(No Model.) 2 Sheets—Sheet 1.

# B. F. HAM.

## WINDMILL.

No. 410,360. Patented Sept. 3, 1889.

Fig. 2.

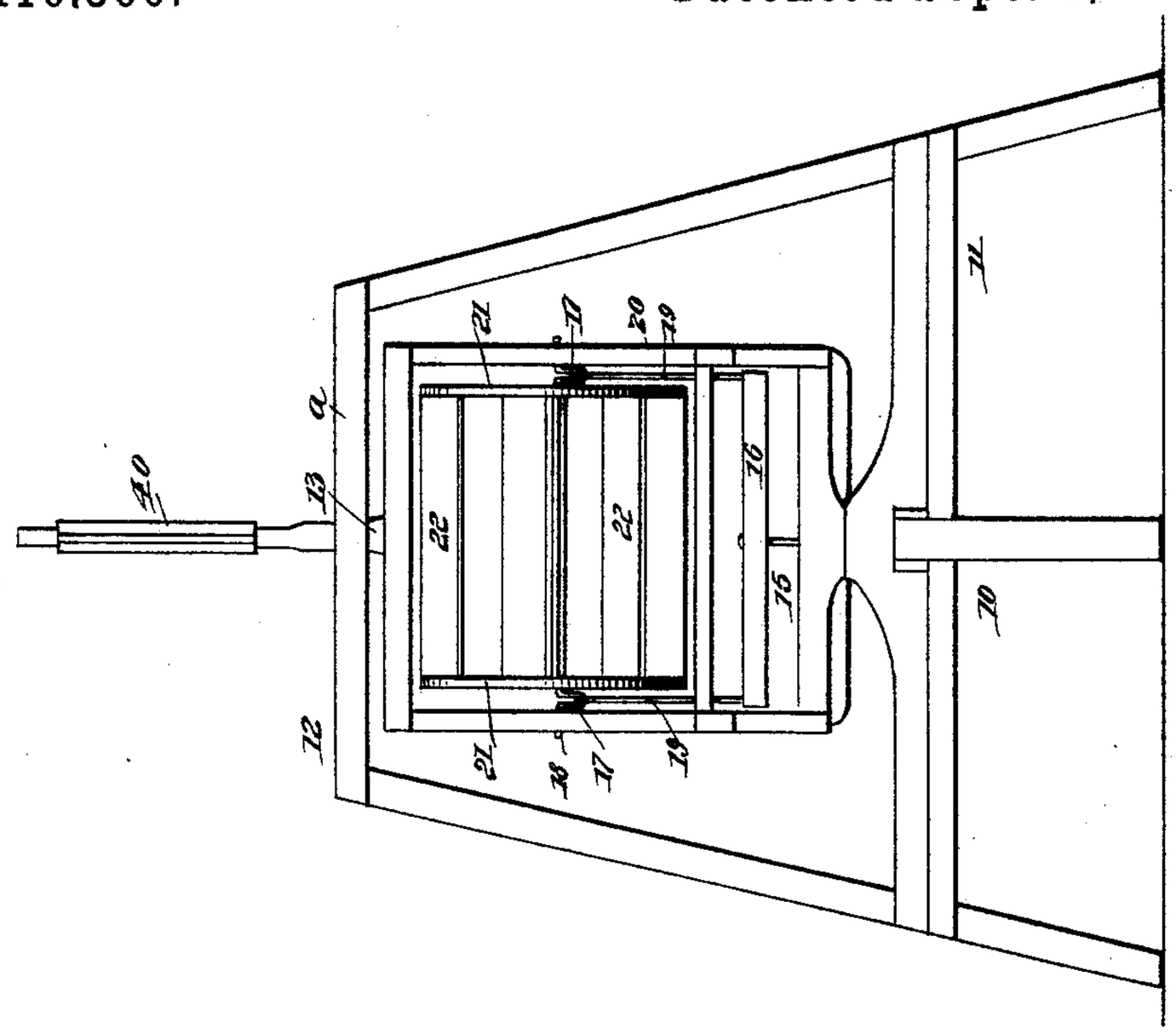
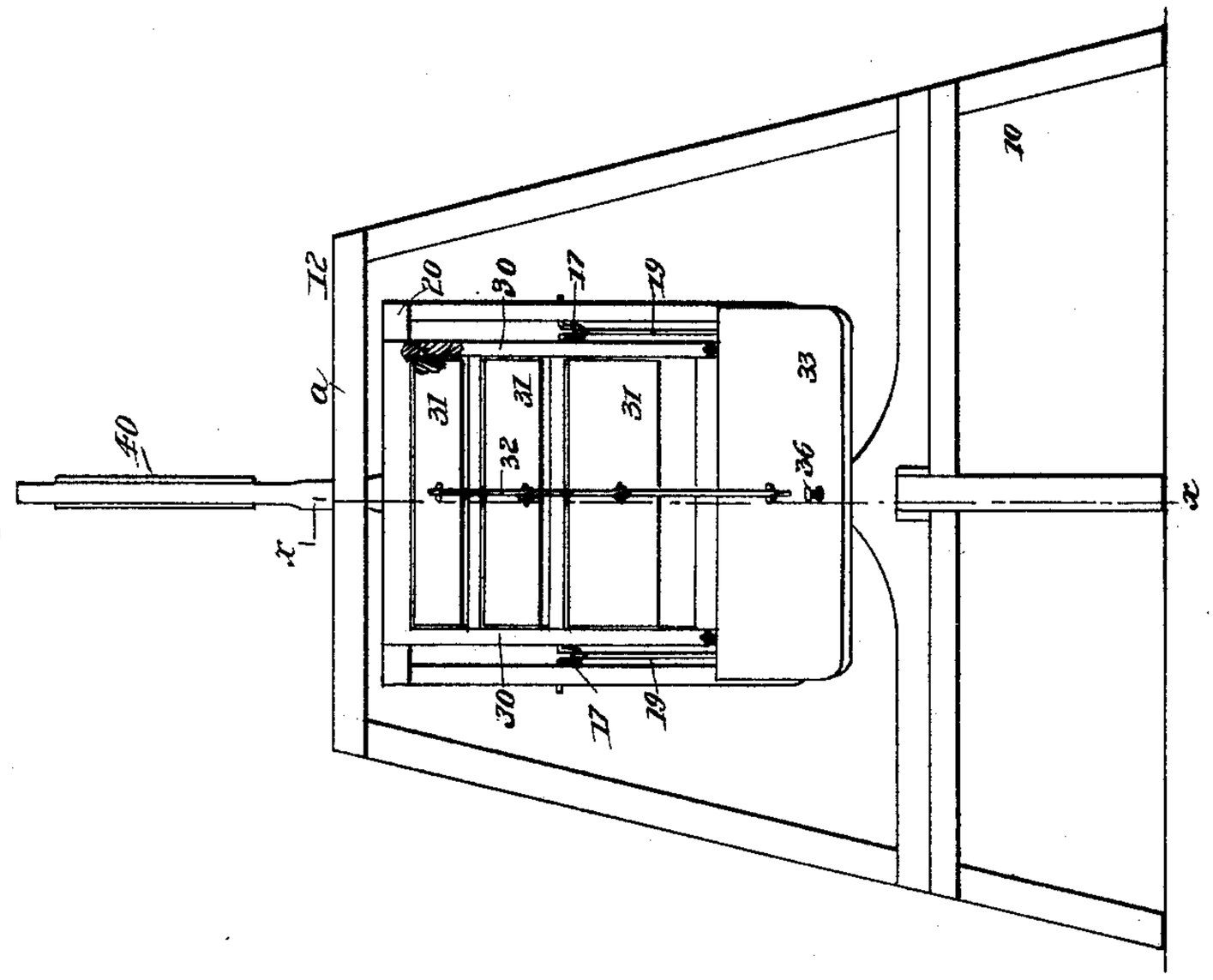



Fig. 1.




