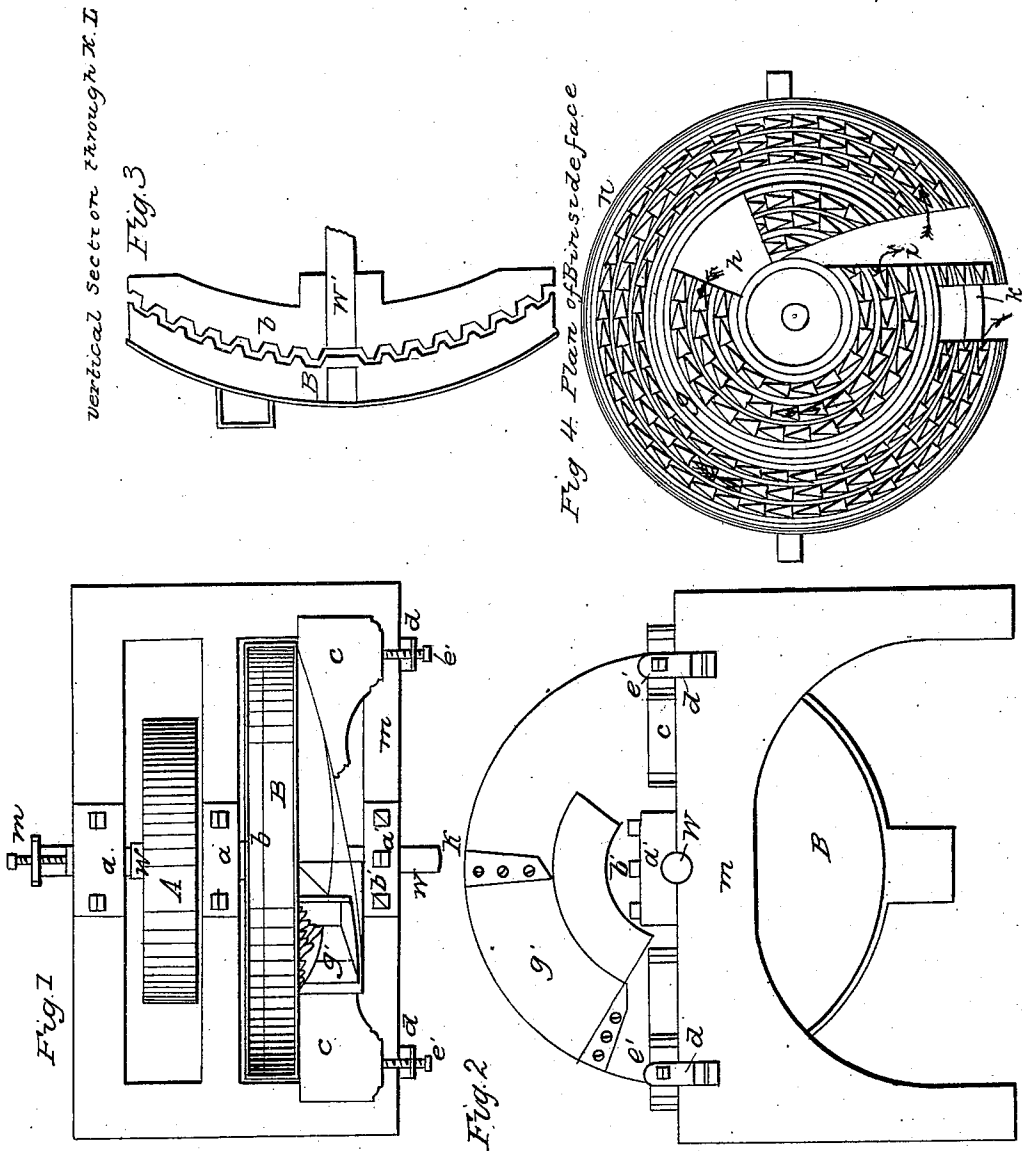


BUTTERFIELD & CLARK.

Corn Cracker.

No. 5,824.

Patented Oct. 3, 1848.



# UNITED STATES PATENT OFFICE.

EDWIN BUTTERFIELD AND GEORGE W. CLARKE, OF LOWELL, MASSACHUSETTS; SAID CLARKE ASSIGNOR TO SAID BUTTERFIELD.

## MILL FOR GRINDING.

Specification of Letters Patent No. 5,824, dated October 3, 1848.

To all whom it may concern:

Be it known that we, EDWIN BUTTERFIELD and GEORGE W. CLARKE, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Machines for Cracking or Grinding Corn or other Matters; and we do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1, denotes a plane or top view of our improved machine. Fig. 2, is a side elevation of the same. Fig. 3, is a vertical section of the two grinding plates taken through K, L, of Fig. 2. Fig. 4, is an elevation of the inner side or grinding face of the main grinding-plate B.

