D. BRIGHAM & D. E. SHAW.

Feed Grinding-Mill.

No. 208,511. Patented Oct. 1, 1878.

Fig. 1

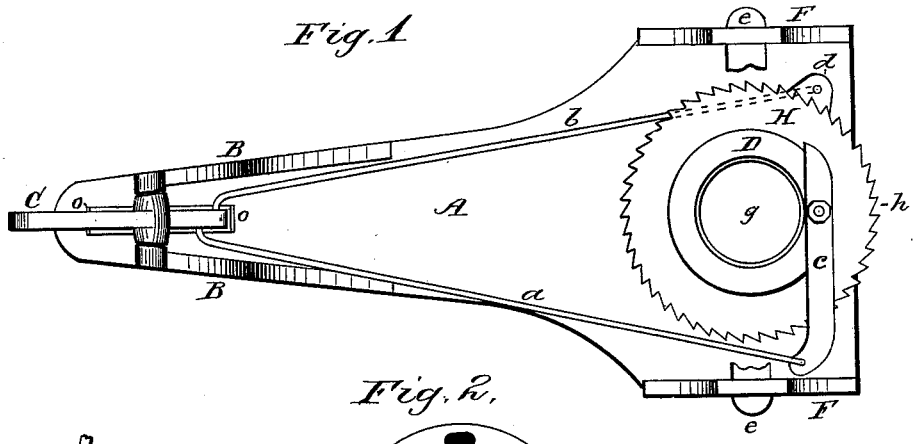


Fig. 2.

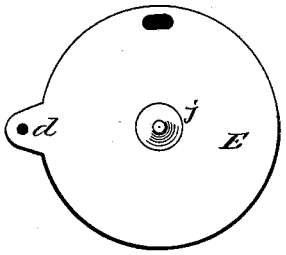


Fig. 3.

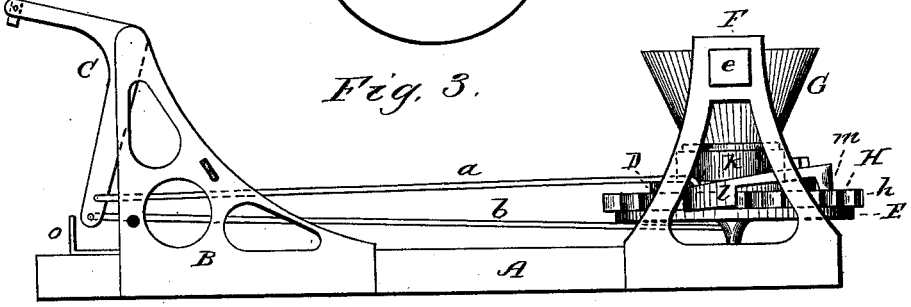
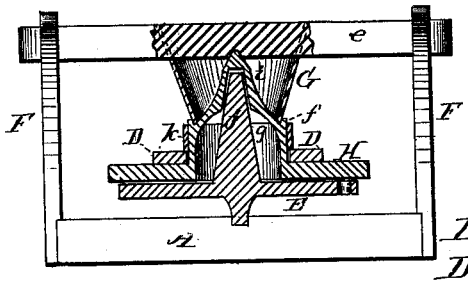


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

DAN BRIGHAM AND DAVID E. SHAW, OF CHATSWORTH, ILLINOIS.

IMPROVEMENT IN FEED-GRINDING MILLS.

Specification forming part of Letters Patent No. **208,511**, dated October 1, 1878; application filed March 11, 1878.

To all whom it may concern:

Be it known that we, DAN BRIGHAM and DAVID E. SHAW, of Chatsworth, in the county of Livingston and State of Illinois, have invented a new and valuable Improvement in Feed-Mills; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation 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 representation of an upper plan view of our invention. Fig. 2 is a detached plan view of the bottom plate. Fig. 3 is a side elevation of our invention, and Fig. 4 is a sectional view taken on line *x x* of Fig. 1.

This invention has relation to that class of mills used for the purpose of grinding grain for family or other use, and more particularly to those designed or constructed to be operated by wind-power, or by a suitable windmill, to the pumping-rod of which the operating parts of the feed-mill are connected by suitable levers.

