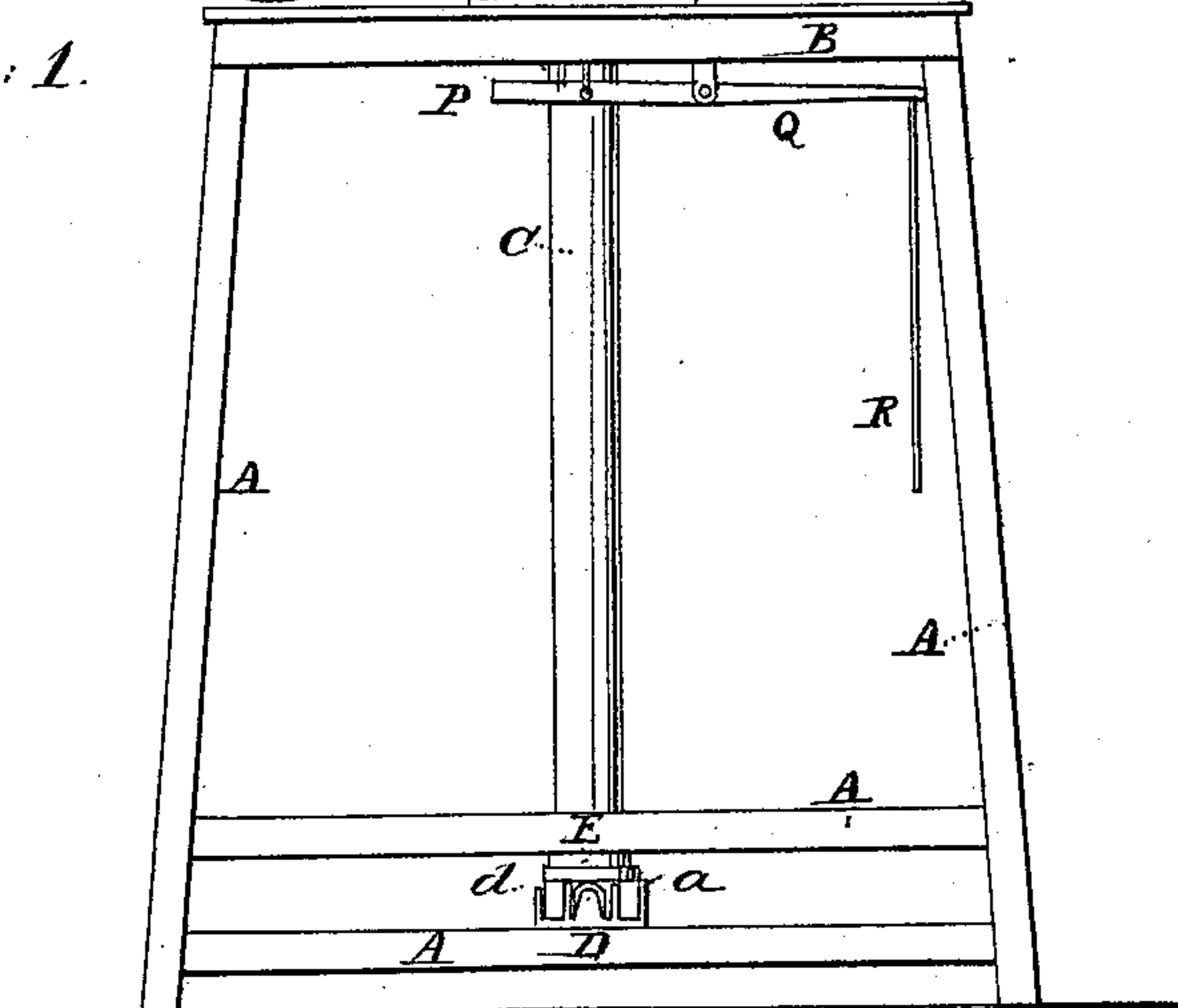


Fig. 2.

