

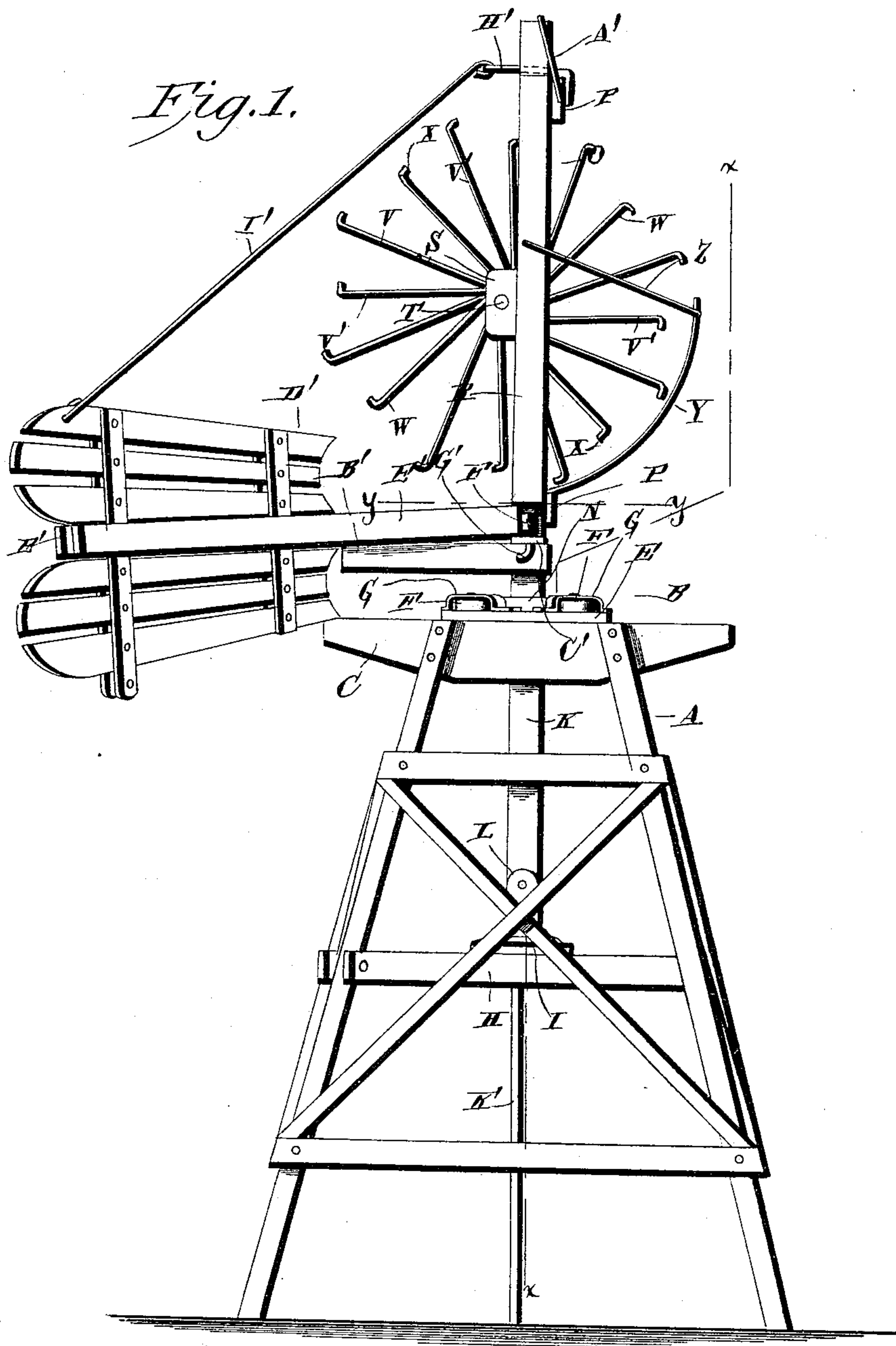
(No Model.)

2 Sheets—Sheet 1.

S. CULVER.
WINDMILL.

No. 389,205.

Patented Sept. 11, 1888.



Witnesses,

D. B. Taylor,
E. L. Siggins.

Inventor,

Seneca Culver.

