(No Model.)

O. D. THOMPSON.

WIND WHEEL.

No. 261,495. Patented July 18, 1882.

Fig. 1

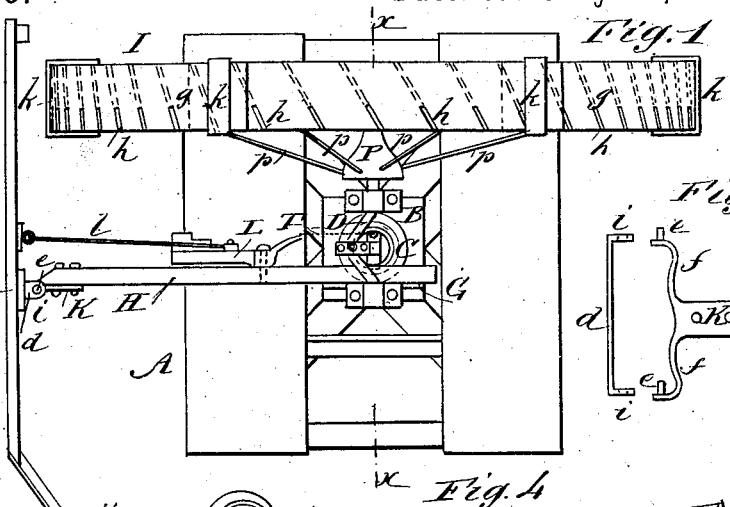


Fig. 5

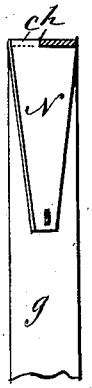


Fig. 6

Fig. 4

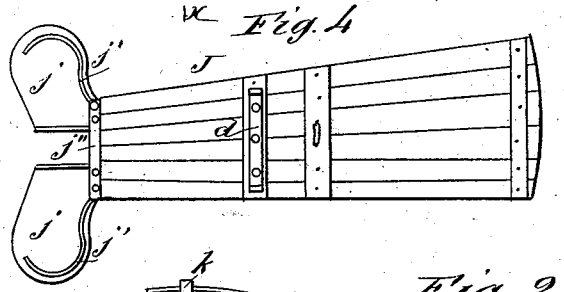


Fig. 3

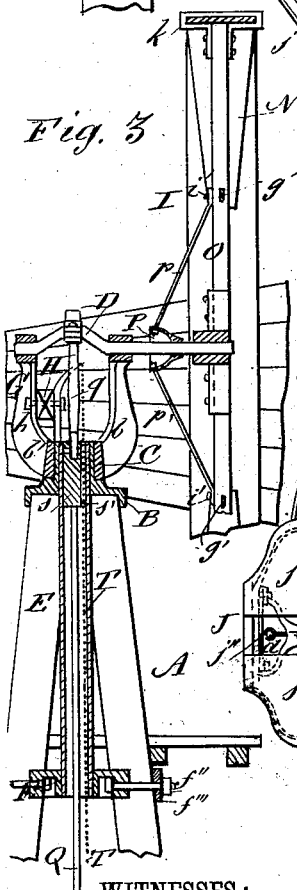
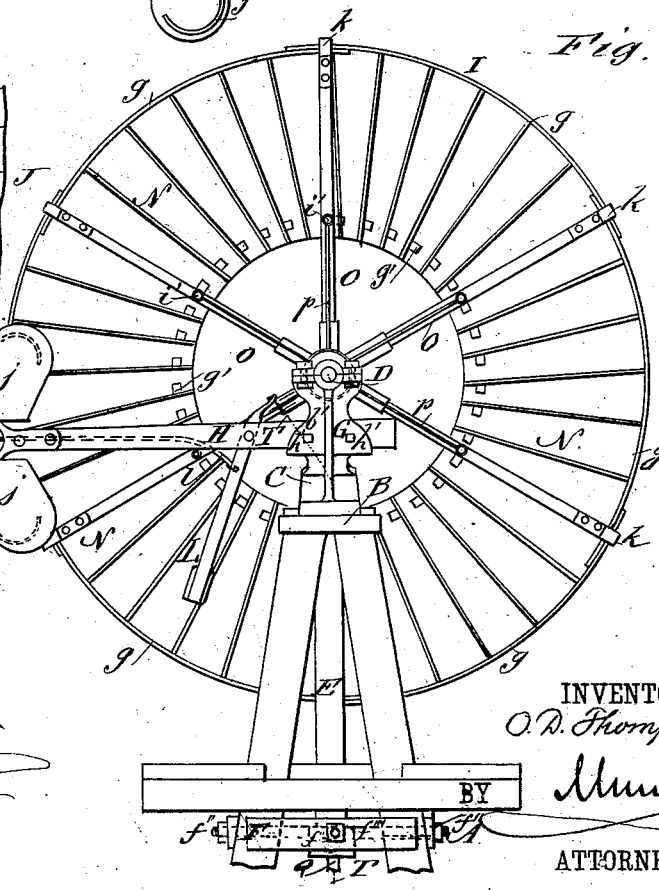


