

H. CROFT, Sr. & H. CROFT, Jr.

WIND-MILL.

No. 184,345.

Patented Nov. 14, 1876.

Fig. 1.

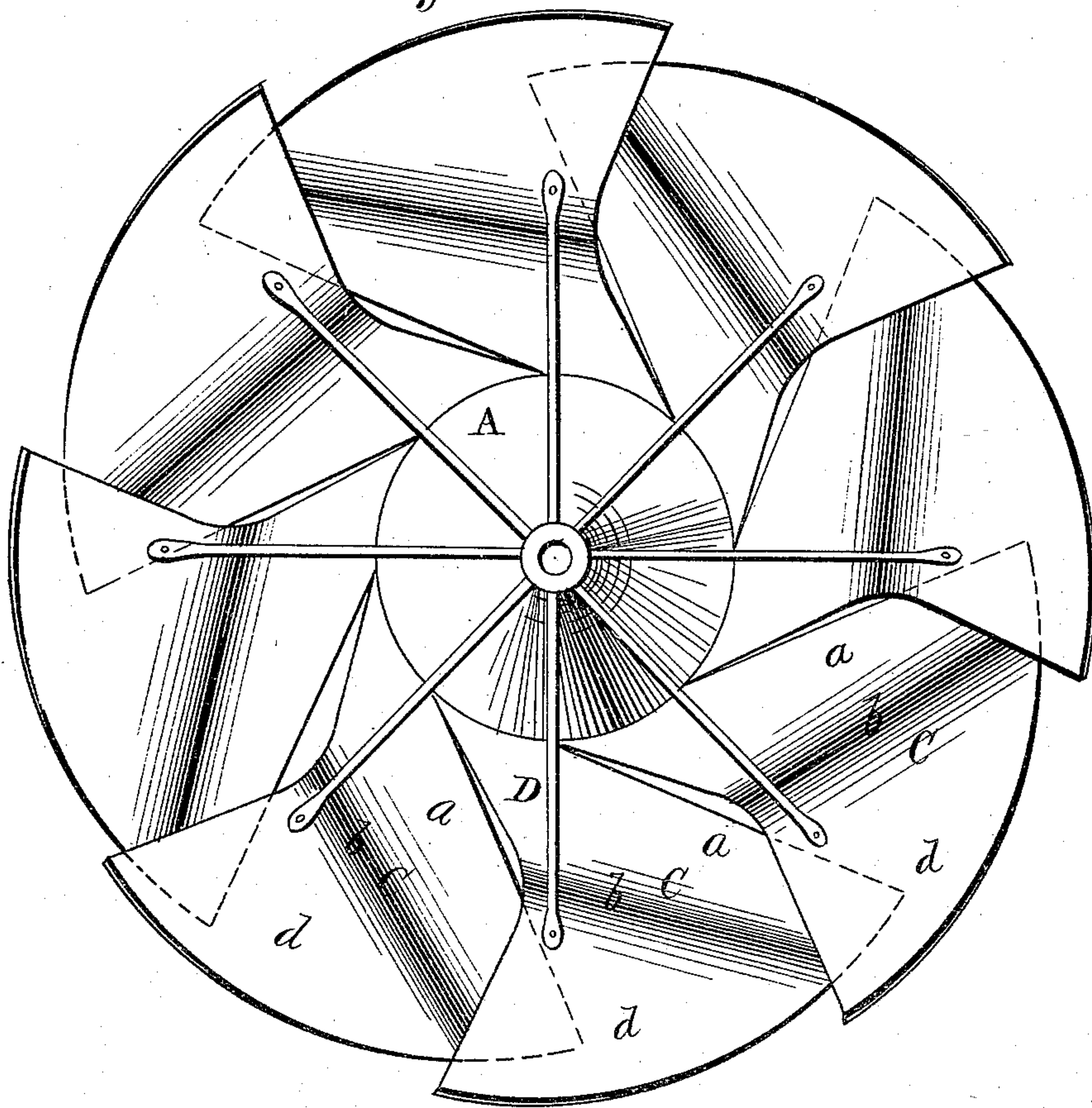
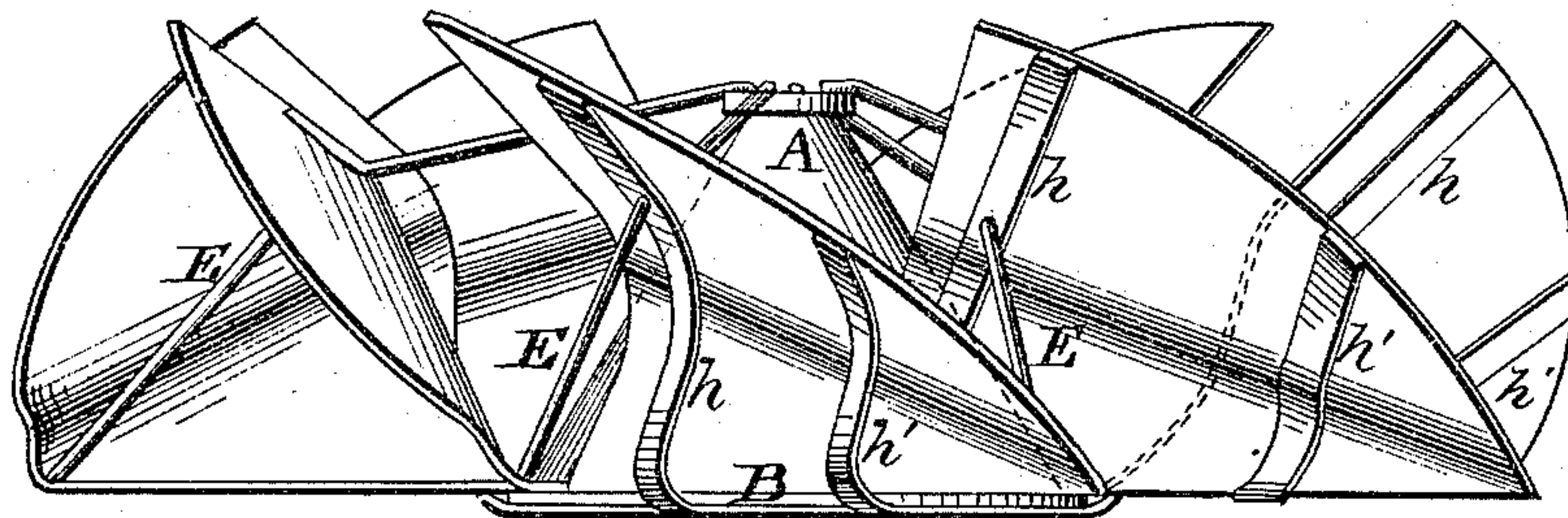


