(No Model.) 3 Sheets—Sheet 1.

M. B. McLAUTHLIN.

PULVERIZING MACHINE.

No. 532,177. Patented Jan. 8, 1895.

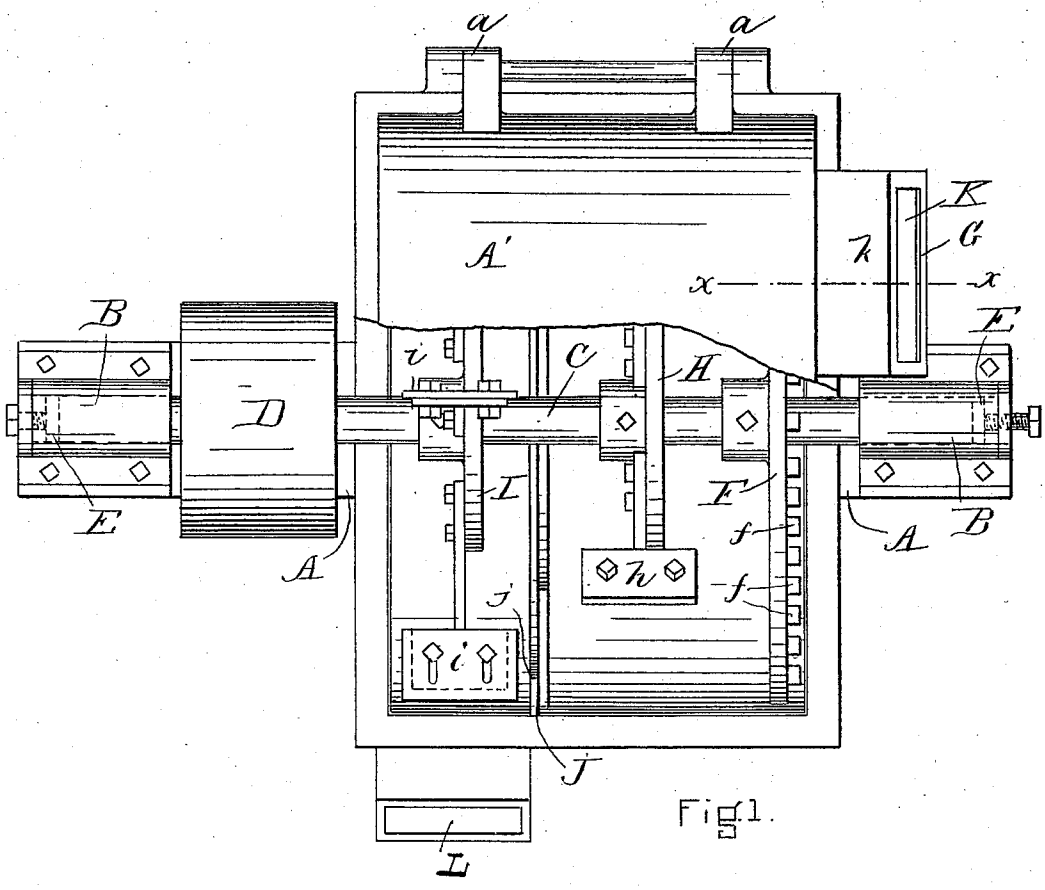

Fig. 1.

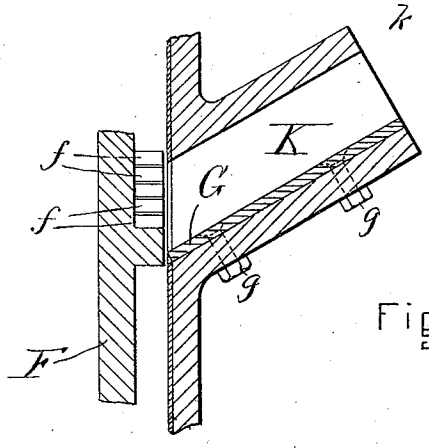

Fig. 2.

WITNESSES

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John A. Johnson

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(No Model.) 3 Sheets—Sheet 2.

