(No Model.)

C. LUDWIG.

WINDMILL.

No. 353,363. Patented Nov. 30, 1886.

Fig. 1.

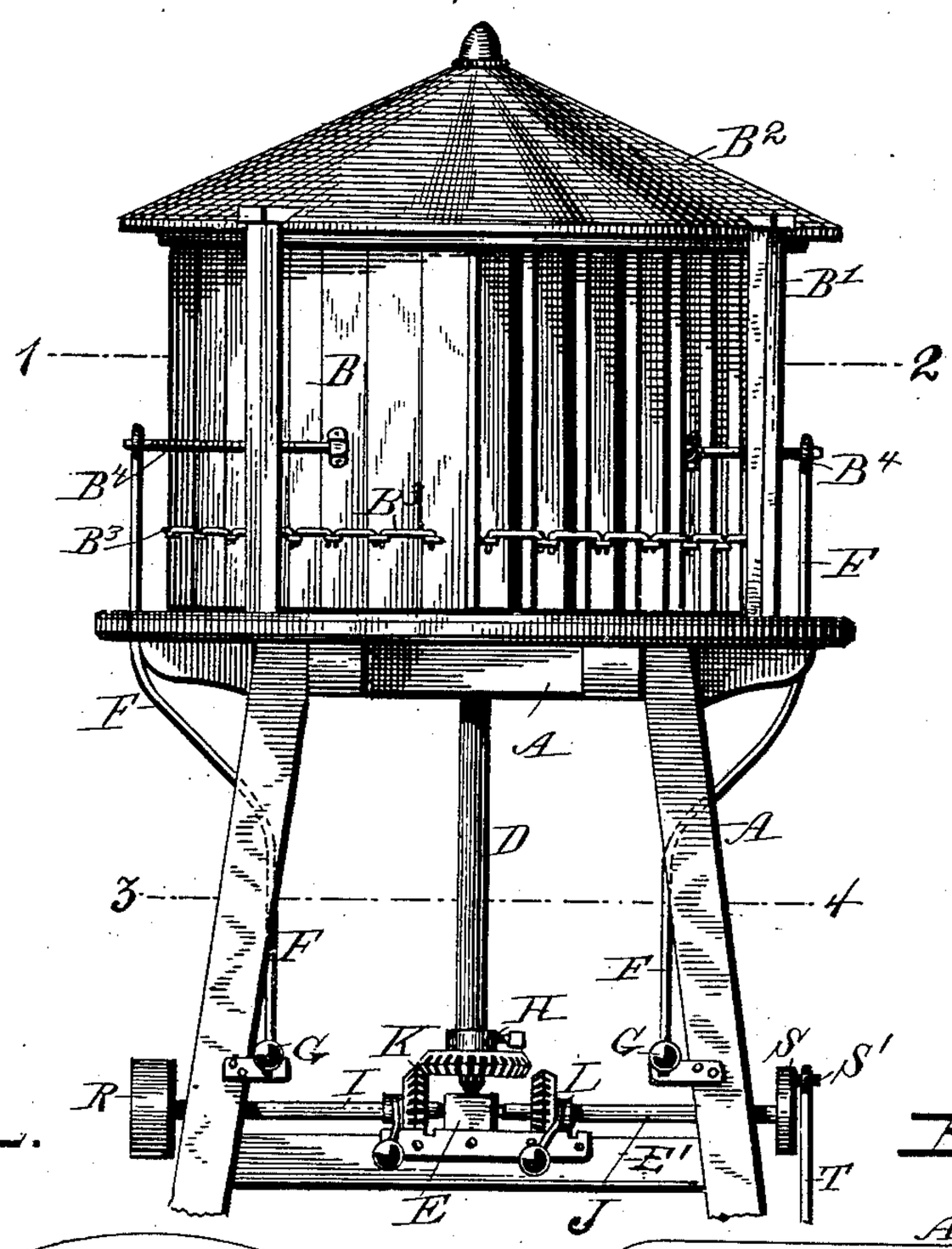
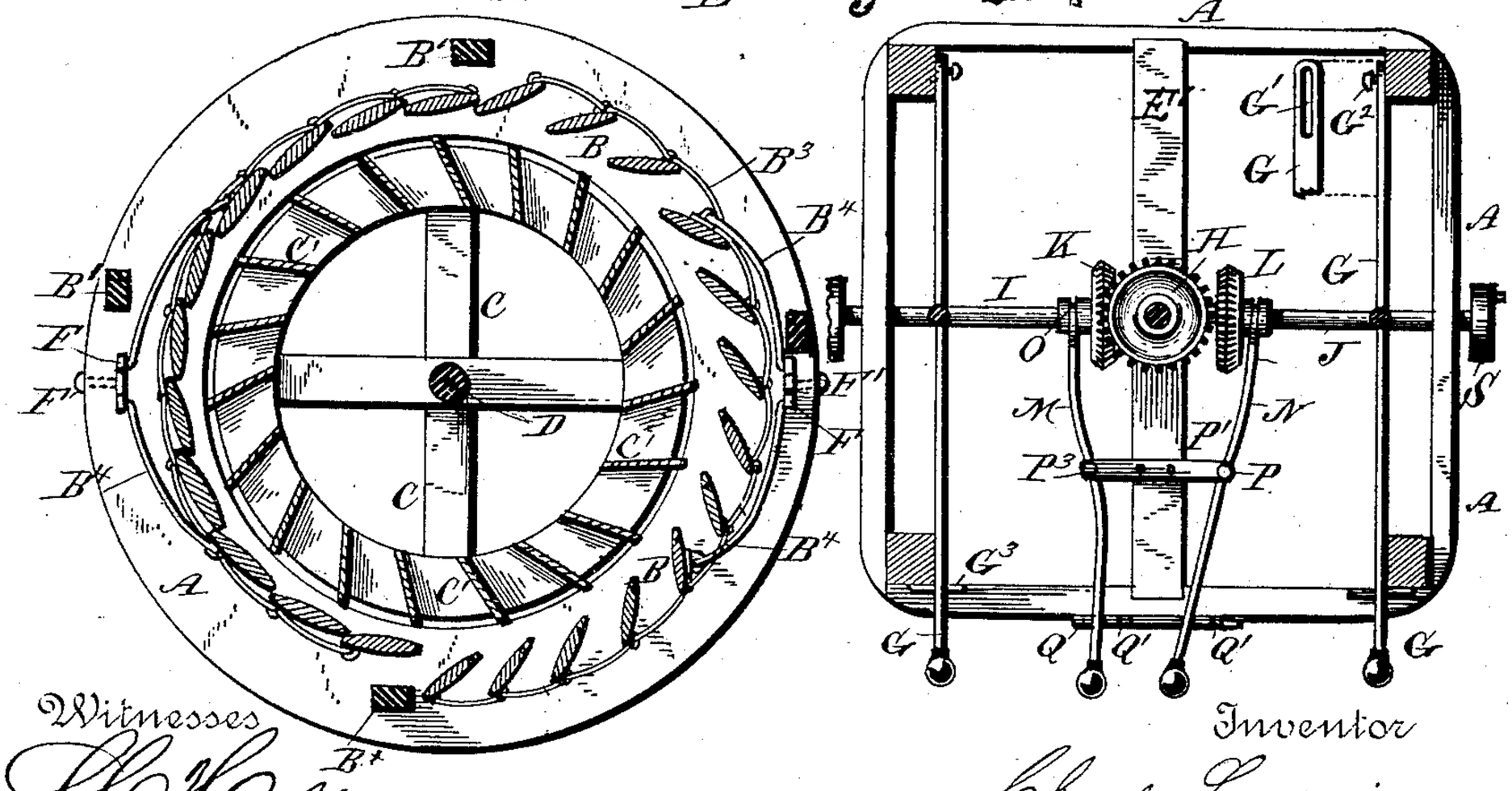


