

L. M. DEVORE.
Windmill.

No. 227,418.

Patented May 11, 1880.

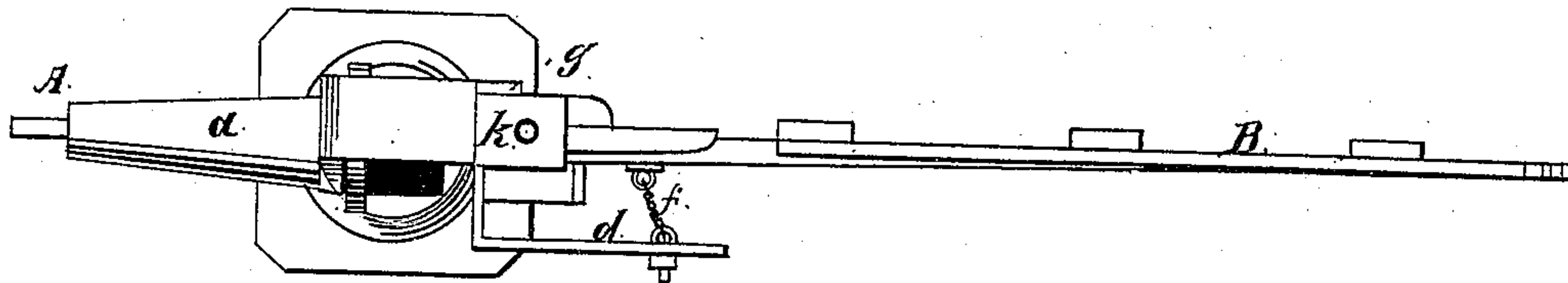


