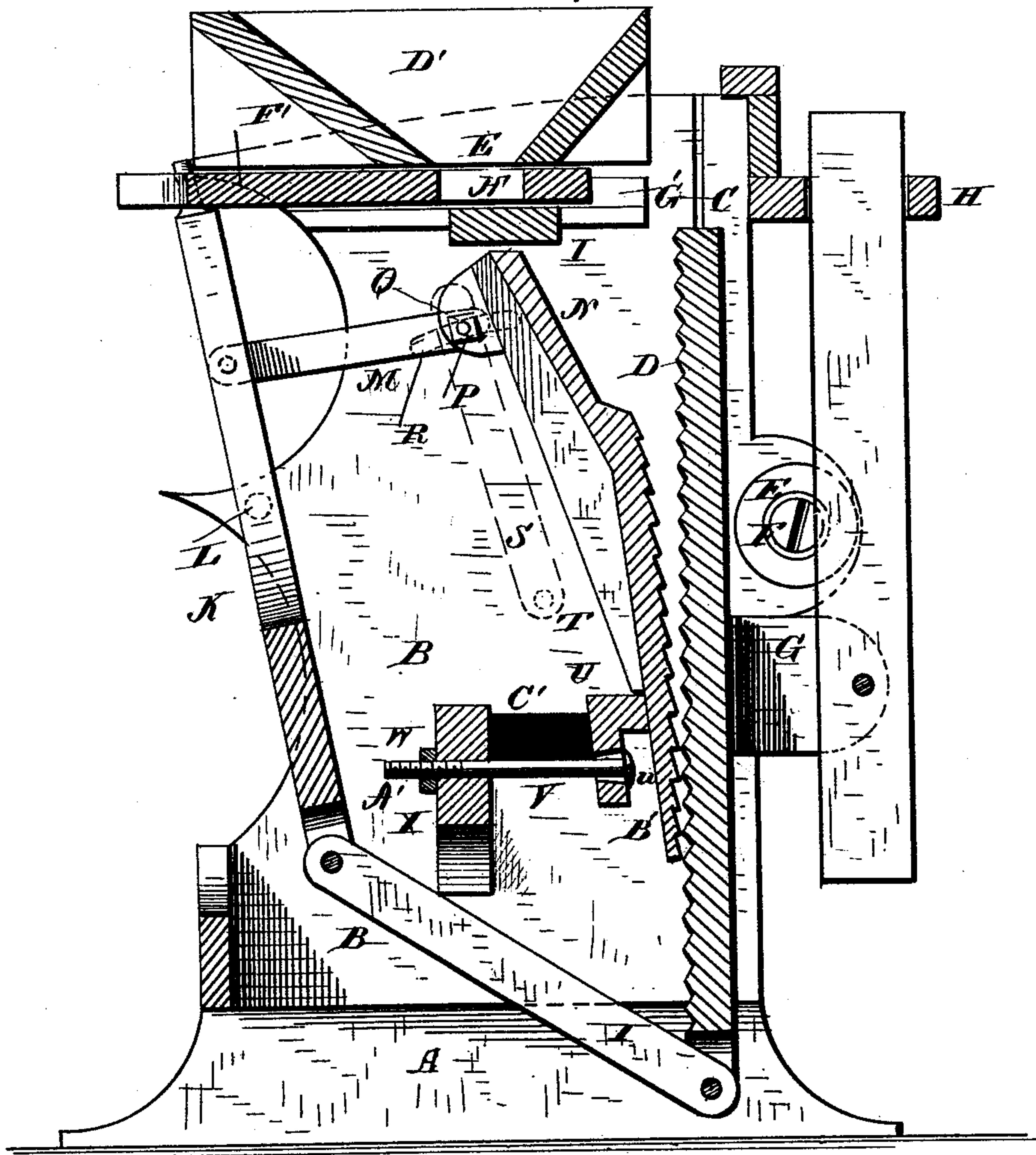


(Model.)

J. & R. BEAN.  
Grain Grinder.

No. 233,192.

Patented Oct. 12, 1880.



Witnesses:  
J. L. Curande,  
H. Aubrey Taulumie.

Inventors:  
John Bean & Roscoe Bean,  
By Alexander Macdon,  
Atty.  
per T.



# UNITED STATES PATENT OFFICE.

JOHN BEAN AND ROSCOE BEAN, OF SPRINGFIELD, OHIO.

