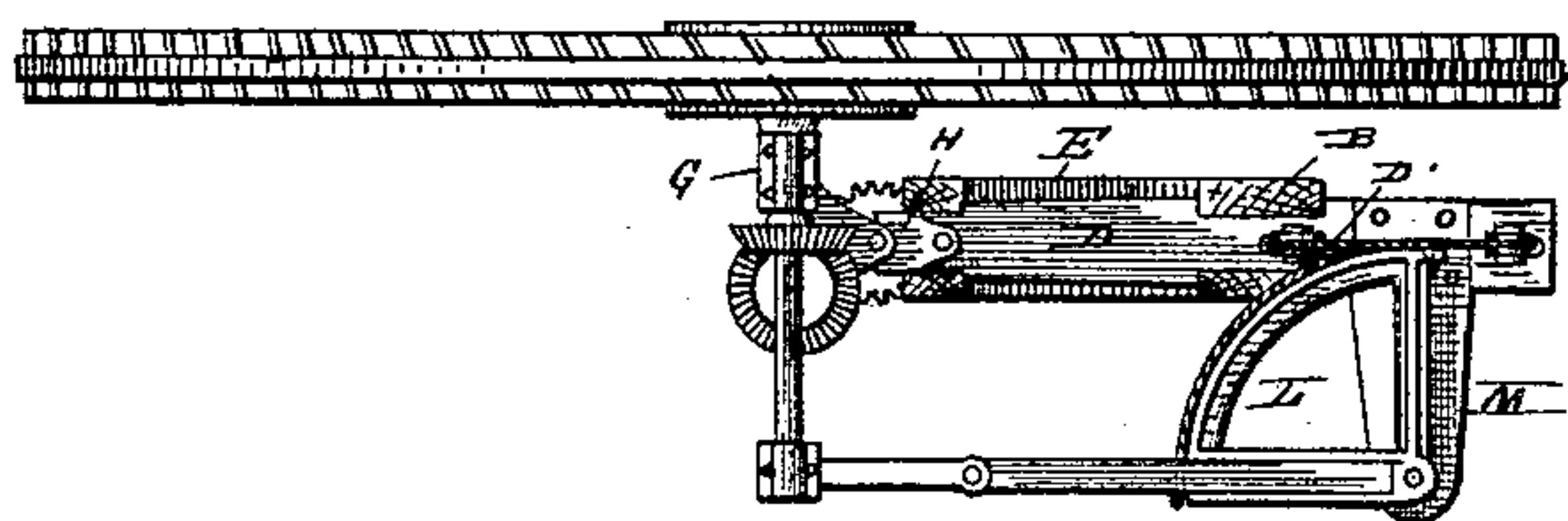
