

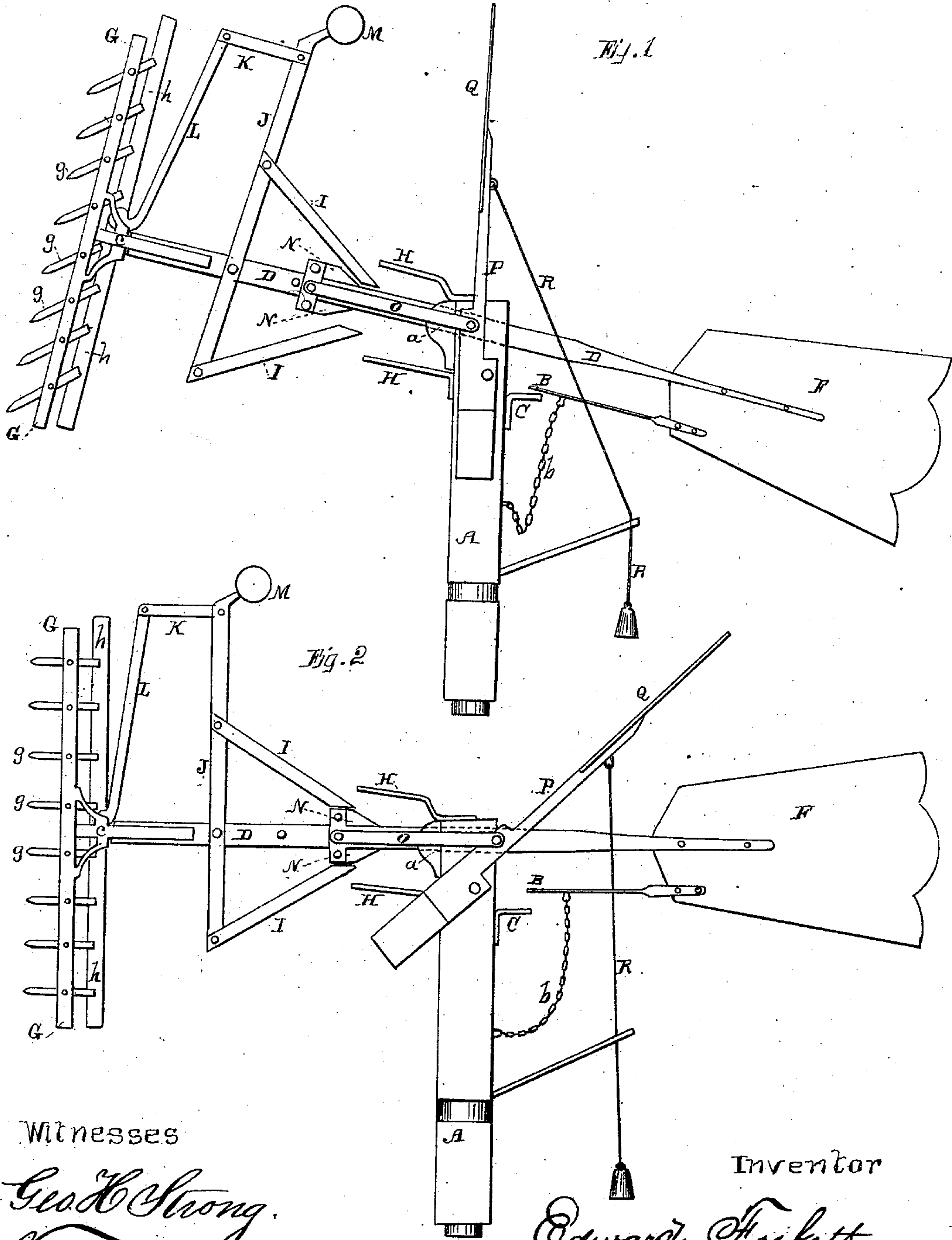
(No Model.)

2 Sheets—Sheet 1.

E. FOSKETT.
Windmill.

No. 237,851.

Patented Feb. 15, 1881.



Witnesses

Geo. H. Strong.
Frank A. Brooks

Inventor

Edward Foskett
By Dewey & Co.
Attys

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Fig. 3.

