(No Model.) 3 Sheets—Sheet 1.

R. B. SIN CLAIR.

WINDMILL.

No. 457,168. Patented Aug. 4, 1891.

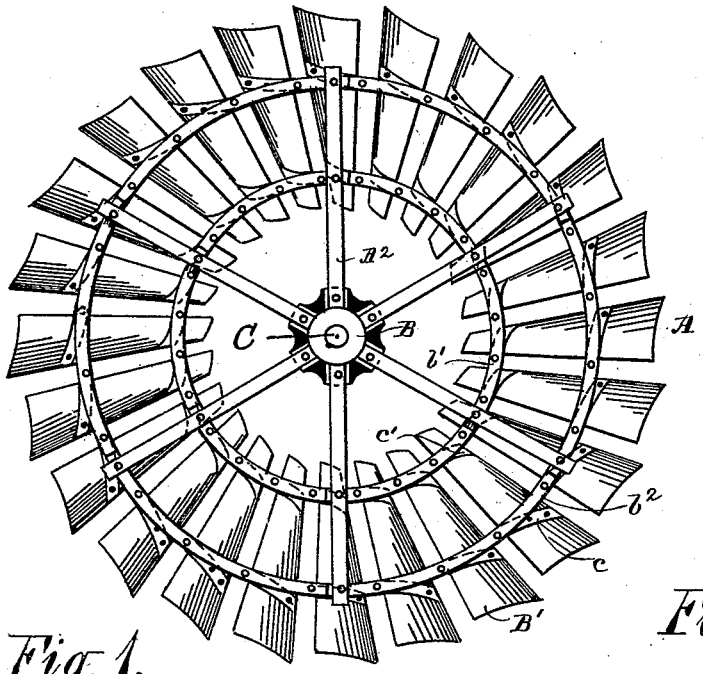

Fig. 1.

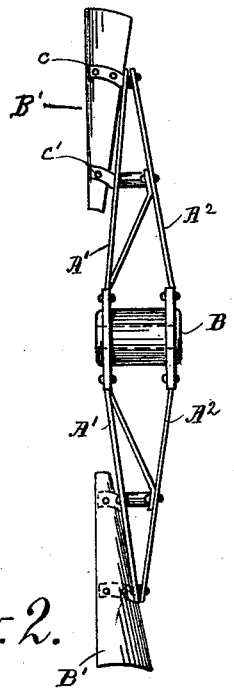

Fig. 2.

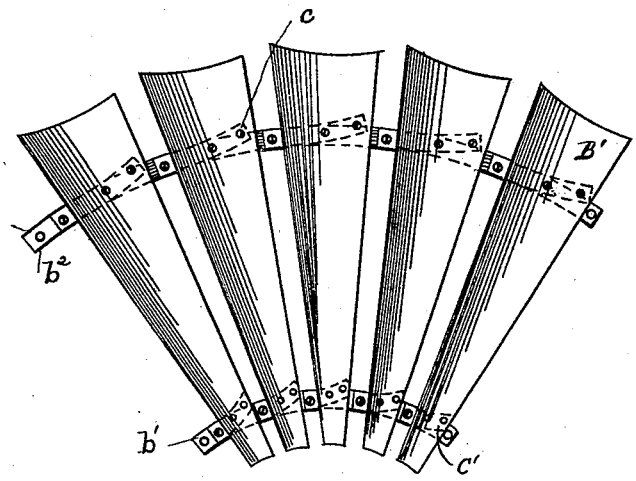

Fig. 3.

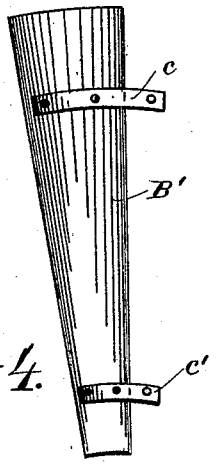

Fig. 4.

Witnesses
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(No Model.) 3 Sheets—Sheet 2.

R. B. SIN CLAIR.

WINDMILL.

No. 457,168. Patented Aug. 4, 1891.

Fig. 5.

