(No Model.)

H. HEARD.

COTTON SEED HULLER.

No. 298,466. Patented May 13, 1884.

Fig. 1.

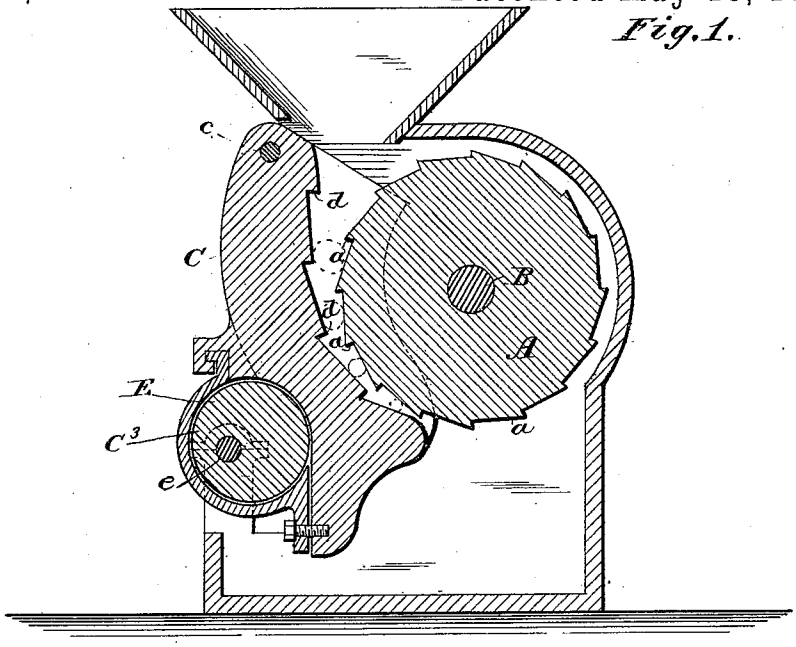


Fig. 2.

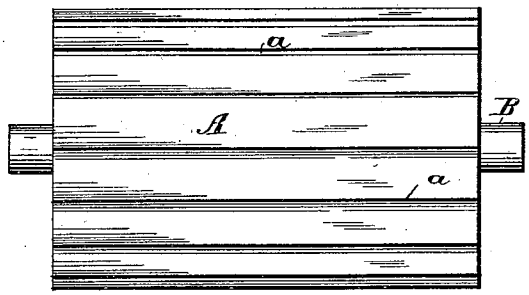


Fig. 3.

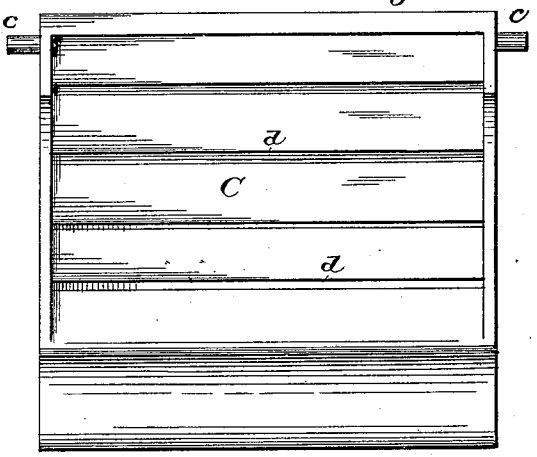


Fig. 4.

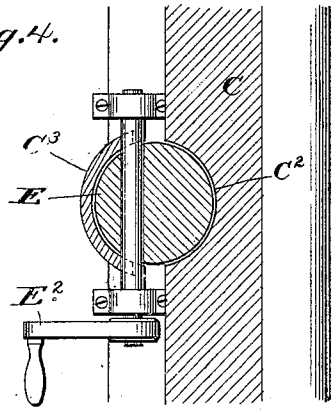
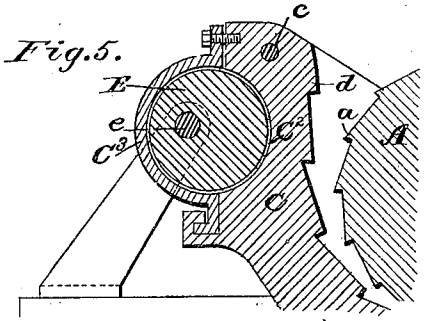


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY HEARD, OF GREENSBOROUGH, GEORGIA.

COTTON-SEED HULLER.

SPECIFICATION forming part of Letters Patent No. 298,466, dated May 13, 1884.

Application filed August 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY HEARD, a citizen of the United States, and a resident of Greensborough, in the county of Greene and State of Georgia, have invented certain new and useful Improvements in Cotton-Seed Hullers, of which the following is a specification.