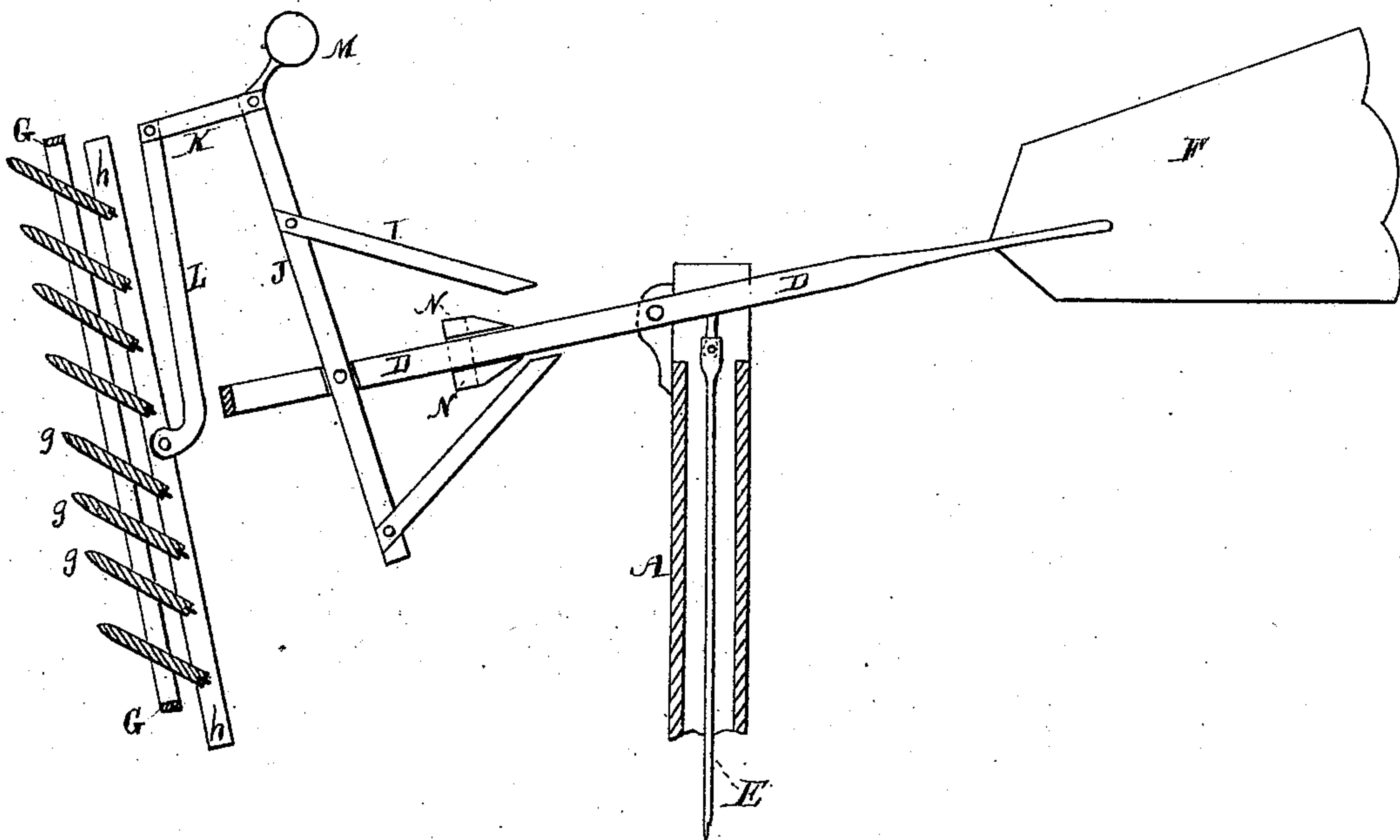
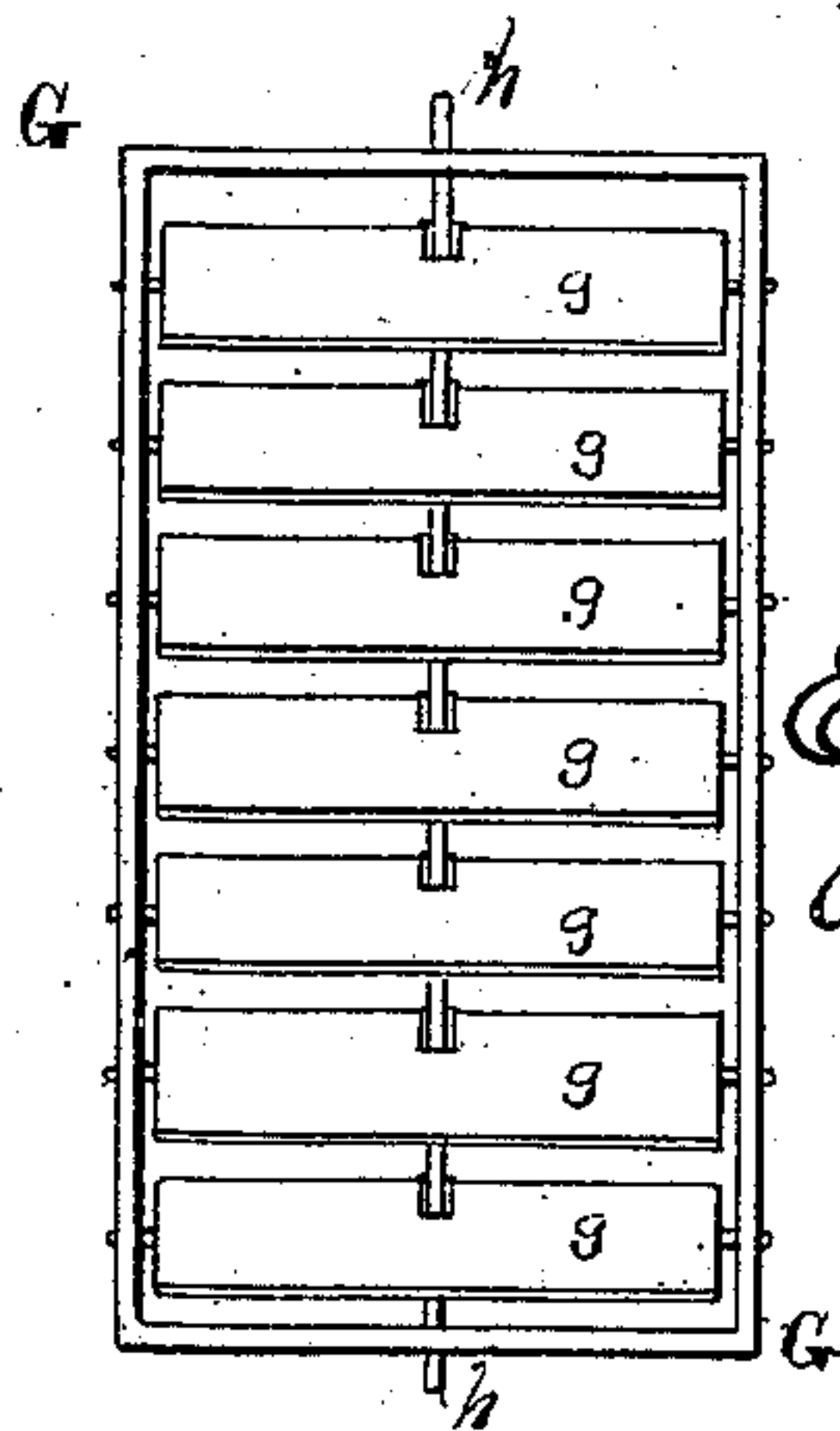


