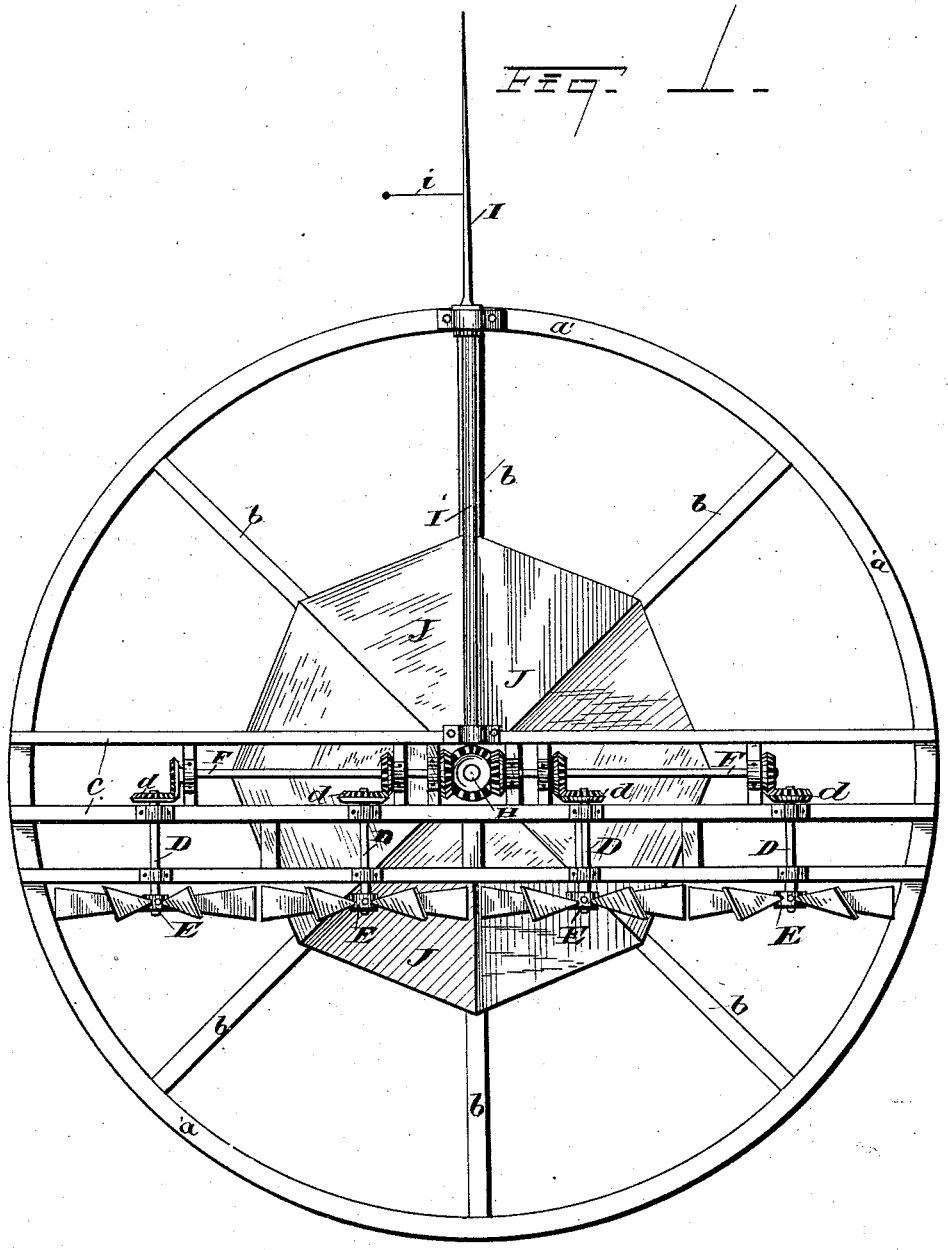
(No Model.) 3 Sheets—Sheet 1.

C. LEAVITT.

WIND ENGINE.

No. 307,312. Patented Oct. 28, 1884.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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FIG. 2.

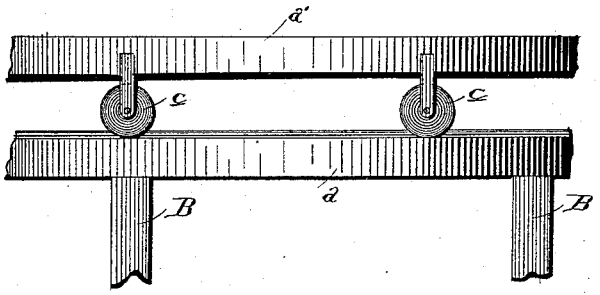


FIG. 3.

