No. 846,532. PATENTED MAR. 12, 1907.

C. & J. VISKOCHIL.

WINDMILL.

APPLICATION FILED SEPT. 6, 1906.

2 SHEETS—SHEET 1.

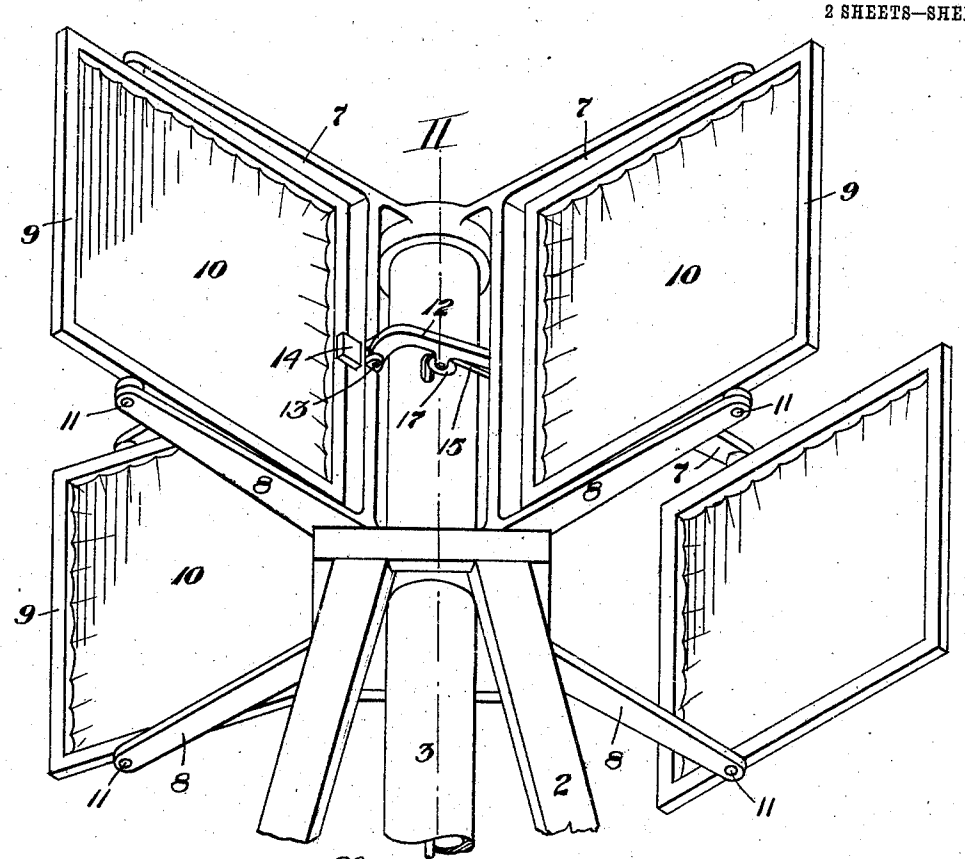
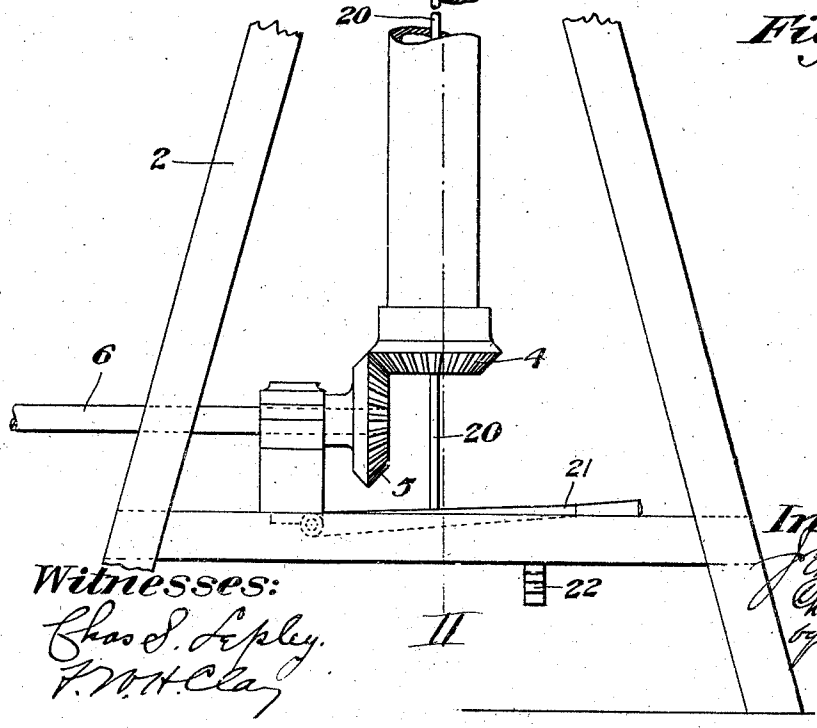