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD FOSKETT, OF SAN JOSÉ, CALIFORNIA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 237,851, dated February 15, 1881.

Application filed September 20, 1880. (No model.)

To all whom it may concern:

Be it known that I, EDWARD FOSKETT, of San José, county of Santa Clara, and State of California, have invented an Improved Windmill and Regulator; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in windmills; and it consists in the employment of a vertically-oscillating beam which is balanced upon the upper end of a vertical rotating post or standard, and is provided at one end with a rudder which holds it in line with the wind, while the other end supports a frame containing a series of vanes. These vanes have their ends journaled in the frame and are united by a rod, like the shutters of a window-blind, so they may be turned to an angle in either direction in unison. When thus turned the action of the wind upon them will cause the oscillating beam to be moved up or down. In combination with this apparatus is a novel device by which the vanes have their angle changed at the end of each stroke, so as to produce a return-stroke, and a regulating device by which the angle of the vanes may be adjusted to suit the strength of the wind, or by which they may be made to stand with their edges to the wind, so as to stop the mill altogether.

My invention further consists in certain details of construction, all of which will be more fully described by reference to the accompanying drawings, in which—

Figures 1 and 2 are side views of my windmill. Fig. 3 is a section. Fig. 4 is a front view of the vanes.

Let A represent the upright post or standard, which is supported upon the frame of the mill so as to rotate upon a vertical axis. To the upper portion of the head A the bar D is pivoted at *a*, so that it may move freely up and down on its central pivot or axis, thus producing a vertically-reciprocating motion.

To the central lower side of the bar D is attached the pitman or pump-rod E, by means of a joint, as shown.

