C. A. STERNER.

WINDMILL.

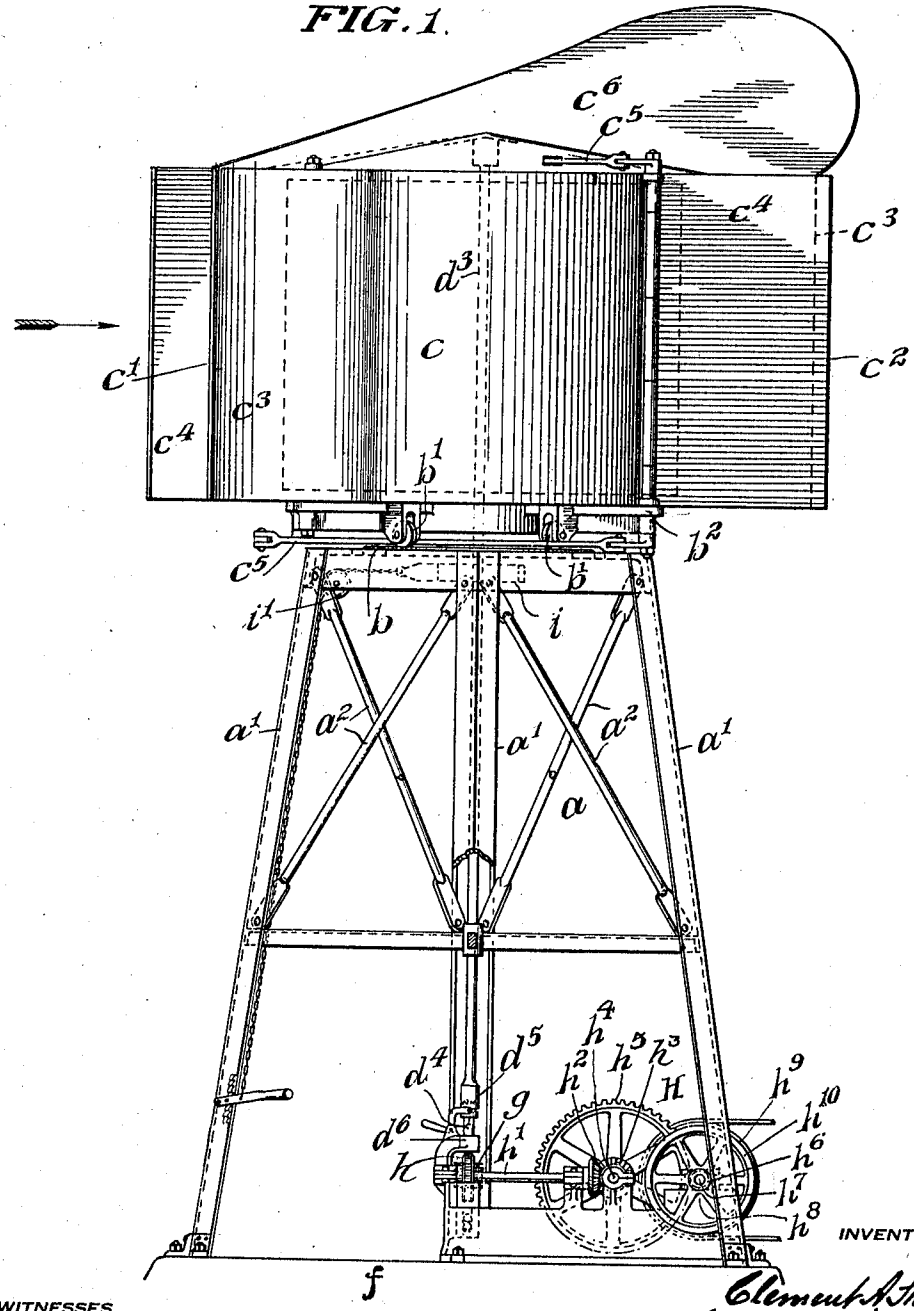
APPLICATION FILED FEB. 16, 1911.

993,120.

Patented May 23, 1911.

3 SHEETS—SHEET 1.

FIG. 1.



WITNESSES

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3 SHEETS—SHEET 2.

