

(No Model.)

A. G. NORTON.  
WINDMILL.

No. 418,531.

Patented Dec. 31, 1889.

Fig. 1

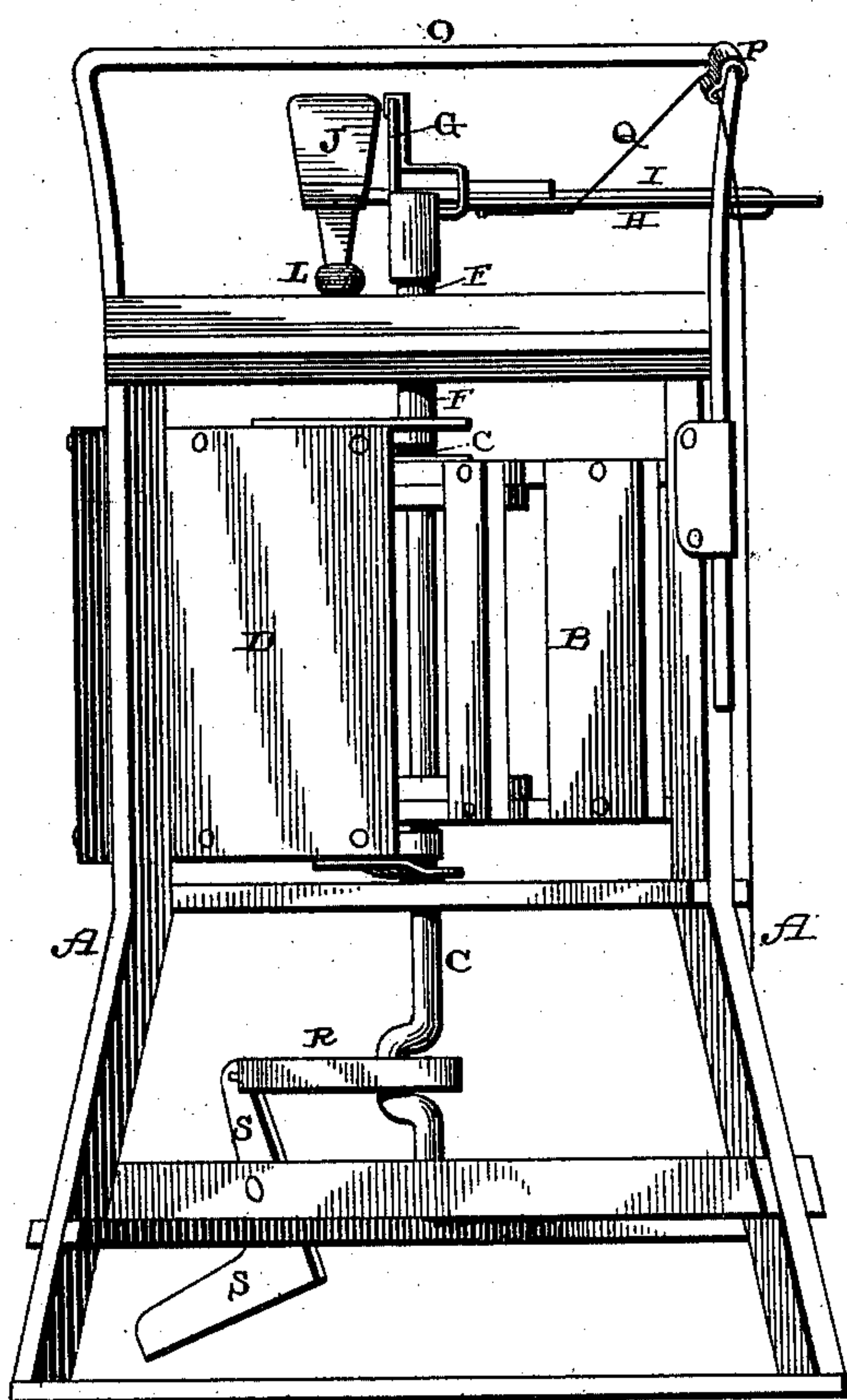


Fig. 2.

