

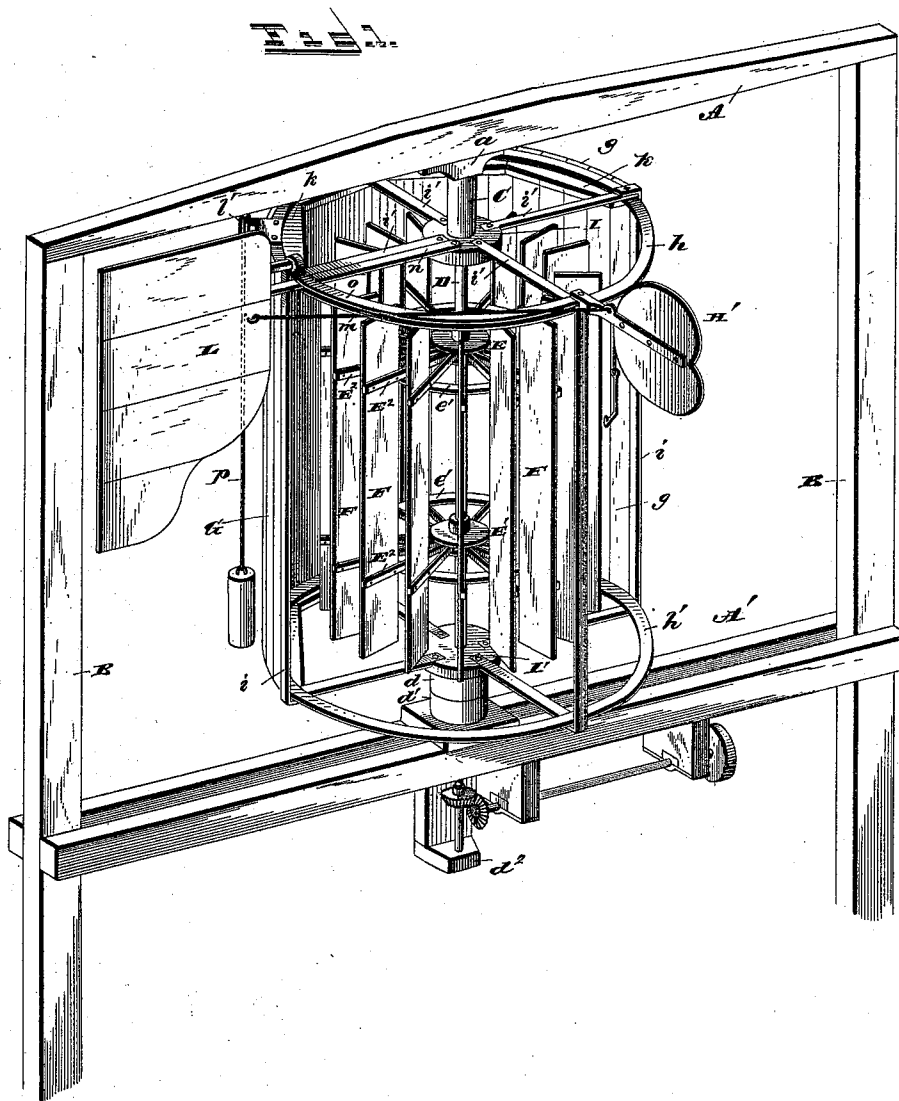
(No Model.)

2 Sheets—Sheet 1.

C. SCHMELZER.
WINDMILL.

No. 402,353.

Patented Apr. 30, 1889.



WITNESSES,
G. S. Elliott.
E. W. Johnson

Conrad Schmelzer

INVENTOR.

by *[Signature]*
Attorney.

