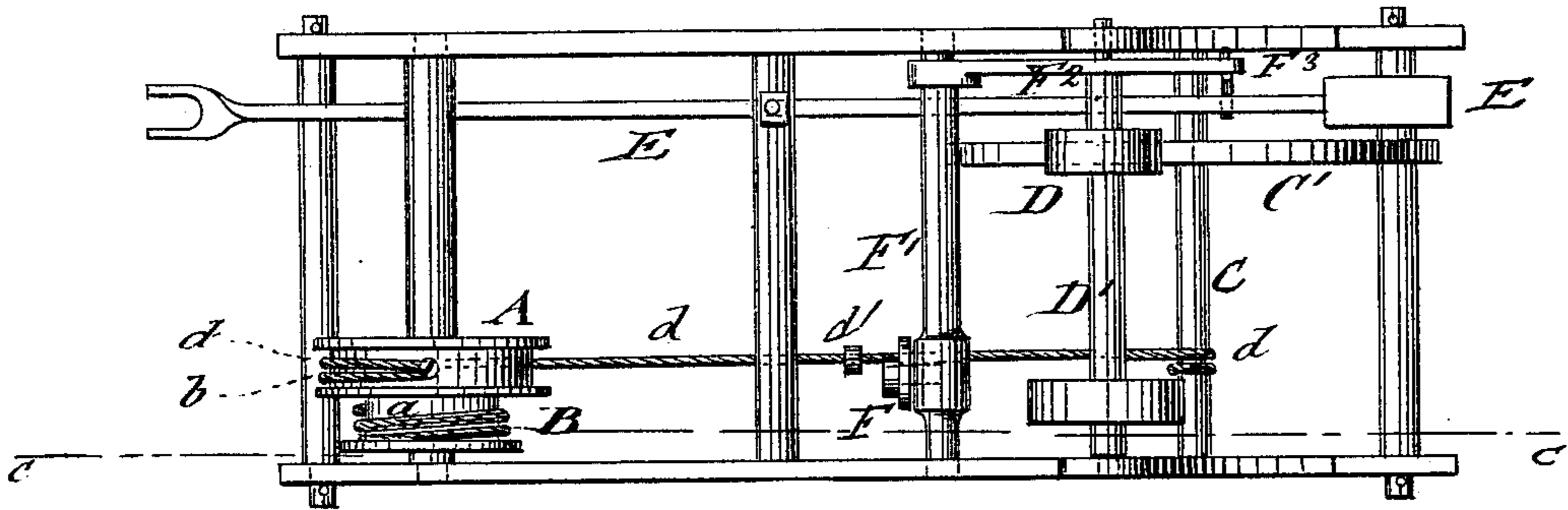


S. VERMILYA.  
WIND-MILL REGULATOR.

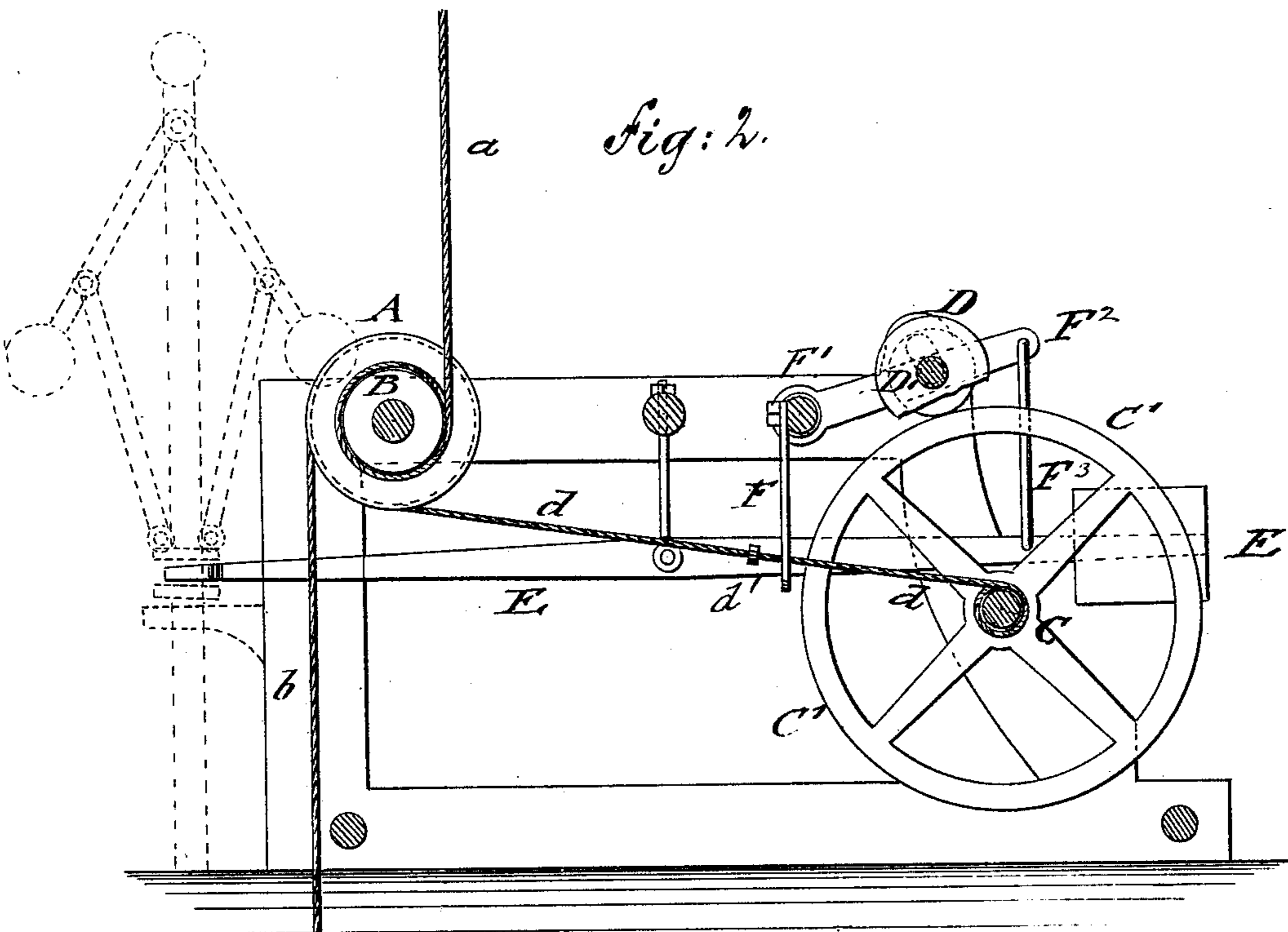
No. 176,253.