My invention relates to gradual-reduction grinding-mills, and more particularly to that class of mills adapted to be used as cotton-seed hullers, the object of my invention being the production of a mill of this class which may be cheaply constructed, which will not be liable to clog, and which will not require frequent sharpening of the grinding-teeth, while it will always perform its function in an efficient manner.

In the accompanying drawings, in which like letters refer to similar parts in the several figures, Figure 1 is a sectional view of a sufficient portion of a grinding-mill to illustrate my invention. Fig. 2 is a front view of the grinding cylinder or roller. Fig. 3 is an inside view of the concave or segmental bed, against which the grinding-cylinder works. Fig. 4 is a sectional detail view of the spherical adjusting-eccentric and adjacent parts, and Fig. 5 is a modification showing a different arrangement of the adjusting eccentric.

A indicates the grinding cylinder or roller, which is provided on its face with shallow teeth or ridges *a*, running entirely across the face of the roller parallel with the axis of revolution thereof, or at right angles to the curvature or direction of revolution of said roller. The roller A is mounted on a shaft or mandrel, B, which is sustained in suitable bearings in the frame of the machine in the usual manner.

Adjacent to the grinding-cylinder A is arranged the concave or segmental bed C, against which the roller works. This bed has a hood, (indicated in dotted lines in Fig. 1,) partly inclosing the cylinder A, and serving to prevent the escape of the material being ground. The bed C is secured by pivots *c* to the frame of the machine, and is adjusted nearer to or farther from the roller A by an eccentric, E, mounted on a shaft, *e*, sustained by the frame-work of the machine, and operated by a crank, E^2, or any other suitable device. The eccentric employed for adjusting the bed is of spherical form, and the bearing-surface C^2 is formed to correspond, the eccentric being confined to the bed by a cap, C^3. This construction will permit the bed to be adjusted to bring it parallel with the shaft and grinding-roller by adjusting the spherical eccentric laterally of the machine; or, in other words, lengthwise of the shaft on which it is mounted. The segmental bed C is provided with a segmental bearing-surface, C^2, resting against the eccentric E; and the latter, after it has been adjusted, may be secured in place by any suitable friction device. The concave or segmental bed C is provided on its inner face with ridges or teeth *d*, which are wider and also preferably deeper than the teeth or ridges *a* on the cylinder A. The teeth, both on the cylinder and the concave or bed, not only extend entirely across the faces of these parts, but are formed contiguous to each other, the inclined face of each tooth starting from the base of its neighbor, thus leaving no portion of the faces of the cylinder or concave concentric with its curvature, but entirely covering both of the grinding-faces with the inclined teeth. The substance to be ground will be carried by the teeth *a* of the cylinder A against the concave or segmental bed C, which is so arranged relative to the cylinder A that its lower portion is much nearer to said cylinder than its upper portion, thus causing the substance operated upon to be gradually reduced as it is carried downward. The broad surfaces of the teeth *d* serve as "lands," against which the substance being ground is rubbed and crushed by the teeth *a* of the cylinder, while the deep recesses at the tops of the teeth *d* allow the material to change its position after passing the point of the preceding tooth or ridge.

It has been found in practice that the teeth on the cylinder and bed, constructed relatively as above described, serve a much better purpose than where said teeth are of the same size on the bed and cylinder, as the structure which I have shown and described enables the cylinder to do the grinding, while the bed serves merely as the bearing-surface. The teeth on the cylinder and bed, when formed as ridges extending entirely across the same, will wear much longer without being sharpened than where they are divided into points by diagonal lines or furrows.

It will be understood that the parts of the

grinding-mill not herein shown and described may be of any ordinary or suitable construction, and that the grinding-cylinder and bed may be of any suitable material, preferably of cast-iron or steel, with chilled faces. It will also be understood that the length of the concave or segmental bed may be varied to suit the class of work to be done, and that the grinding-cylinder may be reversed should the work require it.

If desired, the adjusting-eccentric may be arranged near the top of the bed, as indicated by the modification shown in Fig. 5.

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

1. A grinding-cylinder having contiguous inclined teeth or ridges extending entirely across its face and parallel with its axis, in combination with an adjustable concave or segmental bed, also having contiguous inclined teeth extending entirely across its inner face, the teeth on said concave or bed being wider and deeper than those on said cylinder, substantially as described.

2. A grinding-cylinder having contiguous inclined teeth or ridges extending entirely across its face and parallel with its axis, and a concave or bed also having contiguous inclined teeth extending entirely across its inner face, the teeth on said concave or bed being wider and deeper than those on said cylinder, in combination with a spherical eccentric for adjusting said concave relative to said cylinder, substantially as described.

3. The combination, with a grinding-cylinder, of an adjustable concave or segmental bed having a concave bearing, C^2, and a spherical eccentric for adjusting said bed relative to said cylinder, as set forth.

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

HENRY HEARD.

Witnesses:
R. NICKERSON,
W. B. JACKSON.