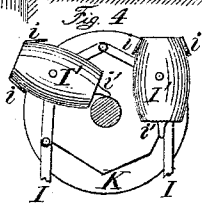
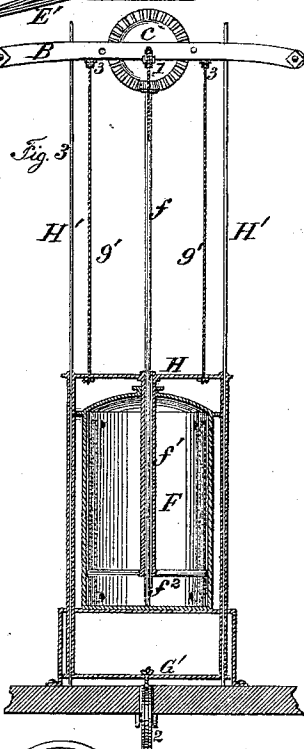
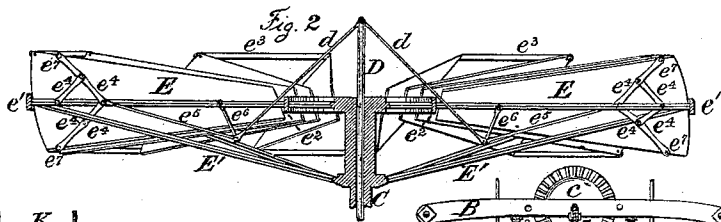
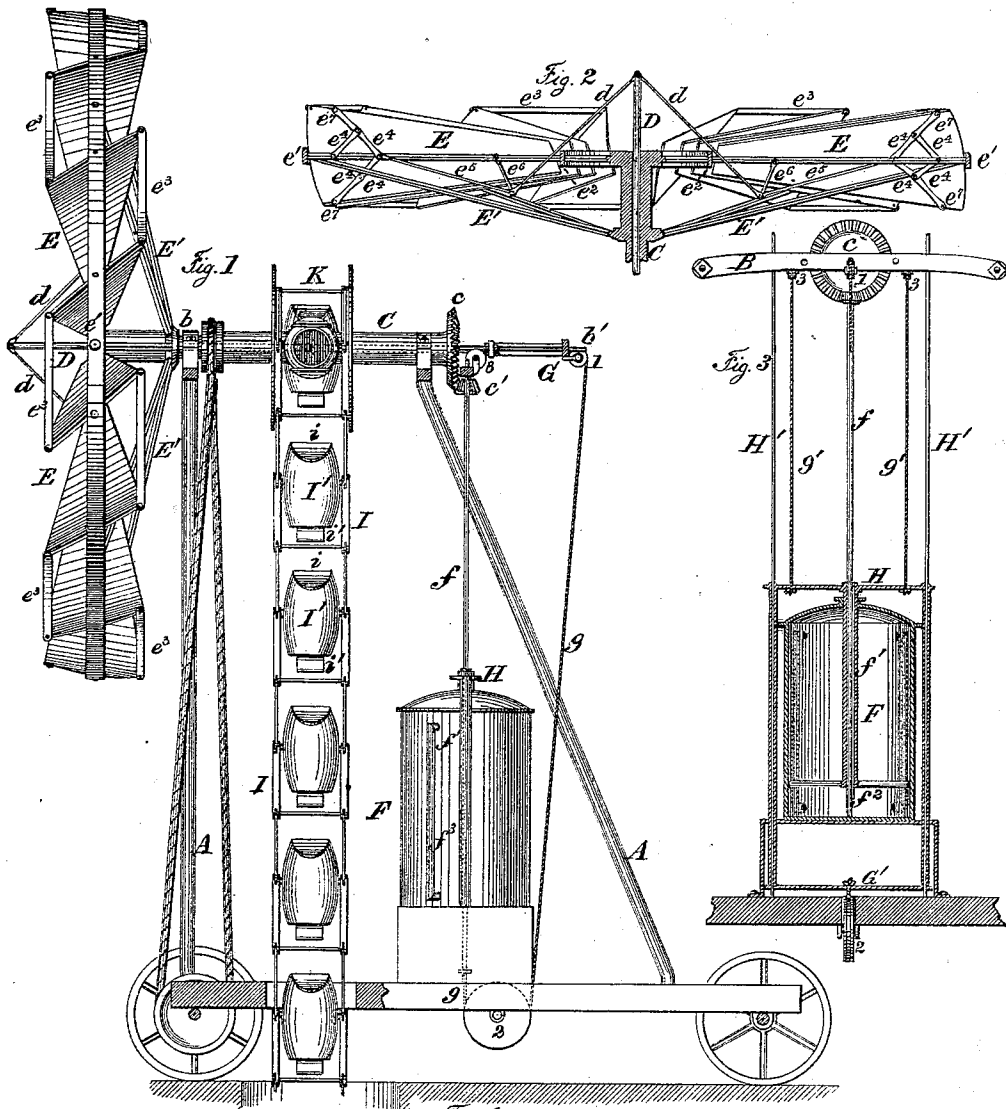


