(No Model.) 2 Sheets—Sheet 1.

J. E. & J. M. GALLOWAY.

WINDMILL.

No. 259,123. Patented June 6, 1882.

Fig. 1.

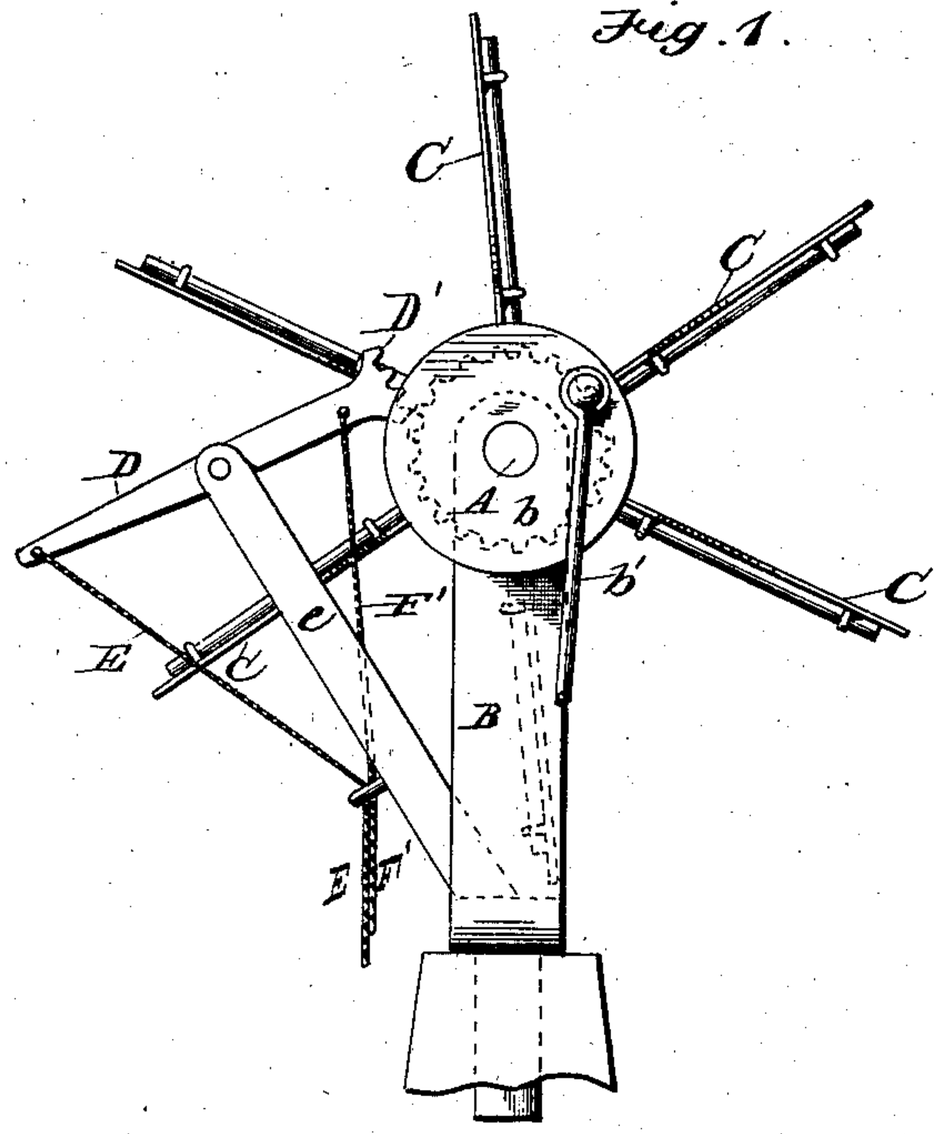
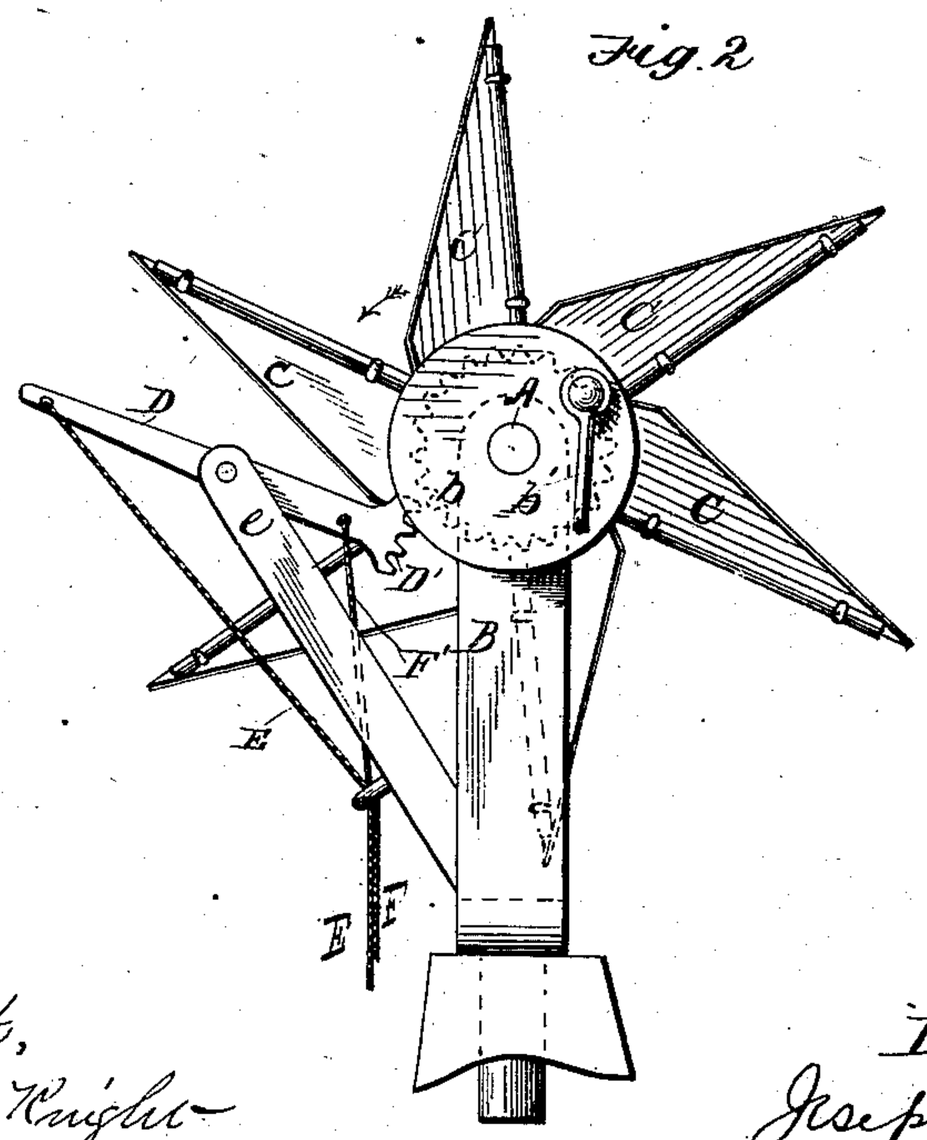