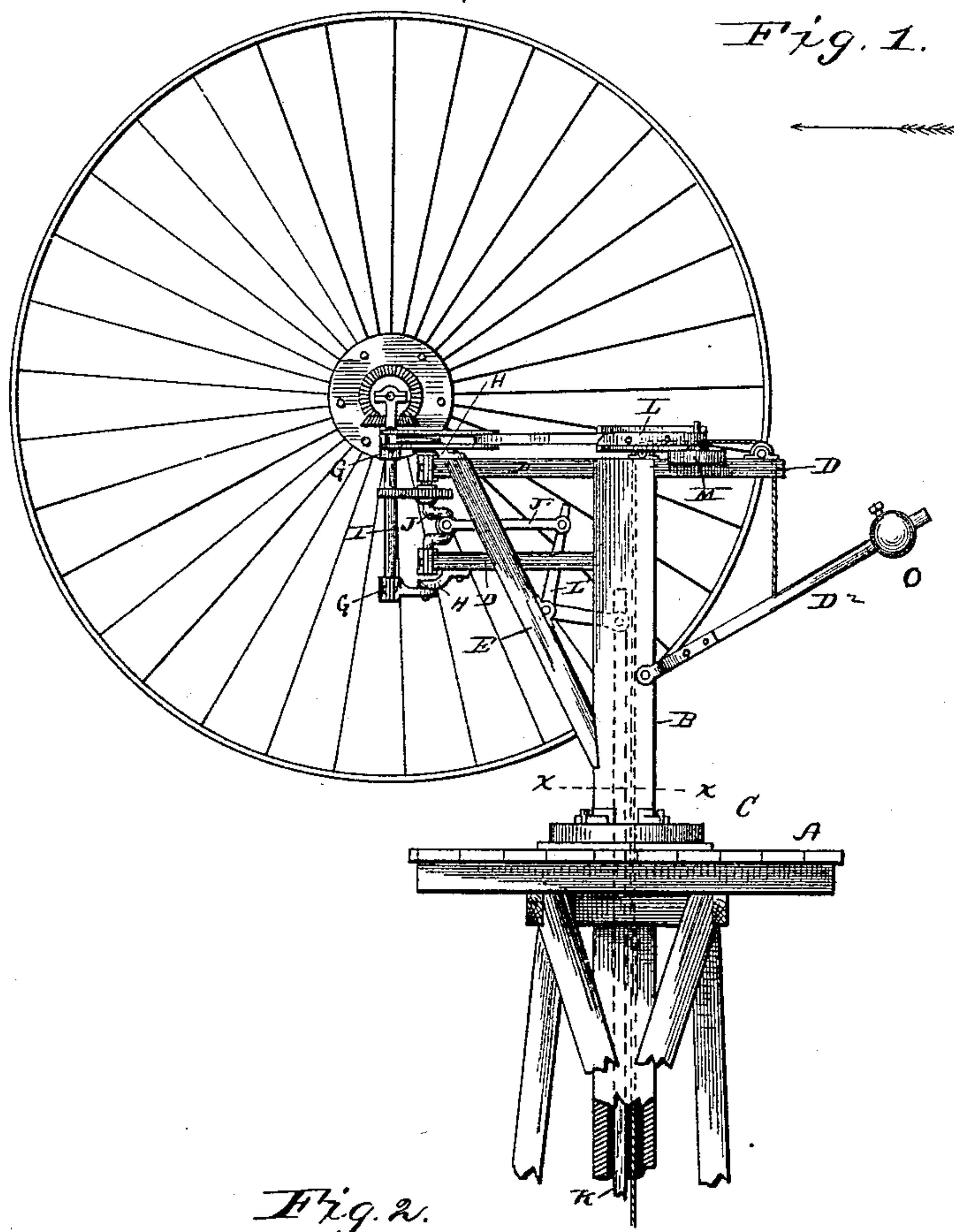