Fig. 1

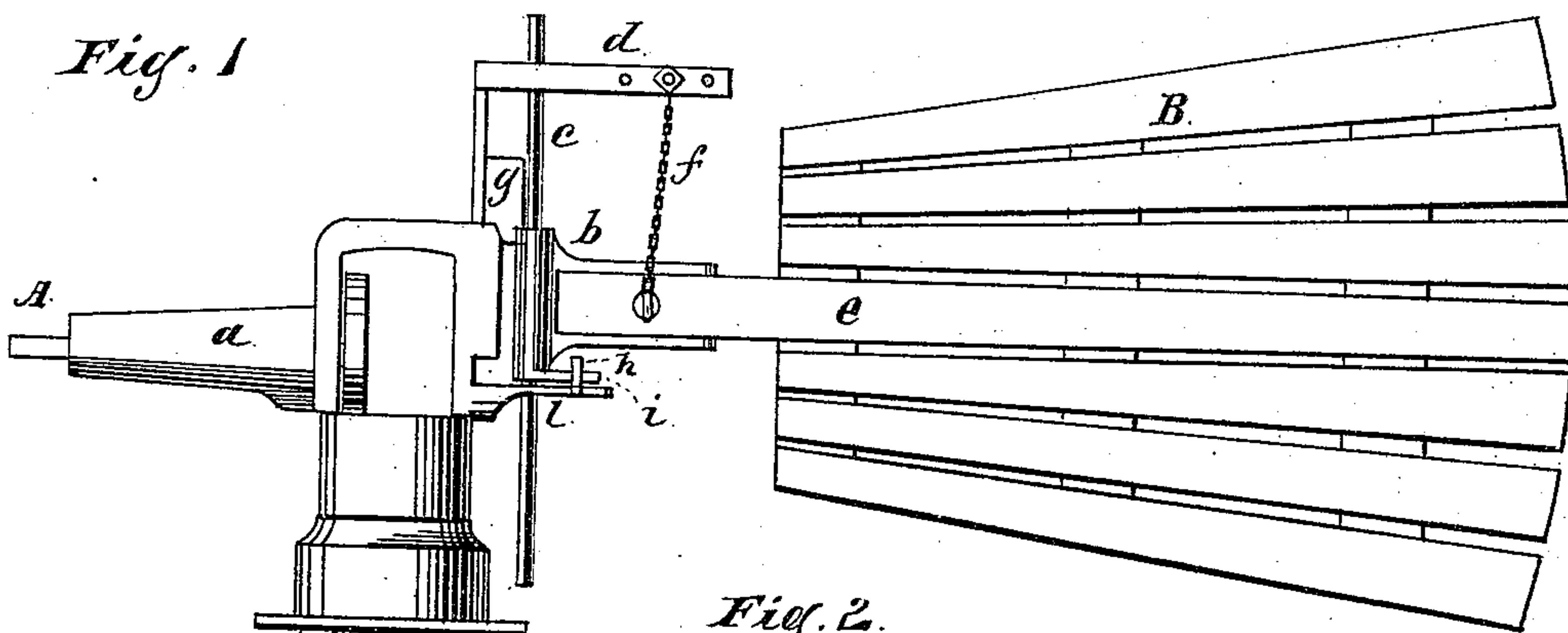


Fig. 2.

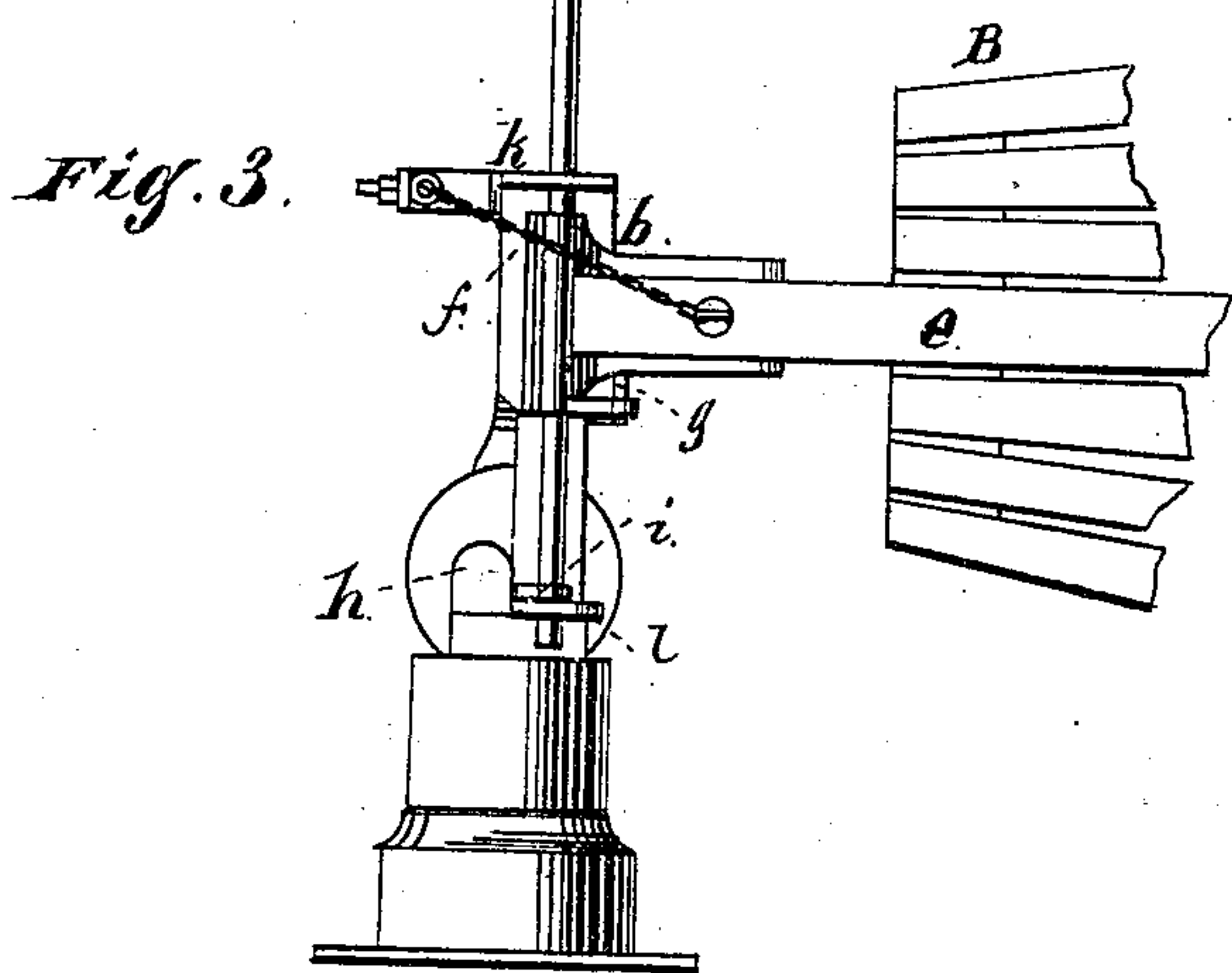


Fig. 3.