Fig. 2.



Attest,
W. N. Knight
Fred F. Ellsworth

Inventor,
Joseph E. Galloway 2nd
James M. Galloway
By Edson Bros
Their Attys

(No Model. 2 Sheets—Sheet 2.

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Fig. 3

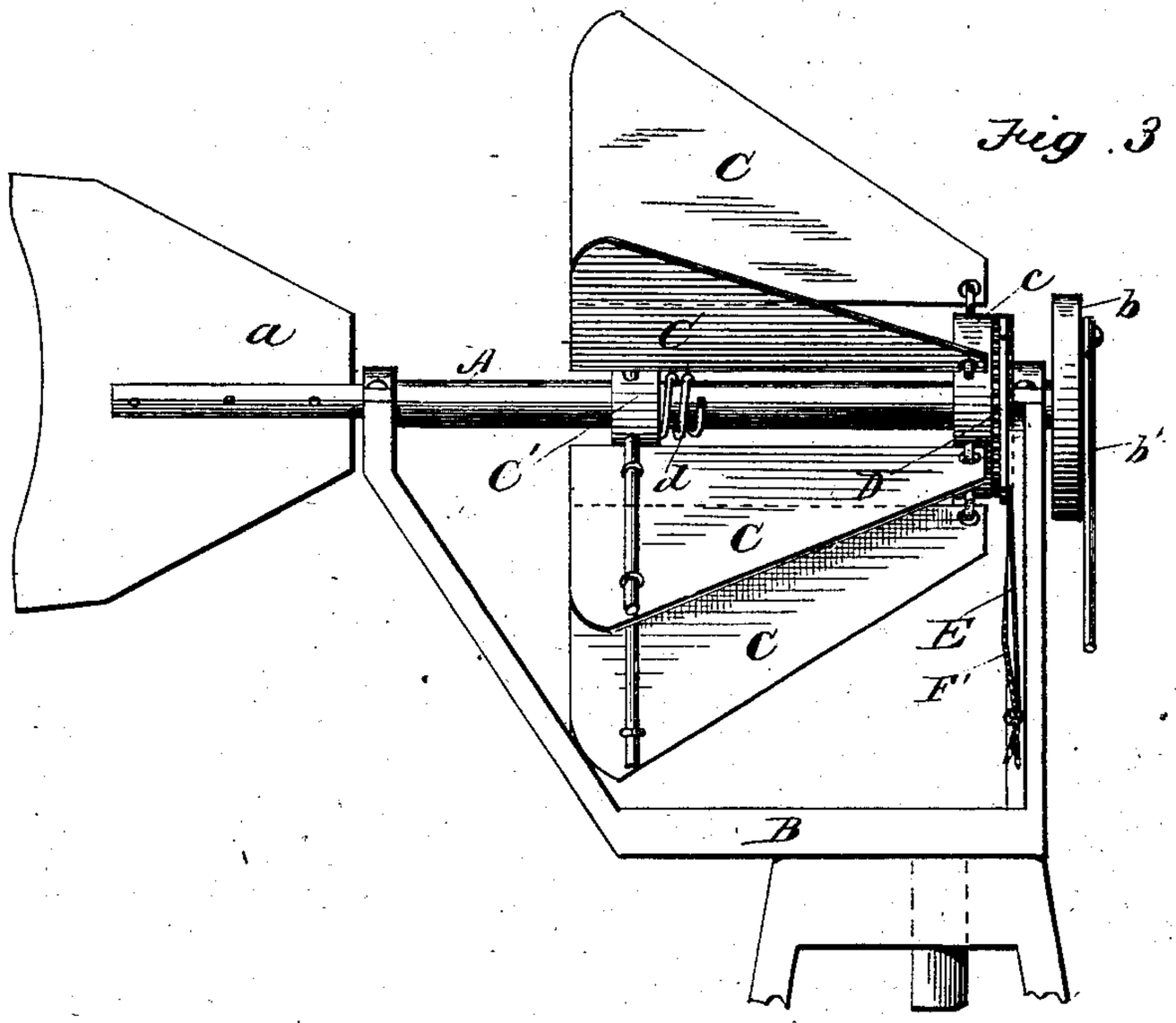


Fig. 4.

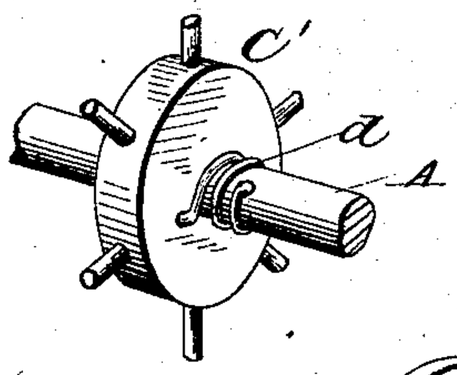


Fig. 5.

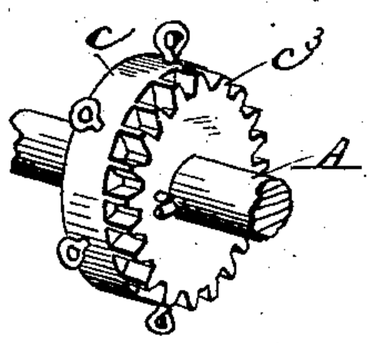
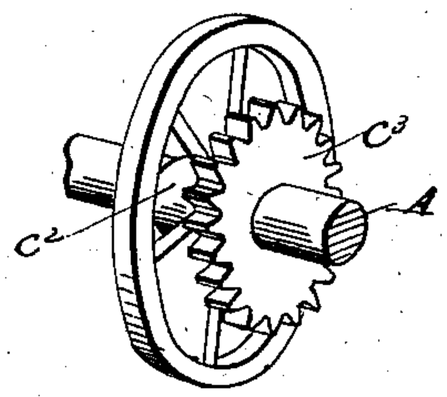


Fig. 6.



Attest,
W. H. Knight.
Fred F. Church.

Inventor,
Joseph E. Galloway and
James M. Galloway
By Edson Bros
Their Attys

UNITED STATES PATENT OFFICE.

