

J. C. Fay, Wind Wheel,

N^o 59,828.

Fig. 1.

Patented Nov. 20, 1866.

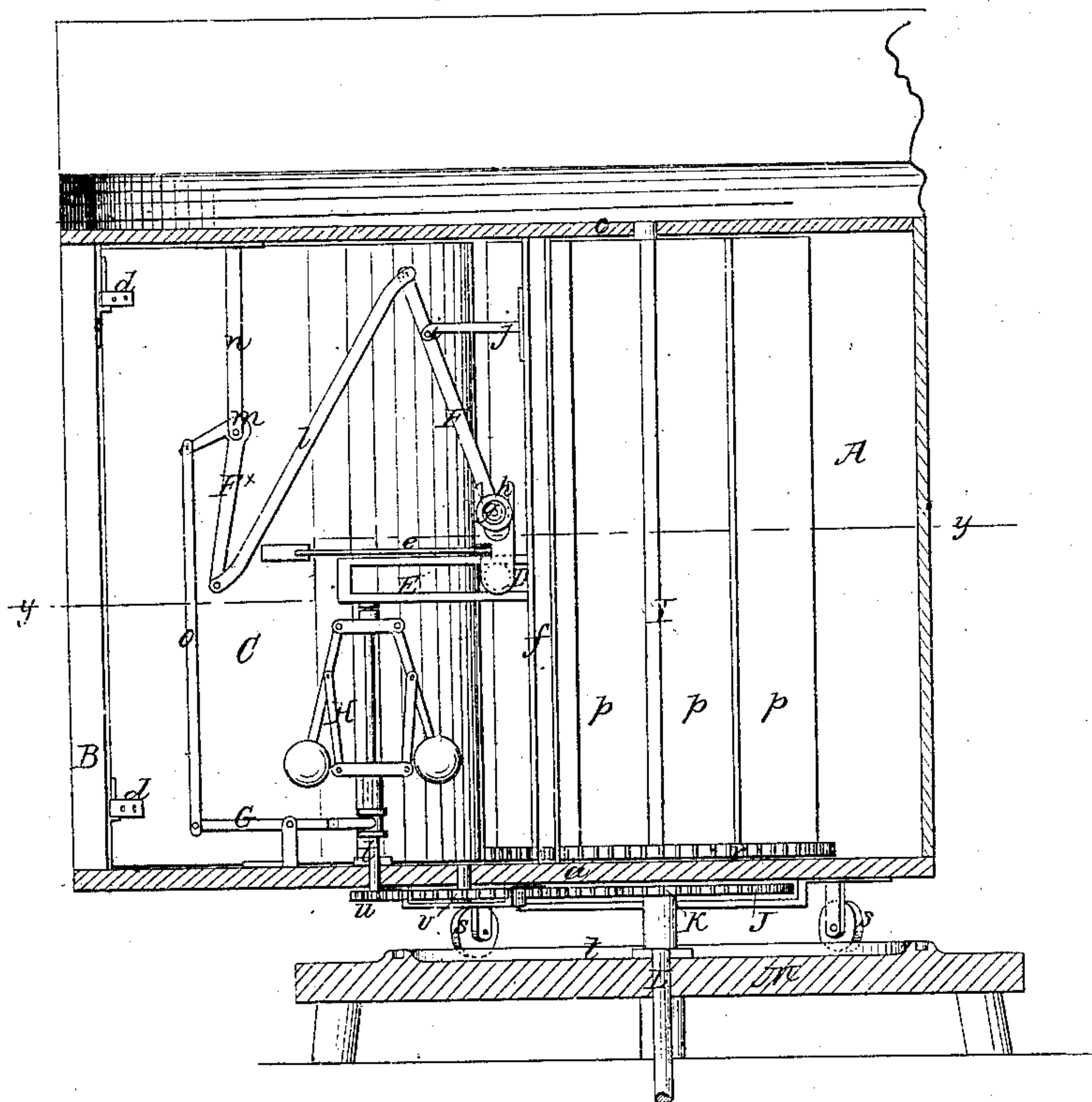


Fig. 2.

