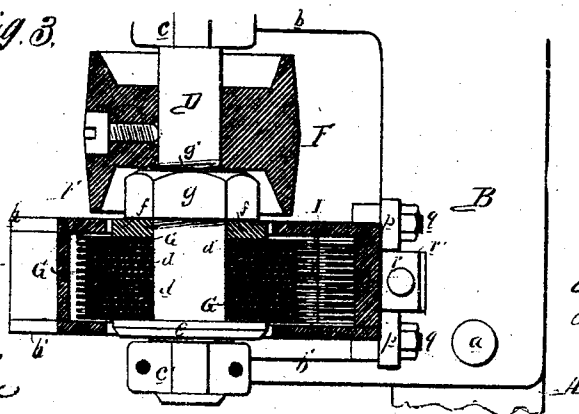
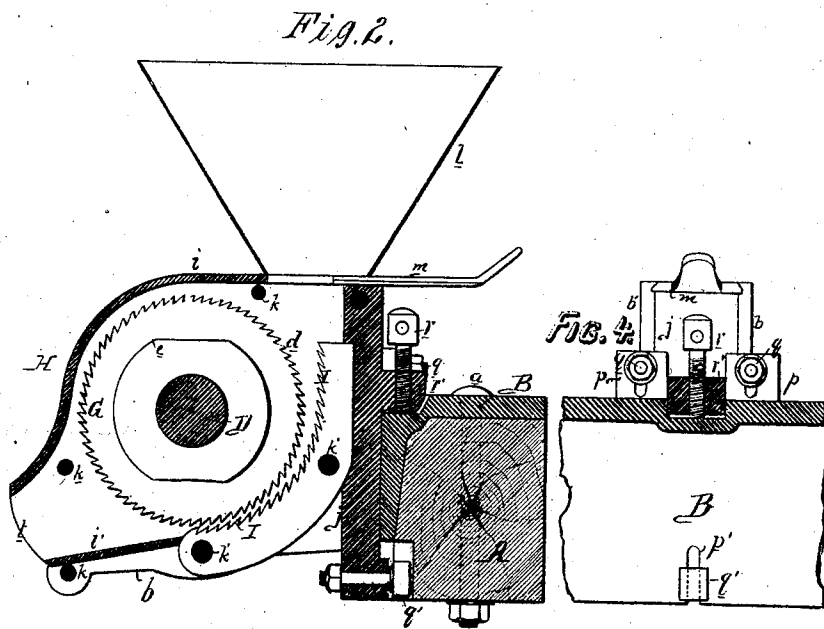
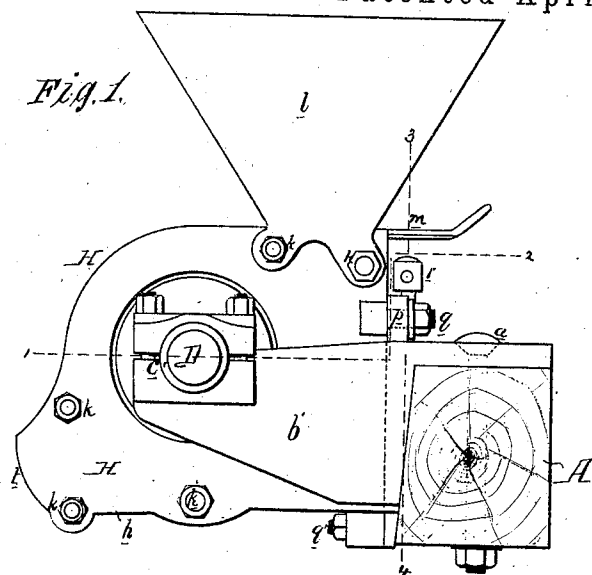


C. H. ROBERTS.
Grinding Mill.

No. 101,917.

Patented April 12, 1870.



WITNESSES.
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CHARLES HENRY ROBERTS, OF EVANSVILLE, INDIANA.

Letters Patent No. 101,917, dated April 12, 1870.

IMPROVEMENT IN GRINDING-MILLS.

The Schedule referred to in these Letters Patent and making part of the same.

I, CHARLES HENRY ROBERTS, of Evansville, county of Vanderburg, State of Indiana, have invented an Improved Grinding-Mill, of which the following is a specification.

Nature and Object of the Invention.

My invention consists of a grinding-mill having a cylindrical bur revolving in fixed bearings, and a concave grinding-surface rendered adjustable with the case which contains the bur, in a manner which will be fully described hereafter; and

My invention also consists in the combination of the said adjustable case, and a concave consisting of a number of plates or disks having serrated edges, with intervening plates having plain edges, as hereafter explained.