FIG. 3

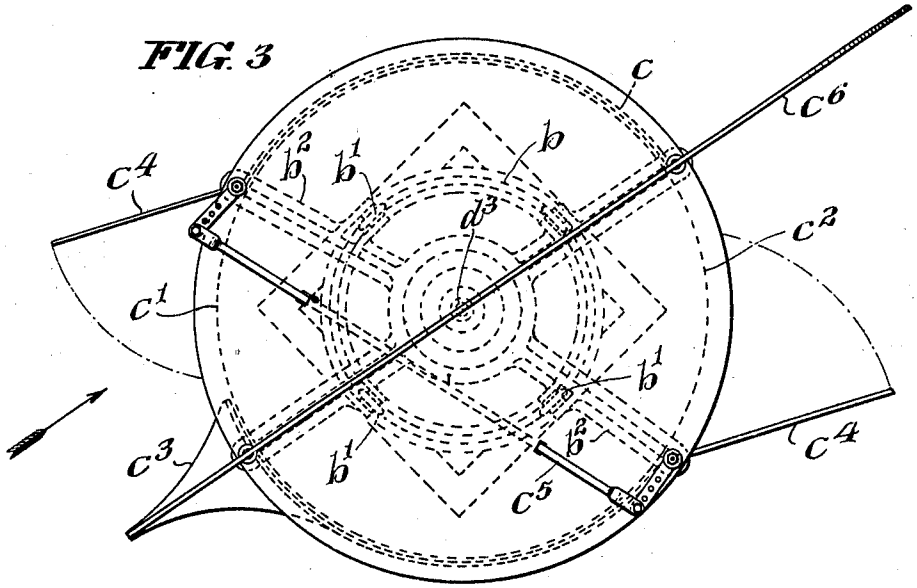
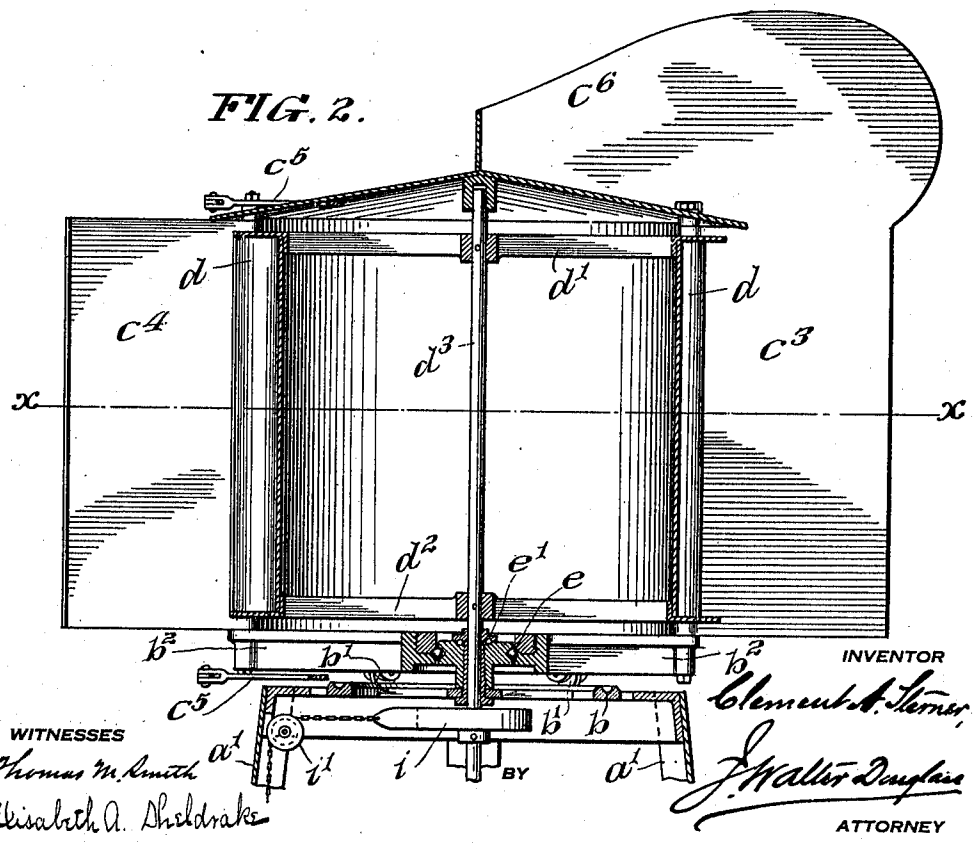


FIG. 2.



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3 SHEETS—SHEET 3.

FIG. 4.