Fig. 2.

Fig. 3.



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CHARLES LUDWIG, OF REINBECK, IOWA.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 353,363, dated November 30, 1886.

Application filed December 7, 1885. Serial No. 184,891. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LUDWIG, a citizen of the United States, residing at Reinbeck, in the county of Grundy, State of Iowa, have invented certain new and useful Improvements in Windmills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to windmills of that class which comprises a horizontal wheel arranged within a casing, the sides of which are formed of slats connected in sets and with independent levers for each set, whereby different portions of the casing may be opened or closed to permit an action of wind from a particular direction upon the wheel; and the invention consists in certain features of construction hereinafter described, and particularly pointed out in the claims.

Among the objects and advantages of my invention are to control, permit, or prevent from the ground or any suitable point the action of the wind upon the wheel; in other words, to manipulate the slats of the casing in such a manner as to regulate the quantity or force of the wind upon the wheel by closing, partly opening, or completely opening the casing, and this either partly or wholly around the same, and to provide means whereby the revolution of the wheel may be utilized to run either conjointly or separately independent mechanisms.

Referring to the drawings, Figure 1 is a side elevation. Fig. 2 is a section on the line 1 2, and Fig. 3 is a section on the line 3 4, of Fig. 1, of a windmill constructed in accordance with my invention.

Like letters indicate like parts in all the figures of the drawings.

Upon a suitable tower or frame-work, A, which may be placed upon any building or constructed upon the ground, is supported a casing comprising pivoted slats B, supporting-posts B′, and a roof or covering, B^2, in which a wheel, C, is arranged upon a vertical shaft, D, which is supported upon a bearing, E, mounted upon a cross-beam, E′, forming a part of the support for the tower A. The slats B of the casing are pivoted at their lower and upper ends, and their outer edges connected in series by links B^3, each series comprising, as desired, a quarter, third, or half of the entire slats in the wall of the casing. In this instance each series comprises one-half of the whole number of slats. The slats are pivoted at their inner edges when open, and from one or more of the slats from each series is extended a curved connecting-rod, B^4, which is pivotally connected to a lever, F, pivoted at F′ to the tower, A, and extended downwardly and suitably connected to a hand-lever, G, (see Fig. 3,) which at one end is slotted, as at G′, and mounted upon a pin or bolt, G^2, inserted into the frame-work of the tower. The hand-lever extends across said frame-work and rests upon the edge of a plate, G^3, where it is retained by means of notches formed in the lower edge of the lever.

It will be seen by the construction thus described that when the lever G is drawn horizontally in one direction (the slot G riding upon the pin G^2) the lever F will be oscillated upon its pivot, and its upper end will serve to open or close the series of slats connected therewith by means of the rod B^4 in accordance with the direction in which the upper end of the lever F is moved. Now, by providing a series of levers, connecting-rods, and links upon opposite sides, as shown, or upon four sides of the casing and foundation, halves or quarters of the casing-slats may be manipulated so as to either prevent the entrance of wind therein, or to permit a limited quantity, or to permit a substantially unobstructed entrance of the wind within the case where it will come into contact with the inclined slats C′ of the wheel C and cause the same to revolve.

The miter-gear H is arranged near the lower end of the shaft D of the wheel C. Two diametrically-opposite shafts, I J, provided with gears K L, are journaled in the bearing E, and upon or within suitable cross-beams of the tower A. Each of the gears K and L are adapted to slide longitudinally upon its shaft by means of levers M N, resting in grooves O, formed in the collars of the gears and pivoted at P on the plate P′, projecting from the cross-bar of the frame-work. The free ends of the levers cross a plate, Q, secured to the frame-work and provided with notches Q′, which serve to retain the levers in a desired position.

Upon the shaft I is a belt-pulley, R, and upon the shaft J is a disk, S, having a wrist-

pin, S′, to which the pitman T is connected. The pitman T may be connected with a pump or other desired reciprocating mechanism arranged within a building or upon the ground, while the pulley R may be connected with any desired rotary mechanism—such as a grain-separator, wood-sawing machine, or any other mechanism employed on farms or in shops, in order to render the power of the wind available for mechanical purposes.

Now, it will be observed that, swinging the free ends of either of the levers M or N to the right or left, the gear upon the opposite end will be thrown into or out of mesh with the gear H, so that either or both of the shafts I or J will receive motion therefrom. By the devices described either the pitman, the pulley, or both, may be thrown into or out of operation, as occasion may require.

The rods F may be extended downwardly to any desired distance, so that the levers G M N may reach to the ground; or said levers may be operated by suitable mechanism extending therefrom to the ground.

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

1. The combination of the tower A, the casing B, mounted thereon and comprising vertically-pivoted slats, the links B^3, connecting consecutive slats in each separate series, and the pivoted levers F, connected at opposite sides of their pivots to the slats of said separate series by rods B^4, substantially as specified.

2. The combination of the wind-wheel C, vertical shaft D, supporting the same, gear H, secured to shaft D, horizontal shafts I J, sliding gears K L, mounted thereon, levers M N, connected with said sliding gears, and the fixed central bearing-block, E, common to all the shafts, substantially as specified.

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

CHARLES LUDWIG.

Witnesses:

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