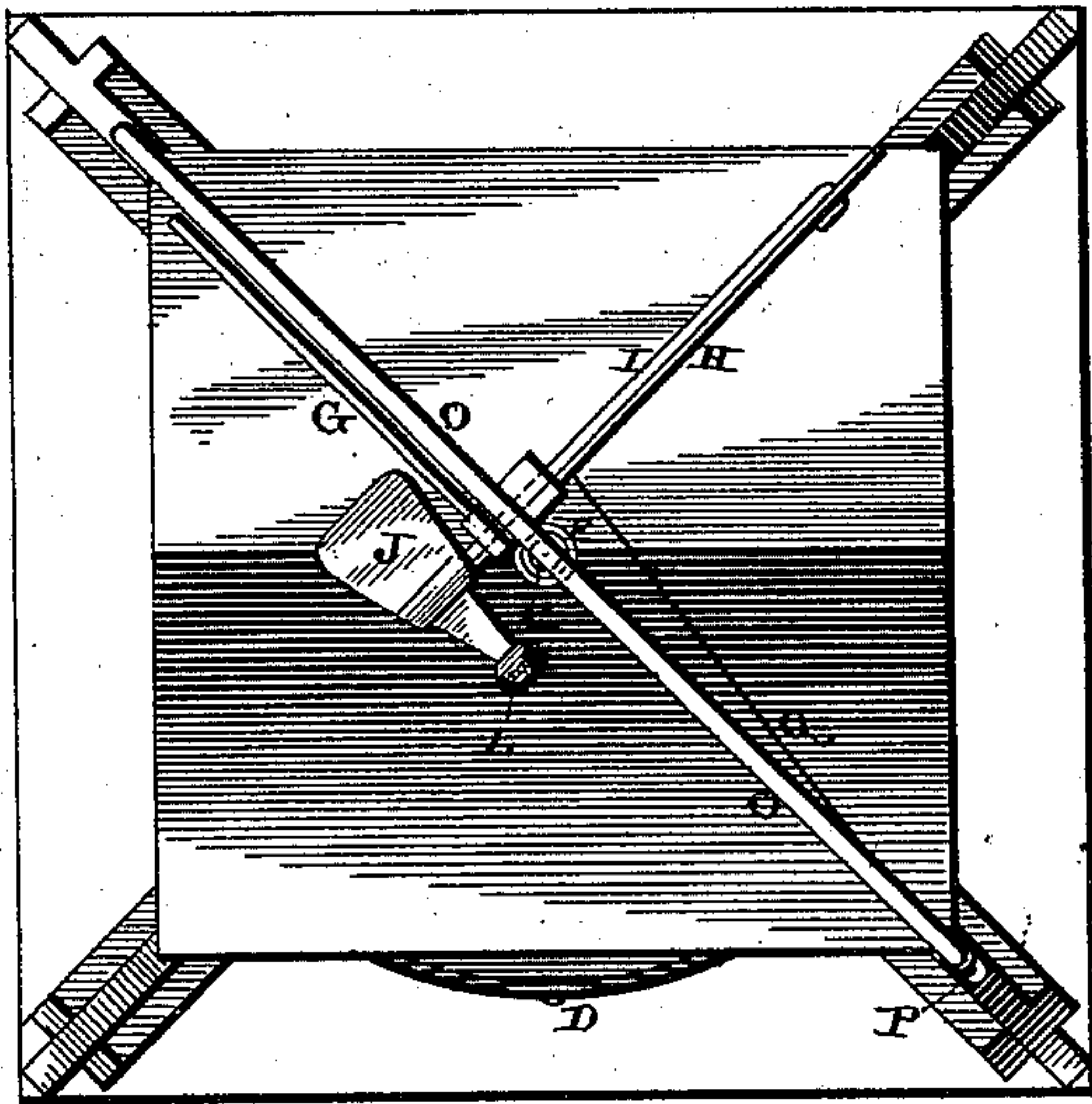