Fig. 2



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OTIS D. THOMPSON, OF ELKHART, INDIANA, ASSIGNOR TO DAVID THOMPSON, OF SAME PLACE.

WIND-WHEEL.

SPECIFICATION forming part of Letters Patent No. 261,495, dated July 18, 1882.

Application filed January 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, OTIS D. THOMPSON, of Elkhart, in the county of Elkhart and State of Indiana, have invented a new and Improved Wind-Wheel, of which the following is a full, clear, and exact description.

This invention is an improvement upon my improved wind wheel for which Letters Patent No. 235,470 were granted to me December 14, 1880; and to this end the invention consists in a novel construction and arrangement of parts, as hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved wind-wheel. Fig. 2 is a front elevation thereof. Fig. 3 is a partial sectional elevation taken on the line *x x* of Fig. 1. Fig. 4 is a front elevation of the governor or vane. Figs. 5 and 6 are detail views, showing respectively the manner of attachment of the sails to the rims of the wheel and the means of hinging the governor or vane to the vane-arm.

The frame-work A, which supports the working parts of the apparatus, is provided at the top with the metallic head-plate B. This head-plate is stepped, as shown in Fig. 3, to receive and support the cast-iron head-block C. The head-block C is formed with the upright arms *b b'*, upon which the crank-shaft D takes its bearings, and has the tube E rigidly secured to it, which tube passes down through the head-plate B and through the plate F, secured lower down in the main frame by the bolts *f''*, which pass through the plates *f'''*, placed against the main frame. The arm *b'* of the head-block C is formed with the plate G, to which the vane or governor arm H is bolted by the bolts *h h*, as clearly shown in Fig. 2. The vane or governor arm H stands parallel with the plane of revolution of the wheel I, and carries at its outer end the vane or governor J, which is hinged to the arm by means of the plate *d*, formed with the perforated angle-pieces *i i*, and secured to the vane or governor, and the arms *f f* of the plate K, secured to the arm H, the said arms *f* being formed with the pivots *e e* for entering the perforations of the angle-pieces *i i*, as clearly illustrated by Fig. 6. The vane or governor, when the wheel is in motion, stands at right angles to the plane of revolution of the wheel, and is held in that position by the weighted arm L, pivoted to the arm H, and the rod *l*, connecting the weighted arm and the vane or governor, substantially the same as in my original patent, and as clearly shown in Fig. 1. The diagonal extensions *j j* of the vane or governor, instead of being made of wood, as in my original patent, are made of sheet metal secured to the curved arms *j' j'*, which are made integral with the plate *j''*, which is bolted to the outer end of the main part of the vane or governor, and the arm H is of such length relative to the radius of the wheel I that when the wheel stands in position to take the wind the extensions will reach past or stand in front of the rim of the wheel, as shown in Figs. 1 and 2, so that the wind will strike the vane or governor before reaching the wheel. By this arrangement of the diagonal extensions of the vane or governor, when the wind comes too strong for the safety of the wheel, the vane or governor will be swung on its pivot by the action of the wind before the strong current reaches the sails of the wheel, thus putting the wheel in such position that the strong current will act upon the wheel only to throw it out of the wind, and in this way the wheel is entirely protected from being shocked or unnecessarily strained by sudden gusts of wind, as well as from continuous wind-storms. When the wind subsides it will be understood that the weight will throw the vane or governor back upon its pivot to bring the wheel again into the wind, the same as in my original patent.

