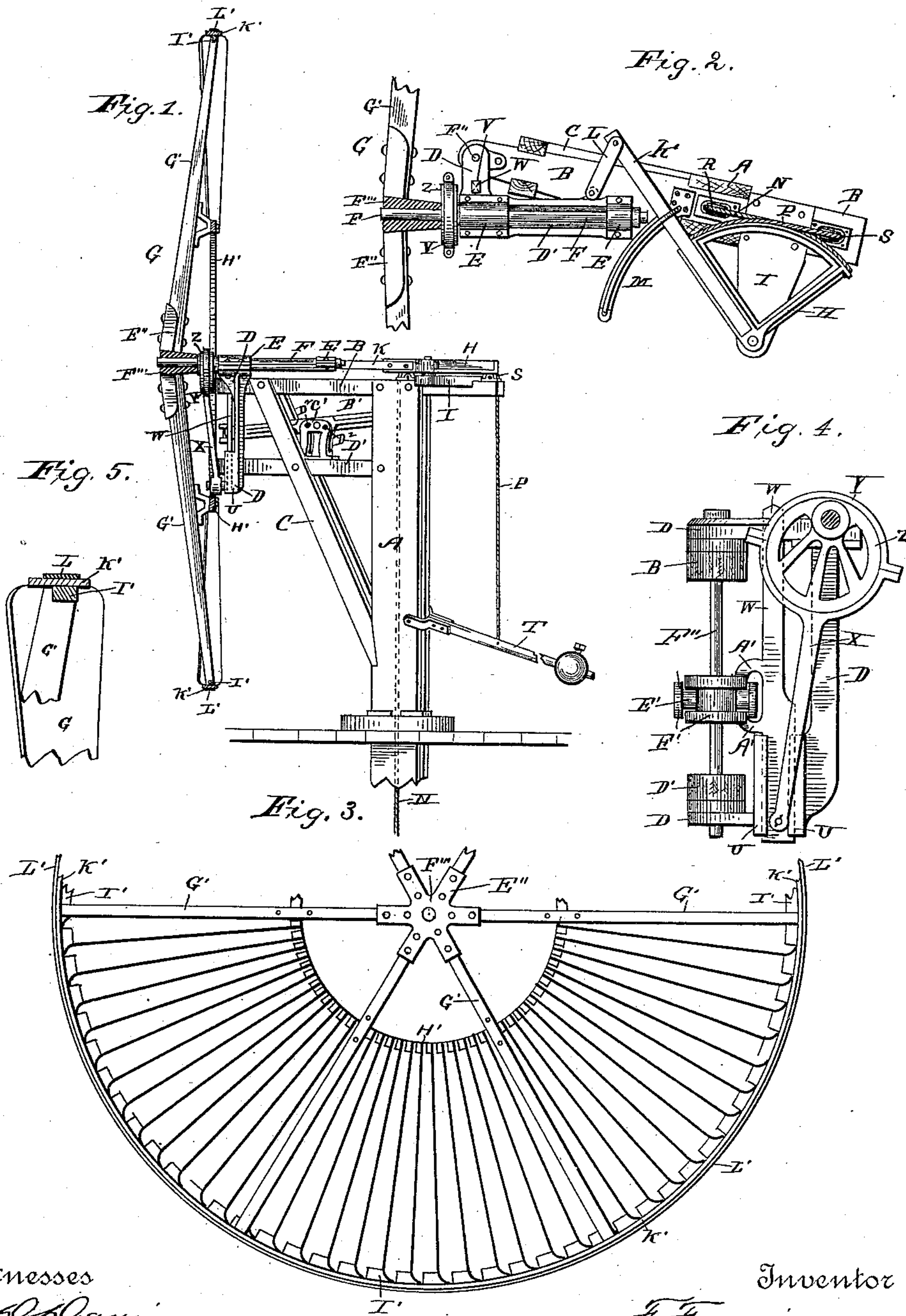


(No Model.)

F. FANNING.
WINDMILL.

No. 351,587.

Patented Oct. 26, 1886.



Witnesses

C. H. Davis
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UNITED STATES PATENT OFFICE.

FRANKLIN FANNING, OF ST. JOSEPH, MISSOURI.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 351,587, dated October 26, 1886.

