

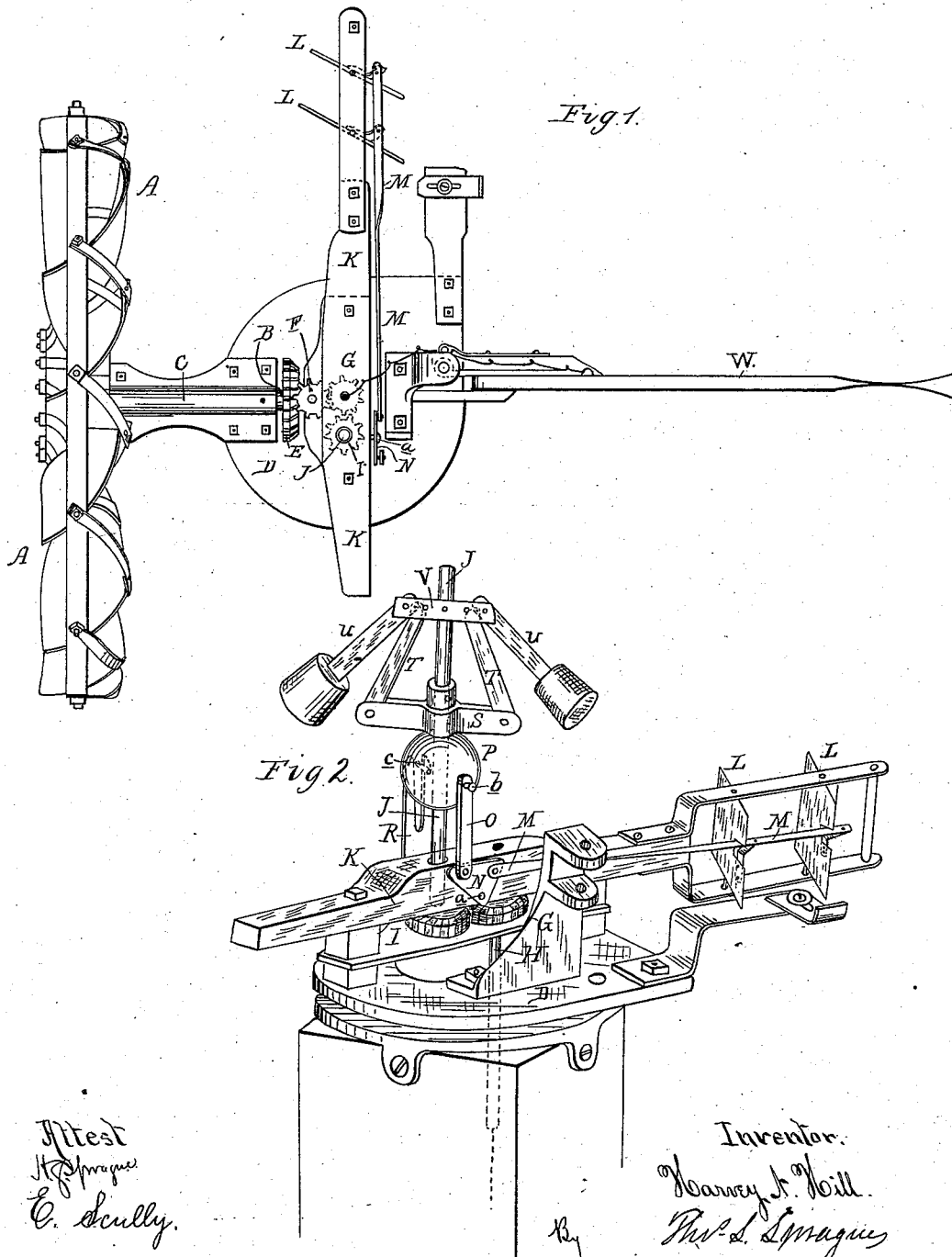
(No Model.)

H. N. HILL.

WIND ENGINE.

No. 260,096.

Patented June 27, 1882.



UNITED STATES PATENT OFFICE.

HARVEY N. HILL, OF PONTIAC, MICHIGAN.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 260,096, dated June 27, 1882.