The rim of the wheel is made up of the sections *g g*, as shown in Fig. 2. These sections are steam-bent, and are formed with diagonal slots *h*, made from the front edge of the sections, as shown in Fig. 1. The outer ends of the sails N are of a width equal to the width of the rim, and are partially cut off, so as to leave the short projections *c*, which fit in the slots *h* of the rim, as shown clearly in Fig. 5, so that the outer ends of the sails are entirely covered and protected by the rim. When the wheel is set up the sections *g g* are held to-

gether by the irons *k*, which fit around the ends of the sections and are bolted to the spokes O of the wheel, as shown in Fig. 3. The inner ends of the sails N are secured by being placed upon the inner sectional rim, *g'*, the sections of which are secured to the spokes O by the bolts *i' i'*, which also hold the outer ends of the guy-rods *p p*. These guy-rods *p p* stay the spokes O of the wheel to the crank-shaft, and thus give the wheel great strength, and they are attached to the shaft at their lower or inner ends by being passed through the bell P, which is placed upon the shaft, and receiving a nut inside of the bell, as clearly shown in Fig. 3.

To the lower end of the pitman-rod *q* of the crank-shaft D is attached the connecting-rod Q, which passes down through the tube E. The upper end of this connecting-rod is formed with the head *s*, (shown in Fig. 3,) which fits the tube, and one side of this head *s* is formed with the groove *s'*, through which the wire, cord, or small chain T passes, which leads from the end of the weight-arm L, through the tube, to the ground or platform of the mill, in reach for moving the weighted arm on its pivot for holding the vane or governor in position for bringing the wheel into or out of the wind, as desired.

By this construction the wheel is simplified and made less expensive, stronger, more durable, and is more easily governed than by the construction shown and described in my patent referred to, and, being made in sections, can be packed in a small compass for shipment.

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

1. In a wind-wheel, the combination, with the outer rim-sections, *g*, provided with the diagonal slots *h*, and the inner sections, *g'*, of the sails N, having their inner ends secured to the said inner sections and their outer ends provided with the projections *e*, fitting into the said slots and flush with the outer surface of the rim, substantially as and for the purpose set forth.

2. In a wind-wheel, the combination, with the outer rim-sections, *g*, provided with the slots *h*, the sails N, provided with the projections *e*, and the spokes O, of the plates *k*, bent over and around the said sections and bolted to the spokes, substantially as and for the purpose set forth.

3. In a wind-wheel, the combination, with the stepped head-plate B and its crank-shaft D, of the head-block C, provided with the upright arms *b b'*, and having the tube E rigidly secured to it, substantially as and for the purpose set forth.

4. The combination, with the spokes O of the wheel and the guy-rods *p*, of the bell P, placed upon the crank-shaft D, substantially as and for the purposes set forth.

5. In a wind-wheel, the combination, with the tube E, the grooved head *s*, the vane J, and the connecting-rod *l*, of the weighted lever L and the cord or chain T, substantially as and for the purpose set forth.

6. The head-block C, cast with the plate G, for holding the vane-arm H, substantially as described.

7. In a wind-wheel, the combination, with the head-block C, provided with the plate G, of the vane-arm H, provided with the arms *f*, having pivots *e*, and the vane J, provided with the plate *d*, having the angle-pieces *i* at its ends, substantially as and for the purpose set forth.

8. In a wind-wheel, the combination, with the vane J, provided with the plate *j''*, of the diagonal extensions *j j*, made of sheet metal and secured to the curved arms *j' j'*, which are integral with the plate *j''* of the vane, substantially as and for the purpose set forth.

9. The combination, with the connecting-rod formed with the head *s*, having the groove *s'*, of the chain or wire T and the tube E, the chain being connected to the weighted arm L, and leading through the grooves *s'* and tube to the ground or platform, substantially as and for the purposes set forth.

OTIS D. THOMPSON.

Witnesses:
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E. C. BICKEL.