

(No Model.)

P. T. COFFIELD.

WIND ENGINE.

No. 322,796.

Patented July 21, 1885.

Fig. 1.

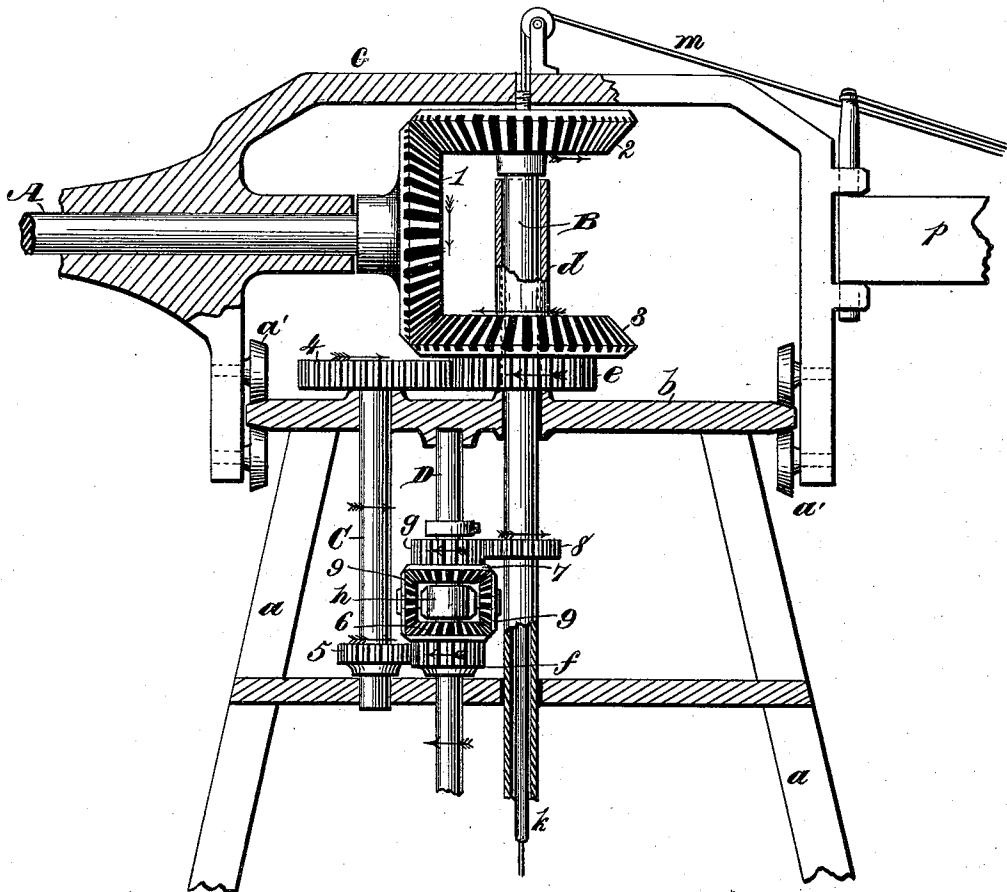


Fig. 3.

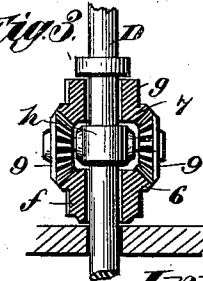
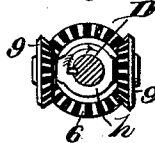


Fig. 2.



Witnesses.

Robert Everett.

J. A. Rutherford

Inventor.

Peter T. Coffield.

By

James L. Norris.

Atty.

UNITED STATES PATENT OFFICE.

PETER T. COFFIELD, OF NEW CARLISLE, OHIO.

WIND-ENGINE.

SPECIFICATION forming part of Letters Patent No. 322,796, dated July 21, 1885.

Application filed June 11, 1885. (No model.)

To all whom it may concern:

Be it known that I, PETER T. COFFIELD, a citizen of the United States, residing at New Carlisle, in the county of Clark and State of Ohio, have invented new and useful Improvements in Wind-Engines, of which the following is a specification.