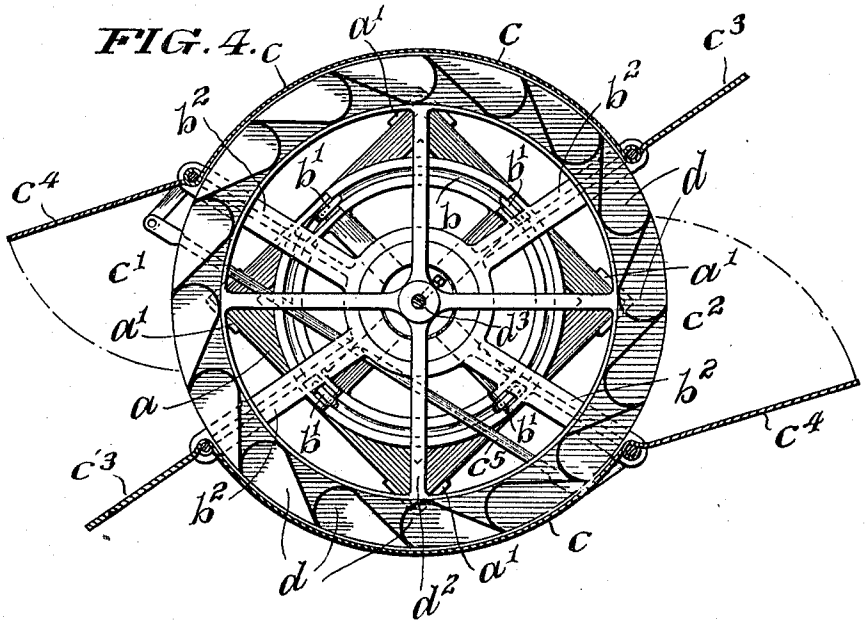


FIG. 5.

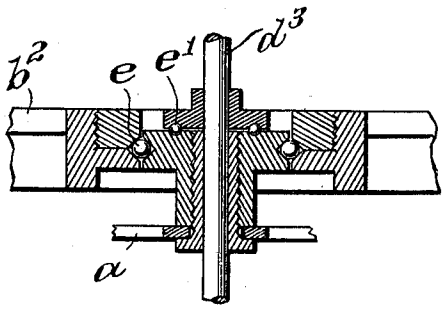
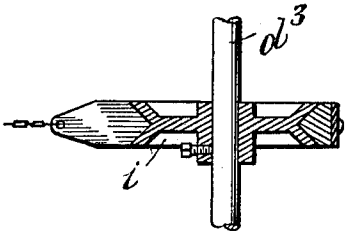


FIG. 6.



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UNITED STATES PATENT OFFICE.

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WINDMILL.

993,120. Specification of Letters Patent. Patented May 23, 1911.

Application filed February 16, 1911. Serial No. 608,868.

To all whom it may concern:

Be it known that I, CLEMENT A. STERNER, a citizen of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Windmills, of which the following is a specification.

My invention has relation in principle to a revoluble turbine wind mill, for increasing derived power thereby and transferring to a transmitting prime motor or mechanism to be distantly utilized; and in such connection it relates particularly to the general as well as specific structural arrangement of the mill to impart increasingly its power to the prime transmitting motor or mechanism for being utilized to advantage.

The nature and scope of my present invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, in which—

Figure 1, is a vertical elevational view, partly in section of a turbine principle windmill, embodying main features of my invention and also showing a prime transmitting motor or mechanism actuated thereby for increasingly imparting its impelling power to advantage in the utilization of the same. Fig. 2, is a vertical central sectional view of the mill. Fig. 3, is a top or plan view thereof. Fig. 4, is a sectional view on the line x, x, of Fig. 2. Fig. 5, is a view, in detail of the roller bearings of the mill and connections of the same; and Fig. 6, is a similar view, showing in detail the brake for manually controlling the main driven shaft of the mill.

Referring to the drawings a is a skeleton standard, as shown, having a series of legs a^1. a^2, are tie rods diagonally arranged in connection with the several legs of the standard a, for steadying the same in position to provide a stable supporting structure for the mill. The top of the standard is provided with a circular track-way b, in which rollers b^1, of a spider-frame b^2 travel.