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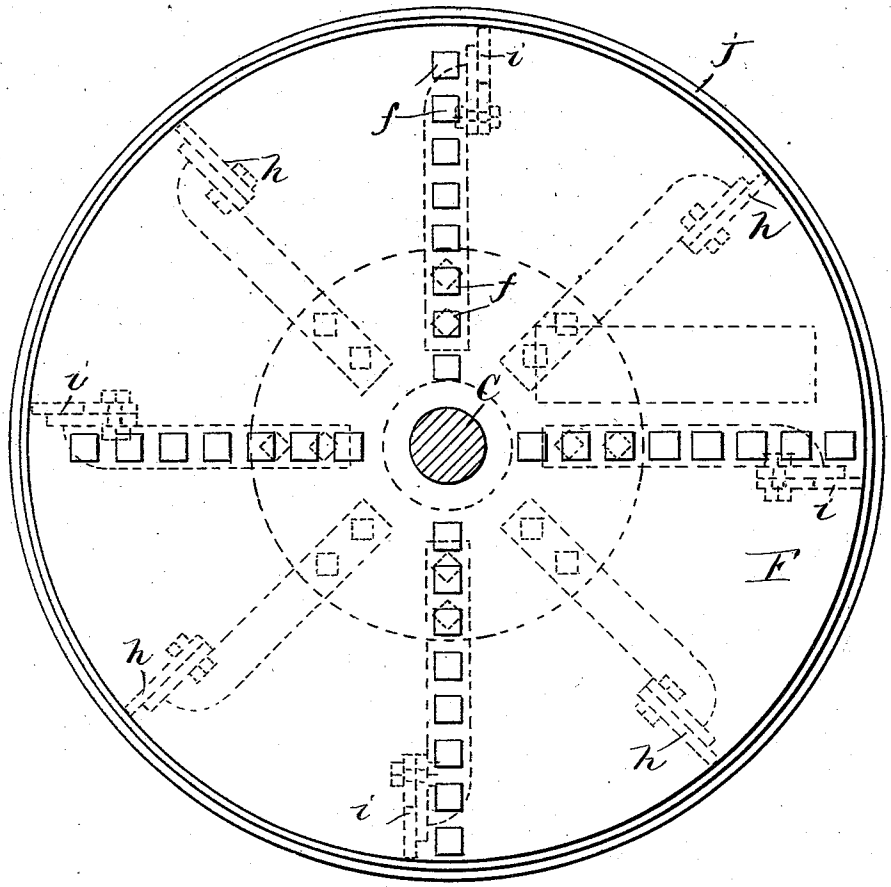

Fig. 3.

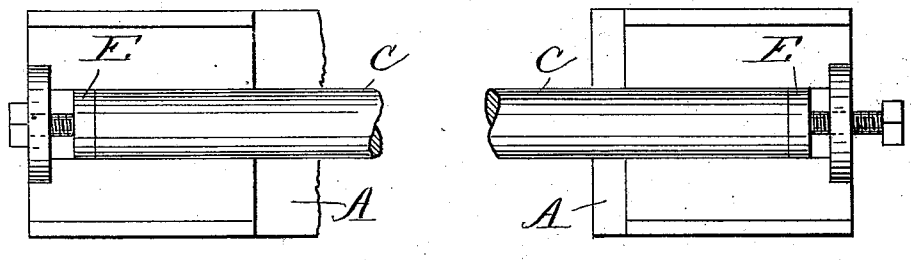

Fig. 4.

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(No Model.) 3 Sheets—Sheet 3.

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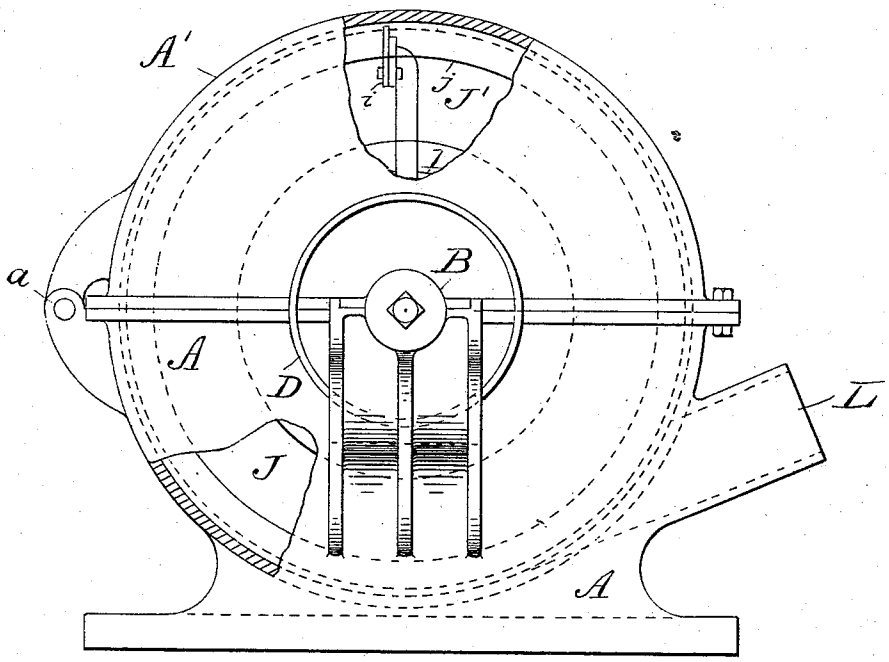

Fig. 5.

WITNESSES:
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James Naylor Jr

INVENTOR:
Morris B McLauthlin

UNITED STATES PATENT OFFICE.

MARTIN BERNARD McLAUTHLIN, OF MALDEN, ASSIGNOR TO GEORGE THOMAS McLAUTHLIN, OF BOSTON, MASSACHUSETTS.