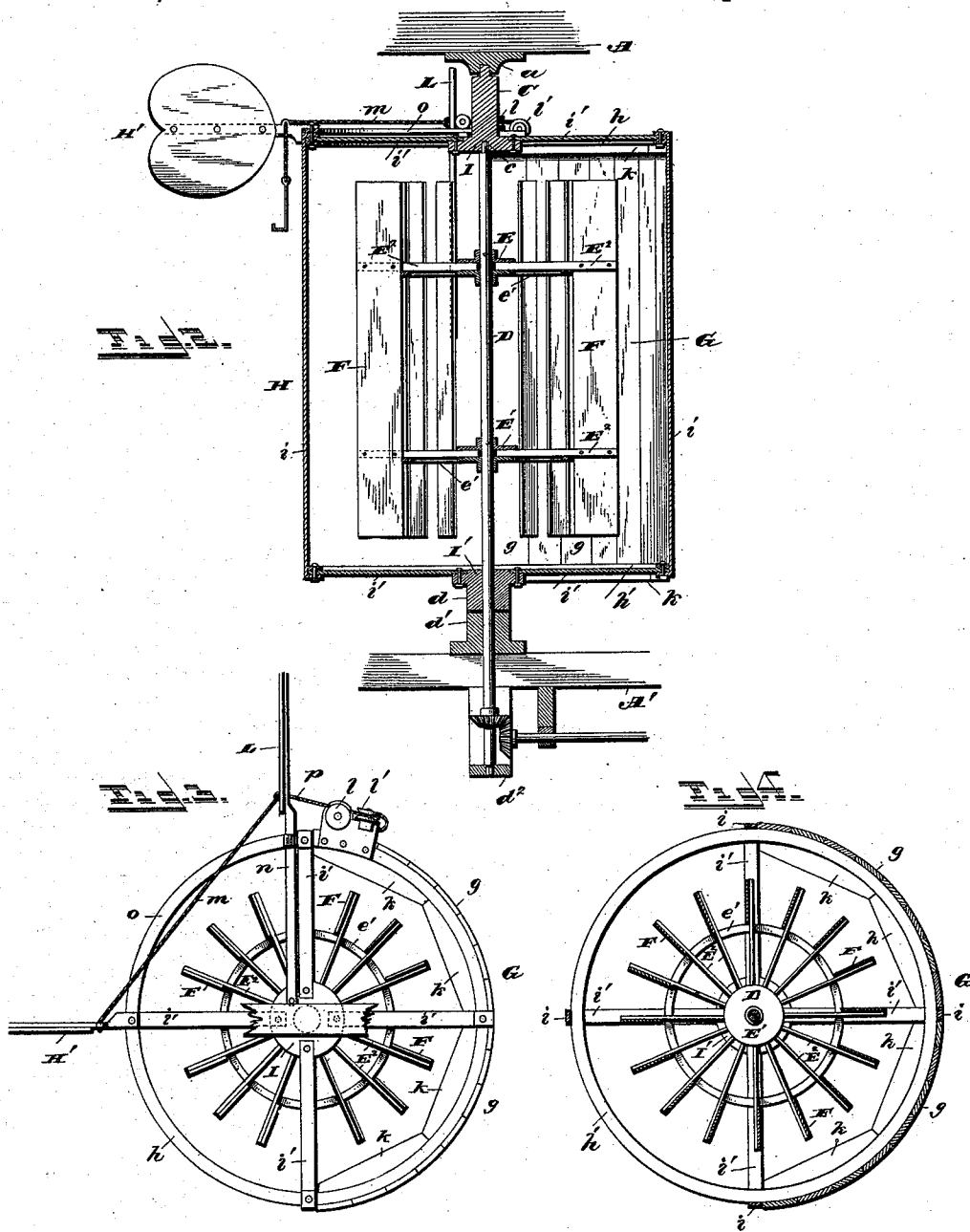
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UNITED STATES PATENT OFFICE.

CONRAD SCHMELZER, OF PUEBLO, COLORADO.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 402,353, dated April 30, 1889.

Application filed January 2, 1889. Serial No. 295,166. (No model.)

To all whom it may concern:

Be it known that I, CONRAD SCHMELZER, a citizen of the United States of America, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented certain new and useful Improvements in Windmills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 or figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in that class of windmills which are commonly known as "horizontal," the revolving wheel, actuated by the force of the wind, being attached to a vertical shaft; and my invention consists, chiefly, in the construction and combination of the parts and in the arrangement of the governing devices, whereby the area of the vanes presented to the wind is regulated by the force of the wind, as will be hereinafter fully set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a windmill constructed in accordance with my improvement. Fig. 2 is a vertical sectional view. Fig. 3 is a plan view. Fig. 4 is a horizontal section.

The wind-wheel is supported by a suitable frame, consisting of horizontal beams A and A', which are provided centrally with bearings. These beams A A' are secured to the vertical beams B-B, which are attached at their lower ends to suitable sill-pieces, to which they are braced.

To the under side of the beam A is bolted a block or bearing, *a*, having a central recess, within which the upper end of the casting C lies, which casting has at its under side a recess, *c*, in which the upper end of the shaft D bears. This shaft passes through central openings in the castings or bearings *d d'*, and is stepped on a suitable block, *d²*, above which the shaft D is provided with a beveled pinion, which meshes with a pinion attached to the driving-shaft.

The vertical shaft D rotates freely, and is provided with hubs E and E', each of which is composed of corresponding upper and

lower halves, between which are bolted a series of radial arms, E², to which are secured vertical vanes or wings F. The inner edges of the vanes or wings abut against rings *e'*, which are secured to the arms to brace them.