Patented April 18, 1876.

*Fig: 1.*



*Fig: 2.*



WITNESSES:

*Chas. Nida*  
*John Goethals*

INVENTOR:

*S. Vermilya*  
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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

SOLOMON VERMILYA, OF PLAIN VIEW, MINNESOTA.

## IMPROVEMENT IN WINDMILL-REGULATORS.

Specification forming part of Letters Patent No. **176,253**, dated April 18, 1876; application filed January 29, 1876.

*To all whom it may concern:*

Be it known that I, SOLOMON VERMILYA, of Plain View, in the county of Wabasha and State of Minnesota, have invented a new and Improved Regulator for Windmills, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view of my improved regulator for windmills; and Fig. 2, a vertical longitudinal section of the same on the line *c c*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved regulator for windmills; and consists of a friction-pulley operated by a fulcrumed and weighted lever in connection with a governor, the pulley operating a windlass that throws the wheel in and out of the wind.

In the drawing, A represents a broad flanged pulley, which is placed on the same shaft with a second pulley, B. The pulley B is connected by a chain, *a*, to a weight in the lower part of the windmill, which weight operates the slide-head and sails or wings of the wheel. On the pulley A are arranged two ropes, *b* and *d*, which are both secured at their ends, sidewise of each other, to the pulley, the rope *b* leading down to a ratchet-wheel in the miller's room, by which the same can raise directly the weight in the tower, for throwing the sails out of the wind, or setting them to a certain angle toward the same. The second rope, *d*, passes from pulley A to the shaft C of a windlass, being wound up in part on pulley A by the action of the rope *b* thereon. The shaft C is provided with a wheel, C', on which a friction-pulley, D, operates in the nature of a brake. The friction-pulley D is keyed to a shaft, D', which is revolved by pulley and belt, or otherwise, in connection with the driving-shaft of the mill. The shaft D' of the friction-pulley D is connected to a fulcrumed and weighted lever, E, whose forked opposite end is applied to a governor, as commonly used in windmills for grist and other purposes. The governor

operates the friction-pulley, which is thereby lowered or raised, so as to come in contact with the windlass-wheel or release the same, and cause thereby the winding or unwinding of the connecting-rope *d*, throwing thereby the sails in or out of the wind. The regulator operates thus the sails in conjunction with the governor, changing thereby automatically the position of the sails, and keeping the mill at a uniform degree of speed. When the velocity of the wind increases, the brake action of the regulator places the wheel into a less favorable position toward the wind, until the decreasing velocity discontinues the action of the friction-pulley.

The regulating mechanism is simple and reliable, and may be used with advantage as an automatic regulator to keep up uniform speed of the mill.

Should the governor, as in case of a heavy blast of wind, or for any other cause, fail to raise the friction-pulley, a slotted lever, F, applied to a lateral shaft, F<sup>1</sup>, is engaged by a button, *d'*, of rope *d*. This carries the slotted lever toward the windlass-shaft, and raises, by a fixed arm, F<sup>2</sup>, of shaft F<sup>1</sup>, the shaft of the friction-pulley, so as to interrupt the contact with the wheel C', and govern thus the machine. The arm F<sup>2</sup> is applied to the shaft D' of the friction-pulley, and connects, by a link, F<sup>3</sup>, at its outer end, with the fulcrumed and weighted lever of the governor.

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

The combination of the connecting-rope *d*, having knot or button *d'*, slotted lever F, shaft F<sup>1</sup>, fixed arm F<sup>2</sup>, link F<sup>3</sup>, wind-wheel-regulating pulley D, and weighted and fulcrumed lever E, substantially for the purpose described.

SOLOMON VERMILYA.

Witnesses:

H. P. WILLSON,  
JOHN A. CANFIELD.