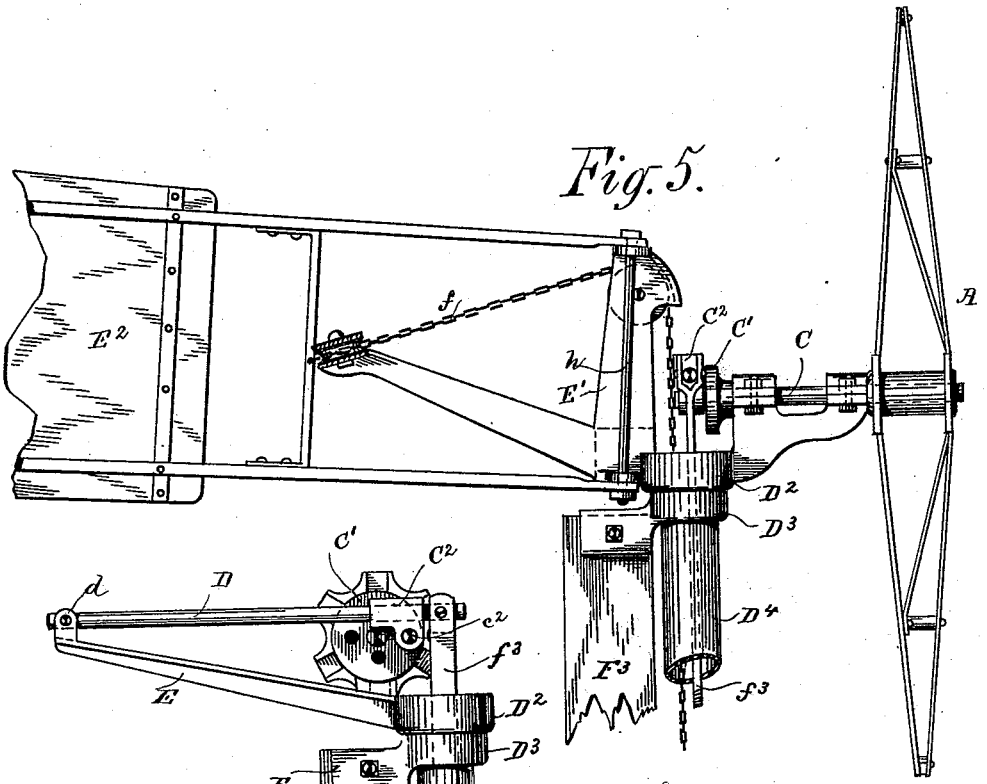


Fig. 6.

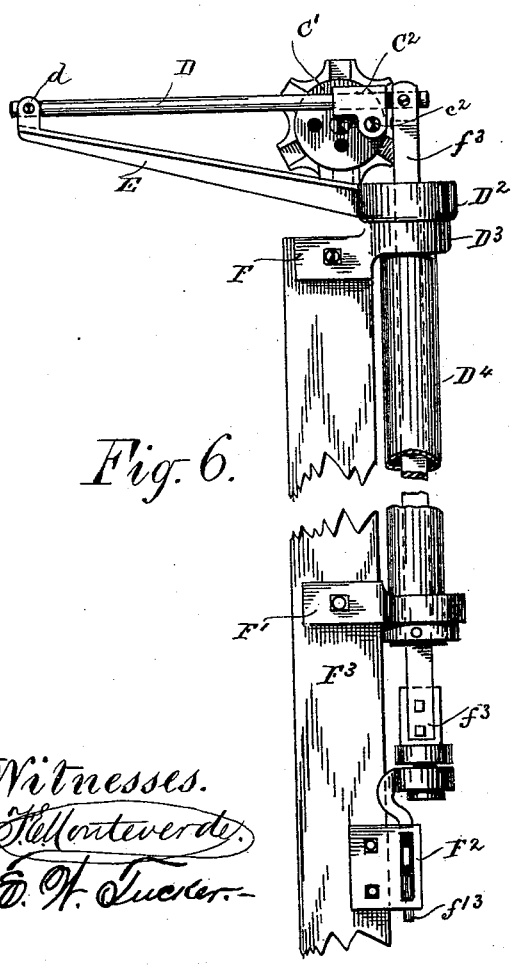
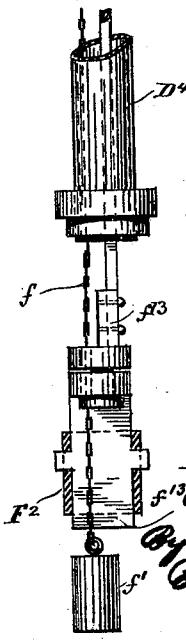


Fig. 7



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(No Model.) 3 Sheets—Sheet 3.

R. B. SIN CLAIR.

WINDMILL.

No. 457,168. Patented Aug. 4, 1891.