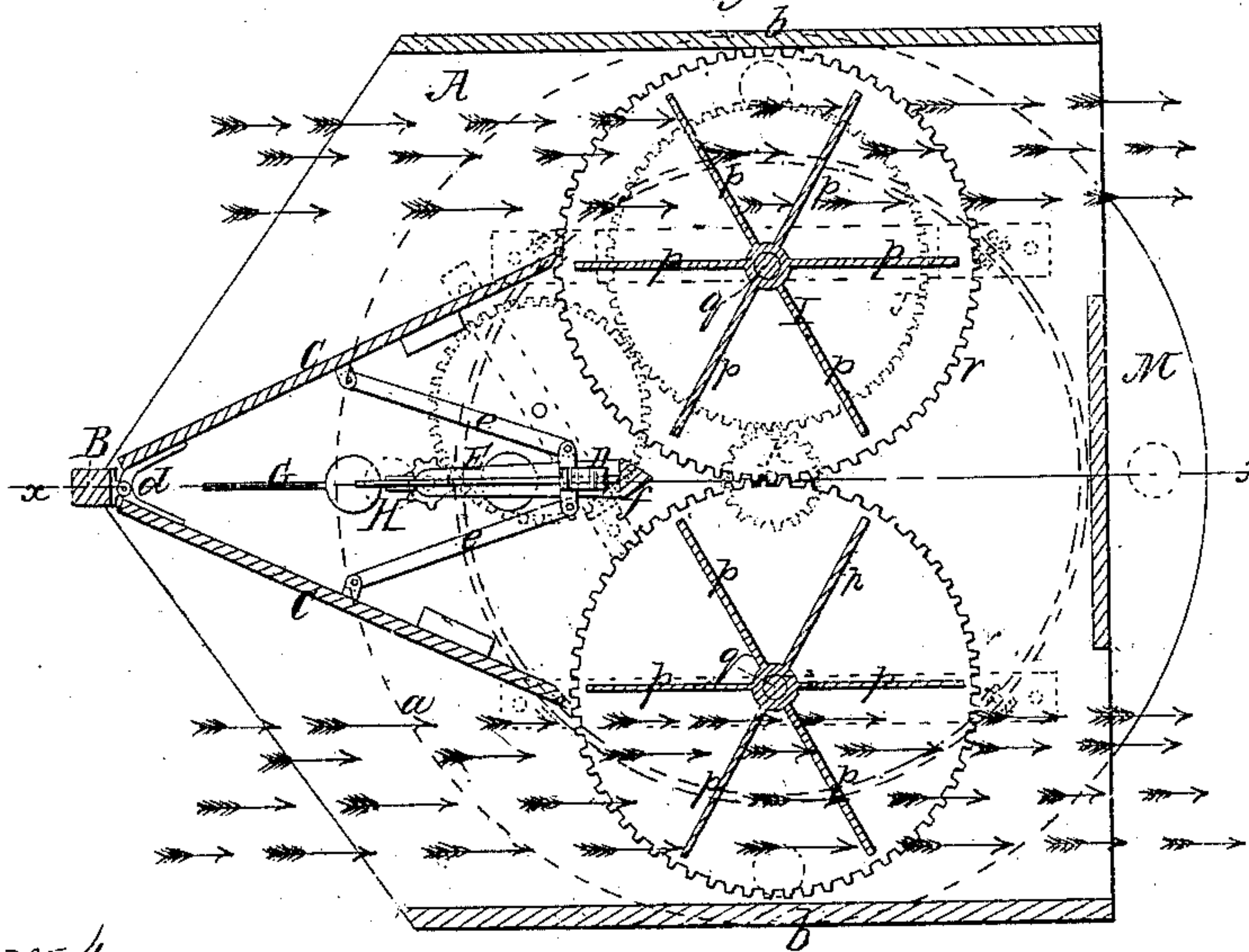