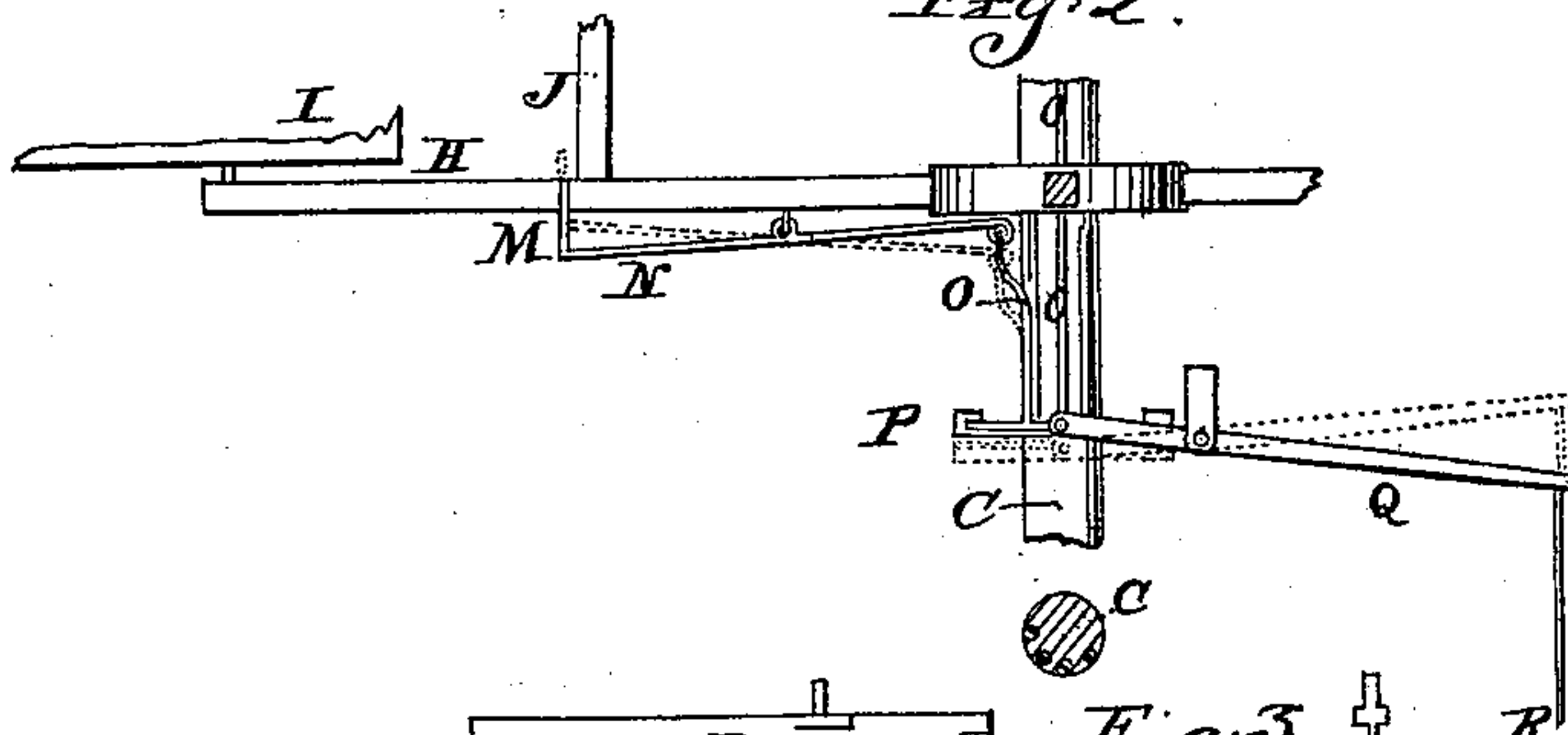


Fig. 3.

Witnesses:

H. F. Everts
S. C. Hoch

Inventor

F. J. Forsyth
Per Attorney
Thos S. Mason

United States Patent Office.

FREDERIC J. FORSYTH, OF AU SABLE, MICHIGAN.