JOSEPH E. GALLOWAY AND JAMES M. GALLOWAY, OF CONCORDIA, KANSAS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 259,123, dated June 6, 1882.

Application filed October 15, 1881. (No model.)

To all whom it may concern:

Be it known that we, J. E. GALLOWAY and J. M. GALLOWAY, citizens of the United States, residing at Concordia, in the county of Cloud and State of Kansas, have invented certain new and useful Improvements in Windmills; and we 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 the letters or figures of reference marked thereon, which form a part of this specification, and in which—

Figures 1 and 2 are front elevations of our windmill, one with the vanes out of the wind and the other with the vanes in the wind. Fig. 3 is a side elevation thereof. Figs. 4 and 5 are detailed perspective views of the disks of the vanes upon the driving-shaft, and Fig. 6 is a modified form of the front disk.

This invention has relation to improvements in windmills, having for its object to permit of the ready adjustment of the vanes into and out of the wind, and to enable them to automatically adjust themselves to maintain a uniform rate of speed, however strong the wind may blow, and to readily yield when exposed to gusts or contrary winds.

The nature of this invention consists in adapting the vanes to be changed relatively with the driving-shaft and their capability to automatically change their working angle of presentation to the wind, substantially as hereinafter more fully set forth.

To carry out our invention we employ a driving-shaft, A, which is journaled upon a frame, B, adapted to turn upon a suitable support according to the direction of the wind. It is provided at one end with a tail, *a*, as usual, and at its other end with an eccentric, *b*, to which the pump rod or piston *b'* is connected.

C C are the vanes, preferably of a triangular form, with their larger ends arranged toward the rear end of the mill. The front ends of the vanes are connected to the periphery of a wheel or disk, *c*, while their rear ends are connected to radial spokes of a second disk or wheel, *c'*, arranged upon the shaft A. The disk or wheel *c* is secured to a collar and provided with a pinion, c^3; or the latter may be connected to the collar c^2, as in Fig. 6. The collar or disk is capable of being turned independently of the shaft, and its movement may be limited by means of right-angularly-arranged stops, one secured to the collar or its disk and the other to the shaft. The other disk, *c'*, which is also capable of a partially rotary motion upon the shaft A, is connected thereto by a spring, *d*, preferably a coiled one. The tension of this spring is such as to enable the vanes to yield more or less when acted upon, say, by a pressure of the wind that would cause the piston or pump to lift beyond, say, thirty gallons per minute, thus enabling the wheel or vanes to maintain a uniform rate of speed however strong the wind may blow. This arrangement also permits the vanes to readily yield to the action of gusts or contrary winds, preventing their being broken or otherwise injured.

D is a lever pivoted to a support, *e*, secured to the frame B, and having a cogged segment, D', capable of engagement with the pinion c^3. To the outer end of this lever is connected a rope or chain, E, and to its inner end a rope or chain, F', extending down, each, within convenient reach of the operator. The vanes being in line with the shaft A, pulling upon the rope E' will, by the action of the cogged lever upon the pinion, turn the disk or wheel *c* upon the shaft and arrange the vanes obliquely to the shaft, and thus present them to the action of or put them into the wind. By pulling upon the rope E the cogged lever (disengaged from the pinion at the time of throwing the vanes into the wind) will be caused to again engage the pinion and reverse the movement of the disk or wheel *c*, and thus bring the vanes again in line with the shaft, which will take them out of the wind, the lever again escaping from the pinion.

From the foregoing it will be seen that the vanes can be readily adjusted into and out of the wind and a uniform speed be maintained, and gusts or contrary winds prevented from breaking or injuring the vanes.

We claim and desire to secure by Letters Patent—

1. In a windmill, the combination, with the driving-shaft, of the vanes connected to a disk

or collar connected by a spring to the shaft, and a toothed disk or wheel connected to the opposite ends of the vanes and capable of being turned upon the shaft to adjust the relative position of the vanes to its shaft by a lever, and means for operating the same, substantially as and for the purpose set forth.

2. In a windmill, the combination, with the driving-shaft, of the vanes connected to a disk or collar connected by a spring to the shaft, a disk or wheel having a pinion and capable of turning upon the shaft, and the cogged lever having means for its operation, substantially as described.

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

JOSEPH E. GALLOWAY.
JAMES M. GALLOWAY.

Witnesses:
B. R. ANDERSON,
H. V. MATTHEWS.