J. L. NEVERS.

Water or Windmill.

No. 224,467. Patented Feb. 10, 1880.

Fig. 1

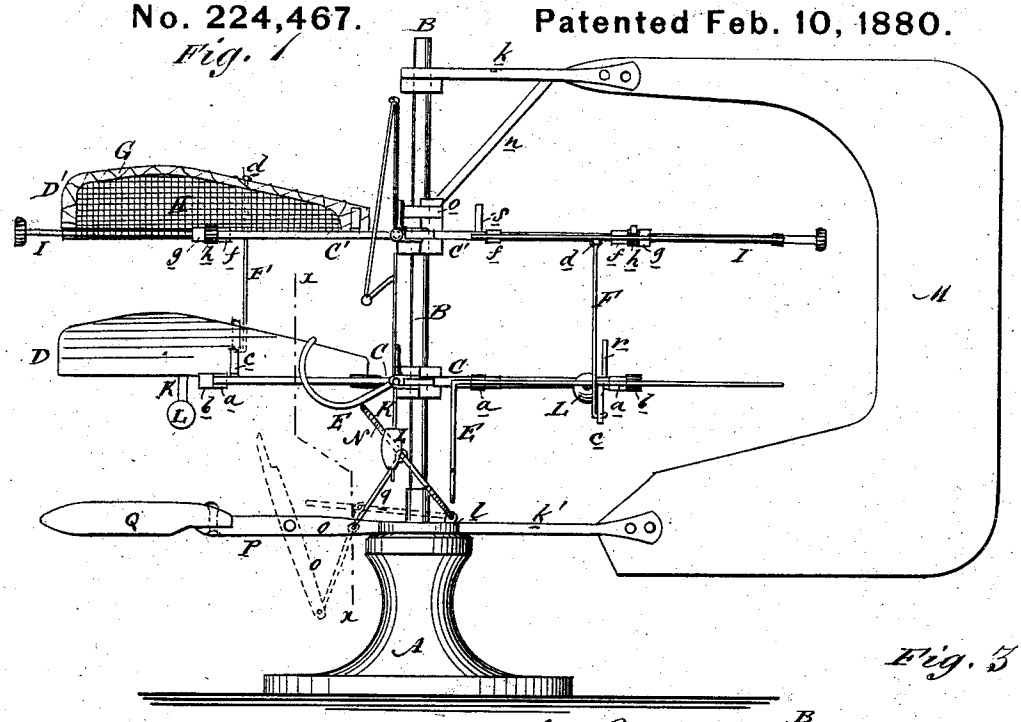


Fig. 3

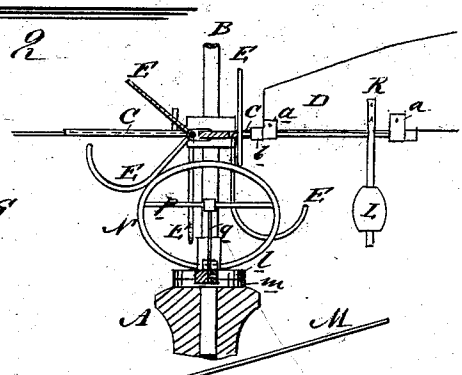


Fig. 2

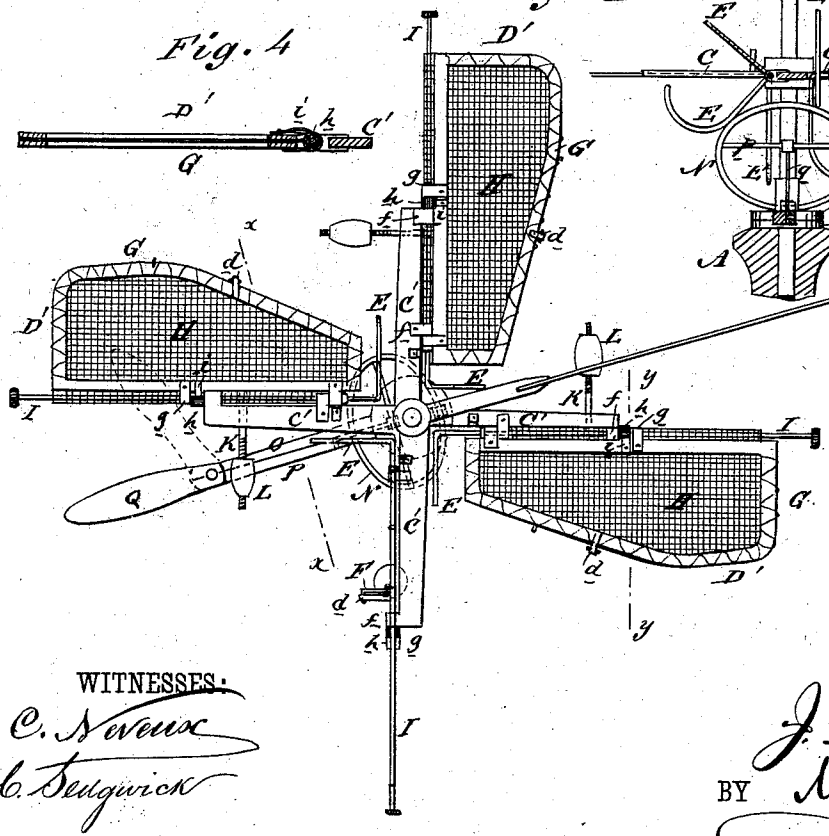


Fig. 4

WITNESSES:

C. Neveux

C. Sedgwick

INVENTOR:

J. L. Nevers

BY Munn & Co

ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JEAN L. NEVERS, OF PASS CHRISTIAN, MISSISSIPPI.

WATER OR WIND MILL.

SPECIFICATION forming part of Letters Patent No. 224,467, dated February 10, 1880.

Application filed November 4, 1879.

To all whom it may concern:

Be it known that I, JEAN L. NEVERS, of Pass Christian, in the county of Harrison and State of Mississippi, have invented a new and Improved Water and Wind Mill or Motor, of which the following is a specification.

Figure 1 is a side elevation of the device. Fig. 2 is a plan of the same. Fig. 3 is a sectional elevation of a part of the device on line *x x*, Fig. 1. Fig. 4 is a transverse sectional elevation on line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide a water and wind mill, which I designate as a "wing-motor," of especial simplicity of construction, automatic in the adjustment of its sails, and capable of utilizing a large percentage of the power of the wind and current of water.

The invention consists of a novel arrangement of eccentric levers, weights, and adjusting-rods for presenting one, two, or more sets of the horizontal blades or sails of a windmill at a proper angle to the current, all of which are hereinafter fully described.