Fig. 2.



WITNESSES

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HENRY CROFT, SR., AND HENRY CROFT, JR., OF SPRINGFIELD, OHIO.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **184,345**, dated November 14, 1876; application filed October 17, 1876.

To all whom it may concern:

Be it known that we, HENRY CROFT, Sr., and HENRY CROFT, Jr., of Springfield, in the county of Clarke and State of Ohio, have invented certain new and useful Improvements in Windmills; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The nature of our invention consists in the construction and arrangement of a wheel for windmills, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a front view, and Fig. 2 a side view, of our wind-wheel.

A represents the hub of the wind-wheel, made in the form of a cone, and provided at the base with a circular plate, B, having a central opening for the passage of the shaft, which also is to extend through the front end or apex of the cone. C C are the wings or vanes of the wheel, made in the form shown, each vane having a straight part, *a*, in the same plane as the plate B, and then curved forward at *b*, and the outer portion *d* extending at an angle of about forty-five degrees. The part *d* of each vane is, by a rod, D, connected with the front end or apex of the con-

cal hub A, thereby bracing the same. All the brace-rods D may, at their inner ends, be attached to a ring to be placed on and fastened to the hub. The part *d* of each vane is then, by a rod, *e*, connected with the outer end of the part *a* of the adjoining vane to further brace the same. *h h'* are strengthening-ribs on the under side of each vane, the rib *h* extending radially inward to the center of the circular plate B.

By this construction the wheel is rendered strong and firm, and yet sufficiently light for all practical purposes. The conical hub spreads the air over the vanes, and the peculiar formation of the latter renders them susceptible to a very moderate wind.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a wind-wheel, the combination of the conical hub A, back plate B, and wings or vanes C C, constructed as shown and described, and for the purposes set forth.

2. The combination of the conical hub A, back plate B, wings or vanes C, brace-rods D E, and strengthening-ribs *h h'*, all substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

HENRY CROFT, SR.
HENRY CROFT, JR.

Witnesses:

J. H. RABBITS,
CHAS. R. WHITE.