By his Attorneys

C. A. Shaw & Co.

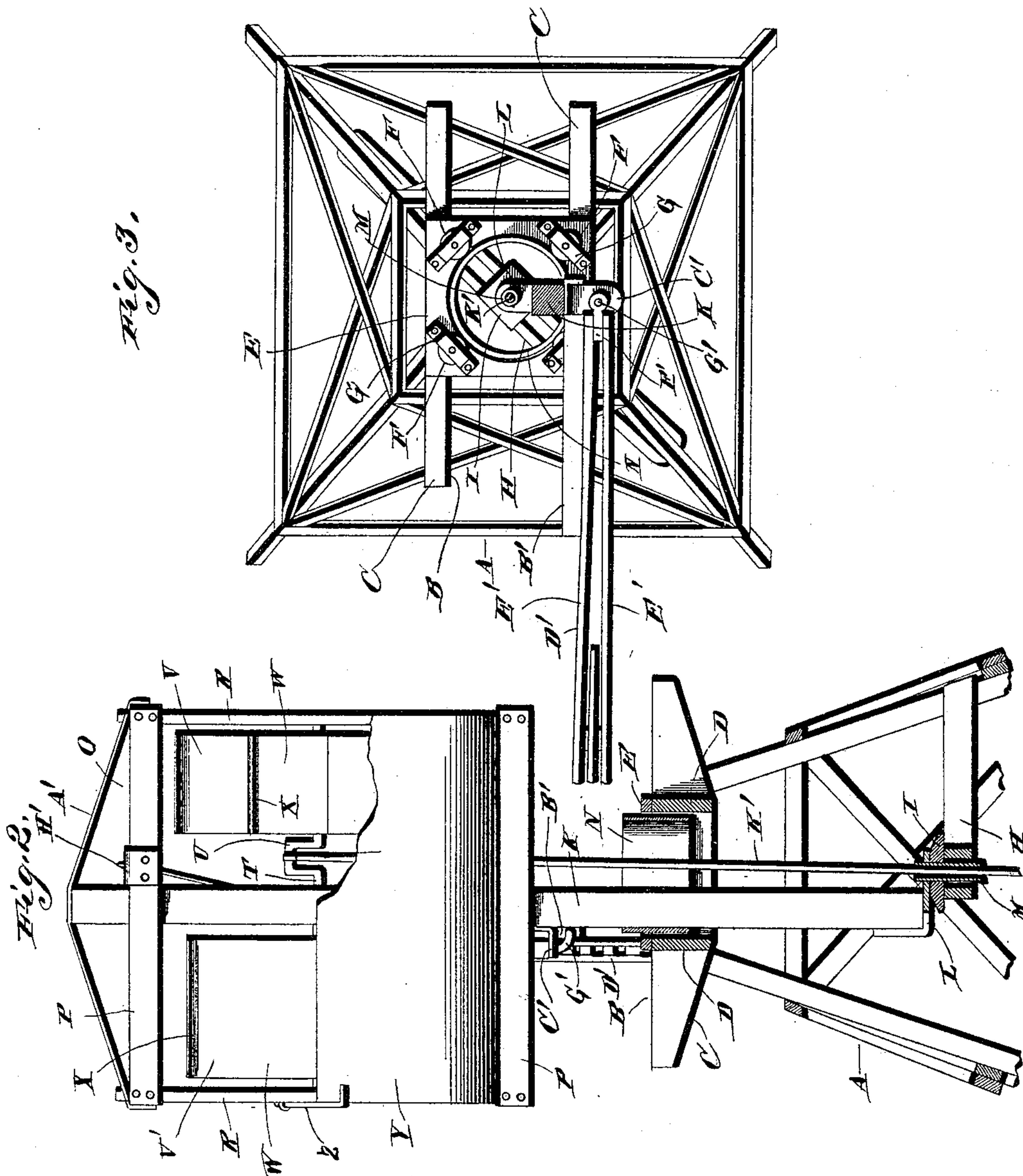
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2 Sheets—Sheet 2.

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WINDMILL.

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Witnesses.

W. B. Taylor,
E. J. Rogers.

Inventor,
Seneca Culver.

By his Attorneys

C. A. Howells.

UNITED STATES PATENT OFFICE.

SENECA CULVER, OF RUTHVEN, IOWA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 389,205, dated September 11, 1888.

Application filed February 17, 1888. Serial No. 264,359. (No model.)

To all whom it may concern:

Be it known that I, SENECA CULVER, a citizen of the United States, residing at Ruthven, in the county of Palo Alto and State of Iowa, have invented a new and useful Improvement in Windmills, of which the following is a specification.

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

In the accompanying drawings, Figure 1 is a side elevation of a windmill embodying my improvements. Fig. 2 is a vertical sectional view of the same, taken on the line *x x* of Fig. 1. Fig. 3 is partly a top plan view and partly a horizontal section taken on the line *y y* of Fig. 1.