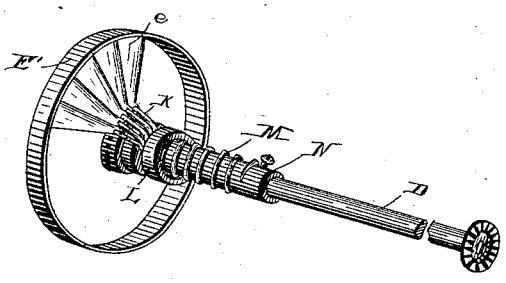
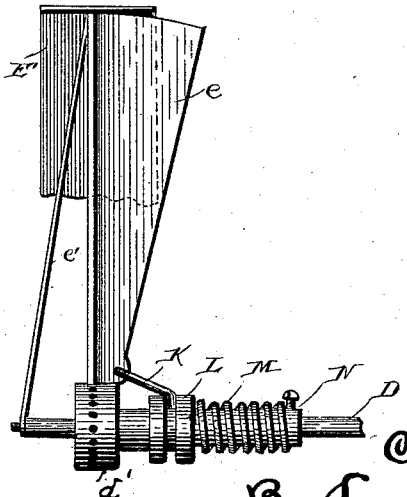


FIG. 4.



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(No Model.) 3 Sheets—Sheet 3.

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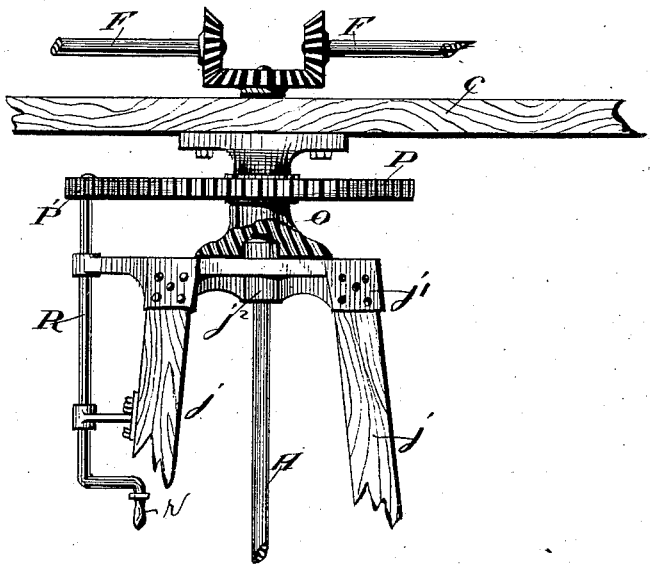

Fig. 5

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UNITED STATES PATENT OFFICE.

CHARLES LEAVITT, OF CLEVELAND, OHIO.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 307,312, dated October 28, 1884.

Application filed January 23, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LEAVITT, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Wind-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in wind-engines, the object being, first, to provide a turn-table and other mechanism, by means of which any desired number of wind-wheels may be made to operate conjointly, so as to furnish a greater power than could be obtained from a single wind-wheel. A further object is to improve the construction of wind-wheels. A further object is to provide mechanism for revolving the turn-table by hand, so as to either stop or retard the motion of the wind-wheels. A further object is to provide a vane that may be turned on its axis.

With these objects in view, my invention consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view. Fig. 2 is a view of a portion of the supporting-base and turn-table. Fig. 3 is a view in perspective of the wind-wheel and attachments. Fig. 4 is an enlarged view in detail of a portion of the wind-wheel and mechanism, and Fig. 5 is an enlarged view in detail of a portion of the wind-wheel and mechanism.

A is the turn-table, consisting of the two circular frames *a* and *a'*. The former rests upon the posts B, and the latter is mounted on the wheels *c*, that roll upon the part *a*. A framework, C, extends across from side to side of the part *a'*, and is made a part thereof, and is supported at the center in a manner hereinafter shown. Upon this cross-frame are mounted the shafts D, that support the wind-wheels E. These shafts are journaled in suitable boxes secured to the frame, and at their respective ends are provided with the bevel-gears *d*, that engage similar gears on the shafts F, that in turn are intergeared with the vertical driving-shaft H, that extends to the building below, and from which power may be transmitted, as required. A large vane, I, is provided to revolve the turn-table and keep the wind-wheels to the wind. The shaft I' of the vane I is secured in suitable boxes attached, the one to frame C, and the other to the part *a'*. An arm, *i*, is attached to the vane, and provided with a depending rod, by means of which the vane may be turned on its axis, so as to present its side or edge to the wind.