PULVERIZING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 532,177, dated January 8, 1895.

Application filed January 8, 1894. Serial No. 496,076. (No model.)

To all whom it may concern:

Be it known that I, MARTIN BERNARD McLAUTHLIN, a citizen of the United States, and a resident of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Pulverizing-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My improvement relates to a machine for the gradual reduction of cotton seed cake to meal; or of other similar material to any degree of fineness.

It consists in the construction and operation of its parts in such a manner that the reduction is accomplished by first breaking the cake into pieces of a suitable size, before said pieces are thrown into the reduction chamber of the machine; second, to effect the reduction of the said pieces in the reduction chamber by the action of rotary beaters, and finally to cause the discharge of the product by the pneumatic action of the machine; together with other details of improvement to the machine which will be hereinafter fully described and set forth in the claims.

Figure 1 is a plan view with a portion of the upper part removed or broken away so as to expose the interior construction; Fig. 2, a vertical cross section of the feeding chute on line *x x* of Fig. 1. Figs. 3 and 4 are enlarged details, and Fig. 5, a general side elevation.

The frame of the machine is represented by A A and A′; the part A′ being hinged to the lower part A A at *a a*. Both these parts are firmly fastened together with a rubber packing interposed so as to make an air tight joint; and practically to make both parts one; so that the whole may stand firm and solid on its foundation.

B B are the bearing boxes for the arbor C upon which is secured the drive pulley D.

E E are thrust bearings at each end of the arbor C, to withstand the end thrust of said arbor, and also to provide means for longitudinal adjustment in the bearings B B, as shown in Fig. 4.

Mounted upon the arbor C is the disk F provided with a series of projecting teeth *f f f*, said teeth having sharp cutting corners and edges; and so set on the face of the disk, that each and every series has a shear-like cut along the edge of the bed plate G, which is of hardened steel and bolted to the frame at *g g*. The teeth of each series are so set that each series cuts upon the bed plate differently, as will be seen by reference to Fig. 3. Also mounted upon the arbor C are the disks H and I. Securely bolted to the disk H are the paddles *h h h h* and to the disk I the blades *i i i i*. The purpose of the former is to complete the reduction, while that of the latter is to discharge the product. These paddles and wings all have hardened steel faces to withstand the excessive wear that they are subjected to; and the wings made adjustable to give proper blast.

J J′ is a removable partition, the part J being in the lower part of the frame and J′ in the upper. This partition leaves an open space around the arbor C, and in operation divides the interior into two distinct chambers; the one containing the disk and paddles for reduction purposes, and the other containing the disk and wings for the purposes of discharge and regulation.

j is an inwardly projecting annulus or rib solid with the frame, to which the removable partition is secured in such a manner that it becomes a part of the frame. The partition is replaced by one of others of different internal diameters when a difference in the grade of meal is required.

K is the throat of the machine having the bed plate G secured therein, and with a strong upper plate *k* to hold the heel of the cake, while the teeth of the disk are breaking it away over the bed plate. The angle at which the throat is set is such as to facilitate the feeding in of cake. The throat opening also serves for an air passage, as will be set forth in the operation of the machine.

L is the discharge opening, which is connected to a conduit; through which the cotton seed meal is carried to receiving bins.

The operation is as follows:—cotton seed cake as procured in the open market is fed into the throat K, into which air is also rushing, caused by the rapid speed of the machine. As the teeth *f f f* of the disk F strikes the cake it comes to a bearing on the bed plate G and against the plate *k*. Pieces of cake are

broken off of a given size, which may be changed by the longitudinal adjustment given to both ends of the arbor C. The broken pieces are thrown by the blows into the reducing chamber, where they are quickly reduced to meal. As this reduction is in progress within the chamber the finest particles naturally seek the center, while the coarser are seeking the periphery to be reduced just where the attrition is greatest. Continued feed fills the chamber and causes a flow of meal over the partition J into the chamber containing the disk I and wings *i i i i* by which it is driven out of the machine, along with the blast caused by the wings, and carried through the conduit to a ventilated receiving bin.

I am aware of a certain machine having an air-tight case in two halves hinged together, and an arbor carrying paddles and adjustable wings into which material is fed direct without breaking. Such I do not in any way claim; but,

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

1. In a pulverizing machine the hinged frame provided with the removable partition and inlet and outlet openings, said inlet being provided with the parallel plates G and *k;* in combination with means for breaking the cake before entering the pulverizing chamber and means for reduction and discharge substantially as herein shown and described.

2. In a pulverizing machine the combination with a supported arbor and hinged frame provided with a removable partition and inlet and outlet openings; of the disk F secured to said arbor and carrying series of projections set in relation to each other as to strike differently upon the bed plate G, said bed plate and plate *k*, and means for reduction and discharge substantially as shown and described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 24th day of November, A. D. 1893.

MARTIN BERNARD McLAUTHLIN.

Witnesses:
JOHN A. JOHNSON,
JAMES NAYLOR, Jr.