

UNITED STATES PATENT OFFICE.

PETER T. COFFIELD, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-HALF TO CHARLES H. PAXSON, OF SAME PLACE.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 264,862, dated September 26, 1882.

Application filed July 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, PETER T. COFFIELD, a citizen of the United States, residing at Springfield, Clarke county, Ohio, have invented certain new and useful Improvements in Wind-Engines, of which the following is a full, clear, and exact description.

My invention relates to an improvement in wind-engines; and it consists in arranging the turn-table so as to revolve freely on the derrick or mast, and providing it with an automatic brake operated by the wind, which will hold the wheel in the wind and prevent its walking round on the gear out of the wind.

Figure 1 is a side elevation of the wind-engine and brake. Fig. 2 is a side elevation of the brake and gearing. Fig. 3 shows the ratchet and spring-pawl within the brake-wheel. Fig. 4 is a horizontal section of the brake-wheel and eccentric brake and the toothed bed-plate.

Like letters of reference indicate the same parts in different figures.

A is the top of the mast or derrick supporting the engine.

B is a toothed bed-plate, firmly fixed to the top of the derrick. C is the turn-table, which is balanced upon the bed-plate B, and revolves freely around the counter-shaft D.

On the top of the driving or counter shaft D, and firmly fixed to it, is the beveled-gear wheel E, geared with the beveled-gear wheel F, fastened to the fan-shaft G.

H is the wind-wheel, made in any suitable form, and only partly shown in the drawings.

I is the tubular shaft, fastened at its lower end to the turn-table at I'. Within this tubular shaft I, and supported by it, is a straight rod, J. To the upper end of this rod is attached a flag-vane, K, made of sheet metal or other suitable material, and bent into the wind, as shown at K'. To the lower end of the rod J is firmly attached an eccentric, L.

On the lower side of the turn-table, and at the end opposite the wind-wheel, is pivoted the brake-wheel M, near the eccentric brake L, and so arranged that as the rod J is turned the brake L presses against the periphery of the wheel M and acts as a brake to hold it stationary. On the lower side of this brake-wheel

M are interior ratchets, (shown at O.) Below the brake-wheel M, and revolving on the same pivot, is a pinion, R, which is geared into the toothed bed-plate B. This pinion R is also provided with a spring-pawl, which is inserted in the brake-wheel M, and operates upon the ratchets O. The plate P', attached to the pinion R, incloses the pawl and ratchets within the brake-wheel. The brake-wheel and pinion can turn in all directions independently; but the pawl and ratchet prevent either from turning in the other direction, although they permit them to turn to the left or right together. When, therefore, the brake L is forced by the wind against the brake-wheel M and holds it stationary, the pinion cannot turn from left to right, being held by the pawl and ratchets, and the pinion being geared in the bed-plate B, the pinion, with the entire turn-table, is prevented from turning from left to right. The flag-vane is fastened to the rod J, and projects in the direction of or over the wind-wheel slightly to the leeward, and curving toward the wheel. The wind-wheel, turn-table, &c., swing freely from right to left, (when constructed as shown in the drawings of course the gearing may be inverted,) and without a brake would swing from left to right round out of the wind; but as the wind strikes the wheel it also strikes the concave side of the flag-vane and turns the rod J and forces the eccentric brake L against the wheel M, holding it stationary. The pawl and ratchets prevent the pinion from revolving, and its teeth, meshed with the teeth of the bed-plate, prevent the turn-table from swinging any farther, holding the wheel in the wind, forcing it to revolve the gear-wheel F and drive-shaft D, instead of swinging around on the bed-plate out of the wind. The harder the wind blows the tighter the brake L is forced against the wheel M and the more efficient is the brake. The rod J is provided with a shoulder at x, so as to give the flag-vane a little play should the wind suddenly change, while the spring S, fastened to the side of the tubular shaft I and pressing against the pin or lug T, presses the rod J around, so as to keep the brake constantly in operation. Should the wind change and strike

the flag-vane K on the convex side, the brake will be instantly loosened and the wheel free to move round until it is again adjusted.

The flag-vane and brake may be used on a vaneless wind-engine or in connection with a vane.

To secure greater friction, the edge of the brake may be made convex and the periphery of the brake-wheel correspondingly concave or curved with leather; but any suitable substance or construction may be used.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wind-engine having a flag-vane and rotating pump-rod, the combination, with the wind-wheel shaft and the rotating pump-rod, with connecting mechanism, of a curved flag-vane provided with a brake at its lower end, whereby the wheel is held in the wind and prevented from walking around on its mast or derrick, substantially as described.

2. In a wind-engine, the toothed bed-plate B, in combination with the pinion R and brake-wheel M, arranged as and for the purpose specified.

3. The brake-wheel M and pinion R, so connected by pawl and ratchets that they move independently in one direction, but can only move in the other together, in combination with the brake L and toothed bed-plate B.

4. In a wind-engine, the flag-vane K, having its outer end curved, and provided at its lower end with the brake L, in combination with the ratchet-disk M, pinion R, and gear-head B, substantially as described, and for the purpose specified.

PETER T. COFFIELD.

Witnesses:

CHARLES E. BROWN,
JERE F. TWOHIG.