The building J, to which the power is conveyed, has posts *j*, forming a "husk," from which are supported the shaft H and the frame C. These parts are joined at the top by the cap *j'*, that is provided with a conical vertical hub, j^2, through which the shaft H passes, and has a bearing therein.

O is a sleeve provided at each end with a broad flange and in the central part with the gear P. The upper flange is secured to the part C, while the lower flange rests on the cap *j'* and embraces and is guided by the hub j^2. A pinion, P', engages the gear P, and is attached to the shaft R, that is provided at the lower end with the crank *r*, and by means of which where the vane is "feathered" the turn-table may be revolved and brought into such relative position with the direction of the wind as to stop or retard the motion of the wind-wheel, as may be desired. The tie-beams *b* connect the posts B with the building, binding the whole structure firmly together, so that it will withstand the force of high winds. A roof may be added to the tie-beams, so as to form a commodious shed, that would be of great utility, especially to farmers.

In the construction of the wind-wheels the hub *d'*, attached to the shaft D, has holes on the periphery, in which is pivoted one end of the sails *e*. The other end of the sails is pivoted in holes in the band E', that is secured by the braces *e'*, supported from the shaft D. It is found that this broad band, encircling the sails, prevents the air from being deflected outward after striking the sails, and adds to the power of the wheel. The sails are provided at the rear with the crank-rods K, that engage a groove in the sliding head L, that is pressed forward—that is, toward the sails—by the spring M, that is supported in the rear by the adjustable collar N, by means of which the

tension of the spring may be adjusted. With moderate winds the spring will keep the sails at the proper angle to receive the full force of the wind; but with high winds the head L would be forced back, so that the sails would present a more oblique angle to the wind, and thus regulate the speed of the wind-wheels.

I have found that from sixteen to eighteen feet in diameter is a preferable size for the wind-wheels for ordinary purposes.

The turn-table may be of such dimensions that any desired number of these wheels may be mounted thereon, so that with a moderate wind great force may be obtained.

From the foregoing it will be seen that when the vane is in its normal position it turns the turn-table and holds all of the wheels to the wind, and by turning the vane to a horizontal position the table and its wind-wheels can be turned away from the wind. By thus combining or uniting a series of wind-wheels so as to concentrate their power an increase of power is gained without a proportional increase of cost.

I am aware that it is not broadly new to secure a vane to a wind-wheel turn-table, and also that it is not new to connect two or more wind-wheels mounted on independent frames or structures to a common shaft, and hence I make no claim thereto.

What I claim is—

1. The combination, with a turn-table and a vane directly connected thereto, of a series of wind-wheels journaled on the table and operating a common shaft.

2. The combination, with a suitable supporting-base, a turn-table, and a transverse frame secured to said turn-table, of a vane connected to the table, and a series of wind-wheels journaled in the transverse frame and operating a common shaft.

3. The combination, with a suitable base or frame, and a central supporting-frame provided with a cap, of a turn-table, a transverse frame secured thereto, a sleeve secured to said transverse frame and resting on the central supporting-frame, wheels or rollers secured to the transverse frame and resting on the base or frame, a series of wind-wheels journaled in the transverse frame, and a vane journaled to the turn-table.

4. The combination, with the outer supporting-frame and central supporting-frame having a cap, of a turn-table provided with a transverse frame and resting on the supporting-frames, wind-wheels journaled in the transverse frame, a vane journaled to the turn-table, and gearing by means of which the turn-table can be rotated by hand.

5. The combination, with a turn-table having a transverse frame, and a series of wind-wheels journaled in said frame and operating a common shaft, of a vane journaled to the turn-table and provided with an arm and rod by means of which the vane is turned.

6. The combination, with a turn-table, of a series of wind-wheels journaled on said turn-table and operating a common shaft.

In testimony whereof I sign this specification, in the presence of two witnesses, this 15th day of January, 1884.

CHARLES LEAVITT.

Witnesses:
JNO. CROWELL,
CHAS. H. DORER.