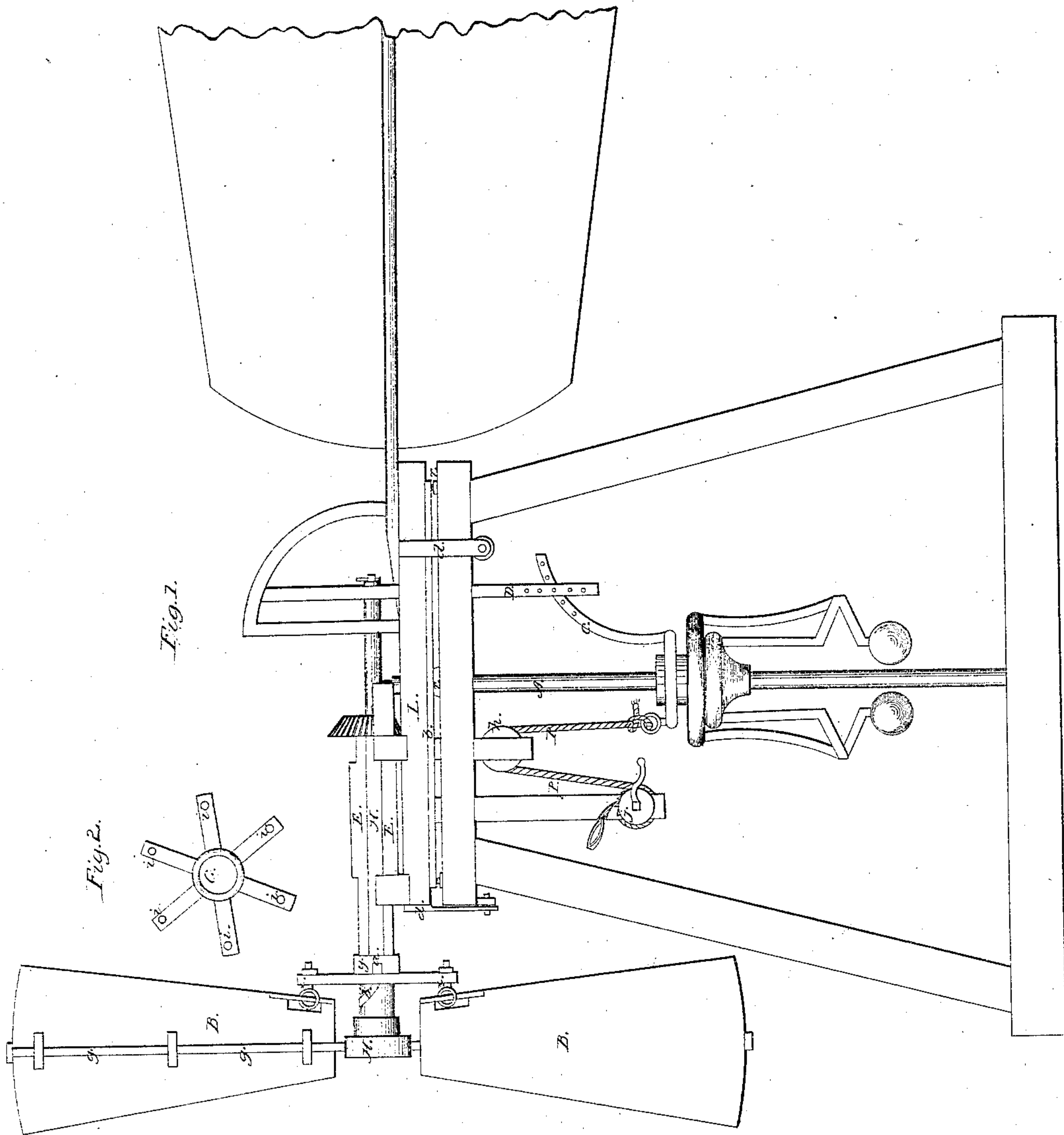


*G. A. Roland,*

*Wind Wheel,*

*N<sup>o</sup> 57,973,*

*Patented Sept. 11, 1866,*



*Witnesses:*  
*H. M. Green.*  
*James Cassidy.*

*Inventor:*  
*Geo. A. Roland.*

# UNITED STATES PATENT OFFICE.

G. A. ROLAND, OF WASIOJA, MINNESOTA.

## IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. 57,973, dated September 11, 1866.

*To all whom it may concern:*

Be it known that I, GEO. A. ROLAND, of Wasioja, in the county of Dodge and State of Minnesota, have made Improvements in Wind-Powers, of which the following is a specification.

This machine is self-adjusting by means of a governor suspended upon a perpendicular shaft, A, and operating directly upon the sails B B by means of levers C and D, which levers again connect with a shaft, K. Within the hollow wheel-shaft E E the shaft K connects with a loose head, F, on the main shaft E E by means of a bolt, *a*, passing through this head and two winding-slots, one of which is seen at *b* in the main shaft. These slots are so arranged as to give the required movement, soon to be described, to the sails.

The head may be understood by a reference to Figure 2. G is the hole through which the shaft E E passes; *i*, the holes in the ends of the arms for the insertion of rings (X in large drawings) which are attached to the sails.

On the outer end of the main shaft E E is a head or hob, H, from which branch as many arms as there are to be sails. One of these arms is seen at *g g*. Upon these arms the sails are hung in such a manner as to turn around them, being nearly balanced, standing, when the governor-balls are in a state of rest, at an angle of about forty-five degrees, so as to receive the greatest possible force from the wind. Then, as the motion becomes rapid, the balls diverge and draw back the sliding shaft

K, together with the head F, thus turning the sails so as to take less force from the wind.

Another improvement is the mode of stopping the same, which is effected by means of a rope, *p*, connecting with the top of the governor, and running over a pulley, *h*, above, thence down to a windlass and ratchet-wheel, *j*, by means of which the governor is raised and the edges of the sails turned to the wind, the whole turning with the turn-table L. Also, the turn-table L, which is applicable to this power. This table revolves on three or more rollers, *r r r*, in a flange, *f*, to prevent sliding off; also, three or more dogs, *d d*, with rollers, to prevent tipping or blowing off.

What I claim is—

1. The arrangement of devices for turning the sails, consisting of the governor M, levers C and D, shaft K, hollow shaft E, loose head F, pin *a*, oblique slot *b*, rings *x*, and sails B, all substantially as and for the purpose set forth.

2. In combination with the foregoing, the windlass *j* and rope *p*, substantially as and for the purpose set forth.

3. In combination with the wind-wheel, as herein described, the turn-table L upon rollers R, and having a flange, *f*, and dogs *d*, substantially as and for the purpose set forth.

GEO. A. ROLAND.

Witnesses:

WM. M. GREENE,  
GEO. B. WORTH.