In the said Figs. 1 and 2, *m, m*, exhibits the cast iron frame by which the working parts of the grinding machinery is supported.

*W*, is a main horizontal shaft sustained, so as to be capable of being revolved, by boxes *a, a*. The said shaft has a driving pulley A, fixed upon it, around which (pulley) an endless band, or belt, from any suitable driving power may be carried.

*B*, and *b*, are two metallic grinding plates; the former of them being made concave on its grinding face, while the latter is made convex on its grinding face, so as to fit into and correspond with the concavity of the other as seen in Fig. 3. The plate B has one ear or projection *W*, extending backward from its center, and made to pass through and be supported by a box *a'*, which has a set screw *b'*, which is made to abut or act against the projection in such manner as to confine it in place. The said plate B, also has two projections *c, c*, which extend back from it and rest upon the top of the frame, and aid in supporting the plate B, in its proper positions.

Screws *e' e'* respectively pass through projections *d, d*, from the main frame and act against the parts *c, c*, so as to force the plate B, toward the plate *b*, to the extent necessary to regulate its grinding distance from the plate *b*.

The plate B, thus becomes stationary in position, while the plate *b*, is fixed upon the driving shaft, and is put in revolution by and with the said shaft. Each plate is

furnished on its grinding face with concentric ranges of teeth, which are made to project from it; and they are so placed together that the ranges of teeth of one plate shall when the plates are placed in juxtaposition respectively enter in the spaces made between the ranges of teeth of the other plate, as seen in Fig. 3.

The grinding face of the plate B, is divided by a circular partition or projection *g*, into two parts as seen in Fig. 4, the said partition being made to occupy the space of one of the concentric rings or ranges of teeth, and to enter a corresponding space between two concentric ranges of teeth of the opposite plate.

*g'* represents the hopper or conductor of the corn. It is arranged on the outside of the plate *b*, and so as to cover a hole *h*, made through the plate, and so as to communicate directly with the ranges of teeth inclosed within the concentric partition *g*.

An opening or passage *i* is made to extend through all the ranges of teeth within the partition *g*. It also extends through the said partition and all the ranges of teeth on, around, or concentric thereto, as seen in the drawings. Near to the said passage *i*, a discharge passage or opening *K*, is made on the plate B, as seen in Fig. 4. A rim *n*, bounds the outer grinding space, and prevents the grain from falling out while being carried around in said space.

The teeth of the plate *b*, are to be disposed in directions contrary to those of the plate B, in order that they may act properly together when grinding. *m* is a set screw applied to the shaft *W'*, as seen in Fig. 1.

The operations of the two plates will be as follows: The corn passes through the opening *h*, and into the circular space within the partition *g*, through which it will be carried by the revolution of the plate *b*, and partially ground, and finally thrown into the passage *i*, through which it will fall, and pass into the space or part of the grinding surface without or around the partition *g* entirely through which it will be carried, and by which and the teeth of the adjacent plate it will be ground until it finally makes its escape through the passage or opening *k*; the course of the said corn over the plate B, and through the partition *g*, and passages *i*, being denoted in Fig. 4, by arrows. It will thus be seen that

the corn enters the plate at or near its center, and finally escapes at its circumference. By properly reversing the positions of the several parts the corn may in a like manner be made to pass into the grinding space at or near the circumference of the plate B, and thence be carried around and in the space outside of the partition *g*, thence through the said partition and into the space within the same; and finally be made to escape, at or near the center of the plate.

We do not intend to confine our invention to the employment of but one partition *g*, so as to divide the grinding surface of the plate B, into but two concentric parts; but we intend to extend our principle, and to use any number of said partitions, each one having a passage made through it, so as to convey the corn from the space directly inclosed by it, into the space directly around it, or vice versa; the same being connected

with a hopper, and inlet and exit passages, in manner substantially as described.

What we claim, as our invention is—

The combination of the two concentric grinding spaces within and without the partition *g*, the said partition *g*, passage *i*, and inlet and exit passages *h*, and *k*, made upon or in the plate B, and made to operate in connection with the plate *b*, all substantially as specified; and whether the grain is received at or near the center of the plate B, and discharged at its circumference, or vice versa, as above explained.

In witness whereof we have hereto set our signatures this twenty third day of December A. D. 1847.

EDWIN BUTTERFIELD.  
GEORGE W. CLARKE.

Witnesses:

RUFUS LAPHAM,  
E. H. BACHELDER.