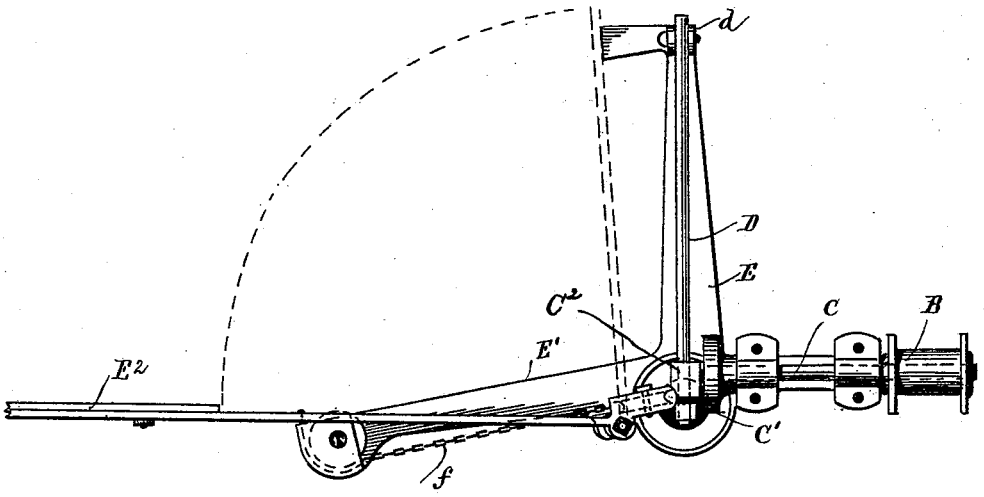

Fig. 8.

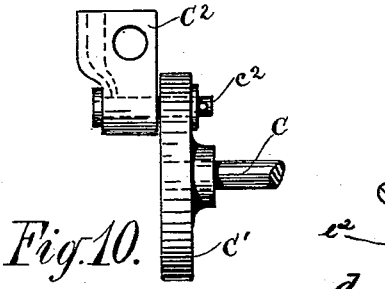

Fig. 10.

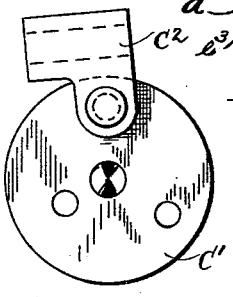

Fig. 11.

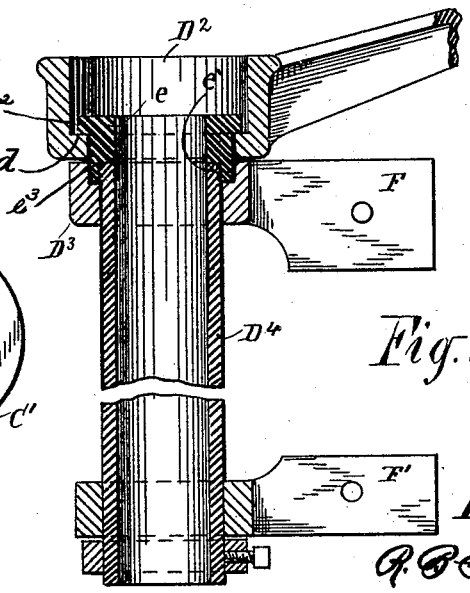

Fig. 9.

Witnesses.
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E. F. Tucker.

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R. B. Sin Clair
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UNITED STATES PATENT OFFICE.

R. B. SIN CLAIR, OF ALAMEDA, CALIFORNIA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 457,168, dated August 4, 1891.

Application filed December 2, 1890. Serial No. 373,345. (No model.)

To all whom it may concern:

Be it known that I, R. B. SIN CLAIR, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, 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 said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention has relation to certain new and useful improvements in windmills, which consists in the arrangement of parts and details of construction, as will be hereinafter more fully set forth in the drawings, described, and pointed out in the specification.

My invention relates more particularly to the peculiar construction of the mill-wheel, whereby a greater surface of the blades is presented to the action of the wind, and in the peculiar arrangement of the turn-table, whereby the least possible friction is obtained during the rotation of the vane in or out of the wind.

My invention further consists in providing a mill which shall be simpler in its construction, less expensive, simpler in its operation, and more durable than any machine of a similar nature heretofore known to me.