In the drawings, A represents the hollow post, in which is set the revolving vertical shaft B, to which are keyed the arms C C′, to which the sails D D′ are attached. The lower sails, D, are preferably made of sheet metal, and are hinged to the arms C, as shown, the bent rods E E, in combination with the lugs *a* on the sails D and with the lugs *b* on the arms C, serving as hinges.

On the outer edges of the sails D are downward-bent lugs *c*, into the eyes of which are hooked the lower ends of the connecting-rods F F, while the upper ends of these rods F F are hooked into the eyes of the lugs *d*, that are fixed on the outer edges of the upper-sail frames, G G. These upper sails, D′ D′, are preferably constructed of the metallic frames G G, over which is stretched stout canvas H, and these sails D′ D′ are hinged to the arms C′ by means of the rod I, that passes through the lugs *f* on the arms C′ and through the lugs *g* on the sail-frames G. Around these rods I I the inner edge of the canvas H is wrapped, so that the said canvas H can be tightened or slackened by the turning of said rods I I, and the said rods I I are provided with ratchets *h h*, in which the pawls *i i* of the frames G G engage to hold the said rods I I in the position to which they may have been turned.

To the under sides of the sails D are fastened the levers K K, that extend under and beyond the arms C, and have on their outer ends the weights L, that may be screwed inward or outward on the said levers K K, for the purpose of counterbalancing the sails D in accordance with the force of the wind to which they may be exposed.