Application filed April 15, 1886. Serial No. 198,915. (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.

10 This invention relates to certain improvements in windmills, being principally designed for pumping purposes, although it may be employed for all purposes where a vertical reciprocating motion is required.

15 The invention is designed to provide improved mechanism for imparting the necessary vertical reciprocating motion to the pump or other rod, and also provide means whereby the wheel may be thrown perfectly parallel with the direction of the wind, so as to be entirely out of its force, as more fully hereinafter specified.

25 The above-mentioned objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a view, partly in side elevation and partly in elevation, of my improved windmill; Fig. 2, a top or plan view of a portion of the same; Fig. 3, a partial front view of the wind-wheel; Fig. 4, a detached view of the mechanism for operating the vertical reciprocating rod, and Fig. 5 a detached sectional view of the rim of the wheel and one of the vanes in elevation.

35 The letter A indicates a vertical hollow shaft, which is suitably swiveled in bearings in the tower, as usual.

40 B indicates a frame mounted on the upper end of said shaft, and braced by means of the oblique beams C. To the forward end of the frame B is pivoted a cast-iron frame, D, having bearings E for the shaft F of the wind-wheel G, which is supported upon its outer end.

45 The letter H indicates a segment pivoted to a lateral arm, I, extending from the frame B. The said segment is provided with an arm, K, which connects by means of a short link, L, with the frame D, for the purpose more fully hereinafter described. M indicates a curved

guide, through which the arm K works, and which limits its movement. The segment is provided with two grooves, and with ropes or chains N P, extending in opposite directions downward over pulleys R S, the chain 55 P being connected with a weighted lever, T, and the chain N with mechanism below for turning the wheel to and from the wind, as usual.

60 The lower portion of the frame D is provided with ways or guides U, and the upper part with a guide-opening, V, in which is adapted to slide a reciprocating bar, W. The said bar has pivoted to it one end of a cam-rod, X, which has at its other end a cam-strap, 65 Y, in which works a cam, Z, secured to the wind-wheel shaft, whereby the sliding bar is operated. The said bar is provided with lugs A', which embrace the walking-beam B' at one side, the said beam being fulcrumed between pillow-blocks C', secured to the beam D'. 70 The end of the walking-beam is bifurcated and has internal lugs, E', which set between the heads of the drum F', mounted upon a vertical rod, F'', secured to brackets on the frame 75 D, as indicated in Fig. 4 of the drawings. The walking-beam is provided with a series of fulcrum-apertures, D', by means of which it may be adjusted to vary the stroke of the pump-rod, as may be required. The other end of 80 the walking-beam is bifurcated and provided with lugs similar to those first mentioned, which connect with a drum on the pump-rod, so as to operate the same.

85 The wheel is composed of a radial spider, E'', having a suitable hub, F''', and a series of radial arms, G'. To these arms are secured the concentric rings H' I', between which the vanes are supported. These vanes overset the rings at each end, the said ends being slotted 90 for the purpose in such manner that they will be presented to the wind at an angle thereto. The outer rim is re-enforced with a ring, K', and the whole is bound together by an annular external band of iron, L'. 95

The operation of my invention is as follows: When in operation the rotation of the wind-wheel and its shaft transmits a reciprocating motion through the medium of the cam and cam-rod to the slide operating the walking- 100

beam, oscillating the same. This gives the desired movement to the vertical reciprocating rod.

When it is desired to throw the wheel out of the wind or parallel with the line of its direction, the cord or chain N is drawn upon, moving the segment H and arm K, and by means of the link L moving the frame D on its pivot F'' until the wheel assumes the proper position.

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

1. The combination, with the supporting-frame mounted on the upper end of the hollow vertical shaft, of the frame pivoted thereto, the wind-wheel and its shaft journaled in bearings in said frame, the eccentric or cam and

cam-rod, the sliding bar working in suitable guides, and the bifurcated walking-beam having lugs engaging a reciprocating drum mounted upon a vertical rod, substantially as and for the purposes specified.

2. The combination, with the supporting-frame, the frame pivoted thereto, and the segment and arm connected thereto by a link, of the guide whereby the movement of the parts may be regulated and the movement of the same limited, substantially as specified.

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

FRANKLIN FANNING.

Witnesses:

WALTER K. HARRINGTON,
D. M. STUART.