

(No Model.)

G. ELBREG.

DISINTEGRATING MILL.

No. 273,829.

Patented Mar. 13, 1883.

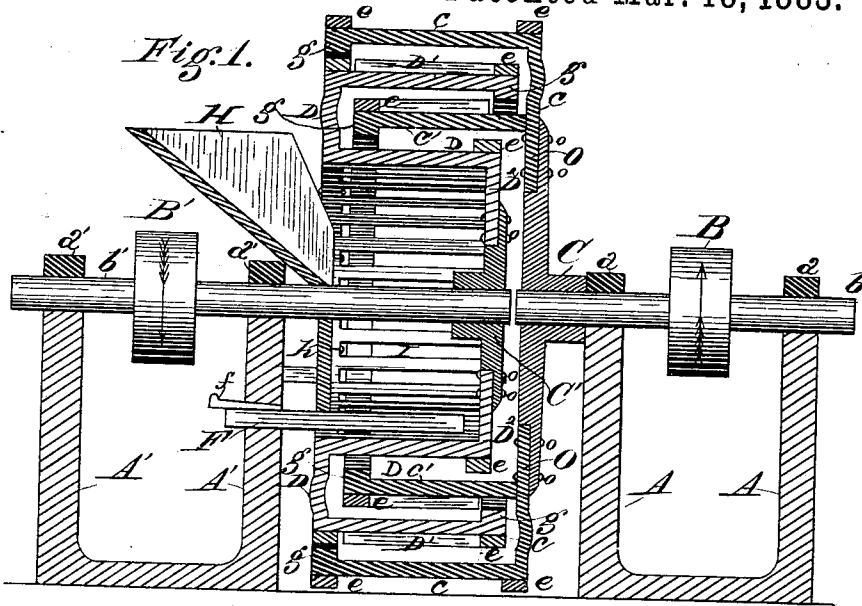


Fig. 2.

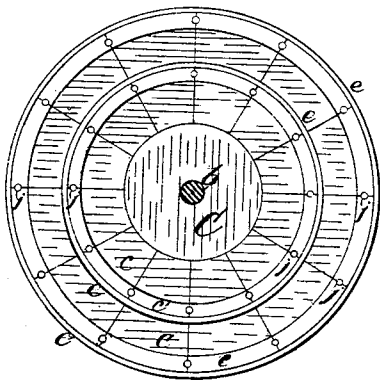
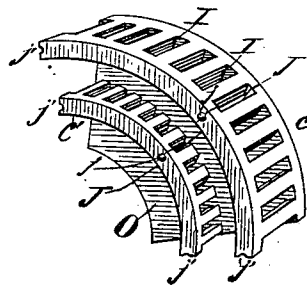


Fig. 3.



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# UNITED STATES PATENT OFFICE.

GEORGE ELBREG, OF COLUMBUS, OHIO.

## DISINTEGRATING-MILL.

SPECIFICATION forming part of Letters Patent No. 273,829, dated March 13, 1883.

Application filed June 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ELBREG, a citizen of the United States, and a resident of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Disintegrating - Mills, of which the following is a specification.

This invention relates to improvements in mills for disintegrating bones, burnt clay, and other hard substances; and the objects of my invention are to provide a novel construction of the disintegrating shells or wheels, whereby if a portion of the same becomes injured or broken it can be readily replaced, and to provide a simple and efficient means for strengthening the shells or wheels and preventing the material being operated on escaping laterally from the shells or wheels. These objects I accomplish by the construction of parts illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical sectional view of a machine embodying my invention; Fig. 2, a detached elevation of the shells or wheels carried by one of the disks; Fig. 3, a perspective view of two of the segmental sections united by bolts or rivets.

A A represent the frame on which the mill is mounted;  $a a'$ , the journal-caps for the mill-shafts; B B', the driving-pulleys mounted on shafts  $b b'$ .

On shaft  $b$  are mounted two annular grinding shells or wheels,  $c c'$ , which are provided with slots or passages I. These annular shells are made in segments of the form shown in Fig. 3. Each segment of the shell is provided with a segmental flange, O, which projects inwardly from one edge of the shell, and by which it is united to disk C by rivets or bolts  $o$ . The disk C is firmly secured to the shaft  $b$  by means of a hub. On the opposite shaft,  $b'$ , are mounted two similar annular disintegrating - shells, D D', which are made of segments on the plan similar to that shown in Fig. 3, being provided with similar openings, I, flanges D<sup>2</sup>, and the disk and hub C'. The two sets of disintegrating annular shells D D' and  $c c'$  are arranged to run concentrically to each other in opposite directions, as indicated by the arrows in Fig. 1, one set of the disintegrators being a counterpart of the other.

$j'$  represents segmental grooves drilled in the edges of segments  $c c'$ . When the segments are united to complete the annulus, the bolts or rivets  $j$  are inserted and fastened.

In order to secure the parts firmly together, metal hoops or bands  $e$  are shrunk upon the outer periphery of each of the annular shells D D'  $c c'$ .

$g$  represents rings or filling - pieces on the edges of the flanges  $c c'$  D D', to fill the space between the parts enough to prevent the material from working out laterally from between the shells.

Great difficulty has been encountered hitherto in constructing and using disintegrating-mills of this class for grinding burnt clay and other hard substances because of the breaking of the metal. Again, the impossibility of repairing when broken has made the renewing of the parts exceedingly costly; but when the mill is made in sections united as here shown it can be made of Bessemer or other similar casting steel, which makes the mill materially stronger and more durable, and at the same time, should one of the sections break, it can be repaired at small cost, comparatively.

H represents the hopper, from which the material is fed into the mill through the eye in the center of the shell over shaft  $b$ .

$h$  represents an apron, attached to the under side of the hopper H, to cover the opening in the center of the shells below the hopper to hold the material in the mill.

F represents a break-bar attached to frame A' by means of a key,  $f$ , and it projects through apron  $h$  into the inner shell to assist in reducing the material, so that it will pass through opening I in the shell D.

The mill operates similar to other mills of this class; but, being made of strong material and more durable, it is capable of being revolved at much greater speed, and hence becomes more effective.

I claim—

1. The combination of the annular disintegrating shells or wheels, composed of a series of segmental sections, each having an inwardly-projecting segmental flange, with the vertically-arranged disks, having their peripheries detachably united with the flanges on the segmental sections, substantially as described.

2. The combination, with the annular disintegrating shells or wheels, composed of a series of segmental sections, each provided with an inwardly-projecting segmental flange, and  
5 the vertically-arranged disks detachably connected with the said flanges, of the exterior annular hoops or bands for strengthening the segmental sections of the annular shells or wheels, and the interior projecting annular  
10 rings or filling-pieces for preventing the ma-

terial escaping laterally from the shells or wheels, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE ELBREG.

Witnesses:

ELLIOTT B. BLISS,  
CHAS. E. MILLER.