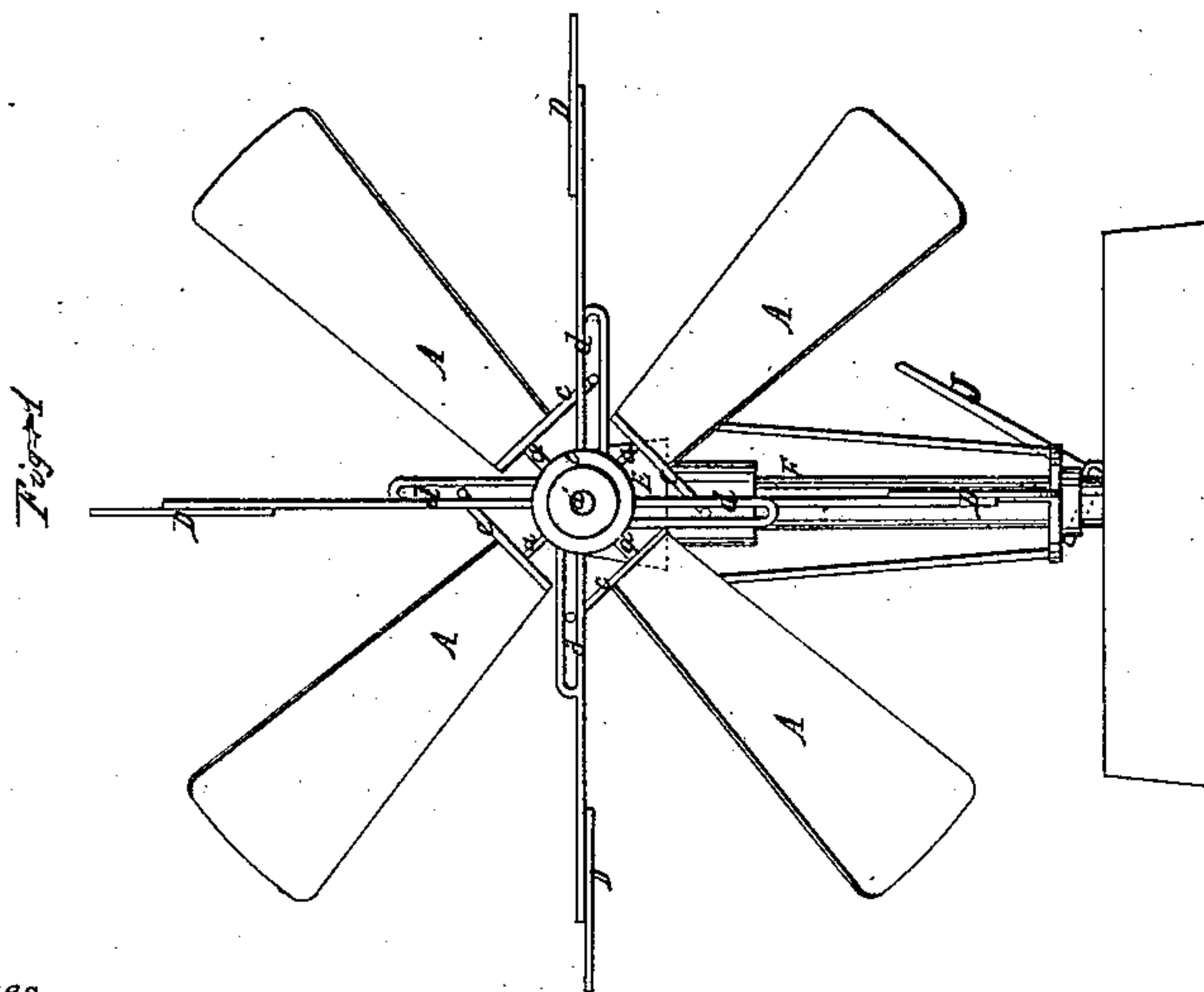
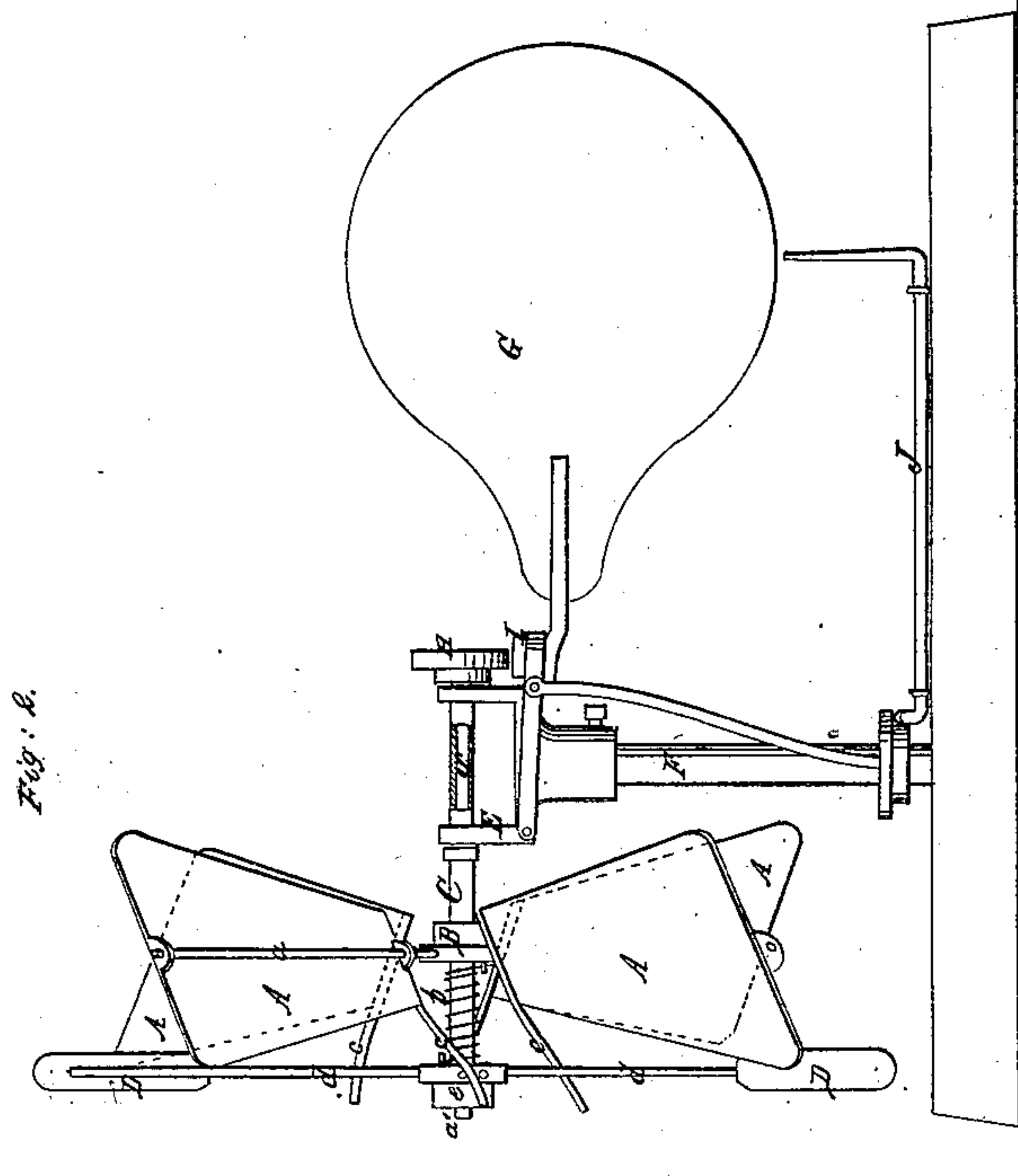