J. N. DEITZ.
Wind-Wheels.

No. 148,676.

Patented March 17, 1874.

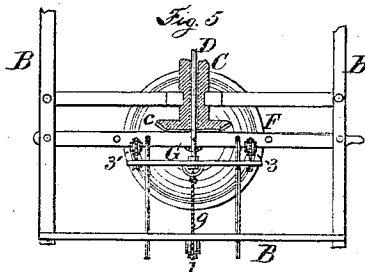


WITNESSES :

Henry Lauten.
H. C. Elliott.

INVENTOR :

J. N. Deitz
By Hawk & Duce
his Attorneys



UNITED STATES PATENT OFFICE.

JAMES N. DEITZ, OF SALINA, KANSAS.

IMPROVEMENT IN WIND-WHEELS.

Specification forming part of Letters Patent No. 148,676, dated March 17, 1874; application filed October 9, 1873.

To all whom it may concern:

Be it known that I, JAMES N. DEITZ, of Salina, in the county of Saline and State of Kansas, have invented a new and useful Improvement in Wind-Wheels; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a side elevation of the apparatus employed as a water-elevator. Fig. 2 is a sectional view of the wind-wheel apart from its supporting-frame. Fig. 3 is a transverse vertical section through the center of the governor, the upper portion of which is shown in elevation. Fig. 4 is a side view of the upper end of the water-elevator, one side of the pulley being removed; and Fig. 5 is a plan view of the governor and its connections, partly in section.

This invention relates to an improvement in wind-wheels; and consists of a wind-wheel having its sails connected together at their outer extremities, and centrally pivoted at their inner and outer extremities to circular bands, which form part of the frame of the wheel; also having two pairs of sails at opposite points of the wheel coupled together by a system of jointed rods forming a parallelogram, and operating on the principle of the "lazy-tongs," said system of jointed rods being connected by shifting-rods to the traversing rod usually connected to a governor, the object of the invention being to permit the wind to operate the sails so as to close or open them, accordingly as the wind may be stronger or lighter, thereby causing the wheel to maintain a nearly uniform velocity of rotation, and to exert a nearly uniform motive force.

The apparatus may be mounted on a movable platform, or it may be permanently fixed at the place it is intended to work.

Four or more pillars, A A, suitably fastened at the bottom, support a frame, B B, Fig. 5, (not shown in Fig. 1, in order to afford a better view of the working parts,) extending from *b* to *b'*, Fig. 1. C is a hollow shaft, which serves as the axis of rotation of the wind-wheel. Its inner extremity has a bevel-wheel, *c*, which gears with the wheel *c'* on the end of the governor-shaft *f*. A rod, D, traverses the hollow