Fig. 1.



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THE NORRIS PETERS CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

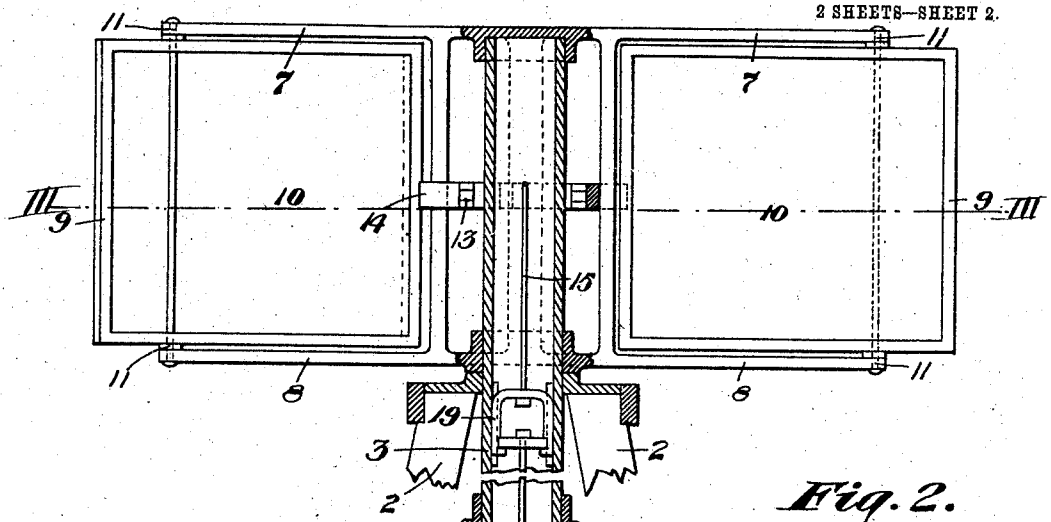
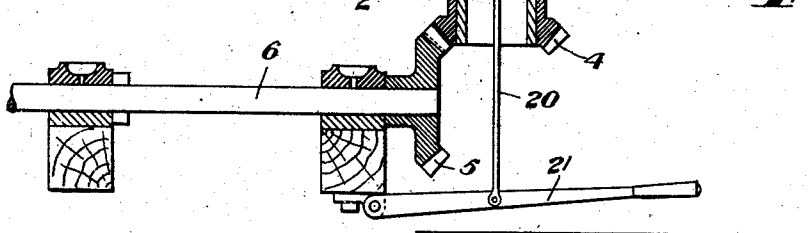


Fig. 2.