F. FANNING.

WINDMILL.

No. 344,263.

Patented June 22, 1886.



Witnesses

Chas. Davis

W. Alexander

Inventor

F. Fanning

By his Attorney

W. Alexander

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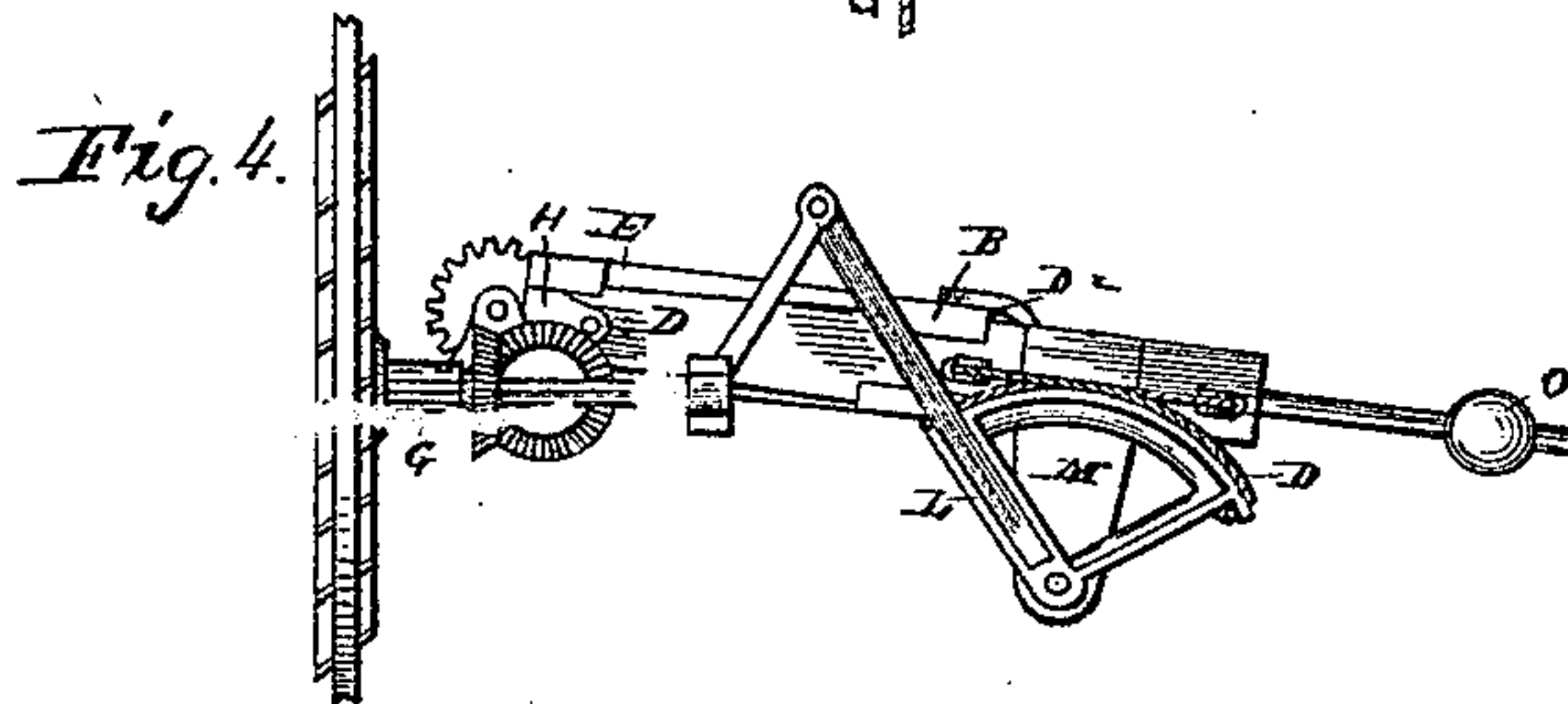
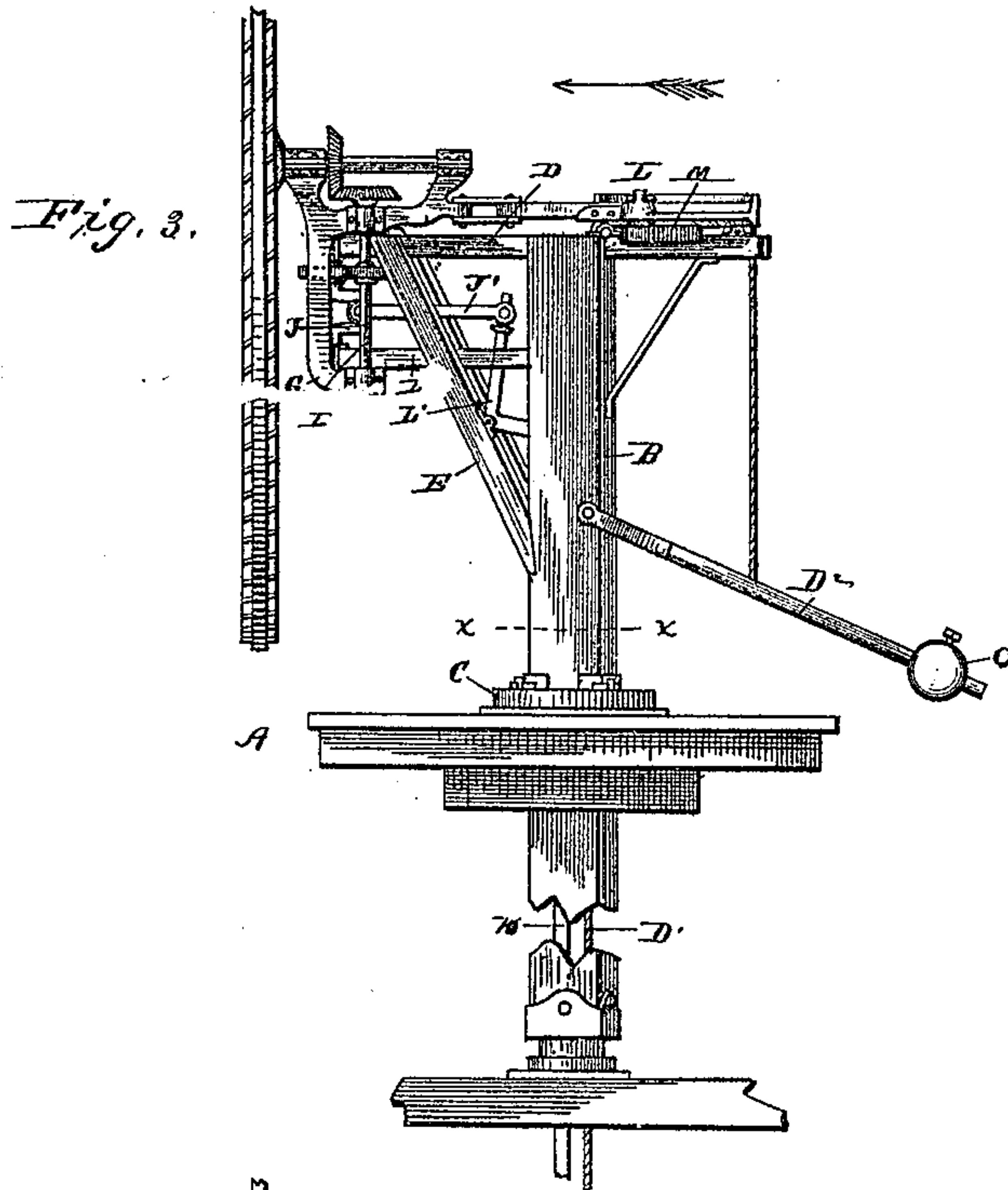
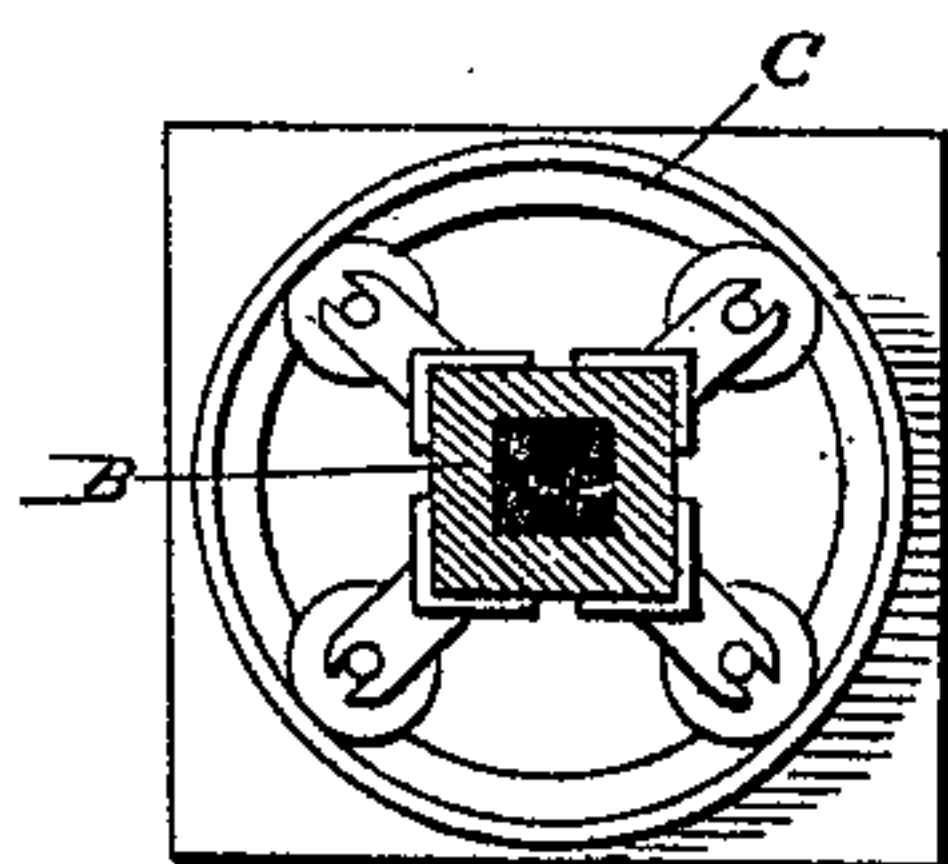