shaft C, and is connected therewith by a slot and feather, or other suitable means, so as to revolve with it. The rod D is also connected at its outer extremity to the shifting-rods *d d*, attached to the sails E of the wind-wheel, and at its inner extremity to the cross-head G, which is connected with the cross-head H of the governor F by cords or chains *g' g'*. A cord or chain, *g*, also passes from the cross-head G to a cross-head, G', below the governor F over the pulleys 1 2. The cords *g' g'* pass over pulleys 3 3. The sails E of the wind-wheel are accurately balanced and centrally pivoted at their inner and outer extremities to the circular bands *e¹ e²*, which form part of the frame of the wheel. At diametrically opposite points of the wheel two pairs of sails, E, are coupled together by a system of jointed rods, *e⁴ e⁴ e⁷*, forming a parallelogram, and operating on the principle of the lazy-tongs. The rods *e⁴ e⁴ e⁷* are connected by the pivoted rods *e⁵ e⁶* to the shifting-rods *d d*, attached to the outer end of the traversing rod D. E' E' are arms for stiffening and bracing the frame-work of the wheel, and *e³ e³* are rods connecting the outer corners of the sails. The governor F has a vertical shaft, *f*, with a bevel-wheel, *c'*, the teeth of which mesh with those of the wheel *c* on the shaft C of the wind-wheel. Slipping loosely on the shaft *f*, and rotating therewith, is a sleeve, *f¹*, the lower part of which carries a disk, *f²*, having one or more radial openings, the edges of which are flanged, so as to act on the principle of the screw-propeller, causing it to rise in the water with which the cylinder is filled when the disk is rapidly rotated. To the sleeve *f¹* is attached a cross-head, H, which slides upon the uprights H' H'. Two or more exterior pipes, *f³*, communicate with the cylinder of the governor F near the top and bottom, at points above and below the extreme ranges of the disk *f²*.

The water-elevator consists of an endless chain, I, within the links of which the buckets I' are suspended somewhat above their centers of gravity. The buckets are provided with guards or side boards *i i*, and have projecting pieces *i'* at their bottoms. The chain I passes over a pulley, K, and under a similar pulley located at a sufficient depth in the well to insure the filling of the buckets with water,

The sails E of the wind-wheel have sufficient liberty of motion on their pivots to take the wind for about six of the eight points in each quarter of the compass. When the wind shifts so as to strike the opposite faces of the sails the motion will be reversed, but the wheel may be caused to move in the same direction as before by shifting the points of attachment of the rods $e^7 e^7$. In hoisting water it is only necessary to reverse the motion of the governor, as the buckets discharge indifferently on either side. The cylinder F is filled with water, or, in cold weather, with some non-congealing fluid, and weights placed upon the cross-head H to cause the disk f^2 to sink to near the bottom of the cylinder, and at the same time, through its connections with the rod D, force the latter out, and, by means of the rods $e^4 e^5 e^6 e^7$, bring the sails E in position to receive the full force of the wind. During a moderate breeze the disk f^2 maintains its place at the bottom of the cylinder; but in a strong wind the force exerted upon it by the wheel, through its connections therewith, propels it upwardly through the water in the cylinder, thereby permitting the rod D to retract, and the sails E to assume a direction more nearly parallel with the course of the wind. When

the sails have assumed their position the velocity of the wheel is diminished, its force lessened, and the upward tendency of the disk f^2 checked. The pipes $f^3 f^3$ have sufficient capacity to conduct the water from the upper to the lower part of the cylinder about as rapidly as it can pass through the radial opening or openings in the disk f^2 , so that by closing one or more of the pipes f^3 the resistance of the water to the disk f^2 is increased, and the machinery caused to run faster.

It is not my intention in this application to make a claim to the governor or equalizer of power. My title to a specific claim therefor I reserve for a separate application. The improved elevator-bucket herein shown by way of illustration is also reserved for a separate application.

What I claim herein, and desire to secure by Letters Patent of the United States, is—

A wind-wheel having the centrally-balanced and pivoted sails E E, shifting-rods $d d$, and adjusting-rods $e^3 e^4 e^5 e^6 e^7$, constructed, arranged, and operating substantially as herein set forth.

Witnesses: JAMES N. DEITZ,
JOHN H. PRESCOTT,
G. CLARKE PRESCOTT.