(No Model.)

J. B. TOUYA, FILS.

GRINDING MILL OR DECORTICATOR.

No. 333,980. Patented Jan. 5, 1886.

Fig. 1.

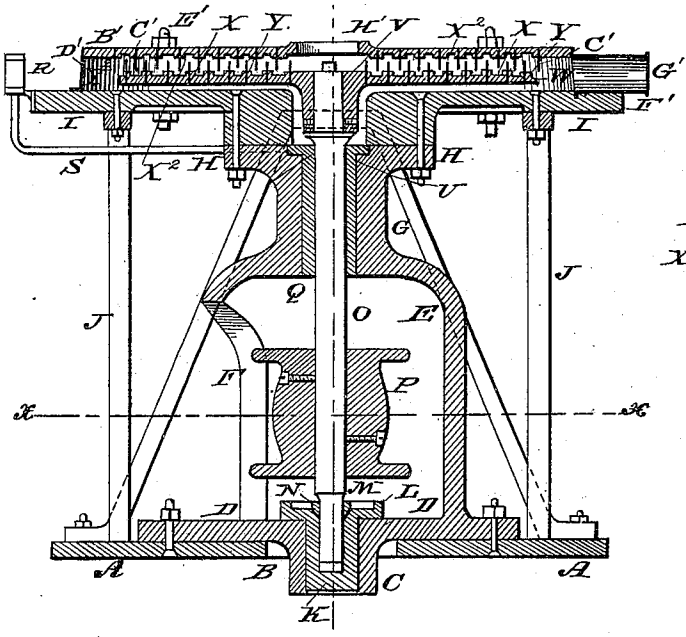


Fig. 2

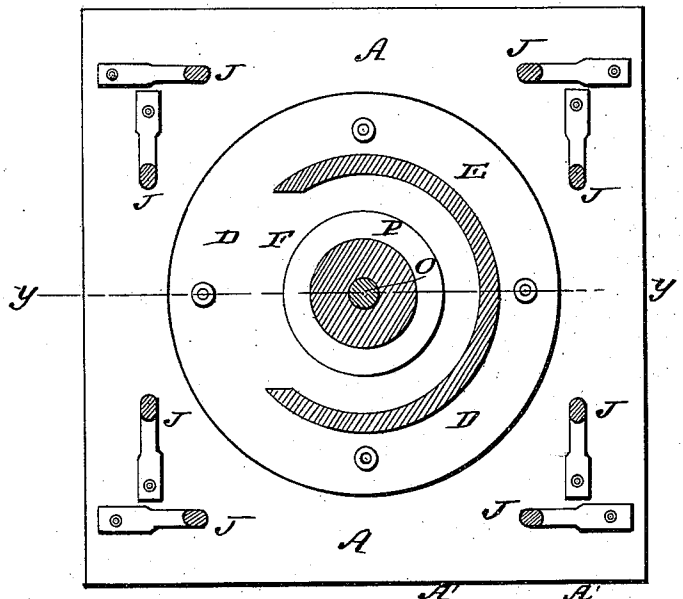
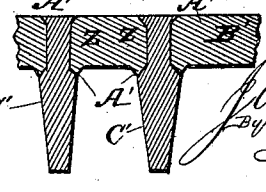


Fig. 4



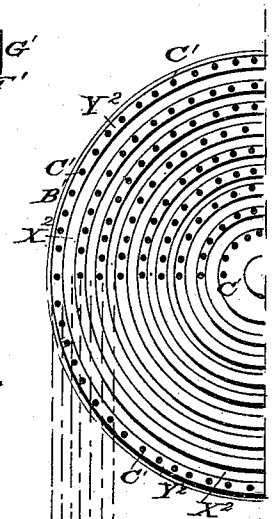
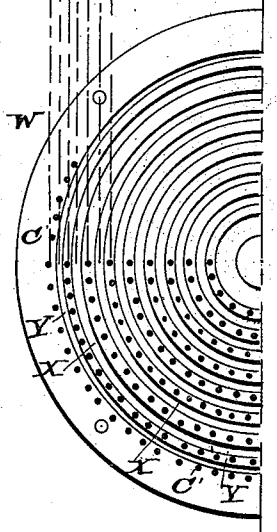


Fig. 3



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UNITED STATES PATENT OFFICE.

