A. P. Wilson,

Wind Wheel.

No. 16,818, Patented Mar. 10, 1857.

Fig. 1

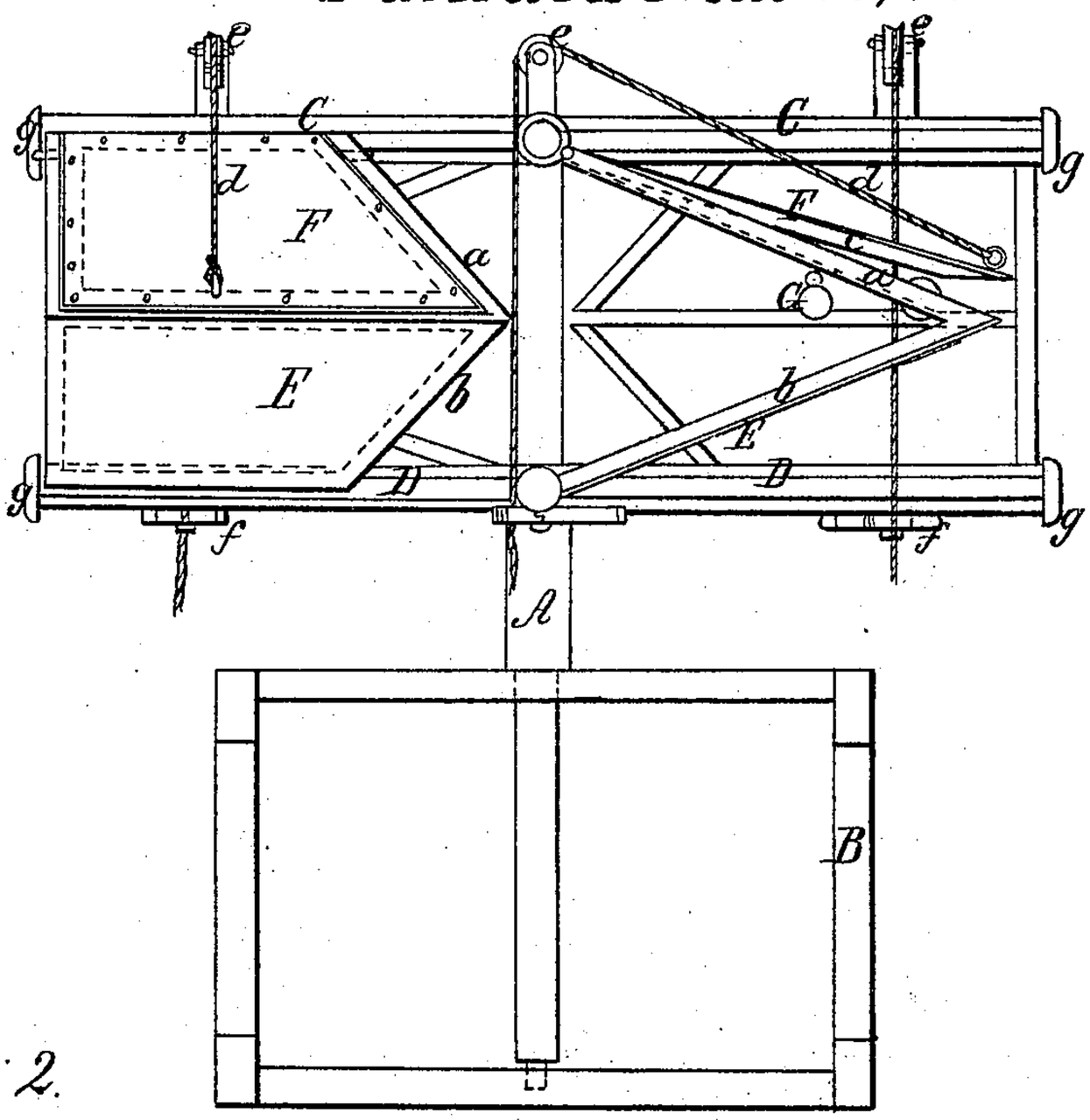
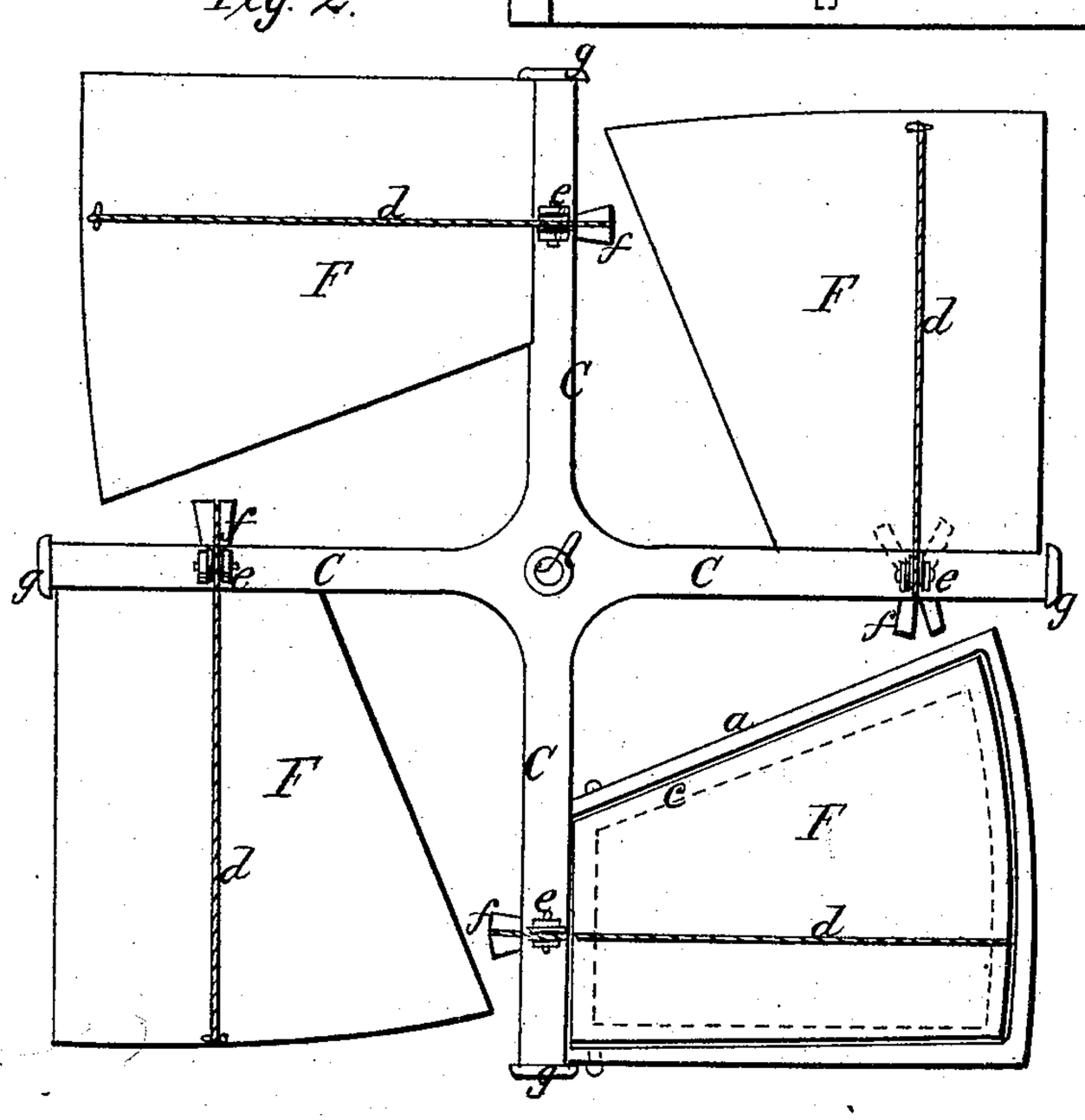