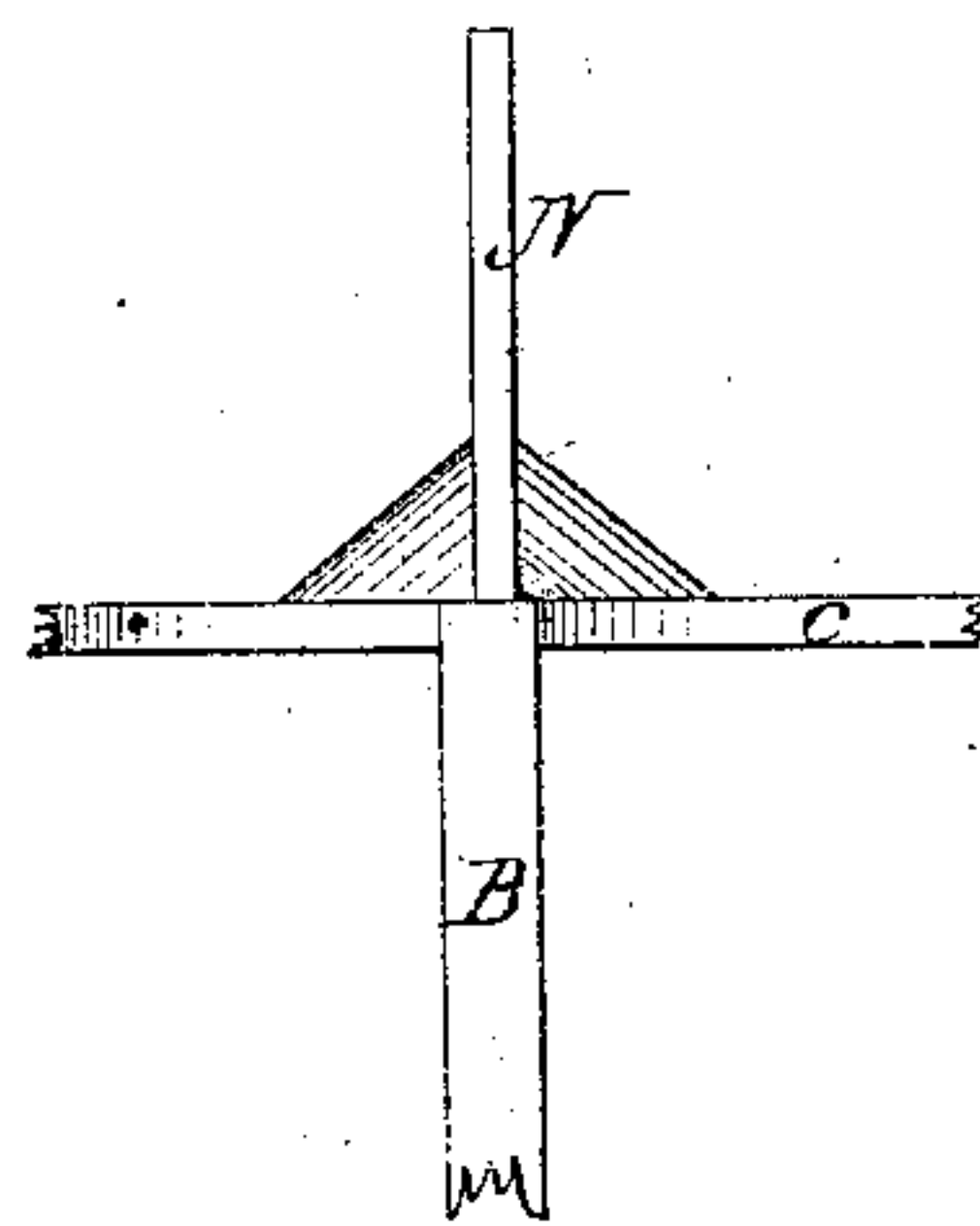


