(No Model.) 2 Sheets—Sheet 1.

H. H. COLES.

GRINDING MILL.

No. 331,683. Patented Dec. 1, 1885.

Fig. 1.

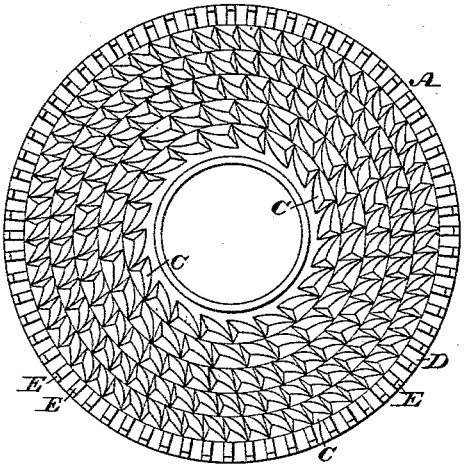


Fig. 2.

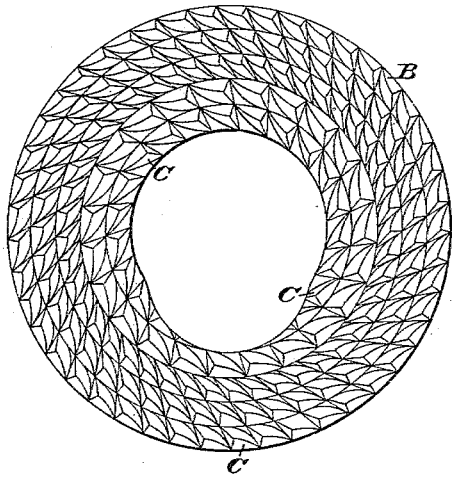
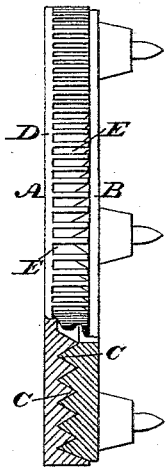


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

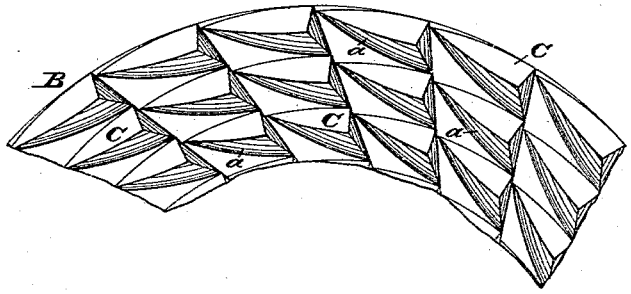
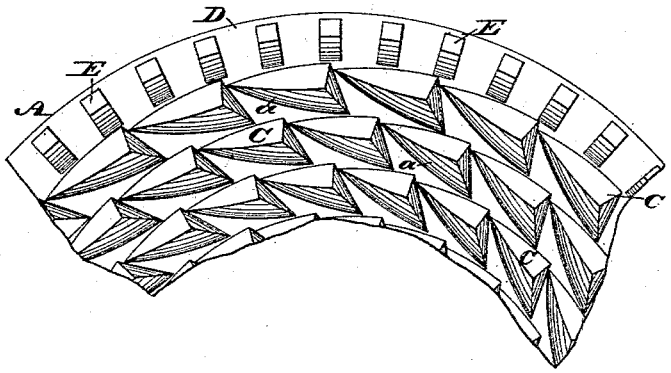


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRI H. COLES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HENRY TROEMNER, OF SAME PLACE.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 331,683, dated December 1, 1885.

Application filed December 13, 1884. Serial No. 150,259. (No model.)

To all whom it may concern:

Be it known that I, HENRI H. COLES, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Grinding-Mills, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 represents a view of the grinding-face of a rotary burr embodying my invention. Fig. 2 represents a view of the grinding-face of a stationary burr embodying my invention. Fig. 3 represents a view of the burrs shown in Figs. 1 and 2, partly broken away and partly in section. Figs. 4 and 5 represent, respectively, face views of portions of the stationary and rotary burrs, showing the form of the teeth thereof on an enlarged scale.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to improvements in grinding-mills; and it consists in burrs provided with teeth of a peculiar shape and arranged in a novel manner thereon; also, in one of the burrs, preferably the rotary, constructed with a toothed projection on the rim thereof, so as to cover or be outside of the outer row of teeth on the other burr when the burrs are in operation.

Referring to the drawings, A represents a rotary burr of a grinding-mill, and B a stationary burr thereof. The said burrs are of the usual form and construction, except as hereinafter set forth, and are provided with teeth C of a peculiar shape, as shown in Figs. 4 and 5. These teeth are of a pyramidal form, having the apex to the side of and not over the center of the base. The inner side of each of the said teeth is cut away or rounded, as at *a*, thereby forming a channel or way for the passage of the material being ground to escape from the teeth of one row to those of another. The outer side or edge of the tooth is also rounded, but not so much as the inner side. The teeth are arranged in concentric rows, and when the burrs are in operation those on the one burr partially fill the depressions between the concentric rows of the other, and, owing to the unequal lengths of the teeth, the spaces between the inner rows of the two burrs are larger than those between the outer rows thereof. The teeth are also irregularly arranged radially on one of the burrs, so that the interstices between the teeth of one concentric row are not on the same lines radially as the interstices between the teeth of the other concentric rows. This arrangement, in connection with the form of the teeth, materially aids in a proper grinding of the material by not permitting its too rapid passage or falling between the said burrs.

The cut-away portions on the outer sides of the teeth are larger on each successive row outwardly.

This construction prevents clogging as the material becomes finer.

D represents a toothed flange on the outer rim of the rotary burr A, and extending therefrom so as to cover the outer row of teeth of the burr B when the burrs are brought together. The inner edges of the said teeth E of the said flange D are inclined, corresponding to the outer edges of the outer row of teeth on the burr B. The space between any two adjacent teeth E is small, so as to prevent the passage therethrough of any large or unground portion of the material. The toothed flange D may be cast integral with the stationary burr instead of with the rotary; but I prefer its attachment to the latter, as in operation it is less likely to be clogged.

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

1. In a grinding-mill, a burr having a flanged rim provided with teeth projecting beyond the grinding-teeth on the said burr, the inner faces of which are adapted to correspond with the outer faces of the outer row of teeth of the other burr, substantially as and for the purpose set forth.

2. In a grinding-mill, a burr provided with teeth of a pyramidal form, each having the apex at the side of and not over the center of the base, and having a rounded side, *a*, substantially as shown, the said teeth being arranged irregularly radially, in combination with a burr having teeth of a like form but arranged regularly radially, one of the said burrs having a toothed flange, substantially as and for the purpose set forth.

Witnesses: HENRI H. COLES.
J. L. TROEMNER,
JOHN A. WIEDERSHEIM.