## GRAIN-GRINDER.

SPECIFICATION forming part of Letters Patent No. 233,192, dated October 12, 1880.

Application filed July 21, 1880. (Model.)

*To all whom it may concern:*

Be it known that we, JOHN BEAN and ROSCOE BEAN, of Springfield, in the county of Clarke, and in the State of Ohio, have invented certain new and useful Improvements in Grain-Grinders; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in mills for grinding grain; and it has for its objects to provide an inexpensive mill that may be operated by a direct reciprocating motion, being particularly designed to be employed in connection with windmills, although it is applicable to all other purposes where a direct reciprocating motor is employed. These objects we attain by the apparatus illustrated in the accompanying drawing, which represents a longitudinal vertical section of our improved grain-grinder.

The letter A indicates the base of the mill, upon which are supported the two upright side pieces, B, both the base and side pieces being preferably formed of cast metal, although they may be constructed of other material, if found convenient. The side pieces, B, near their front edges on the inside, are provided with vertical guide-grooves C, in which is adapted to reciprocate vertically a flat grinding-plate, D. The said grinding-plate is steadied in the grooves by means of the friction-rollers E, journaled at F to the side pieces, and bearing with their peripheries against the front of the reciprocating plate D. To the front of said plate are attached the lugs G, or said lugs may be formed with the plate. Between these lugs is secured a vertical reciprocating rod traveling in a guide, H, near the top of the apparatus, the said rod serving as a means by which power may be applied to the mill from a proper motor.

To the lower part of the plate D is pivoted one end of a beam, I, the other end of which is pivoted to the lower end of a walking-beam, K, which is pivoted at I to the sides of the mill at the rear. The said walking-beam is connected by means of beam M to the upper part of a grinding-plate, N. The said grind-

ing-plate is located between the sides of the mill, with its grinding-face toward the grinding-face of the reciprocating plate D. The upper part of the plate N extends backward at an angle from the lower part, and is formed with studs P at opposite sides, to which the beams M, above mentioned, are pivoted by means of bolts Q, which extend through segmental slots R in the sides of the mill, and are secured to the upper ends of the beams S, which are pivoted at T to the outside of the mill, the said beams serving to support the said plate N, and at the same time to permit it to swing freely when the machine is in operation.

The lower part of the plate N is provided at its back with a stud, U, from which extends an adjusting-screw, V, passing through an aperture, W, in a cross-piece, X, the screw being fitted with an adjusting screw-nut, A'. The said screw is loosely fitted in an opening, B', in the stud U, and is confined therein by its head u, a rubber or other spring, C', being interposed between the stud U and cross-piece X, giving the lower part of the plate N a spring-bearing.

At the top of the mill is a feed-hopper, D', immediately below the delivery-opening E of which is located a horizontal feed-slide, F', which is fitted in grooves G' at opposite sides of the side pieces, B, the rear end of said slide being connected to the vertical walking-beam, whereby a reciprocating motion will be imparted to said slide. The said slide is provided with a feed-opening, H', so arranged with respect to the opening E and a horizontal shelf, I, as to feed the grain intermittently between the grinding-plates.

The grinding-plates may have their faces grooved in any desired manner, or they may be provided with detachable grinding-faces, which may be grooved or otherwise roughened to grind properly.

The connections between the grinding-plate N and the vertical walking-beam may be removed or dispensed with, if desired, in which case the said plate will remain stationary; but it is preferable that such plate should swing or oscillate, as such motion accelerates the grinding, and causes the plates to grind finer.

The operation of our invention will be readily understood in connection with the above



description, and further explanation of the same is deemed unnecessary.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In combination with the oscillating grinding-plate provided with studs at opposite sides, the beams pivoted to said studs by means of bolts extending through segmental slots in the sides of the mill, and the beams pivoted to the outside of the mill, with the mechanism for operating said grinding-plate, substantially as specified.

2. In combination with the reciprocating

plate, the oscillating plate, and mechanism for operating the same, the feed-slide connected with said operating mechanism, whereby the grain is fed intermittently between the grinding-plates, substantially as specified.

In testimony that we claim the foregoing we have hereunto set our hands this 17th day of July, 1880.

JOHN BEAN.

ROSCOE BEAN.

Witnesses:

JAMES B. THORN,

T. W. TOLCHARD.