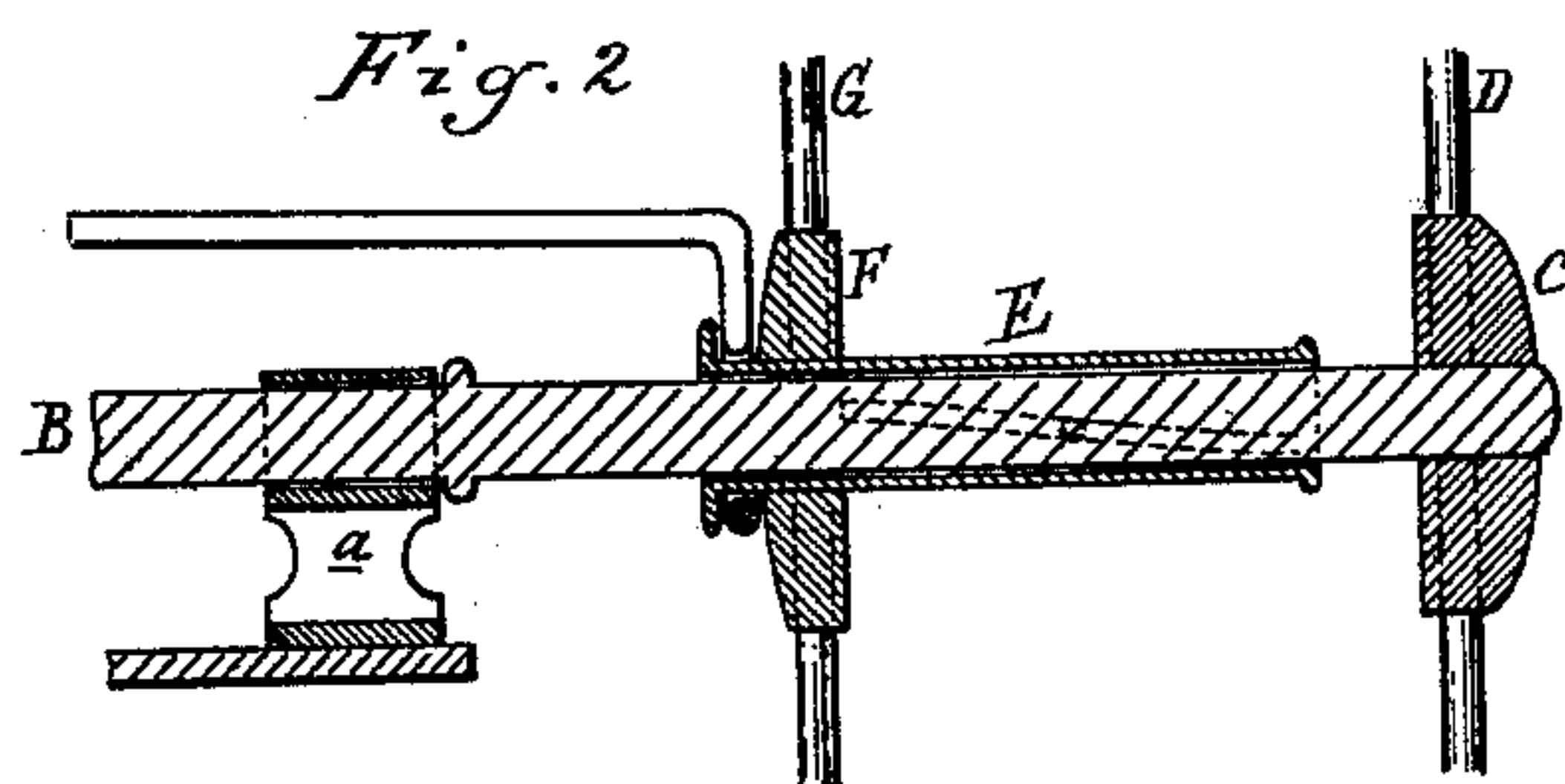
