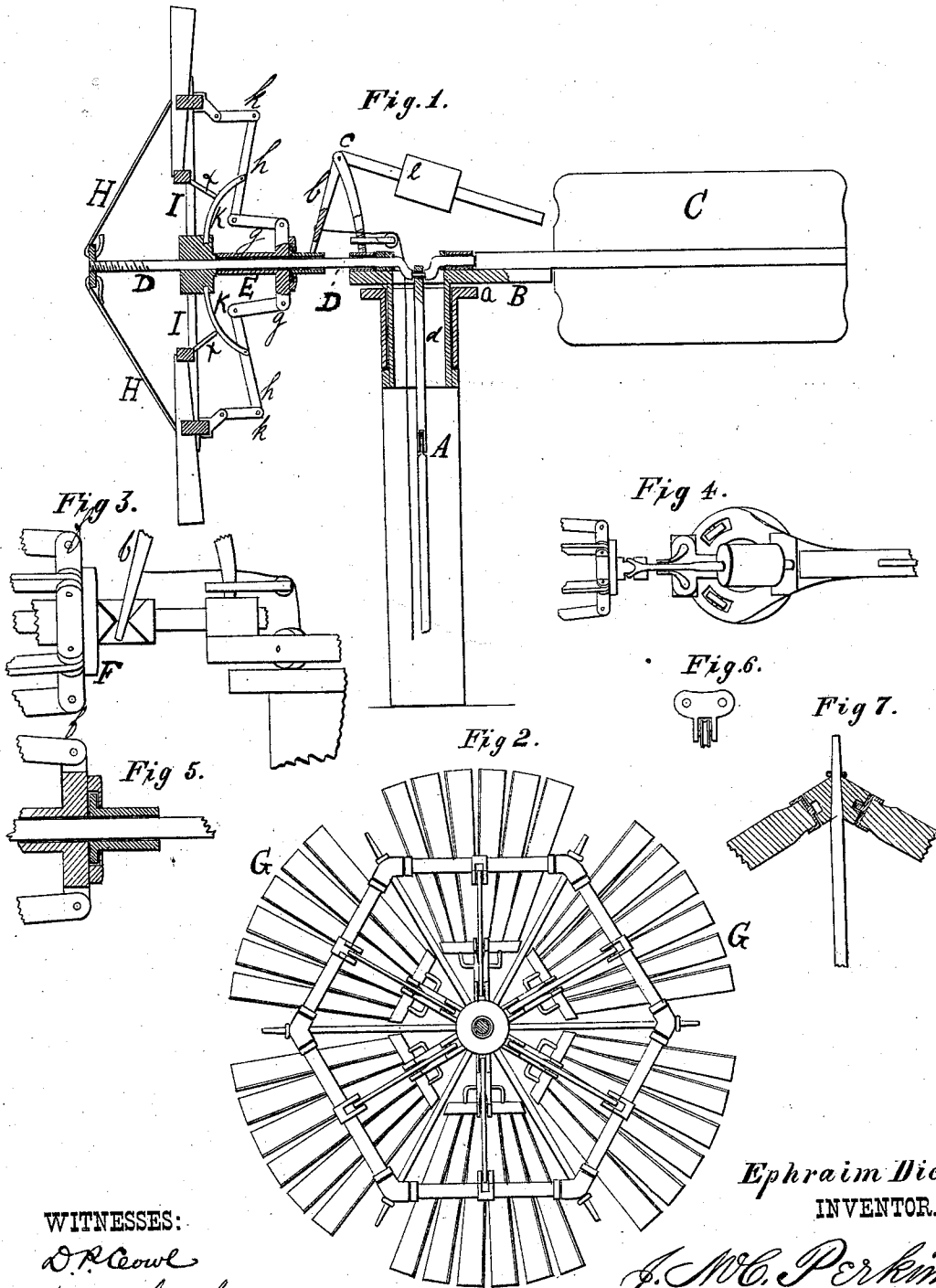


E. DICE.
WIND-MILL.

No. 177,625.

Patented May 23, 1876.



WITNESSES:

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EPHRAIM DICE, OF SCIOTO, ILLINOIS.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **177,625**, dated May 23, 1876; application filed April 25, 1876.

To all whom it may concern:

Be it known that I, EPHRAIM DICE, of Scioto, in the county of McDonough and State of Illinois, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description thereof, that 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 the letters and figures of reference marked thereon, which form a part of this specification.

The same letters and figures of reference are used to indicate the corresponding parts.

After describing the invention, its nature and extent will be shown in the claims.

Figure 1 is a vertical sectional view of my windmill, taken through the vane and wind-wheel. Fig. 2 is a rear view of the wind-wheel, taken next to the tower. Fig. 3 is a side view of a part of the turn-table and of the sliding hub. Figs. 4, 5, 6, and 7 are detail views.

My invention consists, principally, in the use of novel devices by which the sectional sails of the wind-wheel are automatically moved out of the force of the wind as the gale increases.

I am aware there are in public use wind-wheels, composed of sectional sails, which are self-regulating; but my invention differs from these in several material respects.

A is the tower, provided with a cap-plate, *a*. B is the turn-table, mounted on a series of wheels or rollers. C is the vane. D is the wheel-shaft, journaled through bearings on the turn-table, and connected with the reciprocating rod *d*. E is a hub sleeved on the shaft, the outer end of which is connected with the lever *b*, pivoted at *c*, and provided with the weight *e*. The disk F is fixed to the sliding hub near its outer end. To the lugs *ff* on the disk F are pivoted the levers *g h k*, and connect the disk F with the sections G G of the wind-wheel. The shaft D extends beyond the wind-wheel, and to it are connected the truss-rods H H, which also are attached to the arms I I, and these form the frame-work of the wheel. K K are curved arms, firmly fastened to the hub of the wind-

wheel, and serve as a fulcrum to enable the levers *g, h*, and *k* to act, through the sliding hub, on the weight *e*, and thus move the sectional sails of the wind-wheel out of the force of the wind when it is too strong. On the end of the shaft D is screwed a small disk, *l*, to which the truss-rods H H are attached.

These truss-rods are indispensable in a wind-wheel composed of sectional sails arranged as my invention is, in order to give the requisite strength and firmness to the wheel.

X is a small iron bar, bent at right angles at either end, and fastened to the bottom of each section of the wind-wheel, and meets the curved arm K, when the sections are so turned as to receive the force of the wind. The use of X is to prevent the sections from being turned out of the force of the wind by revolving outside instead of inside of the wheel. It keeps the sections firmly in position, when in the wind, until the connecting devices act on the weight *e* and force them out of the wind.

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

1. A wind-wheel composed of sectional sails, each of which is provided with the stop X, the curved projecting arms K K, mortised into the hub, in combination with the shaft D and the truss-rods H H, substantially as described, and for the purposes set forth.

2. The right-angled lever *b*, pivoted at *c*, and provided with the weight *e* at one end, and slotted at the other end to embrace the sliding hub, in combination with the sliding hub E and the connecting-levers *g, h*, and *k*, the lever *k* being pivoted at the arm K, which acts as a fulcrum for the whole series of levers, the extended shaft D, and the truss-rods H H, substantially as described, and for the purposes specified.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of March, 1876.

EPHRAIM DICE.

Witnesses:

JAS. BARNABY,
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