Fig. 2.



UNITED STATES PATENT OFFICE.

ABNER P. WILSON, OF SOLON, ILLINOIS.

IMPROVED SELF-REGULATING WIND-WHEEL.

Specification forming part of Letters Patent No. **16,818**, dated March 10, 1857.

To all whom it may concern:

Be it known that I, ABNER P. WILSON, of Solon, in the county of McHenry and State of Illinois, have invented a new and Improved Horizontal Wind-Wheel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side view of my improvement. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in having the sails of the wind-wheel formed each of two parts and inclined so that when closed to offer the greatest resistance to the wind they meet or are in contact at one end, the opposite ends being connected to horizontal arms on the shaft of the wheel. The upper parts of the sails are hinged to the upper arms of the shafts and have cords attached to them, so that they may be adjusted to regulate the speed of the wheel. Weights are also attached to said upper parts by which the wheel is rendered self-regulating, as will be hereinafter fully shown and described.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a vertical shaft, which is fitted in a proper framing B, and C represents four radial arms attached to the upper end of said shaft.

D represents four similar arms attached to the shaft A some distance below the arms C. (See Fig. 1.)

To the outer parts of the arms C D inclined frames *a b* are attached, the outer ends of the upper frames *a* inclining downward from the arms C and the outer ends of the lower frames *b* inclining upward from the arms D, the outer ends of the two frames being connected permanently together, as clearly shown in Fig. 1. On the lower frames *b* sails E are stretched. These sails are permanently attached to the frames *b*. To the inner ends of the upper frames *a*, adjoining the arms C, frames *c* are hinged or connected by suitable pivots or joints. The frames *c* fit within the upper frames *a* and have sails F stretched over them. To the outer ends of the frames *c* cords *d* are attached, said cords passing over pulleys *e* on the arms C and downward through clamps *f*, attached to the lower arms D. To the sails E weights G are attached, as shown in Fig. 1.

From the above description of parts it will be seen that each sail, strictly speaking, is formed of two parts E F, so inclined as to form an angle to receive the wind which enters between them and acts against the upper and lower parts; and it will be seen that as the two sets of arms C D rotate the sails before they reach the proper point to receive the wind between them do not offer much resistance to it, for their exterior surfaces are presented to it, and said surfaces form a double inclined plane, the edge of which is presented to the wind. In case of sudden gusts of wind, or when the velocity of the wind is very variable, the wheel will have a uniform velocity on account of the upper parts F of the sails being allowed to rise and fall. The weights G are of a requisite size to keep the outer ends of the parts F down in contact with the outer ends of the parts E when the full force of the wind is required; but when the full force of the wind is not required, in case of an increase in its velocity the force of the wind will overcome the gravity of the weights G and raise the outer ends of the parts F, and thereby form an opening of sufficient capacity to allow a requisite portion of wind commensurate with its velocity to escape or pass through, so that its full effective force is not obtained, and the wheel, therefore, will rotate with a uniform speed, however variable the velocity of the wind may be. The wheel may be stopped by raising the upper parts F to a horizontal position. This is done by drawing downward the cords *d*, which are retained in proper position by the clamps *f*.

The outer ends of the arms C D may have weights *g* attached to them, which in consequence of their inertia will serve to render the upper parts F of the sails more sensitive, so that they will be raised and lowered by a slight variation of the velocity of the wind.

This wind-wheel may be constructed at a small cost. There are no parts liable to get out of repair, and they may be constructed of large or small size, according to the power required. In consequence of having the sails constructed and arranged as shown they are rendered self-adjustable in the most simple

manner, so that a greater or less surface or area may be presented to the action of the wind.

I do do not claim, broadly, the application of weights to adjustable sails, whereby the sails by the action of the wind are adjusted so as to present a greater or less surface to it, according to its velocity, for weights have been applied and arranged in various ways for effecting this purpose; but,

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

Constructing the sails of two parts E F, attached or fitted to inclined frames which are secured to the arms C D, the upper parts F of the sails being hinged to their frames *a*, and having weights G and cords *d* attached, substantially as shown and described, for the purpose set forth.

ABNER P. WILSON.

Witnesses:
R. R. CROSBY,
DAN DELANCY.