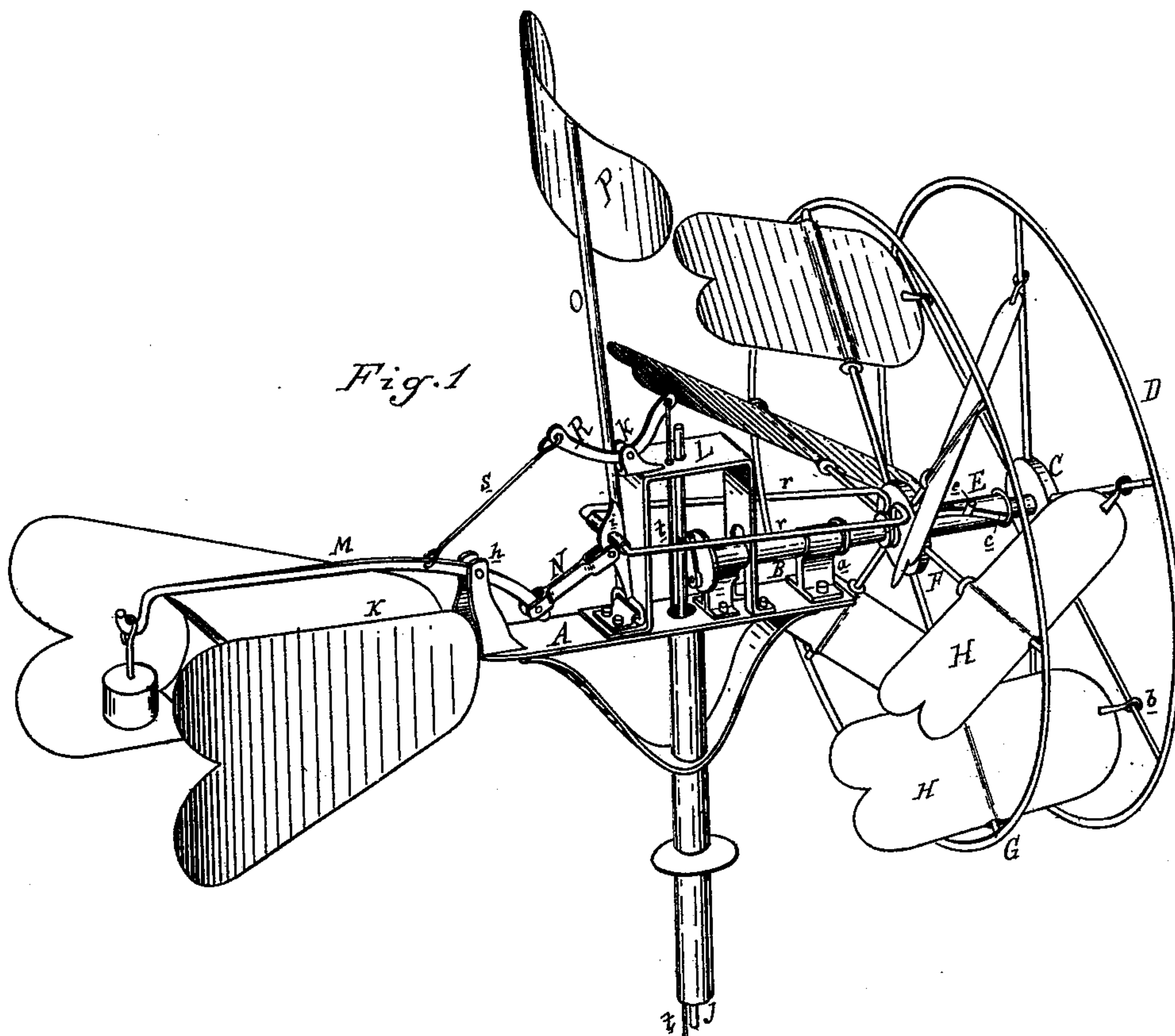