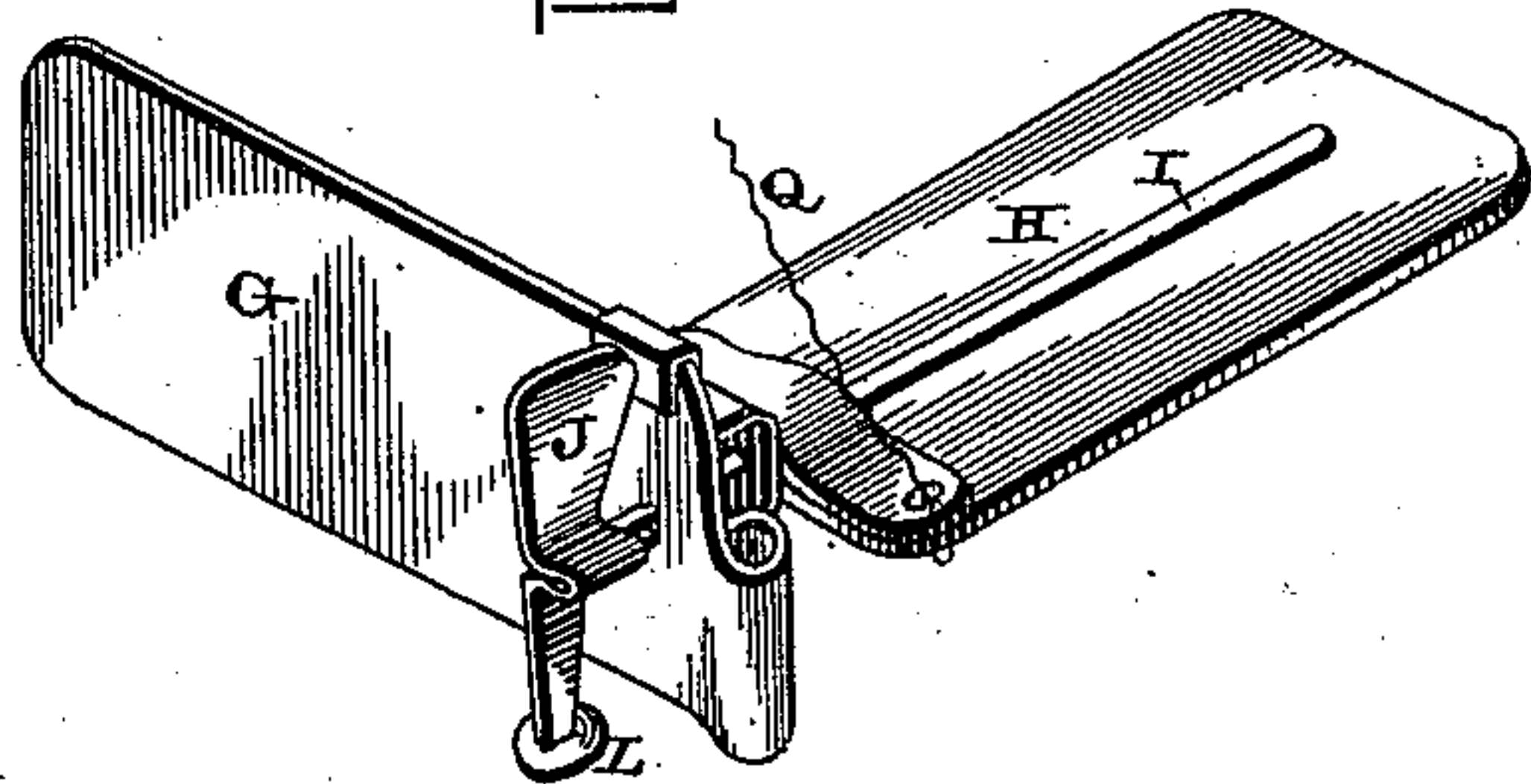