At one end of the vibrating bar D is the rudder-vane F, which serves to hold the bar and its operating-arms or fans toward the wind. A spring-arm, B, projects from the in-

ner end of this rudder, or from some other convenient point, and a lug, C, on the post A is so placed that when the bar is depressed the spring strikes the lug and relieves the strain. A cord or chain, *b*, extends from the end of the spring to the post, as shown, so that it will act to relieve the strain of the upstroke in the same manner. To the opposite end of the bar D is attached, at right angles to the frame-work *c*, the fan-frame G, formed in the shape of a parallelogram, with its greatest length upright and at right angles with the bar D. The vanes or fans *g* are pivoted to the sides of the frame, and have the connecting rod or bar *h* uniting one edge of all the vanes, as in the case of an ordinary window blind or shutter. These vanes or fans are caused to turn upon their central end journals, so as to present their upper and their lower sides alternately at an angle to the wind, and when they stand in these positions the action of the wind upon them will depress or elevate that end of the bar D which carries them, so as to produce a reciprocating motion of the bar.

The alternate change of angle of the fans at each vibration of the bar D is produced by the action of two stationary arms, H, which are secured to the post A, projecting out so as to act upon two inclined arms, I. These arms are secured to a vertical lever, J, pivoted to the bar D, one of the arms being above and the other below, so that when the bar D vibrates, these inclined arms I will strike the stationary arms H, and will thus cause the lever J to tilt backward or forward. This lever has an arm, K, projecting from its upper end toward the fan-frame, and a connecting-rod, L, unites it with the center of the shutter or fan-rod *h*, as shown. By this construction the tilting of the lever J will operate to change the angle of the fans or vanes at each vibration of the bar D. The tilting of this lever J to produce the change of angle of the vanes may also be accomplished entirely or assisted by a weight, M, which is secured to the top of the lever J in such a position that when the bar D has the end depressed this weight will pass the center of its lever and tilt it by gravitation, and when the bar rises it will be carried beyond the center in the opposite direction, and

thus tilt it to that side. In the present case I depend upon both the gravitation and the positive action of the arms to produce the change of angle of the vanes.

5 In order to regulate the angle to which the vanes may be turned, or to set them centrally to stop the mill, I employ two inclined or wedge-shaped blocks, N N, which are united by clamps or cross-bars, so as to slide upon the top and
10 bottom of the bar D and move between the ends of the inclined arms I. A rod, O, connects the slides N with the upright arm P, which is pivoted to the post A, and has the vane Q upon its upper end. The lower end
15 of the arm P is weighted, and the weight may be made adjustable, if desired. This weight returns the arm to a vertical position when the wind falls or is light, and resists the tendency of the wind to blow the vane Q backward. When the wind is strong and blows
20 this vane back the rod O will draw the slides to a point between the ends of the arms I, and by decreasing their motion will lessen the angle of the vanes or fans *g*, and thus reduce the
25 speed of the mill.

When the slides are fully drawn between the ends of the arms I, they will be held in such a position that the vanes will stand parallel and with their edges to the wind, so that
30 there will be no action in either direction. This is done automatically by the action of the regulating-vane when the mill is running; but if it is desired to stop the mill altogether a cord, R, leading from the vane Q to the
35 ground, may be employed to pull the vane back, and thus throw the vanes out of the wind.

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

40 1. The series of fans *g*, pivoted at their ends in the frame G, and united so as to move in unison, in combination with the tilting-lever

J, with its arms I, and the stationary arms or lugs H, bar D, and rod connecting the fan-frame to the lever, whereby the oscillation of
45 the bar D causes the lever J to be tilted, and the angle of the fans is changed at each oscillation, substantially as herein described.

2. In combination with the fans *g*, pivoted in the frame G, at one end of the vertically-
50 oscillating bar D, and united to move in unison, as shown, the lever J, connected with the fans and journaled on the bar D, so as to tilt forward and back, and provided with the weight M at its upper end, so that the oscillations of
55 the bar D will cause the weight to gravitate alternately to one side and the other of the pivot of the lever J to tilt it and reverse the fans, substantially as herein described.

3. The combination of the bar D and the
60 wedge-shaped or inclined blocks N N with the arms I I, suitably pivoted, and means for operating the blocks, whereby the movement of the arms and fans is limited, substantially as
65 set forth.

4. The regulating device consisting of the inclined or wedge-shaped slides N, moving between the ends of the arms I, in combination with the bar D and the vertical arm P, with
70 its vane Q and weight, whereby the movement of the regulator is rendered automatic and dependent upon the force of the wind, substantially as herein described.

5. The oscillating windmill having the inclined reversible vanes or fans with their operating device at one end of a bar, D, and the
75 rudder or tail F at the opposite end, in combination with the spring B, the lug C, and chain *b*, to relieve the strain, substantially as herein described.

EDWARD FOSKETT.

Witnesses:

A. M. OGAN,
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