WITNESSES:

J. H. Clark.

C. Sedgwick

INVENTOR:

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ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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## WINDMILL.

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Fig. 4.

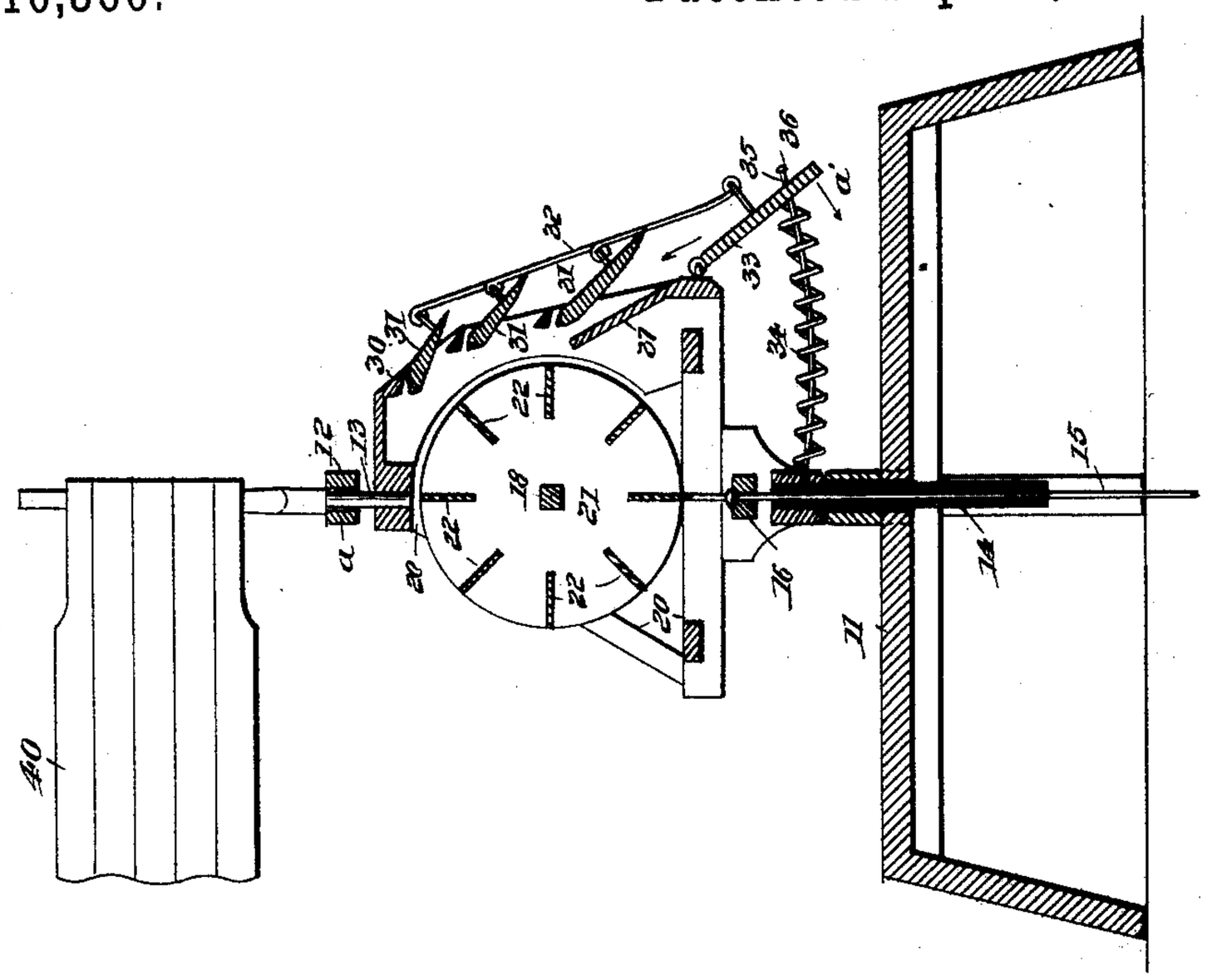
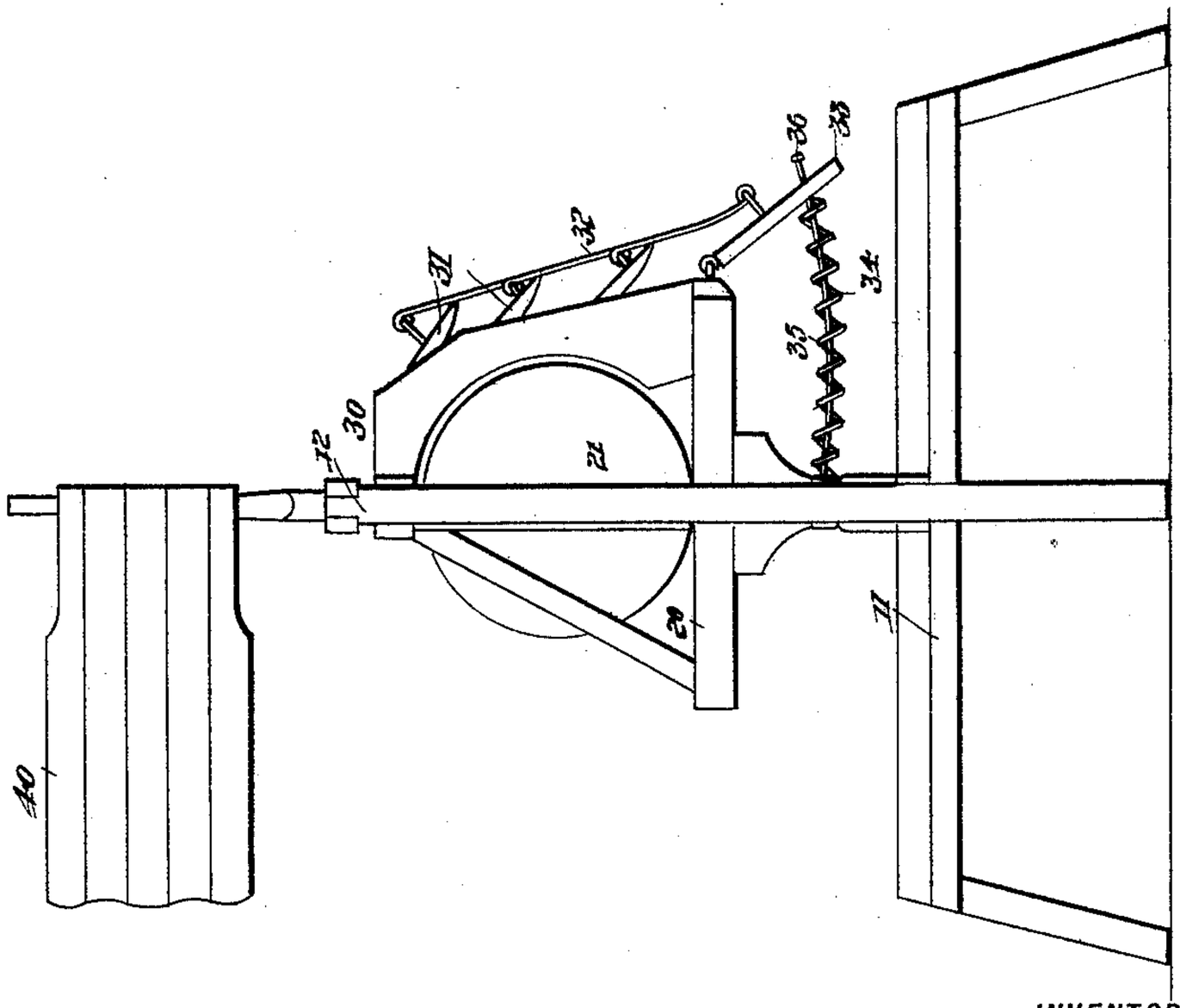



Fig. 3.