G refers to a semicircular covering or shield, which consists of a number of vertical pieces, *g*, attached to a frame, H, made up of an upper and lower ring, *h* and *h'*, which are rigidly connected to each other by four or more vertical strips, *i i*, having inwardly-bent ends, through which bolts pass for securing the rings and strips to each other. These bolts also attach the outer ends of the radial arms *i* and *i'* above the rings, the inner ends of said arms being secured to disks or hubs I and I'.

Attached to the hub I, or formed integral therewith, is the casting C, hereinbefore mentioned, and to the lower hub, I', is attached a hollow bearing, through which passes the shaft D. This bearing *d* lies partially over the bearing *d'*, located above the beam A'. One-half of the upper and lower rings, *h* and *h'*, have attached thereto segmental pieces *k k*, to which the strips which form the semicircular shield are secured, and near one edge of this shield is attached an outwardly-projecting arm or plate, which carries vertical and horizontal pulleys *l* and *l'*, over which a cord passes. This plate may also be provided with a guide-perforation beneath the pulley, which is mounted on a horizontal axis, to prevent displacement of the cord. To the upper ring, *h*, on the opposite side from the shield, and midway between the edges thereof, is rigidly secured a small vane or blade, H', which is bolted to a projecting arm, and through a perforation in this vane a cord, *m*, passes, which cord is used for moving the main vane to occupy a position parallel with the smaller vane.

L refers to the main vane, which is rigidly attached to a suitable bar, *n*, pivoted at its inner end to the upper hub or disk to one side of the supplemental vane H', so that when the cord which passes through the supplemental vane is drawn the main vane will be moved so as to be parallel with the smaller or supplemental vane. Above the upper ring is secured a segmental plate, *o*, beneath which the arm of the main vane moves, and above the plate travels an anti-friction roller car-

ried by said vane. The cord *p*, which passes over the pulleys, is attached at one end to the main vane, the opposite end thereof being provided with a suitable weight.

5 In operation my improved windmill is automatic, and when there is a heavy wind or gale the small fan or vane, which is rigidly bolted to the frame carrying the shield, will be acted upon by the wind, so as to move the
10 same toward the main fan, thus moving the shield to protect the wheel from the wind, or only leaving a small portion of the wheel exposed to the wind. When it is desired that the wheel should not be acted upon by the
15 wind, by drawing upon the cord connecting the main fan and smaller fan to each other they can be brought together, so as to throw the shield in front of the wheel, and this cord can be secured to hold the vanes parallel to
20 each other.

I am aware that prior to my invention wind-wheels have been provided with a movable shield adapted to be operated by vanes or fans, so that said shield could be moved in front of
25 the wheel to protect the same, and I do not claim such broadly as my invention; but

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

1. In a wind wheel or engine, the combination of a vertical shaft having hubs with radial arms to which are attached vertical
30 blades, a movable frame made up of upper and lower rings rigidly connected and provided with segmental pieces, to which are attached vertical strips forming a semicircular
35 shield, a small fan or vane rigidly attached to the upper portion of the frame, and a fan or vane pivotally attached to one side of the center of the movable frame and provided with
40 a roller which moves upon a segmental plate, under which the arm of the main fan or vane passes, a weighted cord attached to the main fan and passing over suitable guide-pulleys carried by the shield-supporting frame, and
45 a cord attached to the opposite side of the

main fan and guided through the smaller fan for drawing said vanes parallel with each other, the parts being organized substantially as shown, and for the purpose set forth.

2. The combination, in a wind wheel or engine, of a movable frame provided with a
50 semicircular shield, a small vane or fan rigidly attached thereto, and an outwardly-projecting arm carrying a pulley, a main vane pivoted to one side of the center of the shield-
55 carrying frame and provided with a weighted cord, whereby the shield is automatically moved by the force of the wind, and a vertical wheel journaled within the shield-carrying frame, substantially as shown, and for the
60 purpose set forth.

3. The combination, in a wind-engine, of a central wheel, a shield-carrying frame made up of the upper and lower rings rigidly secured to radial arms, vertical bars having in-
65 turned ends which are bolted to the rings and radial arms, a segmental plate beneath which the supporting-arm of the main fan passes, said fan carrying a roller which travels above
70 said plate, and segmental plates attached to the rings for securing thereto strips forming the shield, substantially as shown, and for the purpose set forth.

4. The combination, with a horizontal wind wheel or engine, of a frame carrying a shield
75 and a small vane or fan rigidly secured thereto, a main vane or fan mounted on a suitable horizontal arm pivoted to one side of the center of the shield-carrying frame, and means, substantially as described, for moving the
80 larger vane so as to lie parallel with the smaller vane, substantially as shown, and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CONRAD SCHMELZER.

Witnesses:

E. H. SMITH,
FRED O. JONES.