

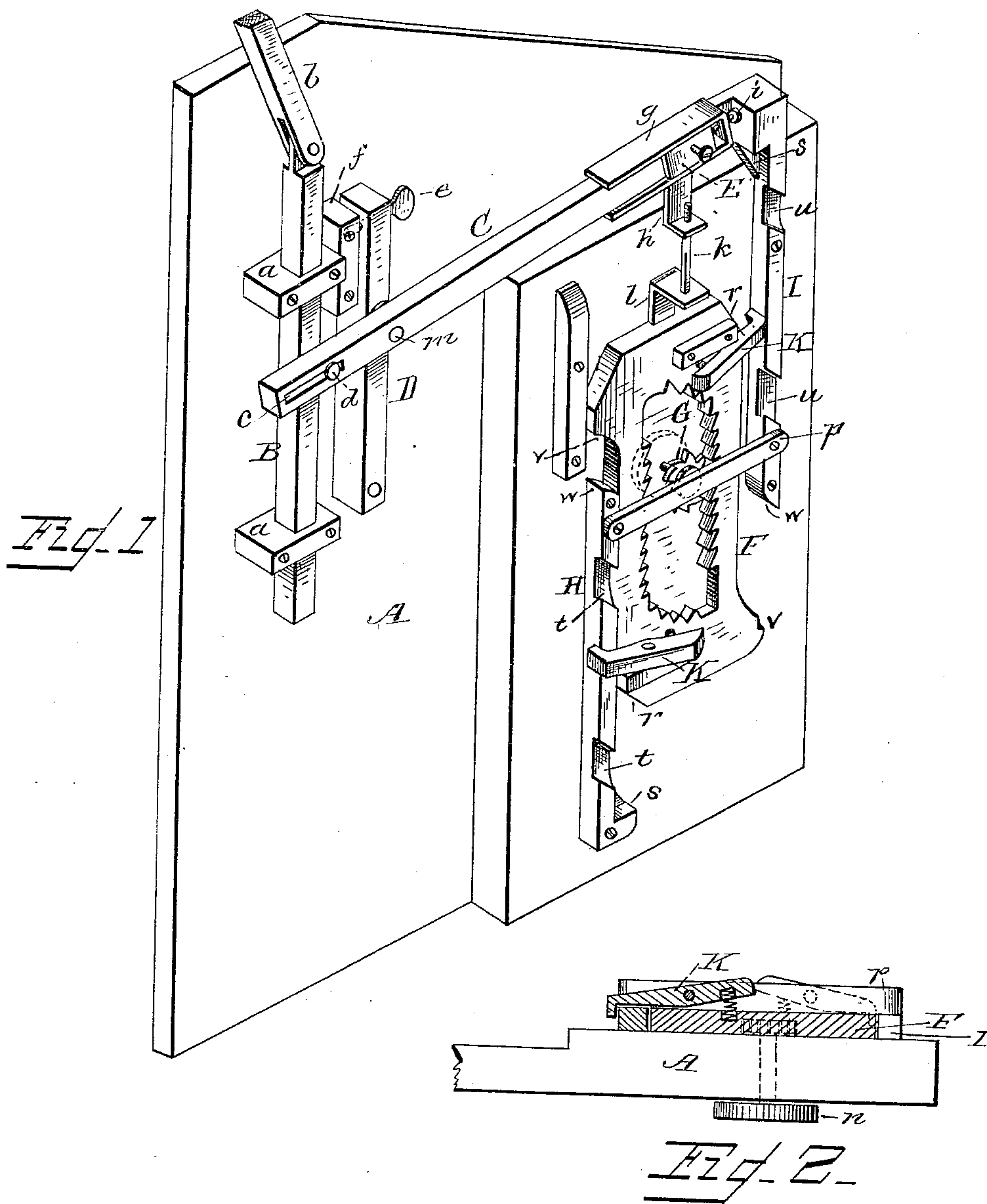
(No Model.)

D. AUSTIN.

MECHANICAL POWER FOR WINDMILLS.

No. 273,796.

Patented Mar. 13, 1883.



WITNESSES
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MECHANICAL POWER FOR WINDMILLS.

SPECIFICATION forming part of Letters Patent No. 273,796, dated March 13, 1883.

Application filed December 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, DINSMORE AUSTIN, a citizen of the United States, residing at Denison, in the county of Crawford and State of Iowa, have invented certain new and useful Improvements in Mechanical Power for Windmills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a perspective view of my invention; and Fig. 2, a detail view thereof, partly in section.

The present invention has relation to certain new and useful improvements in mechanical powers for attaching to a wind-wheel, and the object thereof is to provide means whereby a mill for grinding corn or for other purposes may be effectually operated, or for turning grindstones, or imparting a rotary motion for any purpose desired.

The invention consists in the details of construction substantially as shown in the drawings and hereinafter described and claimed.

In the accompanying drawings, A represents a wall or base, to which the several operating parts are connected. A rod, B, is vertically reciprocated in boxes *a*, connected to the wall or base A, and has pivoted to its upper end a pitman, *b*, said pitman in turn being connected in any suitable manner to the crank-shaft of a wind-wheel.