WITNESSES:

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

BENJAMIN F. HAM, CIMARRON, KANSAS.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 410,360, dated September 3, 1889.

Application filed November 15, 1888. Serial No. 290,920. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. HAM, of Cimarron, in the county of Gray and State of Kansas, have invented a new and Improved Windmill, of which the following is a full, clear, and exact description.

This invention relates to windmills, the object of the invention being to provide an exceedingly simple, cheap, and durable windmill, and one which may be made by any ordinary mechanic, and, being made, will be automatic in its operation in so far as the regulation of the amount of current delivered to the wheel is concerned.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a front view of my improved form of windmill, parts being broken away. Fig. 2 is a rear view of the windmill. Fig. 3 is a side view of the same; and Fig. 4 is a central cross-sectional elevation, the view being taken on line *x x* of Fig. 1.

In the drawings, 10 represents a derrick, which may be of any desired height, the derrick being provided with the usual platform 11. Above the platform 11 there is an upwardly-extending frame-work 12.

Within the frame 12, I mount a frame 20, said frame being provided with an upper trunnion 13 and a lower trunnion 14, the upper trunnion riding in bearings formed in the cross-bar *a* of the frame 12, while the lower trunnion 14 rides in bearings that are supported by the derrick-frame proper, said trunnion being hollow in order to provide for the passage of the pump-rod 15, the upper end of said rod being connected to a cross-bar 16, that is connected to the cranks 17 of a shaft 18, this connection being established by rods 19, that are secured to the bar 16, as shown in the drawings. The shaft 18 carries two disks 21, which support radial fan-blades 22; or the fan-blades could be supported in any other manner desired.

To one side of the frame 20, I secure a shutter-case 30, in which there are mounted a number of shutters 31, said shutters being connected by a rod 32, that is also connected to a lower regulating-plate 33, normally held against the head 36 of a rod 35 by a spring 34, coiled about said rod and abutting against the under side of the plate and against any proper portion of the frame 20.

Above the plate 33, and behind the lower shutter 31, I mount a deflecting-plate 37, so that the currents of the atmosphere which strike against the upper face of the plate 33 will be deflected thereby to the plate 37, passing over the forward face of said plate and against the fan-blades 22, as indicated by the arrows shown in Fig. 4, that side of the frame 20 upon which the shutter-case 30 is arranged being held toward the wind by the action of a vane 40, that is preferably made up of slats, as shown. As the force of the wind increases, the plate 33 will be moved in the direction of the arrow *a'*, and in so moving will act to close the shutters 31, thus cutting off the wind from the fan-blades. As before stated, I prefer that the vane should be made up of slats, and I prefer that these slats should be painted in imitation of the American flag.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a windmill, the combination, with a supporting-frame, a revoluble frame mounted therein, a horizontal crank-shaft in the frame, a wind-wheel on the said shaft, and a vane carried by the revoluble frame, of a shutter-case at one side of the revoluble frame, a series of swinging shutters in said case, and a pivoted spring-pressed regulating-plate connected to the shutters, and a deflecting-plate above the regulating-plate and behind the lowermost shutter, substantially as herein shown and described.

2. In a windmill, the combination, with the revoluble frame and a horizontal wind-wheel journaled in the said frame, of the shutter-case 30 at one side of the frame, the shutters 31, mounted in the case, the apertured regulating-plate 33, pivoted to the frame below the shutters, the deflecting-plate 37, the rod 32, pivoted to the shutters and to the regulating-plate, the rod 35, projecting through the regulating-plate 33, and the spring 34, surrounding the rod, substantially as herein shown and described.

BENJAMIN F. HAM.

Witnesses:
J. P. PARRISH,
PETER CARR.