The windmill-vane M is attached to the vertical shaft B by two horizontal arms, *k k′*, the upper arm, *k*, having an eye in its free end that fits loosely over the top of the said shaft B, and the lower arm, *k′*, being secured upon a collar, *l*, that plays loosely on the shaft B and rests on a washer, *m*, which in turn rests on the top of the hollow post A. A brace, *n*, with one end secured to a loose collar, *o*, on the shaft B and the other to the vane M at its point of attachment to the arm *k*, serves to further support the said vane M.

Hinged on the collar *l*, at about the point of the junction of the arm *k′*, is the elliptic eccentric N, to the cross-bar *p* of which is attached the rod *q*, whose lower end is pivoted to the inner end of the lever O, that in turn is centrally pivoted on the rod P, which extends from the collar *l* in an opposite direction from the vane M, and to the extreme outer end of this rod P the weighted clutch Q is pivoted, so that it can have a lateral movement for the purpose of holding or setting free the lever O and of serving as a counter-balance to the vane M. By means of the eccentric N the sails D D′ are made to present their surfaces to the wind at any desired angle. If, for instance, the lever O be set in the position indicated by dotted lines in Fig. 1, it holds the eccentric N, by means of the rod *q*, down in such a position that the curved ends of the rods E E cannot come in contact with the said eccentric N as the windmill-frame revolves, and consequently the sails D D′ remain in a horizontal position; but when the lever O is brought parallel with the rod P, in which position it may be securely held by turning the clutch Q parallel also

with the said rod P, it elevates the eccentric N by means of the rod *q*, as shown in Fig. 1, so that as the mill-frame revolves the curved ends of the rods E E come successively in contact with the said eccentric N, and, moving up on the inclined edge thereof, throw open the sails D D′ and expose their surfaces to the wind, for the upward movement of the dependent curved ends of the rods E E (the horizontal portions being rigidly secured in the lugs *a a*) throws upward the outer edges of the sails D, and this motion is transmitted by rods F F to the sails D′.

The sails D are prevented from turning backward beyond a vertical line by the stops *r*, that project upward from the arms C, while the stops *s* on the arms C′ prevent the sails D′ from turning too far backward.

It will be seen that the eccentric N can be elevated to any desired angle, so that the sails D D′ may be set to any angle between the closed and the fully-open position, and thereby be adapted to the force of the wind and to the power they have to transmit to the revolving shaft B.

In the device herein shown but two sets of sails are shown; but it is evident that more sets may be added without departing from the principle of my invention.

In all cases, however, I think it preferable to make the higher sails of canvas, in order to secure lightness with strength.

This device is intended to operate in water-currents as well as in wind-currents. When operating in water-currents the vane M is not needed; the frame on which this motor operates will always present the eccentric in its proper position.

When intended for use in water, the blades should be made of boards or other buoyant material, and the power received from the upper end of the revolving shaft.

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

1. The sails D D′, rods E E, connecting-rods F F, levers K, and weights L, in combination with each other and with the arms C, provided with stops *r*, constructed and arranged substantially as herein shown and described.

2. The sails D′ D′, provided with pawls *i i*, and rods I I, provided with ratchets *h h*, in combination with each other and with the arms C′, provided with stops *s*, and with the connecting-rods F F, constructed and arranged substantially as herein shown and described.

3. The combination of vane M, provided with brace *n*, vertical shaft B, collar *l*, rod P, and hollow post A, substantially as and for the purpose described.

4. The collar *l*, rod P, clutch Q, lever O, rod *q*, and eccentric N, combined and arranged substantially as herein shown and described.

5. The eccentric N, rod *q*, bent rods E, and arms C C, combined and arranged substantially as herein shown and described.

6. As a means for adjusting the sails of a windmill, the eccentric N, lever O, and rod *q*, in combination with the bent rods E E, connecting-rods F F, and weights and levers L K, substantially as herein described.

7. In a windmill, two or more sets of sails fixed upon a vertical shaft and adjusted to the wind by one eccentric, substantially as herein shown and described.

JEAN LOUIS NEVERS.

Witnesses:
ANT. ROVIRA,
EDW. ROVIRA.