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANKLIN FANNING, OF ST. JOSEPH, MISSOURI.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 344,263, dated June 22, 1886.

Application filed January 5, 1886. Serial No 187,688. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN FANNING, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Windmills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in that class of windmills having a "solid wheel" in contradistinction to those made with movable sections, the prime object being to obviate the use of a tail or vane for holding the wheel to the wind in position for working.

The object of the present invention is to provide improved means for operating the wheel to hold it to the wind when in operation, to permit it to shift automatically as the force of the wind increases or decreases, and to throw it parallel with the direction of the wind to stop its operation and hold it securely in such position, as more fully hereinafter specified. These objects are attained by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of the mill, showing the wheel parallel with the direction of the wind and out of gear. Fig. 2 represents a top or plan view of the same. Fig. 3 represents a side elevation of the mill, showing the wheel set at right angles to the direction of the wind and in position for operation; Fig. 4, a top or plan view of the same, and Fig. 5 a horizontal sectional view taken on the line *x x* of Figs. 1 and 3.

In the said drawings, the letter A indicates the platform at the top of the tower of the mill.

B indicates a hollow shaft, which carries the upper supporting-works and operating parts of the mill with the wind-wheel, by which the same are driven.

The platform A is provided with an annular section, C, through which the hollow shaft passes, the shaft being supported and guided therein by means of friction-rollers secured to radial arms attached to the shaft. The lower end of the shaft rests and turns in an annular step secured to a cross-beam, forming part of the tower below. To the upper portion of the upright shaft B are bolted lateral arms D D, which are strengthened by means of the oblique braces E. The wind-wheel is mounted on the outer end of a horizontal shaft, jour-

naled in bearings in the metallic frame G. The said frame G is provided with lugs, which are connected by pivoted bearings H to the arms D D, and supported on such arms in position so as to swing freely around the shaft J as a center. The shaft of the wind-wheel has mounted upon it a beveled gear-wheel, which intergears with a similar wheel mounted upon the upper end of a vertical shaft, I, journaled in bearings on the frame G. The said shaft has mounted on it a spur-wheel intergearing with a similar wheel on a vertical crank-shaft, J, journaled in bearings on the ends of the arms D D. The crank connects by means of a rod, J', with a bell-crank lever, I', which also connects with the upper end of the pump-rod K, extending down through the hollow shaft to the pump below.

To the upper arm D is secured an arm, M, to which is pivoted a segment or quadrant, L, having an extended arm, which is connected to the frame G by a pivoted link. To the segment or quadrant is secured a chain or cord, which passes over a pulley at the rear of the beams D, and is connected to a pivoted lever, D', having an adjustable weight, O. The letter D' indicates a similar chain, which passes over a pulley mounted directly over the opening at the upper end of the hollow shaft. The said chain extends down through said shaft to the lower end of the same, where it is connected with mechanism by which it may be controlled to throw the wheel to and from the wind.

The operation of my invention is as follows: The parts, being in position as shown in Figs. 1 and 2 of the drawings, are held at such position by the controlling-chain, which is drawn taut and fastened below. The weight O, hanging from the opposite chain, connected to the segment or quadrant, swings the parts around to the position shown in Fig. 4, when the said chain is released below, bringing the wind-wheel to a position at right angles to the wind, or in full operating position. Should the wind blow too hard upon the face of the wheel, it will force the wheel toward the direction of the wind, as will be evident from the construction, the wheel being mounted at one side of the pivotal point H. When the wind slackens, the weight tends to turn the wheel to the wind again, thus automatically keeping the proper

equilibrium. To throw the wheel and other parts out of gear, the chain D' is drawn taut from the lower end, when the parts assume the position shown in Figs. 1 and 2, the extension of the quadrant and the connecting-link falling into a direct straight line, thus firmly locking the parts in position.

Instead of the flat wheel described, any other wheel of the same class may be used.

I am aware that a segment secured to the tail-vane of a windmill and having a rope or chain connected to a sector having a weighted arm have been used for holding the wheel to and shifting it from the wind, and this I do not claim.

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

1. The combination, in a windmill, of the wheel mounted on the outer end of a horizontal shaft, the frame having bearings in which said shaft is journaled, the lateral arms to which said frame is pivoted, the segment or quadrant, the controlling-chain secured to the same and passing over a suitable pulley, the weighted lever, to which said chain is secured, and the devices for fastening the rope below,

the whole being mounted upon a hollow rotating shaft and arranged to operate substantially as specified.

2. The combination, with the hollow shaft, the wind-wheel, and the mechanism for holding it to and from the wind, of the intergearing pinions, the vertical shaft and crank-shaft and their intergearing pinions, and the bell-crank lever and connecting-rods, whereby motion is transmitted to the pump-rod, substantially as specified.

3. The combination, with the arms secured to the upper end of the vertical hollow rotating shaft, of the pivoted frame carrying the wind-wheel and its shaft, and the quadrant having an extension and pivoted link connected to the frame in such position as to fall into a direct straight line and lock the parts when thrown out of gear, substantially as specified.

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

FRANKLIN FANNING.

Witnesses:

J. M. WILSON,
ALEX. KEMP.