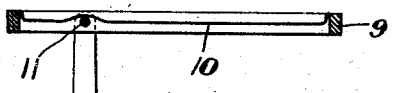
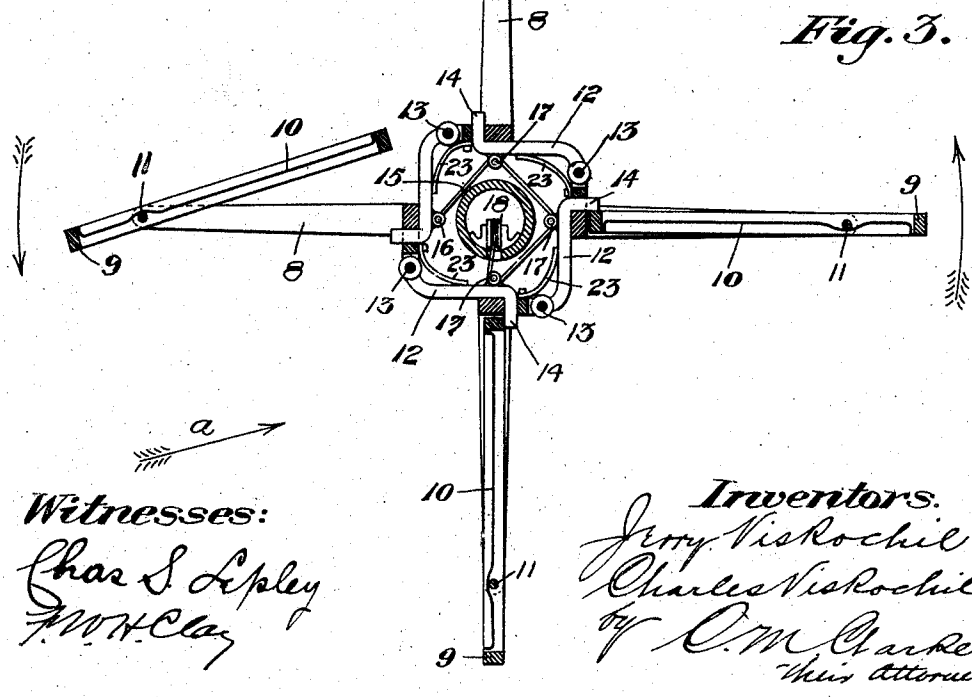


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES VISKOCHIL, OF CARNEGIE, PENNSYLVANIA, AND JERRY VISKOCHIL, OF WARRENSVILLE, OHIO.

WINDMILL.

No. 846,532. Specification of Letters Patent. Patented March 12, 1907.

Application filed September 6, 1906. Serial No. 333,551.

To all whom it may concern:

Be it known that we, CHARLES VISKOCHIL and JERRY VISKOCHIL, citizens of the United States, residing at Carnegie, county of Allegheny, State of Pennsylvania, and Warrensville, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Windmills, of which the following is a specification, reference being had therein to the accompanying drawing.

Our invention relates to improvements in windmills; and it has for its objects to provide a simple and powerful device for utilizing wind-currents from any direction to the fullest possible extent and which will automatically adapt itself thereto, with means for holding the sails in operative and inoperative position.

Referring now to the drawings, Figure 1 is a perspective view of the device in operation. Fig. 2 is a vertical sectional view on the line II II of Fig. 1. Fig. 3 is a cross-sectional view on the line III III of Fig. 2.

2 represents any suitable framework adapted to support the working parts of the structure in which is vertically mounted by suitable bearings a central hollow shaft 3, adapted to transmit power through gearing 4 5 to any convenient utilizing counter-shaft 6, from whence the power may be taken for any purpose. Shaft 3 is provided with upper and lower sets of radially-arranged arms 7 8, preferably four pairs of each in number or of any number desired, between which arms the frames 9, carrying sails 10, are pivotally mounted at 11 11 above and below. It will be seen from the drawings that the said frames are pivoted at the outer ends of arms 7 8 and considerably beyond the middle portion of the said frame and sail. The object of this arrangement is that when each sail is presented against the wind in working position the long end of the frame and sail may be pressed by the wind against the limiting-abutments which we have provided; but when the sails swing around away from the wind, so as to present the other side, they will "feather" automatically in the manner of a weather-vane.

To insure positive engagement of the inner edges of the sail-frames at one side in the manner of a resisting-abutment, we provide a series of arms 12, pivoted at 13 to bearings mounted on the sail-arms and provided with hooks or arresting-abutments 14, adapted to engage the inner edges of the sail-frames in the manner stated. All of said arms may be withdrawn simultaneously to leave the sails free and inoperative by means of a flexible connection or cord 15, attached to one of the arms, as at 16, passing around sheaves 17 of the other arms, and, finally, over a guiding-sheave 18 downwardly into the hollow shaft 3. The cord or cable 15 is provided with a terminal swivel 19 and a supplemental extension 20, leading down to the lower end of the hollow shaft, whereby tension may be exerted at all times through said connections without interfering with the rotation of the upper framework and the arm-engaging cord. The lower end of cord extension 20 is connected to a lever 21, adapted to be locked under a retaining-latch 22 to permanently hold the sail-retaining abutments out of contact or resisting position. When the lever and cord are released, however, arms 12 will be forced out by springs 23 to holding position and will engage the inner edges of the sail-frames to hold them in resisting position with relation to the direction of the current, as in Fig. 3. In said figure we have indicated the operation, the direction of the wind being indicated by arrow *a*.