Description of the Accompanying Drawing.

Figure 1 is a side elevation of my improved grinding-mill;

Figure 2, a vertical section of the same;

Figure 3, a sectional plan view on the line 1 2, fig. 1; and

Figure 4, a transverse section of part of the mill on the line 3 4, fig. 1.

General Description.

A represents a wooden beam or other stationary object, to which a frame or plate, B, is secured by bolts, *a*, but it should be understood that this frame can be so modified in form as to be entirely self-supporting.

The frame B has two arms or brackets, *b* and *b'*, at the outer ends of which are formed bearings, *c c*, for the journals of a horizontal shaft, D, which carries a driving-pulley, F, and the cylindrical bur G of the mill.

The bur is of the peculiar construction best observed in fig. 3, as it consists of a number of thin serrated disks or plates, *d*, of steel, resembling circular saw-blades, which are adjusted upon the shaft alternately with thin disks or plates, *d'*, of sheet-iron, tin, or other suitable material, these disks being of a somewhat less diameter than those with serrated edges.

The whole of the plates forming the bur are confined between a collar, *e*, of the shaft D, and a washer, *f*, which is forced against the said plates by a nut, *g*, adapted to the threaded portion *g'* of the shaft.

I have found that burs constructed in the above manner are most effective in practice, as the teeth of the several plates form a continuous "dress," which can be readily sharpened when necessary, or which can be quickly repaired by the removing and replacing of any of the plates when the teeth become broken.

The cylindrical bur G is contained within a cast-iron shell or case, H, which consists of side-plates *h h*, a

top plate, *i*, bottom plate *i'*, and vertical end-piece *j*, the whole being secured together by suitable bolts, *k*.

A hopper, *l*, of appropriate capacity, is secured to the top of the case H, and the opening at the bottom of the said hopper is arranged to be wholly or partially closed by a sliding gate, *m*.

The concave grinding-surface I of the mill is constructed in precisely the same manner as the cylindrical bur G, that is, of a number of plain and serrated plates arranged alternately. It is permanently secured within the case H by bolts *k*, rests against the end-piece *j* of the said case, and is so arranged in respect to the cylindrical bur G that the space between it and the latter shall gradually decrease in width toward the bottom.

The case H is so attached to the frame B that it can, together with the concave, be adjusted vertically, while the shaft D and cylindrical bur, which are carried by the frame B, remain stationary. The concave can thus be adjusted toward or from the cylindrical bur.

The method of connecting and of adjusting the said case is, in the present instance, as follows:

The frame B has at the top two vertically-slotted lugs, *p p*, and at the bottom a vertical slot, *p'*, and to these slots are adapted the bolts *q* and *q'* of the case, furnished with suitable nuts, which, after a vertical adjustment of the case, can be tightened, so as to retain the latter in any desired position.

The adjustment is effected by means of a set-screw, *r*, which passes through a threaded projection, *r'*, on the case, and bears upon the top of the frame B, so that, after loosening the nuts of the bolts *q* and *q'*, the said case can be raised or lowered and the concave bur I correspondingly adjusted, to the greatest nicety, by simply turning the set-screw *r*.

Thus the mill can be quickly and accurately adjusted for either fine or coarse grinding, and is, therefore, particularly applicable for farmers' use, for grinding corn and other grain into meal of various degrees of fineness.

The bolts *q* and *q'* may in some cases be altogether dispensed with, and the case be made adjustable in vertical guides on the frame B; but I prefer to use these bolts, as they enable the case and frame to be rigidly connected together after each adjustment of the parts.

When the mill is in operation the feeding of the grain into the space between the bur and concave is regulated by the gate *m* in the bottom of the hopper, and the meal passes from the outlet or spout of the case into any suitable receptacle.

In constructing the mill it is necessary, in order to permit the above-described vertical adjustment of the

case, that the openings in the side-plates *h h* of the same should be elongated or made of somewhat greater diameter than the portion of the shaft *D*, which passes through them; but as these opening are situated at one side of and above the space between the bur and concave, there is little or no tendency of the ground or partly-ground material to escape through them.

Claims.

1. The combination of a bur revolving in fixed bearings, an adjustable case inclosing the bur, and a concave secured to the case, all substantially as described.

2. The case *H*, containing a concave, *I*, and adjustable on a frame, *B*, substantially as described.

3. The combination of the adjustable case *H* and a concave consisting of plain and serrated plates, arranged as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES HENRY ROBERTS.

Witnesses:

THOMAS ROBERTS,
ASTLEY COOPER ANCONA.