

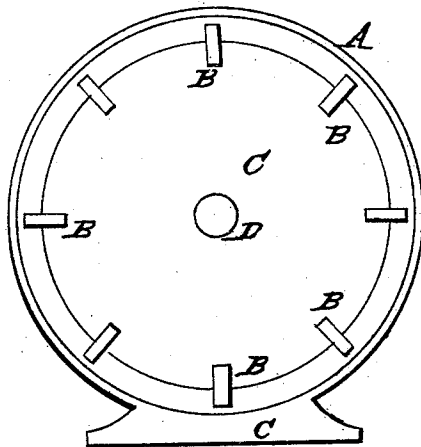
A. NEWELL.

Mill for Pulverizing Bone, &c.

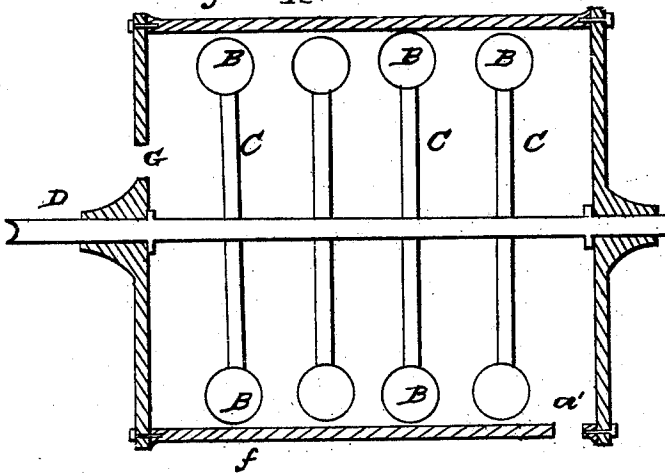
No. 81,933.

Patented Sept. 8, 1868.

Fig. 2.



f A. Fig. 1



WITNESSES

Henry Stanton
J. W. Selmonson

INVENTOR

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AMOS NEWELL, OF REDWING, MINNESOTA, ASSIGNOR TO HIMSELF, HENRY S. BROWN, GEORGE F. ARNOLD, AND ALFRED ARNOLD.

Letters Patent No. 81,933, dated September 8, 1868.

IMPROVED MILL FOR PULVERIZING BONE, &c.

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

Be it known that I, AMOS NEWELL, of Redwing, county of Goodhue, State of Minnesota, have invented an Improvement in Mills for Pulverizing Bone, Ore, and other hard substances; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and letters of reference marked thereon.

My invention relates to the well-known class of mills wherein the said materials are pulverized by the action of a series of rotating hammers revolving in a case with great velocity; and it consists in keeping the said materials more constantly under the effective operation of the hammers, and in so retarding their progress, from their entrance to their exit, as to insure sufficient fineness of division to admit them to discharge from the distant end of the mill, at or near the periphery of the case, without the assistance of exhaust, blast, or other extraneous means now employed for discharging said mills.

The plan herein described for carrying my said invention into operation consists in dividing said mill into several cross-sectional compartments, leaving an annular space between the partitions and inner circumference of the case, thus forming an interior passage, longitudinally, from one compartment to another, throughout the length of the mill, directly across the path traversed by the hammers.

In the drawing—

Figure 1 is a longitudinal section through the line *ee* in fig. 2, and

Figure 2 a cross-section through the line *ff* in fig. 1.

A is the case; B, the hammers; C, the partitions; D, the shaft; *a*, the feed-orifice; *a'*, the discharge-orifice. In this instance, the partitions C are disks, firmly attached to the shaft D and hammers B, with which they revolve.

If desired, the hammers B may be attached to the shaft by arms or otherwise, and the partitions C may be made stationary, and firmly attached to the case A at several points, leaving annular spaces between them and the case, except at the several points where they are attached to the case; but I prefer the arrangement shown.

The area of the annular space for any one diameter of A must depend on the kind of material to be ground, and the fineness of division desired; that is, if the material to be ground be easily pulverized, a larger space may be allowed for it to pass through than if more difficult to pulverize, and, if a coarse division of the material be desired, a larger space may be allowed than if a finer division is desired. If the same mill is required to do various kinds of work, the disks may be made adjustable, so as to lessen or increase the distance between their peripheries and the inner surface of the case. The distance will be readily determined by the practical constructor and user.

In the operation of my improved mill, the material to be ground is fed through the orifice *a*. Its flow may, if desired, be regulated by a graduating hopper, or other well-known device for that purpose. The revolving hammers cause the coarser portions of the material fed in to rebound from side to side of A, but they can only pass longitudinally by crossing the paths of B, and receiving their blows. The finer portion, being compressed by centrifugal force against the inner circumference of case A, is forced gradually towards *a'*, where it is discharged.

What I claim as my invention is—

The case A, hammers B, and partitions C, combined and arranged substantially as shown, for the purpose herein set forth.

AMOS NEWELL.

Witnesses:

HENRY STANTON,

F. W. SULMONSON.