c, is a circular stationary casing having openings c^1 and c^2, on substantially opposite surfaces thereof, but in width differing from each other, as shown in Fig. 3. To one side of each opening from the wall of the casing c, projects obliquely a stationary wind-guard c^3, and at the opposite side, is arranged a movable shutter c^4. The shutters c^4, are coupled to each other from opposite sides by connecting rods c^5, so that a movement of one by the wind will at the same time effect a corresponding movement of the other, that is, will operate both in unison, to present air currents to peripheral scoop-like vanes or blades d. These vanes or blades are arranged around and secured to top and bottom spider-frames d^1 and d^2, carried by a vertical centrally arranged shaft d^3, extending through the casing c, as clearly shown in Figs. 1, 2 and 4. The shaft d^3, is mounted in ball-bearings e and e^1, so as to afford freedom of movement of the shaft by the impelling power of air currents actuating the peripheral blades or vanes d, within the casing, when the air currents are admitted thereinto through the opening c^1, and discharged through the opening c^2, for effecting such results. Arranged from the top and along one surface of the casing c, is a fixed vane or blade c^6, for permitting air currents to be guided either in the direction of the opening c^1, or the opening c^2, aided by the wind-guards c^3, and movable shutters c^4, actuating the blades or vanes d, and thereby to operate a prime transmitting mechanism or a motor located on a platform f, supporting the legs of the standard a, as will be hereinafter more fully explained. The shaft d^3, is arranged to be clutched at d^5, to a secondary vertical shaft d^4, held in a bearing d^6. The shaft d^4, is provided with a worm formation g, at the lower portion thereof, as clearly shown in Fig. 1. The worm g, meshes with a worm-gear h, of a prime transmitting mechanism H. This mechanism, consists of a longitudinal shaft h^1, on which the worm-gear h, is rigidly secured and at the opposite end is secured a bevel-gear h^2, gearing with a similar gear h^3, fixed to a shaft h^4, carrying a gear-wheel h^5, which in turn meshes with a gear h^6, mounted on a cross-shaft h^7. This cross-shaft is held in bearings h^8, and carries a pulley-wheel h^9, at one end and on the opposite end a balance-wheel h^{10}, as clearly shown in Fig. 1, whereby as so arranged the impelling power of the prime transmitting mechanism H, is increasingly augmented from the wind current power imparted thereto, for distant utilization thereof.

i, is a friction-brake coupled to the vertical shaft d^3, operated by a chain passing over a pulley i^1, and connected with one of the legs of the standard a, for throwing off the wind currents of the mill as desired as well as ro-

tation of the shaft d^3, when of course the clutch d^5, has been thrown out, so as to disconnect the shaft d^3, from the secondary shaft d^4, and thus to prevent actuation of the prime transmitting mechanism, hereinbefore explained; and furthermore, undue wear and tear of the machinery generally of the mill. It will thus be observed that as the mill is arranged to control the operation of the prime transmitting mechanism, the derived power can be economically utilized for pumping water, running fans and other machinery.

Having thus described the nature and objects of my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a wind-mill, a casing having surface openings, a vertical shaft, scoop-like vanes or blades mounted on said shaft, shutters connected with each other and stationary wind-guards projecting from said casing on opposite sides to said shutters, substantially as and for the purposes described.

2. In a wind-mill, a casing having surface openings, a vertical shaft, scoop-like vanes or blades connected with spider-frames in said casing and revoluble with said shaft, movable shutters and stationary wind-guards located respectively, on opposite sides of said openings, a wind directing vane projecting from the top of said casing and extending down one surface thereof and a prime transmitting mechanism connected with said vertical shaft, substantially as and for the purposes described.

3. In a wind-mill, a casing having surface openings, a vertical shaft extending therethrough and carrying a spider-frame having peripheral scoop-like vanes or blades, the openings of said casing respectively, provided with movable shutters and stationary wind-guards, said shutters connected with each other and a positive acting prime transmitting mechanism detachably connected with said vertical shaft, substantially as and for the purposes described.

4. In a wind-mill, a casing having surface openings, a vertical shaft extending therethrough and carrying a spider-frame having peripheral scoop-like vanes or blades, the openings of said casing provided with movable shutters and stationary wind-guards, said shutters connected with each other, a positive acting prime transmitting mechanism detachably connected with said vertical shaft and a brake-means adapted to be connected to and disconnected from said shaft, substantially as and for the purposes described.

5. In a wind-mill, a casing having surface openings, a vertical shaft, scoop-like vanes or blades mounted on said shaft, shutters connected with each other and wind-guards projecting from said casing on opposite sides to said shutters, a prime transmitting mechanism provided with a vertical shaft and a clutch device for connecting and disconnecting both of said shafts, substantially as and for the purposes described.

In witness whereof, I have hereunto set my signature, in the presence of two subscribing witnesses.

CLEMENT A. STERNER.

Witnesses:

WILLIAM H. BARTHOLOMEW,

CLARENCE D. STAUFFER.