This invention relates to gearing for wind-mills, the object being to provide a simple driving mechanism so constructed and arranged as to allow the wheel to shift with the wind without driving the mill machinery; also to prevent side draft or any inclination to move away from its work, as is likely to occur with ordinary gearing, and at the same time allow the vane to have free control of the mill while engaged at work.

To this end the invention consists in the construction and combinations of parts as hereinafter set forth.

The invention is illustrated in the annexed drawings, in which Figure 1 represents a sectional elevation of the upper part of a wind-motor or windmill provided with my improved gearing. Figs. 2 and 3 are sectional detail views.

In the drawings, *a* designates the upper part of a windmill-tower, *b* is the bed-plate supported thereon, and *c* is the turn-table that travels on said bed-plate by means of friction-rollers *a' a'*, bearing on the upper and lower faces or edges of the plate. There are preferably four sets of these friction rollers or travelers, which steady the turn-table on the bed-plate and allow it to move easily when the wheel is changing its position in the wind. The wind-wheel shaft *A* is journaled in suitable bearings on one side of the turn-table, and carries a miter-gear, 1, that meshes with similar gears, 2 and 3, as shown. The gear 2 is rigidly secured to a vertical shaft, *B*, while the gear 3 revolves on a sleeve, *d*, attached to the bed-plate. To the under side of the miter-gear 3 is fixed a spur-gear, *e*, which meshes with a spur-gear, 4, that is secured on a vertical shaft, *C*, which carries at its lower end a fixed spur-gear, 5. This latter spur-gear 5 meshes with a spur-gear, *f*, which is formed on or attached to the under

side of a small miter-gear, 6, that is loosely mounted on a vertical shaft, *D*. Above the spur-gear 6, and also loosely mounted on the shaft *D*, is a miter-gear, 7, to which is fixed a spur-gear, *g*, that meshes with and is driven by a spur-gear, 8, on the shaft *B*. Between the gears 6 and 7, and keyed to the shaft *D* so as to turn therewith, is a collar, *h*, to which are journaled the bevel-gears 9 9, which mesh with the gears 6 and 7. The gears 9 9 are capable of moving with the shaft *D* without revolving on their journals, and only rotate when the wheel changes its position in the wind. They thus take the place of ratchets, and allow the wheel to change its position in the wind without affecting the operation of the driven machinery. The shaft *B* is hollow or tubular, and incloses a pipe or tube, *k*, the upper end of which is screwed tightly into the turn-table. The pull-out cord, chain, or wire *m*, which is attached to the vane *p*, is passed through this pipe *k*, which thus prevents the said chain or wire from becoming twisted or worn by the rotary motion of the vertical hollow shaft *B*.

In most windmills having two vertical shafts connected by balanced gearing said shafts are arranged one within the other and revolve in opposite directions; whereas, according to my invention there are three vertical shafts, two of which revolve in the same direction, one being passed directly through the center of the mill and the other arranged off the center. It will also be observed that I employ two distinct trains of gears, one train embracing the gears 2, 8, and 7, terminating in the gears 9 9, and the other embracing the gears 3, 4, 5, and 6, and also terminating in the gears 9 9. By this arrangement of shafts and gears the parts are always readily accessible for any necessary repairs, and are enabled to perform their work efficiently without disturbance or variation in the action of the mill machinery.

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

In a windmill, the combination, with the wind-wheel shaft *A*, having bevel-gear 1, and

the vertical shaft B, having a bevel-gear, 2,
and spur-gear 8, both rigidly secured to
said shaft, of the bevel-gear 3 and attached
spur-gear *e*, loosely mounted on a sleeve, *d*,
5 surrounding the shaft B, the shaft C, having
fixed spur-gears 4 5, the shaft D, having a
collar, *h*, keyed thereto, the bevel-gears 9 9,
journaled on said collar, and the bevel-gears
6 7, provided, respectively, with attached
10 spur-gears *f g*, and mounted loosely on the

shaft D above and below the gears 9 9, in
mesh therewith and with the gears 5 and 8,
substantially as described.

In testimony whereof I affix my signature
in presence of two witnesses.

PETER T. COFFIELD.

Witnesses:

G. W. COFFIELD,
RANDOLPH COLEMAN.