Fig. 3.



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IMPROVEMENT IN WIND WHEELS.

J. C. FAY, OF NEW YORK.

Letters Patent No. 59,828, dated November 20, 1866.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. C. FAY, of the city, county, and State of New York, have invented a new and improved Wind Wheel; 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 make and use the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a vertical section of my invention taken in the line *x x*, fig. 2.

Figure 2, a horizontal section of the same, taken in the line *y y*, fig. 1.

Figure 3, a front view of the upper part of the same.

Similar letters of reference indicate like parts.

This invention relates to a new and improved self-regulating windmill, or one which will rotate with equal or uniform velocity however unequal or irregular the velocity of the wind may be. The invention consists of two vertical wheels enclosed within a case having a vane attached to keep the front of the case facing the wind, the wheels being connected with each other and to a shaft, from which the power is taken by gears, and the front end of the case provided with doors which are connected with a regulator; all being arranged as hereinafter fully shown and described, whereby it is believed that a simple, economical, and efficient windmill is obtained.

A represents a box composed of a bottom, *a*, two upright parallel sides, *b b*, and a top, *c*, the front and rear ends being open. The front ends of the bottom and top plates, *a c*, of the box are bevelled at each side of their centres, so as to have projecting points, which are connected by an upright, B, to which two doors, C C, are attached by hinges, *d d*, which open as they are shoved inward, and close the front end of the box when moved outward.

These doors, C C, are connected by arms, *e e*, to a slide, D, which works on a horizontal guide, E, attached to an upright, *f*, in the box A, and in the upper end of said slide the lower end of a lever, F, is fitted, the latter having a roller, *g*, upon it, which is fitted loosely in a vertical recess, *h*, in the slide D. The lever F, has its fulcrum-pin, *i*, passing through a horizontal arm, *j*, attached to the upright, *f*, in box A, and the upper end of the lever, F, is pivoted to the upper end of an arm, *l*, the lower end of which is pivoted to the lower arm of a bent lever, F*, having its fulcrum-pin, *m*, in the lower part of a pendant, *n*, attached to the top, *c*, of the box, and the upper arm of the bent lever is pivoted to the upper end of an upright, *o*, the lower end of which is pivoted to a lever G, connected with a ball-governor, H, as shown clearly in fig. 1.

I I represent two vertical wind wheels placed side by side within the box A. These wheels are composed of a series of wings or blades, *p*, attached to shafts, *q*, which have their bearings in the top and bottom plates of the box A. The wings or blades *p* may have a radial position with the shafts *q*, or an oblique or tangential position. The radial position, however, will probably be as desirable as any.

The lower ends of the wheel shafts *q q*, above the bottom, *b*, of the box, have toothed wheels, *r*, upon them which gear into each other, and the shaft *q* of one of the wheels below the bottom, *b*, has a toothed wheel, J, upon it, which gears into a pinion, K, on the upper end of a vertical shaft, L, from which shaft the power is taken.

The shaft L passes through a fixed base, M, on which the box A rests, and is allowed to turn freely from the top of the shaft L as a centre, the box A having rollers, *s*, attached to it to work on an annular way or guide, *t*, on the base M.

To the top of the box A there is attached a vane, N, partially shown, which keeps the front end of the box A, where the doors C C are hung, facing the wind.

The lower end of the governor-shaft *t*, below the bottom, *a*, of the box, has a pinion, *u*, upon it, which gears into a wheel, *v*, the latter gearing into the wheel J on the lower end of the wheel shafts *q*.

The operation is as follows:

The front end of the box A is kept facing the wind by means of the vane N, and the wind passes into the front end of the case and impinges against the wings or blades *p* of the wheels I I, near the sides, *b b*, of the box A, the doors C C serving as deflectors or guides for the wind, as shown clearly in fig. 2. The power of the two wheels I I is transmitted to the shaft L through the medium of the gearing described, and the governor, H, being rotated by the gearing from the wheels I, the doors C C will be opened or closed in a greater degree, according to the velocity of the wind. As the velocity of the wind increases, the wheels I increase in

speed, and consequently the governor; and, as the balls of the governor rise, the doors C C, owing to the connection of the lever G with the doors C C, as shown and described, will be shoved forward nearer to a closed state, the doors being moved more open as the wind decreases in velocity, and the balls of the governor fall.

Thus it will be seen that the speed of the wheel will be rendered uniform under different degrees of velocity of the wind. It will also be seen that the turning of the box A to face the wind will not affect in the least any of the working parts of the device.

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

1. The two vertical wheels I I, placed side by side in the box A, connected with each other by gears, *r r*, and to a power-shaft, L, by gears J, K, substantially as and for the purpose set forth.

2. In combination with the wheels I I the doors C C, applied to the front end of the box A, as shown, so as to open and close, and admit of a greater or less amount of wind to pass through the box and act upon or against the wheels, as set forth.

3. The governor H, connecting with and receiving its motion from the wheels I I, and connected with the doors C C, as shown, or in any equivalent way, so that the doors will be opened and closed, and the speed of the wheels rendered uniform under variable degrees of velocity of the wind, as set forth.

4. The power-shaft L, connected by a pinion, K, and toothed wheel, J, with the wind wheels I, in combination with the base M, provided with the annular way *t* and the box A, having rollers, *s*, attached to its under side, to work on the way *t*, substantially as and for the purpose specified.

J. C. FAY.

Witnesses:

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