

G. A. MYERS.

WIND-MILL.

No. 176,671.

Patented April 25, 1876.

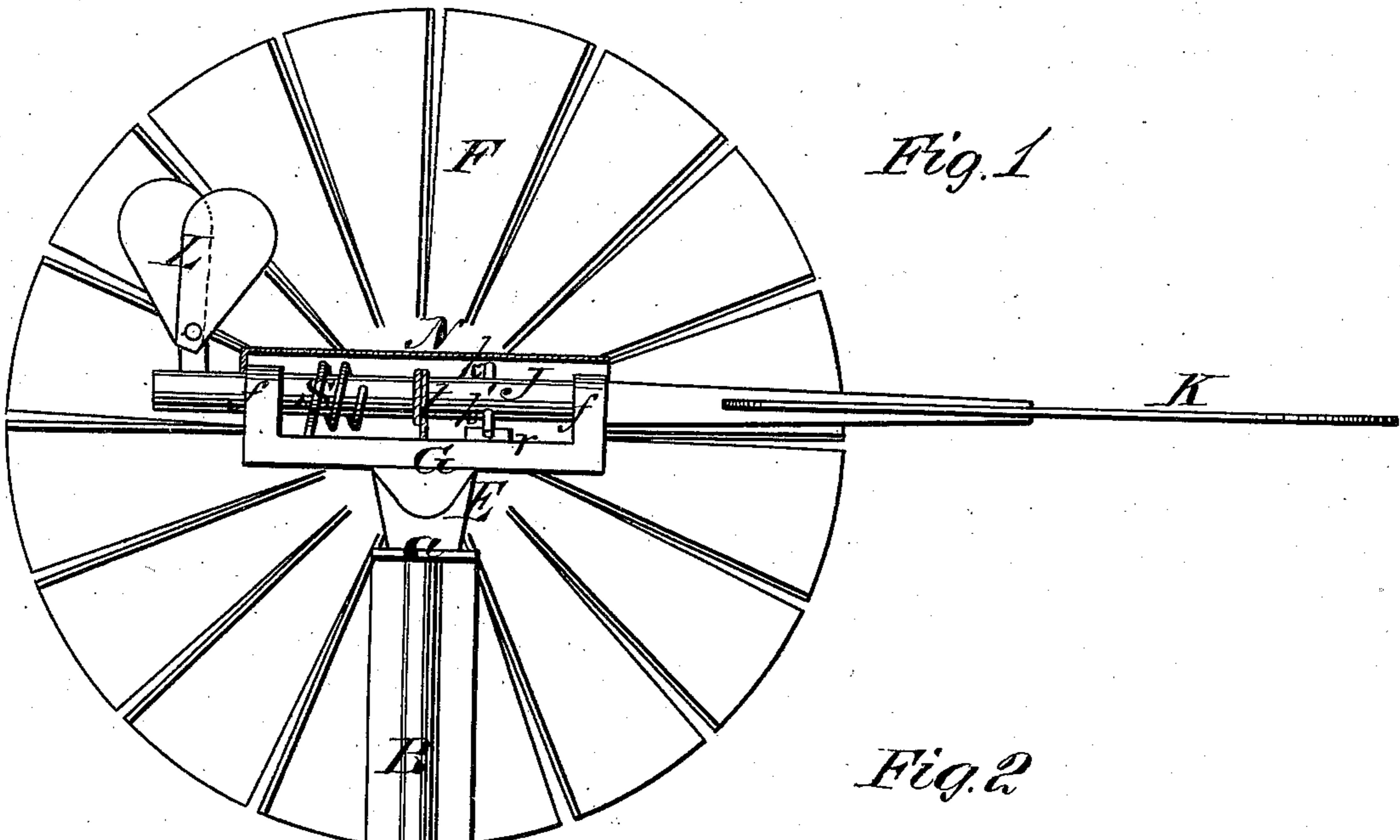


Fig. 1

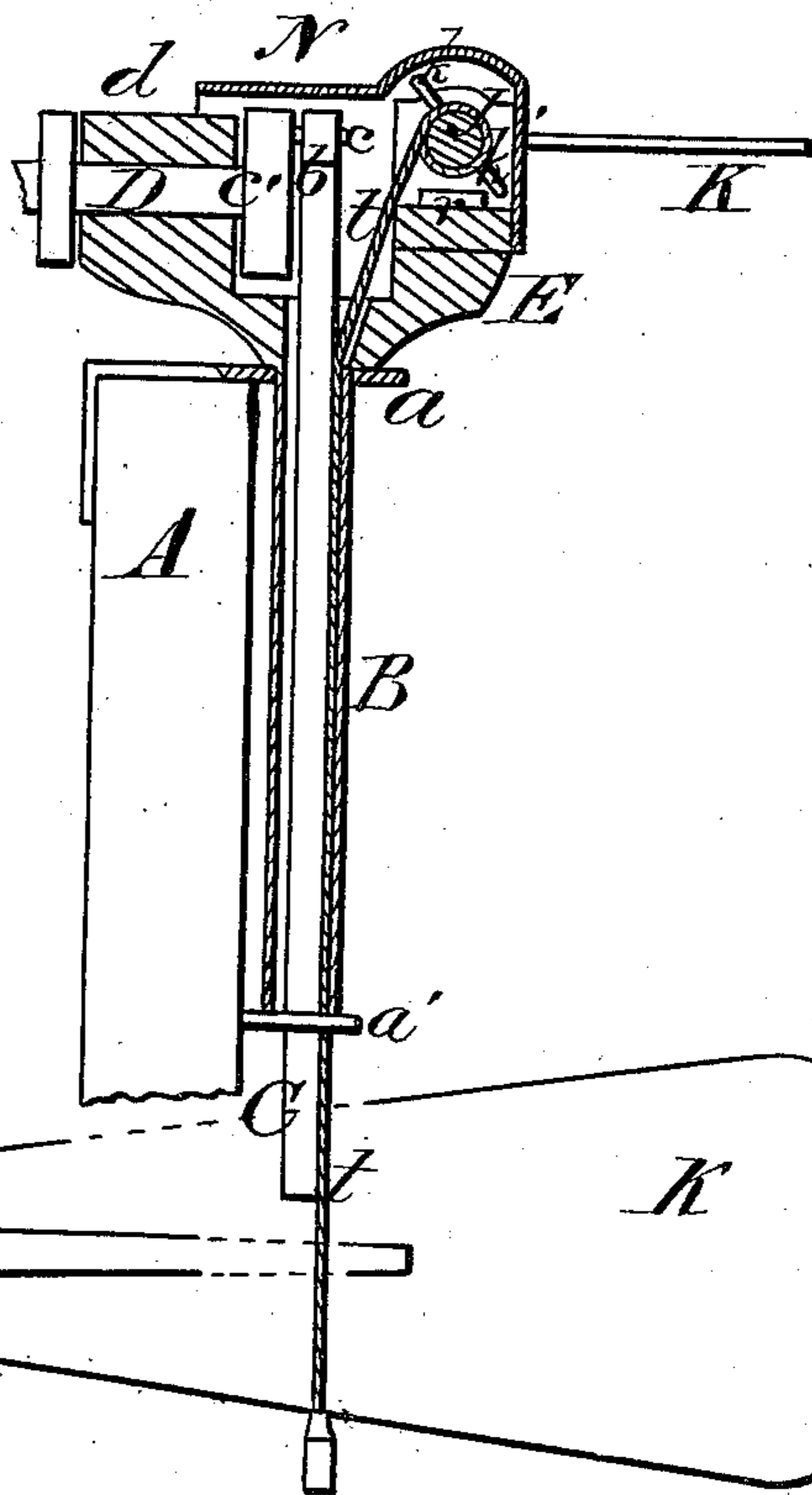


Fig. 2

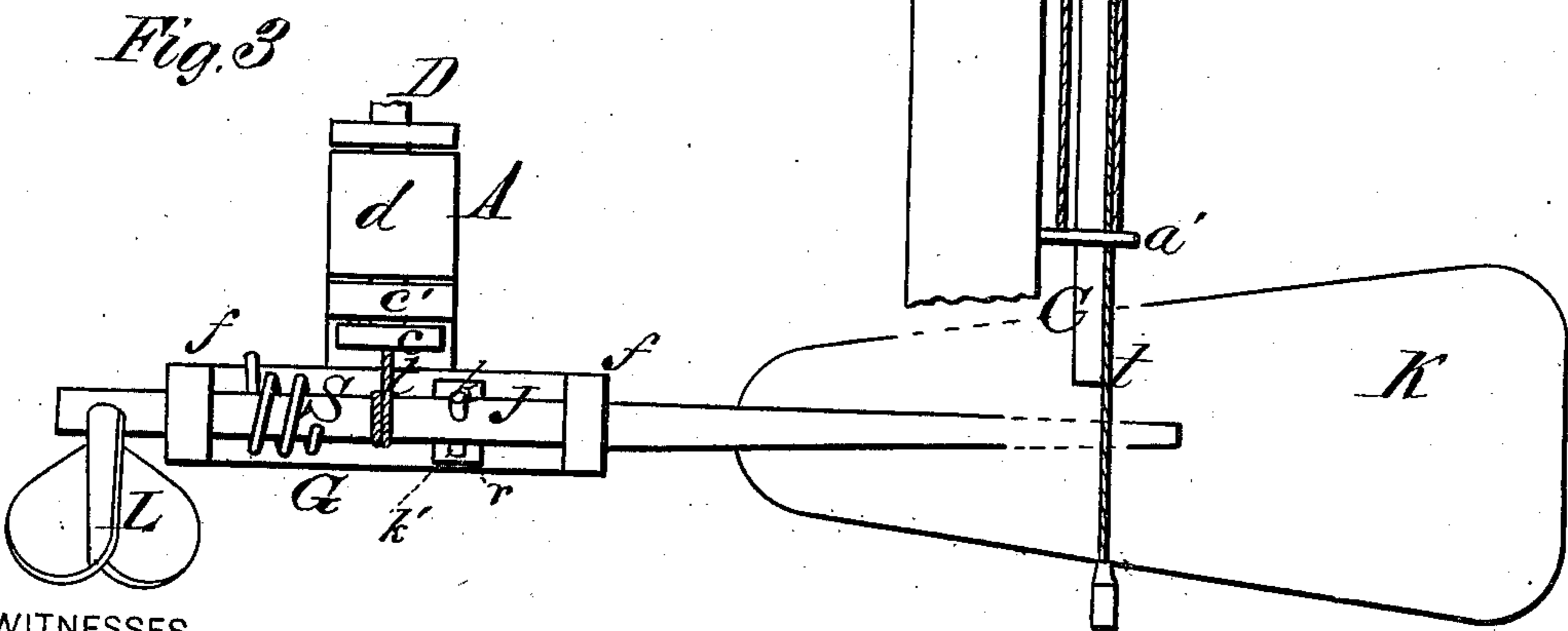


Fig. 3

WITNESSES

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# UNITED STATES PATENT OFFICE

GEORGE A. MYERS, OF SCHOOLCRAFT, MICHIGAN.

## IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **176,671**, dated April 25, 1876; application filed October 9, 1875.

*To all whom it may concern:*

Be it known that I, GEORGE A. MYERS, of Schoolcraft, in the county of Kalamazoo and State of Michigan, have invented a new and valuable Improvement in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my improvement in windmills, and Fig. 2 is a sectional view of the same. Fig. 3 is a plan view thereof.

This invention has relation to what are denominated self-regulating windmills; and the nature of my invention consists in a horizontal shaft, which is free to oscillate in its bearings upon a turn-table, and which has applied to one end a rudder-blade and to the other end a fan, in combination with a spring, or its equivalent, which will, in a light breeze, hold the said rudder-blade edge to the wind, and allow the wheel to present itself face to the wind, as will be hereinafter explained.

The invention further consists in an expandible fan on the rudder-vane shaft, for a purpose hereinafter explained; also, in an elastic cushion for checking the rudder-vane shaft at proper points in its oscillation, as will be hereinafter explained.

