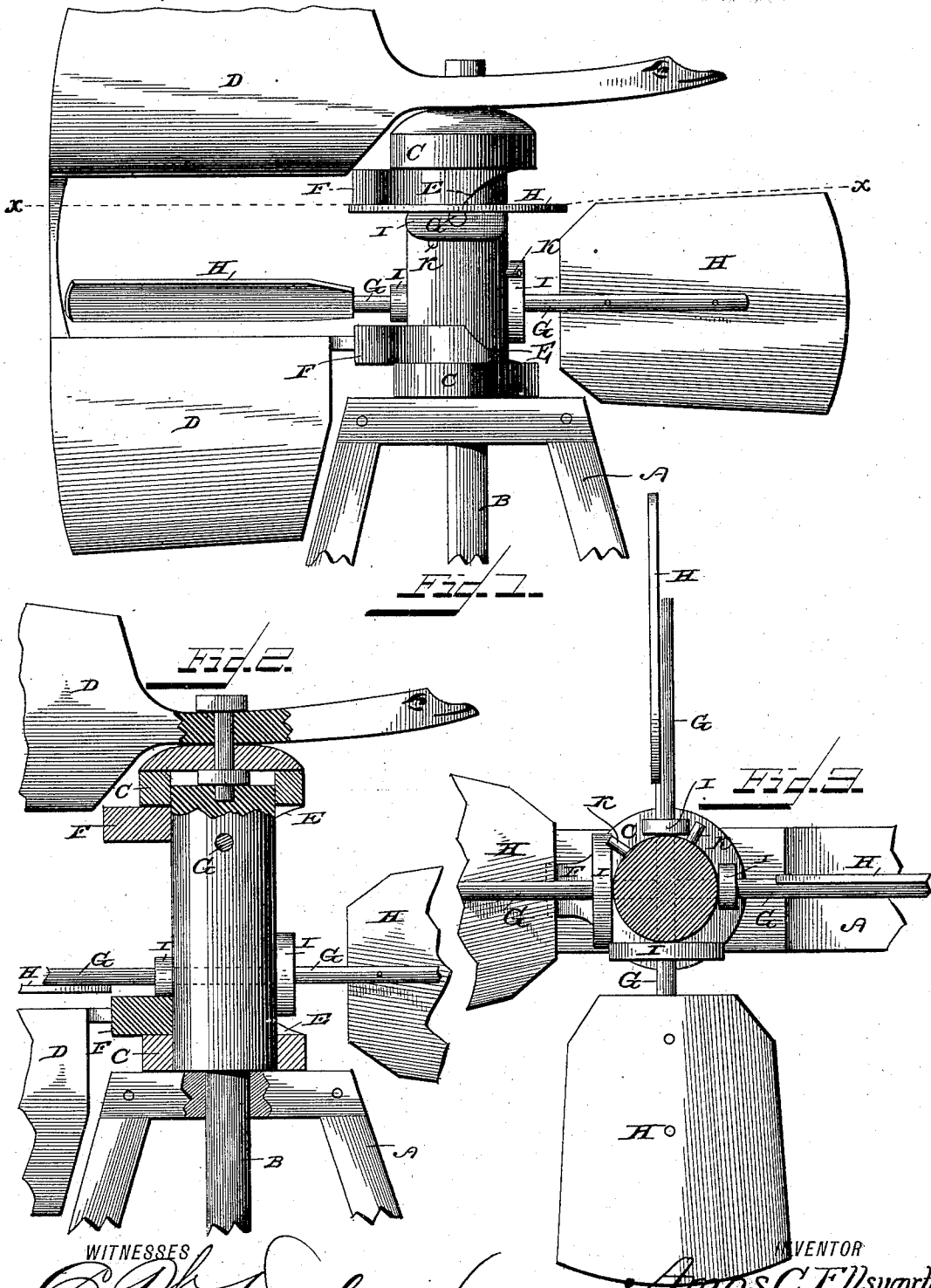


(No Model.)

A. C. ELLSWORTH.
WINDMILL.

No. 331,288.

Patented Dec. 1, 1885.



WITNESSES

W. D. Dashiell
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UNITED STATES PATENT OFFICE.

AMOS CHAPMAN ELLSWORTH, OF JAY, VERMONT.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 331,288, dated December 1, 1885.

Application filed June 11, 1885. Serial No. 168,383. (No model.)

To all whom it may concern:

Be it known that I, AMOS C. ELLSWORTH, a citizen of the United States, residing at Jay, in the county of Orleans and State of Vermont, have invented a new and useful Improvement in Windmills, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in windmills; and it consists in the improved construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a windmill embodying my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a horizontal sectional view taken on the line *x x* of Fig. 1.

A represents a tower or other suitable structure adapted to support the wind-wheel, and B represents a shaft having an enlarged head, said shaft being journaled in suitable bearings in the tower.

C represents collars, which are swiveled on the shaft, and secured to these collars and extending at right angles from the shaft are the connected vanes D. The collars C are provided on their opposing faces with camways E, which are provided with the oppositely-curved shoulders F. Shafts G extend through the enlarged heads of the shaft D at right angles to each other and to said shaft B, and to the projecting ends of each of the shafts G is secured a wing, H, the wings of each shaft being arranged at right angles to each other, as shown. Tappet-arms I are also secured to the shafts G on opposite sides of the enlarged head of the shaft B, said tappet-arms being arranged parallel with the wings next adjacent thereto. These tappet-arms are sufficiently long to come in engagement with the curved shoulders of the

cams as the shaft B rotates, and thereby cause the wings to be turned through a quarter of a circle. By this construction it will be readily understood that the wings on one side of the shaft will be arranged with their broad sides to the wind, and that the oppositely-extending wings will be arranged edgewise to the wind, and thereby present but a very slight surface thereto. Stops K limit the movement of the tappet-arms I.

A windmill thus constructed is adapted to run either in a horizontal or vertical position or arranged at any desired angle.

Having thus described my invention, I claim—

1. The combination of the shaft B, the transverse shafts G, journaled therein and having the wings arranged at right angles to each other on opposite ends of the shafts G, and having the tappet-arms I, and the camways E, adapted to cause the shafts G to rotate through a quarter of a circle as the shaft B revolves, for the purpose set forth, substantially as described.

2. The combination of the shaft B, the transverse shafts G, journaled therein and having the wings arranged at right angles to each other on opposite ends of the shafts G, and having the tappet-arms I, the collars C, swiveled on the shaft B, and having the camways engaging with the tappet-arms, and the vanes secured to the collars, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

AMOS CHAPMAN ELLSWORTH.

Witnesses:

O. N. ELKINS,
A. J. KEITH.