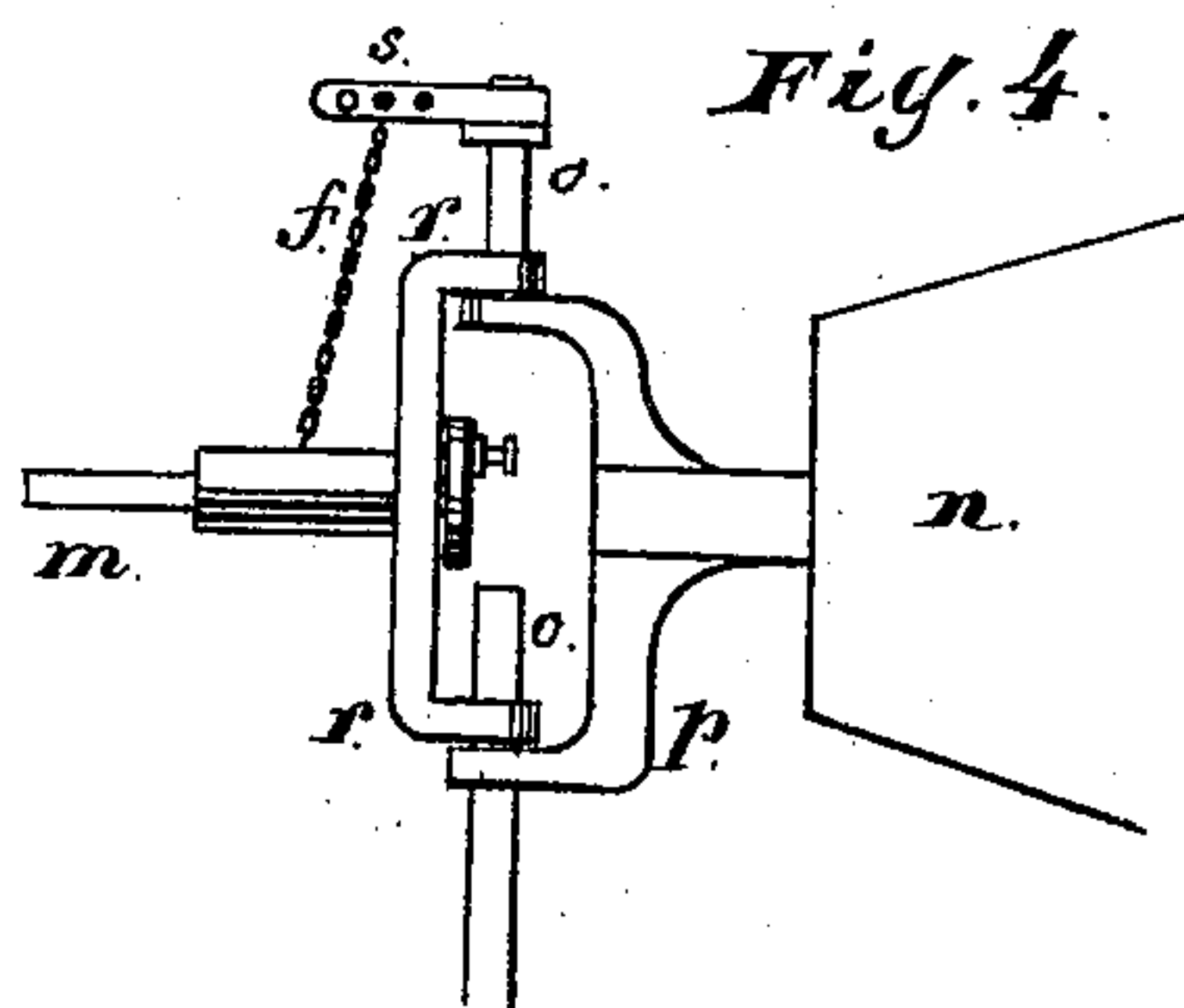


Fig. 4.