H. M. WOOD.
Windmill.

No. 222,340.

Patented Dec. 2, 1879.



Attest:
H. Barthel
Clerk

Inventor:
H. M. Wood
By Atty
Thos. S. Spurgeon

UNITED STATES PATENT OFFICE.

HARVEY M. WOOD, OF COMMERCE, MICHIGAN.

IMPROVEMENT IN WINDMILLS.

Specification forming part of Letters Patent No. **222,340**, dated December 2, 1879; application filed May 15, 1879.

To all whom it may concern:

Be it known that I, HARVEY M. WOOD, of Commerce, in the county of Oakland and State of Michigan, have invented an Improvement in Windmills, of which the following is a specification.

The nature of my invention relates to certain new and useful improvements in the construction of windmills; and the invention consists in the peculiar construction, arrangement, and combinations of the various parts, all as more fully hereinafter set forth.

In the drawings, Figure 1 is a perspective, and Fig. 2 is a longitudinal section through the shaft and sliding sleeve.

In the accompanying drawings, which form a part of this specification, A represents a suitable turn-table mounted upon a proper frame-work. (Not shown.) Rising from the table are the standards *a*, in which is properly journaled the shaft B, to the outer end of which is rigidly secured the hub C, which carries the spokes and rim of the wheel D. A collar or thimble, E, is sleeved upon this shaft, as shown, and has secured to its inner end the hub F of the wheel G.

H represents the wind-sails, pivotally secured at or about their centers to the spokes of the wheel G, while their forward ends are attached to the spokes of the wheel D by means of the eyebolt-connections *b*. In this thimble E is cut the spiral slot *c*, which receives the pin *e*, projecting from the shaft *b*, the parts being so arranged that when the wheels are dormant or still the sails H will be at an angle to the shaft, as is clearly shown in the drawings.

Upon the inner end of the shaft B is a crank-arm, which is connected to the pump-rod *j*, and by which means a reciprocating motion is imparted to the latter. To the rear end of the table A is attached the tail-vane K.

A frame, L, surmounting the table A, has pivoted to its rear lower corner a lever, *i*, through the upper end of which is sleeved the rod *r*, which is bent forward and embraces a clutch-pulley on the rear face of the hub F.

A lever, M, fulcrumed in the standards *h*, rising from the rear end of the table A, is connected to the lever *i* by means of the link or connecting-bar N, and to the lever *i* is se-

cured a rod, O, which carries a vane, P, upon its upper end.

A bell-crank lever, R, is fulcrumed between the studs *k* rising from the rear upper corner of the frame L, and is connected at one end to the lever M by means of the rod S, while to the other end is secured a rod, *t*, which leads down by the side of the pump-rod, for the purpose hereinafter set forth.

In operation, as the wind increases in force, it exerts its force upon the vane P, gradually causing it to assume a horizontal position, and, by means of its connections, compels the wheel G to slide back upon the shaft, and thus presents a less area of the sails H to the action of the wind. This movement of the parts also compels the lever M to gradually assume a position approaching the perpendicular; or, in other words, the lever M and vane P gradually approach each other. As the wind decreases in force the weight upon the end of the lever M causes the parts to assume their original positions.

In case it is desired to throw the sails out of the wind in order to prevent the wheels from revolving, it is accomplished by pulling down upon the rod or cord *t*, and securing it so that the weight cannot force the sails into the wind.

What I claim as my invention is—

1. In a windmill, the combination, with the turn-table A and shaft B, of the wheels D G, the latter being provided with a collar, E, which slides upon the shaft, and the sails H, pivoted to such wheels D G, substantially as and for the purposes set forth.

2. In a windmill the combination of the vane P, lever M, and their connections with the wheels D G and sails H, which are pivoted to said wheels, substantially as and for the purposes set forth.

3. A windmill consisting of the table A, shaft B, wheels D G, sleeve E, sails H, pivoted to said wheels D G, tail-vane K, lever M, vane P, bell-crank lever R, links N s, and rod *r*, when constructed and arranged to operate substantially as and for the purposes specified.

HARVEY M. WOOD.

Witnesses:

H. S. SPRAGUE,
CHAS. THURMAN.