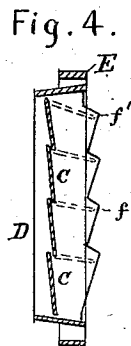
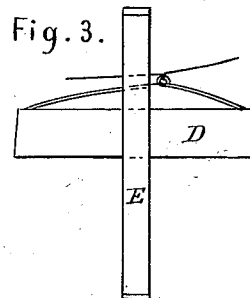
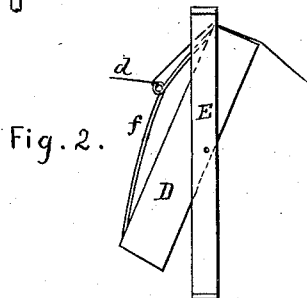
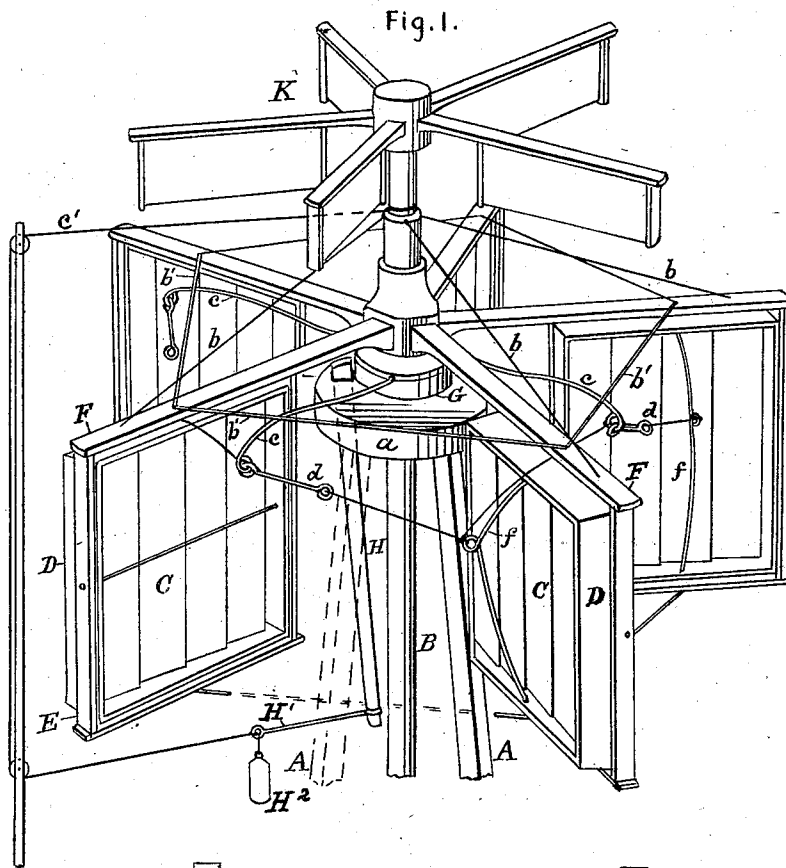


(No Model.)

W. H. ASH.
HORIZONTAL WINDMILL.

No. 255,128.

Patented Mar. 21, 1882.



Witnesses

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WILLIAM H. ASH, OF JORDAN TOWNSHIP, MONONA COUNTY, IOWA.

HORIZONTAL WINDMILL.

SPECIFICATION forming part of Letters Patent No. 255,128, dated March 21, 1882.

Application filed July 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. ASH, a resident of Jordan township, (P. O. Onawa,) in the county of Monona and State of Iowa, have invented certain new and useful Improvements in Horizontal Windmills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to horizontal windmills; and it consists in the peculiar construction of the frame, sails, and operating devices, by which the center of gravity is placed as low as practicable on the vertical shaft of the driving-wheel and the sails are adjusted to the wind, to give greater stability and to regulate the power and speed of the mill, as hereinafter more fully described.

In the drawings, Figure 1 is a perspective view. Figs. 2 and 3 are views showing the pivoted fan-frames inclined and in a horizontal position. Fig. 4 is a vertical section of one of the fan-frames, showing the fans arranged horizontally.

A designates the supporting-frame mounted on a base. (Not shown in the drawings.)

B is a vertical shaft, stepped in a bearing in the base, the upper part having bearings in the top plate, *a*, of the frame.

C designates fans, which may be pivoted vertically or horizontally in the frames D, which frames are pivoted in the frames E, attached to and carried by the radial arms F, fastened to the upper part of the shaft B. The frames E are arranged below the arms F, so as to place the center of gravity as low as possible on the shaft, to give greater stability to the mill. These arms are stayed vertically by the rods *b* and laterally by the rods *b'*.

G is a check-wheel adjusted loosely on the shaft B at the top of the frame, and is provided with radial arms *c*, the outer ends of which arms are connected with the chain *d*, which is attached to the rod *f* on the back of the fan-frames D. When the fans are pivoted horizontally the frames are provided with wirestops *f'*, to prevent the fans from turning entirely

over when carried around against the wind. (See Fig. 4 of the drawings.)

H is a friction-lever, pivoted near the top in a slot in the top plate, *a*, of the frame, the upper end of the lever being formed and arranged above the plate to bear against the check-wheel G when the lever-arm is raised, as hereinafter described.

H' is an arm attached to the lever, and is provided with a weight, H².

K is a small governor wind-wheel, which may be placed, as shown in the drawings, on the top of the vertical shaft B; or this wheel may be arranged upon suitable bearings at one side of the windmill. The design of this wheel is to regulate the speed of the driving-wheel of the mill, and for that purpose it is connected by a cord or chain, *c'*, or other suitable device, with the weighted arm H' of the lever H, so as to cause the end of the friction-lever to bear against the check-wheel, the operation of which will be hereinafter more fully described.

The fans of the driving-wheel are adjusted so that while moving with the wind they are closed to receive the full force of the wind, and when moved around against the wind the fans automatically open to let the wind pass through them.

It is evident that the greater or less power of the mill with a given force of wind depends upon the position of the frames carrying the pivoted fans, the mill having the greatest power when those frames are in a vertical position, so that the fans receive the full force of the wind, and the power being lessened as the frames are moved toward and held in a horizontal position. The size of the governor-wheel and of the weight on the weighted arm of the friction-lever may be varied and adjusted as required to suit the greater or less force of the wind and the power required of the mill. The governor-wheel being properly connected with the weighted arm of the friction-lever, when the wind blows with such force as to move the driving-wheel with too great speed or force the governor-wheel will be moved by the force of the wind sufficiently to raise the weighted lever-arm H', causing the upper end of the friction-lever H to bear against the check-wheel G, retarding its motion, which, by means of the arms *c* and chain *d*, connected with the rods *f* on the

fan-frames, are moved from their vertical position to a position more or less inclined, according to the force of the wind; and when the current of the wind is so strong as to make it desirable to throw the fans entirely out of the wind the fan-frames will be thrown into a complete horizontal position.

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

1. The combination of the pivoted fans C and the pivoted frames D, carried below the radial arms F, with the check-wheel G and the friction-lever H, operated by mechanism substantially as and for the purposes described.

2. The combination of the pivoted fans C and the pivoted frames D, carried below the arms F, with the check-wheel G, having the

arms c, connected with the chain d, attached to the pivoted frames, and the friction-lever H, connected with and operated by the governor-wheel K, substantially as and for the purposes described.

3. The combination, with the pivoted fans C in the pivoted frames D, of the rods f', attached to the frames and bent and arranged to form stops to the fans, substantially as described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

WILLIAM H. ASH.

Witnesses:

G. F. STRUBEL,

M. W. BACON.