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LEVI M. DEVORE, OF FREEPORT, ILLINOIS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 227,418, dated May 11, 1880.

Application filed February 6, 1880.

To all whom it may concern:

Be it known that I, LEVI M. DEVORE, residing at Freeport, in the county of Stephenson and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Windmills, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a top view; Fig. 2, a side elevation; Fig. 3, a similar view, showing the parts in the position which they occupy when the wind-wheel is turned out of the wind; Fig. 4, a modification in construction.

It is customary to so construct windmills that the wind-wheel will be thrown partly out of the wind when it blows with considerable force, the extent or degree to which it is so thrown out of the wind depending on its varying force.

This invention relates to devices by means of which the above-mentioned result is secured.

In the drawings, A represents the shaft on which the wind-wheel is mounted, the shaft rotating in the bearing *a*, as usual. This part *a* and the parts directly connected therewith are constructed in the usual manner, and are so mounted that they rotate together upon a suitable support, as is common.

B is the vane, which is secured to a casting, *b*, and this casting *b* is secured to a strong rod, *c*, which is mounted and supported in suitable bearings *k l* in such a manner that it can move vertically in its bearings. These bearings are in arms or projections, which may be cast with the rotating head.

d is an arm or bar, located as shown, being at a considerable distance above and in a plane at one side of the center bar, *e*, of the vane.

f is a chain, one end of which is connected to the center bar, *e*, of the vane, and the other end is connected to the bar *d*.

g and *h* are stops. The stop *g* is so located that it will come in contact with the casting *b* on the vane when the wheel has been thrown out of the wind as far as it ought to be, and the stop *h* is so located that a projection, *i*, on the lower end of the casting *b* will come in contact with such stop when the wind-

wheel and vane are in the position shown in Fig. 3.

The operation is as follows: When the wind is light the wheel and vane will remain in about the position shown in Fig. 2, there being no slack in the chain. When the force of the wind is sufficient to throw the wind-wheel out of the wind, overcoming the gravity of the vane, the vane will rise, the shaft *c* moving upward in its bearings, and the vane being lifted up by the chain *f* as the arm *d* is carried away from the heel of the vane. If the force of the wind decreases, then the weight of the vane, acting through the chain *f* upon the bar or arm *d*, will have a tendency to return the wheel to its former position, the shaft *c*, upon which the vane is secured, descending in its bearings.

The chain can be adjusted at different points upon the bar or arm *d*, and also on the center bar of the vane, as may be desired, so that more or less power will be required to throw the wind-wheel out of the wind. The arrangement of the vane, chain, and arm *d* are such that the resistance of the vane to the movement of the wind-wheel out of the wind varies with the varying positions of such wheel.

In Fig. 4 I have shown a modification, the vane being so connected that it will not move vertically, and the wind-wheel and hangers connected therewith being so constructed as to move up and down. In this Fig. 4, *m* is the wind-wheel shaft. *n* is the vane. *o o* are journals permanently connected with the casting *p*. *r* are hangers pivoted on the journals *o o*, so that they can rise and fall on *o o*. *f* is a chain. One end is connected with the long bearing through which the wind-wheel shaft passes. The other end is connected to the bar or arm *s*. When so made the wind-wheel and parts connected therewith can rise on the journals *o o* as the wheel is thrown out of the wind and fall as the force of the wind decreases, producing the same results as with the first-described construction and in substantially the same way. I prefer the construction first described.

A friction roller or pulley could be placed in each of the bearings for the shaft or rod *c*.

A rod properly hinged to the vane and to

the arm *d* might be used in place of the chain *f*.

The weight of the vane may be supported by the chain, or it may rest on the lower bearing.

5 A chain may be used as a stop, the same being properly located on the back side of the vane.

10 The vane may be in a line with the wind-wheel shaft, in which case it will be advisable to so adjust the chain *f* that the vane will stand at a slight angle.

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

In a windmill, the vane B, connected to a rod or shaft, *c*, moving in suitable bearings 15 having a connection with the bearing *a*, in which the wind-wheel shaft A is located, in combination with a chain or rod, *f*, and bar *d*, substantially as set forth.

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