Fig. 3.



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# UNITED STATES PATENT OFFICE.

ANDREW G. NORTON, OF ARROYO GRANDE, CALIFORNIA.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 418,531, dated December 31, 1889.

Application filed September 23, 1889. Serial No. 324,783. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW G. NORTON, of Arroyo Grande, in the county of San Luis Obispo 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 the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in windmills; and it consists in the combination of a horizontal wind-wheel, a shield which is operated by vanes, a vertical vane which is secured to the upper end of the wheel-shaft, a pivoted vane, which, when left free to move, always assumes a horizontal position and stands at right angles to the vertical vane, and a small vane which is weighted at its lower end and secured rigidly to the shaft of the horizontal vane, and which weighted small vane controls the position of the horizontal vane, as will be more fully described hereinafter.

The object of my invention is to provide a shield which can be moved in front of the mill when the force of the wind becomes too great, and which is controlled entirely in its movements by the three vanes, which are connected together.

Figure 1 is a side elevation of a windmill which embodies my invention. Fig. 2 is a plan view of the same, showing the parts in the position they assume when the mill is thrown out of operation. Fig. 3 is a perspective of the three vanes in their normal position.

A represents a suitable frame-work in which the horizontal wheel B is journaled. Pivoted upon the shaft C of the wind-wheel, which extends up through the top of the casing, is the shield or guard D, which forms a segment of a circle, and which, as the wind becomes violent, moves around in front of the wheel in the usual manner, so as to protect it from the wind. When the wind is not blowing too strong, this guard protects one side of the wheel only from the wind, while the other side is exposed, so as to be operated thereby.

Through the upper inner corner of this guard is secured a sleeve F, which projects above the top of the frame A, and upon this sleeve the three vanes are rigidly secured, so as to move the guard to correspond to the direction from which the wind is blowing. The vertical vane G is secured directly to this collar and always retains the same position shown; but the second large vane H is secured to a rod which is journaled in or upon the vertical vane, and rigidly secured to the end of the rod I, which is fastened to the vane H, is a small vertical vane J, which has the weight L secured to its lower end, so as to hold the vane J in a vertical position and the vane H in a horizontal one. When an ordinary wind is blowing, the vane G serves to control the movement of the guard, while the horizontal vane H and the vertical vane J perform no work whatever. As soon, however, as the wind begins to increase, the pressure of the wind against the upper and larger end of the vane J forces it to turn backward, and in turning it causes the front edge of the vane H to turn upward, and thus catch more or less of the wind. In proportion as the vane H assumes a vertical position the two vanes G H then act in unison, and the wind striking against both of them places them at right angles to each other, causing their inner ends to move directly into the face of the wind, and their combined movement causes the guard to swing around directly in front of the wheel. When the two vanes H G are acting in unison, they form a triangle, and the wind, acting equally upon both sides of the front of the triangle, causes one vane to counteract the pressure of the wind upon the other, and thus the two together are made to move the guard so as to hold it directly in front of the wheel and protect it from the action of the wind.

Extending over the top of the frame is a bent rod O, which is provided with suitable guides P, through which the wire, cord, or chain Q passes, so as to be fastened to the front edge of the vane H. When a pull is exerted upon this cord, the vane H is raised into a vertical position, so as to stand at right angles to the one G, and thus the two form a triangle, as already described, for the purpose of keeping the guard in front of the wheel.



It is to be understood that only the vertical vane G is brought into play when there is only a slight breeze, and that the other two vanes H are brought into play only when the breeze has increased in force to such an extent as to make it necessary to control the action of the wheel, or when the wheel is to be thrown entirely out of use.

A crank is formed on the lower end of the shaft C, and to this shaft is connected the pitman R, which is loosely connected at its outer end to the upper end of the pivoted L-shaped lever S, which operates the pump-rod or other machinery.

Having thus described my invention, I claim—

1. In a wind-wheel, the combination, with the wheel, of the swinging guard, a vertical vane rigidly connected with the guard, a second pivoted normally-horizontal vane con-

nected with the guard, and a vertical vane rigidly connected with the said horizontal pivoted vane, which, when acted upon by a strong wind, causes the horizontal vane to assume a vertical position, for the purpose described.

2. In a windmill, the combination of a wind-wheel, and a guard pivoted upon the shaft of the wind-wheel, with a vertical vane which is connected rigidly to the guard, a second vane pivoted to the main vane and normally horizontal, and a vertical weighted vane which is secured to the shaft of the horizontal vane, substantially as described.

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

A. G. NORTON.

Witnesses:

S. CLEVINGER,

GEORGE IDE.