Referring to the drawings, forming a part of this application, wherein similar letters of reference are used to denote corresponding parts throughout the entire specification and several views, Figure 1 is a side elevation of the wheel. Fig. 2 is an edge elevation of the same. Fig. 3 is an elevation of a portion of the wheel. Fig. 4 is a detail of one of the blades, showing the strips c and c'. Fig. 5 is a side elevation of a portion of the machine, showing the vane in elevation, and an edge view of the wheel. Fig. 6 is a view at right angles to Fig. 5. Fig. 7 is a detail view, partly in section, showing the several connections of the plunger. Fig. 8 is a plan view of the machine, the wheel being removed. Fig. 9 is a sectional view taken through the upper portion of the turn-table, through the coupling e, and through the tubular plunger-rod guide. Fig. 10 is a detail edge view of the disk C′, also showing the sliding box C^2, and Fig. 11 is a detail face view of said disk.

Like letters of reference refer to like parts throughout the several views.

The letter A is used to indicate the operating-wheel, which consists of a series of braces A' A^2, which are suitably secured together at their outer ends and at their inner ends bolted or otherwise secured to the wheel-hub B. To the braces A′, I bolt or secure the segmental strips, which when secured to the braces form the hoops b' b^2, to which I attach the wheel-blades B′. These blades are secured to the segmental strips before attachment to the braces, are formed slightly concaved, and are secured to the segmental strips by means of the retaining-strips c c'. The strip c is curved considerably more than strip c', and each is extended out from the blade, said extended portion being provided with an aperture to receive a bolt, which likewise passes into the segmental strip. By this means of securing the blades the outer or free edges thereof project out, so as to leave the blades practically in an oblique position, thus providing larger surface for the action of the wind.

The hub B is rigidly mounted upon axle or shaft C, so that with each revolution of the wheel the shaft is caused to rotate therewith. To the inner end of said shaft I secure the disk C′, which is connected to the sliding box C^2 by means of wrist-pin c^2.

The operating-rod is represented by the letter D, and is fulcrumed at its outer end between the arms d of the turn-table arm E, while its outer end is pivoted to the top of the plunger-rod f^3.

The tubular portion of the turn-table is indicated by the letter D^2, which has secured therein the coupling e, which fits and is secured within the countersunk portion e' of the portion D^3 of the plate F, hereinafter referred to. The tubular plunger-rod guide D^4 passes through the lower portion of the turn-table and screws into coupling e, so as to secure the upper portion of the turn-table in position, the extremity of said guide bearing against an internal shoulder e^3 of the coupling. Said portion of the turn-table is provided with the right-angular extending arms E E′, one of which has formed thereon the arms d, between which the operating-rod is fulcrumed, while to the other I secure the vane E^2, which may be operated in any suitable

manner—as, for instance, by means of chain *f*. In order to maintain the vane in its true upright position, so as to prevent the tilting thereof and getting out of true line, I secure the same to arm E′ by means of one long bolt *h* passing entirely through. The lower tubular plunger-rod guide I secure to the standards of the frame by means of the plates F F′ in order to maintain the same rigidly in position, but at the same time allow of the guide turning freely therein. Through the upper portion of the table and lower tubular guide passes and works the upper portion of the plunger-rod f^3 and the chain *f*, which controls the vane E^2. Said chain extends downward and has the weight *f′* attached thereto. The lower portion f^{13} of the plunger-rod is swiveled to the tubular portion, as clearly shown in Fig. 6, and is maintained rigidly in position by means of the guide-plate F^2, which I secure to one corner of the frame-standard F^3. By means of this guide I am enabled to maintain the plunger-rod in its true vertical line and provide against the turning thereof with the movement of the tubular portion, thereby obviating liability of the vane-chain becoming twisted thereabout.

The plunger-rod is operated by means of the operating-rod D, which receives its motion through the medium of sliding box C^2, which is operated by disk C′ by the rotation of the wheel A.

Having thus described my invention, what I claim as new, and desire to secure protection in by Letters Patent of the United States, is—

In a windmill, the combination of a turn-table provided at its lower end with an inwardly-extending annular flange, a coupling provided at its upper end with an outwardly-extending annular flange seated upon the flange of the turn-table, having its lower end cut away interiorly to form a shoulder, said cut-away portion being also screw-threaded, a guide-plate having a tubular portion which is recessed at its upper end to receive the lower reduced end of the coupling, and a plunger-rod guide passing through the tubular portion of the guide-plate and having its upper end screw-threaded to engage the threaded portion of the coupling, so that its extremity may bear against the interior shoulder of the coupling, substantially as set forth.

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

R. B. SIN CLAIR.

Witnesses:
EDWIN W. TUCKER,
N. A. ACKER.