To the rod B is connected the slotted end of an arm, C, said arm being pivoted to an upright, D, which in turn is pivoted at its lower end to the wall or base A. The arm C is connected to the vertically-reciprocating rod B by a pin, *d*, which passes through the slot *c* and into the rod, thereby giving a free motion to the arm when the rod is caused to move up and down in the boxes *a*. The upright or post D is adjusted laterally by a set-screw, *e*, which passes through the upper end of the post D and into a block, *f*. By this adjustment the length of the arm C is regulated by either making it longer or shorter from the point of connection between the post D and rod B, thereby increasing or diminishing the

extent of stroke of the arm, as may be required. The arm C at its free end has connected to it a guide-frame, *g*, which is slotted upon its under side, to admit the upper end of an angle-plate, *h*, pivoted or otherwise suitably attached to a longitudinally sliding or adjustable bracket, E. This bracket E slides within the guide-frame *g*, and is adjusted by a screw, *i*, passing through the end of the frame and bracket. This adjustment of the bracket E regulates the motion of the endless rack F, said rack being connected to the angle-plate *h* by a screw-rod, *k*, projecting from an angle-plate, *l*, connected to the rack. The rack F has motion imparted to it by the arm C, which is caused to move upon its pivotal connection *m* by the vertically-reciprocating rod B. A pinion, G, engages with the teeth of the rack F, and is rigidly affixed to a shaft having a suitable wheel or disk, *n*, attached to which may be connected a pitman or other means for running grinding-mills or grindstones, or, in fact, any purpose for which it may be found convenient. This rack F is held in the desired position when in motion by guides H I upon each side thereof, and also by a cross-brace, *p*.

To the outer side of the endless rack F are pivoted spring-latches K, which extend over the guides H I alternately and operate in the following manner: When the rack F is at nearly its highest point, the latch K, at the left of the rack, embraces the guide H, and when brought down to its full extent the angular face *r*, at the lower left-hand corner of the rack, will strike against the inclined shoulder *s* at the termination of the guide H. At this point the rack F will be thrown out laterally in a direction away from the guide H by the action conjointly of the inclined shoulder *s* and angular face *r*, the hooked end of the latch passing over and beyond the guide through the inclined mortise *t*. As this movement is being accomplished the latch, at the upper right side of the rack, passes down through the mortise *u* and embraces the guide I, and bringing the teeth upon the left side of the rack in position to engage with the pinion G. The rack F, when on its upward course and when the inclined shoulder *v* strikes the beveled end of the guide I, will be forced in a di-

rection toward the guide H, and at the same time the position of the latch will be on line with the mortise *u* at the upper end of the guide, and thus pass over it, while at the same time the opposite latch passes through the mortise *t* at the upper end of the guide H to embrace it and steady the rack on its downward course. This continual up-and-down and lateral motion of the rack brings the teeth thereof on line to engage with the pinion alternately upon each side of the rack, giving to the pinion a continuous and uninterrupted rotary motion. The guides H I, it should be noticed, are arranged diagonally opposite each other, and when one of the latches embraces its guide the opposite latch bears against the inner side of its respective guide. The guide I, at its upper end, has an inclined shoulder, *s*, similar to that upon the lower end of the guide H, and acts in the same manner in connection with the angular face *v* to throw the rack against the opposite guide. These inclined shoulders *v* and angular faces *r* are arranged diagonally opposite each other at both top and bottom of the rack, as shown, and each of the guides has an inclined shoulder, *s*, also diagonally opposite each—one at the top and the other at the bottom—the opposite ends of each guide being beveled, as shown at *w*.

The endless rack and guides act in connection with each other to give to the rack a lateral or sidewise motion as it is vertically reciprocated, as hereinbefore described, the spring-latches performing their functions of holding the rack against the guides.

The wheel *n* may be replaced by a suitable pulley, over which a belt is placed; or a suitable gear-wheel may be substituted, or sprocket-wheel, as found necessary.

One or several revolutions of the pinion G may be obtained to one stroke of the rod B by simply lengthening or shortening the distance of the arm C between its pivotal con-

nections and adjusting the angle-plate *h* on the screw-threaded end of the rod *k*, also enabling an adjustment to be made to the motion of the arm C.

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

1. The vertically-reciprocating rod B and arm C, connected thereto by pin *d*, passing through an elongated slot, *c*, in combination with the adjustable post D, to which the arm is pivoted, and the endless rack F and pinion G, substantially as and for the purpose set forth.

2. The rod B, slotted arm C, and adjustable post D, in combination with the adjustable bracket E, endless rack F, and pinion G, substantially as and for the purpose specified.

3. The vibrating arm C, carrying the adjustable bracket E, in combination with the angle-plate *h*, connected thereto, the screw-rod *k*, plate *l*, and the rack and pinion F G, substantially as and for the purpose set forth.

4. The pinion G and rack F, having inclined shoulders *v* and angular surfaces *r*, in combination with the guides H I, formed with inclined mortises *t u* and inclined shoulders *s*, said rack carrying suitable spring-latches, K, substantially as and for the purpose specified.

5. The vibrating arm C, connected to the adjustable post D, and having secured to its end the adjustable bracket E, in combination with the pinion G, rack F, carrying spring-latches K, and the guides H I, constructed to operate substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DINSMORE AUSTIN.

Witnesses:

L. M. SHAW,
JOE KNIGHT.