Letters Patent No. 92,030, dated June 29, 1869.

IMPROVEMENT IN WINDMILLS.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern:

Be it known that I, FREDERIC J. FORSYTH, of Au Sable, in the county of Iosco, and State of Michigan, have invented a new and useful Improvement in Windmills; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is an elevation of my invention;

Figure 2 is a section, showing the method of operating the adjustable stops; and

Figure 3 is a front and end elevation of one of the wings.

Like letters refer to like parts in each figure.

The nature of this invention relates to an improvement in wind-wheels; and consists in the peculiar arrangement of its various parts, as more fully hereinafter shown.

A, in the drawings, shows a frame-work, surmounted by a table or platform, B, through which, centrally, passes the upright shaft C, rotating in a step, D, and supported by a flanged collar, E, revolving upon friction-rollers *a*. A collar secured to the shaft at the proper point, rotates with it within an anti-friction bearing, F, guiding the shaft in its movement.

Secured to the shaft are flanges G, from which radiate the arms H, carrying the wings I, the arms being strengthened and bound together by the vertical braces J.

The wings I are vertically pivoted, at one side of their centres, to the arms H, and have a rectangular opening in their shorter arms.

Arranged to close this opening, is a series of panels or slats, *b*, longitudinally pivoted to the sides of the opening, connected together by a wire and staples, as are the slats of a window-blind.

Secured to one of these slats is a crank, *c*, rotating in a proper bearing, and to which is attached a vane, K, which, when the wind is violent, rises, and opens the slats *b*, causing the wings to present a lesser area to it, and thereby diminishing the velocity of the wheel.

These wings, from the manner in which they are hung, would act as vanes when the force of the wind acts against them; but four of them, two in the upper, and two in the lower, and on the same side of the wheel, are arrested by a pin, L, projecting from the outer side of their corresponding vertical braces, and compel them to present their broadsides to the wind until they have passed out of its direction, when they swing loosely on their pivots, coming up into it edgewise, until they have again passed into its course, when each of the four vanes, successively, are arrested by the pins, as described; and communicate the force of the wind to the wheel.

The four remaining wings are arrested by the pins M, passing up through the arms, as shown, and are operated by the levers N and links O, sliding in grooves in the shaft C, and connected to a sliding collar, P, which, in turn, is raised and lowered by the lever Q and rod R.

When the pins M project above the arms, so as to arrest the wings, they will operate as those already described, but when withdrawn, the wings will swing loosely in the wind, and the wheel will remain stationary.

The ends of the arms may be stayed by a light metallic rod, passing around the wheel, and securing them in position.

I do not pretend that any of the devices used by me are absolutely novel, for I believe that each of them may be found in this, or some other class of inventions. I do believe, however, that I have brought together and combined these devices in a new, ingenious, and valuable manner.

It is evident that the result to be attained is to make such use of an uncertain and capricious power, that it may, so far as possible, impart a steady, uniform motion to machinery. To this end, it is essential to get the greatest possible power from the lightest breezes, to regulate the motive-power of the stronger winds, and to protect against the violence of gales.

By the use of the double sets of wings, I am able to present a large surface to light breezes, without an inadequate lengthening and weakening of the supporting-arms, and at the same time, by the use of the automatic device for presenting the edges of the wings, in returning against the wind, and by the rollers at the base of the shaft, and to the bearing-collars, I am able to impart a greater power, with less loss by friction of air or machinery, than is done in any other windmill with which I am acquainted. And in winds of greater force, the devices used by me for regulating the exposure of surface, are simpler, more easily managed, and more effective than others in use.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement of the wings I, the vanes K, the arms H, the braces J, the levers N and Q, the pins L and M, the links O, and the flanges G, in combination with the shaft C, with its step D, collar E, and rollers *a*, and anti-friction bearing F, in connection with frame A and platform B, when constructed and operating as aforesaid.

FREDERIC J. FORSYTH.

Witnesses:

JOHN F. ALBREE,
J. O. PERRINE.