A represents a tower or frame, which may be of the construction here shown or any other suitable construction, and is provided at its upper end with a rectangular frame, B, comprising a pair of horizontal side beams, C, and a pair of connecting-beams, D. On the upper side of the central portion of this frame is a platform, E, in the center of which is a circular opening.

F represents a series of anti-friction rollers, which are journaled on the upper side of the platform, are arranged in the corners thereof, and have their inner sides projecting slightly within the radius of the opening in the platform. These rollers have the upper ends of their shafts or spindles secured in straps or frames G, which are bolted to the top of the platform.

H represents a pair of diagonal parallel beams, which have their ends secured to corner posts or standards of the tower, and are arranged at a suitable distance from the upper end thereof. On the centers of the said diagonal beams is secured a block, I, which is arranged directly under the center of the opening in the platform.

K represents a vertical standard, which is provided at its lower end with a laterally-extending bracket, L, which bracket has an opening in its outer end that is adapted to receive the upper end of the tubular sleeve M, that projects through the center of block I.

N represents a circular hollow sleeve, one side of which is secured to the standard K at a suitable distance from the lower end thereof. The said sleeve extends through the central opening in the platform and bears against the anti-friction rollers F, and the standard K is thus adapted to rotate in the upper end of the tower.

O represents a rectangular frame, which comprises a pair of horizontal upper and lower cross-bars, P, which are secured to the standard K at suitable distances from the upper end thereof, and project in opposite directions from the said standard. The ends of the said bars P are connected by vertical bars R, and on the rear side of the said bars R, at the centers of the same, and on the rear side of the standard K, are secured bearing-blocks S, which are arranged in line with each other, and in which is journaled a shaft, T, having a crank, U, near its center. To the said shaft is secured a pair of wind-wheels, V V', each of which consists of a series of flat fans or blades, W, which radiate from the shaft and have their outer ends bent in the same direction to form flanges X.

Y represents the horizontal shield, which is curved in quarter-circular form, has its lower edge secured to the upper side of the lower bar P, and is arranged in front of the frame O and in front of the lower sides of the wind-wheel, so as to shield the same from the wind. The upper corners of this deflecting-shield are secured to the sides of the frame O by means of brace-rods Z.

A' represents a brace rod or truss, which connects the upper corners of the frame O to the projecting upper end of the standard K. On one side of the standard K, at a slight distance below the frame O, is secured a rearwardly-extending horizontal arm, B', and on the said standard, just above the said arm, is secured a laterally-extending bracket, C', which is provided with an opening in its outer end.

D' represents the vane of the windmill, which is secured between the rear ends of a pair of bars, E', which bars have their front ends connected by a plate, F', which is provided with a curved hook, G', that engages the opening in the bracket C'.

A bracket, H', which is similar to bracket

C', is secured at the upper side of the frame O, near the center thereof, and a connecting-rod, I', is attached to the said bracket and to the upper side of the vane, near the rear end of the latter, so as to support the vane in a horizontal position, and yet permit it to swing on its pivotal hook in a lateral direction toward or from the arm B'.

By reference to Fig. 2 it will be seen that the vane is pivoted on one side of the vertical standard K, and that the axis on which the latter turns is on the opposite side of the said standard. When the vane swings against the arm B', it serves to turn the standard, its frame, and the wind-wheel, so that the shield Y is presented to the wind, and the fans on the upper sides of the wind-wheel are thereby arranged in position to be operated by the force of the wind, so as to cause the crank-shaft to rotate, as will be readily understood.

K' represents a pump-rod, which is guided through the sleeve M and has its upper end connected to the crank U of the shaft T.

The wheel V' is broader than the wheel V, and consequently presents a greater surface to and is acted upon with more force by the wind. By this means, when the wind increases to a gale, which would be dangerous to the windmill, the wheel V' is acted upon with so much more force than is exerted upon wheel V as

to cause the turn-table to turn so as to arrange the axis or shaft of wheels V and V' and said wheels obliquely to the wind, and thereby reduce their effective area, and consequently reduce their speed.

Having thus described my invention, I claim—

1. In a windmill, the combination of the horizontal shaft journaled in a frame or bearings capable of rotation, the wind-wheels secured to said shaft and of different sizes, and thereby offering unequal effective areas to the wind, for the purpose set forth, and the shield arranged in front of said wind-wheels, substantially as described.

2. In a windmill, the shaft journaled in a frame or bearing capable of rotation, and the wind-wheels of different sizes and of unequal effective superficial areas, said wheels being secured to the shaft on opposite sides of the axis of its supporting-frame or bearings, substantially as described.

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

SENECA CULVER.

Witnesses:

J. McNARY,
C. McNARY.