The object or purpose of the present invention is to produce a feed-mill of the above character, that will be simple in construction, and at the same time durable and effective in its purpose in grinding any of the various kinds of grain for feed or fine enough for family use.

The invention therefore consists in the means used for connecting the operating parts of the mill to the pumping-rod of a windmill, and the general construction and combination of the several parts, as will be hereinafter described, and subsequently pointed out in the claims.

In the accompanying drawings, A represents the base. To the sides or other convenient part thereof are secured standards B, having journaled to their upper ends a right-angle lever, C, one end of said lever being connected to a pitman of a suitable windmill, by which motion is given to the operating parts of the feed-mill. The other end of the right-angle lever C has connected to it rods *a b*, the rod *a* connecting with a pawl, *c*, the same being pivoted to the upper side of a metal ring, D. The rod *b* is connected to a bottom plate, E, by which the plate is operated. These rods *a b* are preferably connected to the right-angle lever C by bending their ends and passing them into holes formed in the right-angle lever, and also in holes in the outer end of the pawl, and in a projecting lip, *d*, formed upon the periphery of the bottom plate, E.

Although we have shown and described this manner of connecting the rods, various other means may be devised which will with equal facility render the rods removable or detachable from the mill when required.

Standards F, also secured to the base A, support a cross-bar, *e*, to which is attached a suitable hopper, G, the lower end of the hopper fitting within an annular rim, *f*, formed upon the upper side, and around an opening, *g*, in the center of a plate, H. The plate H has formed upon its periphery ratchet-teeth *h*, and over the opening *g* a support, *i*, which fits over and upon a conical axial center, *j*, formed with the plate E. A band, *k*, secured around the annular rim *f*, retains the ring D in position upon the plate H during its rotation.

The manner in which our feed-mill operates and the valuable results produced by the general form and construction of the parts will be fully understood from the following explanation.

With one end of the right-angle lever C—supposed to be connected to a windmill through a suitable pitman—motion is communicated to the right-angle lever, which, by the connecting-rod *b*, causes the lower or bottom plate, E, to oscillate, and also, through the medium of the connecting-rod *a*, the projection *l* upon the under side of the pawl *c* is caused to be brought in contact with the ratchet-teeth upon the periphery of the plate H, causing it to rotate part of a revolution at each reciprocation of the pitman. By this movement of the two connecting-rods *a b* the top plate, H, and the bottom plate, E, have motion in opposite directions, thus obtaining about one-third of a revolution to each plate, or equal to two-thirds of a revolution to one plate. On the back stroke the bottom plate oscillates in a backward direction, carrying with it the plate H, owing to the friction of the grain between the two plates; also, on the back stroke of the rod *a* the pawl *c* becomes relieved from the

ratchet-teeth on the outer edge of the plate H, and the shoulder *m* upon the inner end of the pawl bears against the edge of the ring D, causing it to rotate backward. The two plates are now ready to commence their forward movement, and grind up to their full capacity with a good wind; but if the wind should be light, or the windmill of the smaller size, one of the plates can be made stationary by detaching one of the connecting-rods, when it will require less power to run the mill and grind less feed.

It will be noticed that by the use of a right-angle lever, as previously described, the feed-mill may be set or located any distance from the windmill-tower, while if the right-angle lever was not used it would necessitate the placing of the mill within the tower, which has been found to be a very undesirable place for a feed-mill. And a further advantage in the use of a right-angle lever springs from the fact that the lever may be connected directly to the pumping-rod of windmills, thereby doing away with all unnecessary fixtures.

The meal is discharged from the mill through a suitable chute, and the right-angle lever is regulated in its motion by stops *o* upon the base of the mill, thereby preventing too great a play back and forth.

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

1. The combination, with the right-angle lever C, of the detachable rods *a b*, connected to the plates E H, substantially as described, whereby one of said plates may remain stationary while the other is in operation, or both may be operated, as required, and for the purpose specified.

2. The plates E H and ring D, in combination with the operating-rods *a b* and the pawl *e*, the latter having projection *l* and shoulder *m*, constructed to operate substantially as and for the purpose described.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

DAN BRIGHAM.
DAVID E. SHAW.

Witnesses:
S. D. WEBSTER,
ISAAC JACKSON.