It will be understood that the apparatus may be designed to operate in either direction by merely arranging the limiting-abutments 14 to engage the sail-frames at one side or the other and that the invention may be otherwise changed or varied in different features or details by the skilled mechanic; but all such changes are to be considered as within the scope of the following claims.

What we claim is—

1. A windmill provided with a hollow vertical shaft, a series of laterally-extending sail-supporting arms provided with pivotally-mounted sails, means providing abutments for the inner edges of said sails at one side, and an actuating element passing through the vertical shaft and engaging said means for simultaneous operation, substantially as set forth.

2. A windmill provided with a hollow vertical shaft, a series of vertically-extending sail-supporting arms, sails pivotally mounted in said arms, means providing abutments for the inner edges of said sails at one side, a flexible device for retracting said abutments si-

multaneously, and springs for reëxtending them to operative position, substantially as set forth.

3. A windmill provided with a hollow vertical shaft, a series of laterally-extending sail-supporting arms, sails pivotally mounted in said arms, pivoted arms having abutments for the inner edges of said sails at one side, a cord engaging said arms for retracting said abutments from operative position, and means for reëxtending them, substantially as set forth.

4. In a windmill, the combination of a vertically-arranged supporting-framework, a hollow vertical shaft mounted therein provided with radially-arranged sail-arms, sails pivotally mounted between said arms, spring-pressed abutments for locking the inner edges of said sails at one side in operative position, and a flexible element so connected with said abutments as to withdraw them all simultaneously to unlocking position, substantially as set forth.

5. In a windmill, the combination of a supporting-framework, a vertically-arranged hollow shaft mounted in said framework and provided with laterally-arranged sail-supporting arms, sails pivotally mounted between said arms having their major portion extending inwardly, locking-abutments adapted to engage the inner edges of the sails at one side, with means passing through the hollow shaft for actuating said abutments to locate them in operative or inoperative position, substantially as set forth.

6. In a windmill, the combination of a supporting-framework, a vertically-arranged hollow shaft mounted in said framework and provided with laterally-arranged sail-supporting arms, sails pivotally mounted between said arms having their major portion extending inwardly, locking-abutments adapted to engage the inner edges of the sails at one side, a flexible connection engaging said locking-abutments and extending downwardly within the hollow shaft, and mechanism for retaining said flexible connection under tension, substantially as set forth.

7. In a windmill, the combination of a supporting-framework, a vertically-arranged hollow shaft mounted in said framework and provided with laterally-arranged sail-supporting arms, sails pivotally mounted between said arms having their major portion extending inwardly, locking-abutments adapted to engage the inner edges of the sails at one side, a flexible connection engaging said locking-abutments and extending downwardly within the hollow shaft, and mechanism for retaining said flexible connection under tension, said mechanism being capable of disconnection, and means for exerting reverse pressure upon the locking-abutments to throw them into engaging position, substantially as set forth.

8. In a windmill, the combination of a supporting-framework, a vertically-arranged hollow shaft mounted in said framework and provided with laterally-arranged sail-supporting arms, sails pivotally mounted between said arms having their major portion extending inwardly, locking-abutments adapted to engage the inner edges of the sails at one side, a flexible connection engaging said locking-abutments and extending downwardly within the hollow shaft, and mechanism for retaining said flexible connection under tension, said flexible connection being provided with an intervening swivel whereby the upper portion thereof may rotate with the shaft, substantially as set forth.

9. In a windmill, the combination of a vertically-arranged supporting-framework, a vertical hollow shaft mounted therein provided with laterally-arranged arms, sails pivotally mounted in said arms, locking-abutments adapted to engage said sails at one side of their inner edges, means passing through the hollow shaft for actuating said locking-abutments to engage and disengage the sails, and gearing arranged to transmit motion from the hollow shaft, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES VISKOCHIL.
JERRY VISKOCHIL.

Witnesses:
C. M. CLARKE,
H. M. CORWIN.