In the annexed drawings, A designates the staff or tower of the windmill, which is capped by a bracket, *a*, through which the vertical shaft B of the mill passes. The lower end of this shaft is supported upon a bracket, *a'*, which is secured on one side of the staff A below the bracket *a*. The shaft B receives through it a working-rod, C, the upper end of which has a horizontally-slotted head, *b*, formed on it, in the slot of which plays a wrist-pin, *c*, fixed to a disk, *c'*, on a horizontal shaft, D. The shaft D turns in a journal-box, *d*, which is formed on a turn-table, E, to which the shaft B is rigidly secured. Shaft D has secured to its outer end a wind-wheel, F, of any suitable construction. G designates a horizontal cross-head, having bearings *f f*, and secured to the turn-table E. This cross-head G affords a bearing for an oscillating shaft,

J, which is at right angles to the shaft D, and which has a rudder vane or blade, K, secured on one end, and a fan, L, secured on the other end. The fan L is made of two sections, one of which is rigidly secured to the shaft J, and the other is pivoted to the rigid section, and can be adjusted to increase or diminish the superficial area of the fan at pleasure. This fan is set obliquely to the shaft J, so that the wind will act on it in all directions of the wheel F. S designates a spring, which is coiled around the shaft J, one end of which is coiled around this shaft, and the other end is secured to the cross-head G. The recoil tendency of spring S is to keep the vane K edge to the wind, as shown in Fig. 1, in which position of the vane the wheel F will be held face to the wind. Should the force of the wind increase very much, it will operate on the fan L and turn the vane K, so as to bring it under the influence of the wind. Under these conditions the wheel