J. Troop,

Wind Wheel,

N^o 42,973.

Patented May 31, 1864.



Witnesses.

J. W. Coombs
C. W. Reed

Inventor

J. Troop
Per Munnell
Attorney

UNITED STATES PATENT OFFICE.

JONATHAN TROOP, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN WIND MILLS.

Specification forming part of Letters Patent No. 42,973, dated May 31, 1864.

To all whom it may concern:

Be it known that I, JONATHAN TROOP, of Erie, in the county of Erie and State of Pennsylvania, have invented a new and Improved Wind-Wheel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a front elevation of my invention. Fig. 2 is a side elevation of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in the arrangement of regulating-fans, which are rigidly connected with a small shaft passing through the hollow main shaft of the wind-wheel, and each of which is provided with a slotted guide to receive an arm or dog which projects from the edge of one of the main sails, in combination with said main sails, which rotate freely on arms projecting from a hub that is firmly keyed to the main shaft and connects with the regulating-fans by means of a spring in such a manner that by the combined action of the slotted guides, dogs, and spring the main sails are turned in the wind and kept there until the speed of the wind-wheel exceeds that of the regulating-fans, or until the motion of the latter is checked by the resistance of the air when the main sails are turned more or less edgewise against the wind, and the speed of the wind-wheel is kept within the desired limits.

To enable those skilled in the art to make and use my invention, I will proceed to describe it.

A represents a series of sails, which are attached each to a separate arm, *a*, so that they can rotate freely and one independent of the other.

The arms *a* project from a hub, B, which is keyed firmly on the main shaft C of the wind-wheel. This shaft is hollow, and through its center runs a small shaft, *a'*, which carries on one end the hub *e*, with regulating-fans D, and on the other end the friction-wheel H, and the hub *e* connects with the hub B of the main sails by means of a spiral spring, *b*, which holds the same always in the right position.

The position of the main sails is determined by arms or dogs *c*, which project from the

edges of the same, and which are guided in the slotted arms *d* of the regulating-fans D. These fans are set at right angles to the direction in which the wind-wheel rotates, so that their resistance to the air will regulate the speed of the wind-wheel, as will be presently explained.

The shaft C has its bearings in a bracket, E, which is attached to the upper end of the column F, and a vane, G, connected to this bracket, serves to bring the wind-wheel in the proper position toward the wind. The motion of the shaft C is transmitted to the working-machines by suitable bevel-gear and an upright arbor extending down through the center of the column F.

A brake-shoe, I, which is hinged to the bracket E, can be forced up against the circumference of the brake-wheel H by means of a suitable lever, J.

By applying the brake the speed of the shaft C is checked, and as soon as the speed of the sails A exceeds that of the shaft they begin to turn against the wind by the action of the dogs and slotted guides *d*, and the motion of the wheel is stopped.

During the motion of the wind-wheel its speed is governed by the regulating-fans, for as soon as the resistance of these fans to the air exceeds a certain limit their speed is retarded and the sails begin to turn against the wind. If the speed of the regulating-fans is equal to that of the sails, the latter resume their original position.

By this arrangement a simple, light, and durable wind-wheel may be furnished capable of driving all sorts of machines with a uniform speed, and by means of the regulating-fans injury to the sails or to the working-machines from sudden gusts of wind is effectually prevented.

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

The regulating-fans D, with, slotted guides *d*, in combination with the shafts C and *a'*, and with the dogs *c*, projecting from the edges of the sails A, which are hinged to arms *a*, all constructed and operating in the manner and for the purpose herein shown and described.

JONATHAN TROOP.

Witnesses:

C. P. BENNETT,
JOHN BELL.