Application filed March 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, HARVEY N. HILL, of Pontiac, in the county of Oakland and State of Michigan, have invented new and useful

Improvements in Wind - Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

The nature of this invention relates to certain new and useful improvements in the construction of windmills; and the invention consists in the peculiar arrangement of devices for controlling the movements of the wheel under different velocities of wind, and in the peculiar construction, combination, and operation of parts, as more fully hereinafter described, and pointed out in the claims.

Figure 1 is a plan view of my improved mill. Fig. 2 is a perspective elevation of the same.

In the accompanying drawings, A is the wind-wheel, made substantially as described in Patent No. 204,221, issued to me May 28, 1878, although I do not desire to confine myself to any particular description of wheel or sails attached thereto, as my device for regulating and controlling the position thereof with relation to the wind will operate nearly as well with any other construction of wheel. This wheel is secured in any convenient or desired manner to the end of the main driving-shaft B, which is journaled in suitable bearings or boxes, C, secured to the top of the turn-table D. Upon the end of this shaft is secured the cog-wheel E. This cog-wheel is constructed, as shown in Fig. 1, with one half, or thereabout, of the length of the cogs straight and the other half beveled, thereby forming a combination of a spur and bevel wheel in one. This wheel engages with a pinion, F, the cogs upon which are constructed similarly to the pinion E', and this pinion F engages with a similarly-constructed pinion G, which is constructed upon the top of a vertical shaft, H, and from which the mechanism to be driven derives its motion. This latter-named pinion engages with a similarly-constructed pinion, I, secured at the lower end of the governor-shaft J, which passes upward through an arm, K, which is rigidly secured to the turn-table, and in the outer end of this arm are pivoted

the ordinary wings, L, which connect together by a rod, M, the opposite end of which is pivoted to the bell-crank N, which is pivoted at a to the side of the arm K and has pivoted to it the rod O, the upper end of which is pivotally secured to the ball or slide P of the governor by means of the pin b. Upon the opposite side of the arm there is secured a slotted guide, R, and opposite the pin b is another pin, c, (shown in dotted outlines,) which has a vertical motion in the slot of the guide R. Above the slide or ball P the bar S is sleeved upon the shaft J, and to the outer ends of this arm are pivoted the levers T, to the upper ends of which are pivoted the weighted levers U in such a manner that the position of such weighted levers is controlled by the rapidity of the revolutions of the shaft J, and through the connections already described, with the wings L, controlling their position, presented edgewise of the wind or flatwise.

The bar V, to the outer ends of which the weighted levers U are pivotally secured, is rigidly secured near the top of the shaft J, so that in the rotation of the latter the governor is also rotated.

W is a hinged tail-vane like that described in the aforesaid Letters Patent, and when the wind-wheel is in operation the position of this tail-vane is at right angles to the front face of the wheel A. When the speed of the wind-wheel is so great as to extend horizontally, or nearly so, the balls and weighted levers of the governor, the cross-bar S, slide P, and rod O act upon the bell-crank N and, through the agency of the rod M, close the wind-wings L, so as to bring their flat faces to the wind, and thereby turn the turn-table partly around for the purpose of presenting the edge of the wheel to the wind, so that said wind-wheel, the wings L, and the hinged tail-vane will stand parallel to each other in the position where the wind will have the least effect upon them.

I am aware that it is not new to regulate the speed of wind-wheels by the use of governors, and I do not claim such invention.

What I claim is—

1. The combination, with the wind-wheel A and turn-table D, of the arm K, the wind-wings L, and connections, substantially as described,

between said wings, and a governor deriving its motion from the rotation of the wind-wheel, substantially as and for the purpose specified.

2. The combination, with the wind-wheel A, the shaft B, a governor for controlling the movement of the wheel and the gear-wheel E, of the pinions F G I, all meshing in the order given for the purpose of operating the governor and conveying power from the wheel, substantially as described.

3. The combination, with the wind-wheel A, of the turn-table D, arm K, pivoted wings L, rod M, bell-crank N, rod O, slide P, and a gov-

ernor deriving its motion from the rotation of the wind-wheel.

4. The combination, with the wind-wheel A, the turn-table D, arm K, wings L, rods M O, bell-crank N, slide P, and a governor, of the guide-plate R, and the pin c on the slide P, moving in said guide-plate, substantially as described.

HARVEY N. HILL.

Witnesses:

E. SCULLY,

H. S. SPRAGUE.