F will be caused to edge to the wind more or less, according to the force thereof. The operation of the wheel can be made more sensitive by expanding the two sections composing the fan L. When the vane K is edge to the wind it will be stopped in this position by means of an arm, *k*, abutting against an elastic cushion, *r*, and when the vane is face to the wind an arm, *k'*, will abut against the same cushion *r*. This elastic cushion will prevent injurious shocks. A rope or chain, *t*, is wound around the vane-shaft J and carried down in a groove made in one side of the working-rod C, and designed for enabling a person to adjust the vane K about its longitudinal axis, and hold it at any desired angle. By means of this rope or chain *t* the attendant can, at pleasure, keep the wheel F edge to the wind, whether the latter be light or strong. N designates a hood or cover which incloses the main working-parts of the mill, and protects them from rain and snow.

What I claim as new, and desire to secure by Letters Patent, is—

1. The oscillating shaft J, arranged in a plane parallel to the face of the wheel F, and having at its outer end the vane K, and at its inner end the expansible fan L, substantially as and for the purpose set forth.

2. The arms  $k$   $k'$  and cushion  $r$ , combined with the rudder-vane shaft J, substantially as described.

3. The cross-head G, secured on turn-table E, at right angles to the wheel-shaft D, in combination with the oscillating shaft J, carrying the vane K and fan L, and with the spring S, cushion  $r$ , and check-arms  $k$   $k'$ , substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE A. MYERS.

Witnesses:

C. C. DYCKMAN,  
WM. L. COLE.