JEAN BAPTISTE TOUYA, FILS, OF TARBES, FRANCE.

GRINDING MILL OR DECORTICATOR.

SPECIFICATION forming part of Letters Patent No. 333,980, dated January 5, 1886.

Application filed April 8, 1884. Serial No. 127 102. (No model.) Patented in France January 15, 1884, No. 159,715, and in England January 15, 1884, No. 1,470.

To all whom it may concern:

Be it known that I, JEAN BAPTISTE TOUYA, Fils, a resident of Tarbes, in the Republic of France, and a citizen of the said Republic of France, have invented certain new and useful Improvements in Grinding Mills or Decorticators; and I do hereby declare that the following is a full, clear, and exact description of the same, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a vertical sectional view of my improved grinding mill or decorticator on the line *y y* in Fig. 2. Fig. 2 is a horizontal sectional view of the same, taken on the line *x x* in Fig. 1. Fig. 3 is a view of sections of the upper side of the lower and the under side of the upper grinding-disks, and Fig. 4 is a detail sectional view showing the method of securing the teeth in the said grinding-disks.

The same letters refer to the same parts in all the figures.

My invention has relation to mills for grinding various substances—such as grain, bark, mineral ores, or similar substances—but more particularly to the so-called "decorticators;" and it consists in certain improvements in the construction of the same, having for their object to produce a device which shall possess superior advantages in point of simplicity, durability, and general efficiency.

To these ends it consists in certain improvements in the construction of the same, which will be hereinafter fully described, and particularly pointed out in the claims.

A in the drawings designates the base of the machine, which is provided with a central opening, B, through which extends a collar, C, extending downwardly from a disk, D, which is firmly bolted or otherwise secured upon the said base. Formed upon the upper side of the said disk is an upwardly-extending hood, E, the side of which has an opening, F, and the upper end of which terminates in a neck, G, having at its upper end an annular flange, H. To the latter is firmly bolted or otherwise secured a disk or table, I, the under side of which is connected with the base of the machine by legs or supporters J.

In the collar C of disk D is fitted a step or bearing, K, constructed, for anti-friction purposes, of phosphor-bronze, and having at its upper edge an annular flange, L, forming a recess, M, from which ducts N lead diagonally to the inner side of the bearing, which may thus be supplied with oil from the recess or receptacle M. Mounted in the said step is the vertical shaft O, having a pulley, P, to which motion may be conveyed by a belt or band running through the opening F of hood E. The upper end of said shaft extends through the neck G of hood E, which has a lining, Q, of phosphor-bronze. Lubricating material may be conveyed to this bearing from a suitably-arranged lubricator, R, through a tube, S.

To the upper end of the shaft O is firmly secured the hub V of the lower grinding-plate, W. The latter consists of a circular plate or disk, made, preferably, of cast metal, and provided on its upper face with a series of alternate annular grooves, X, and ridges Y. The ridges are provided with equidistant vertical perforations Z Z, countersunk at their upper and lower ends, as at A', Fig. 4. The under side of the upper disk, B', is likewise provided with alternate grooves and ridges X^2 and Y^2, the latter of which are also provided with perforations countersunk at their upper and lower ends. The relative construction of the two disks should be such that the grooves of one shall register with the ridges of the other, as clearly shown in Fig. 1 of the drawings.

C' C' are the teeth or cutters, which consist of pins having beveled shanks, which are inserted in the perforations, as shown, and riveted or swaged, so as to retain them securely in place in the perforations.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation of this invention will be readily understood. A rotary motion is imparted to the lower disk by means of the belt running over the pulley upon the central vertical shaft. As the material to be ground enters the mill, it is thrown by the centrifugal action in an

outward direction, when it will be ground by the action of the teeth or cutters and discharged through the opening G'.

The construction of the device is simple, and its action certain and effective.

I claim and desire to secure by Letters Patent of the United States—

1. The combination of the base, the table suitably supported upon the same on legs or uprights, a disk resting upon the base and having an upward-extending hood and a downward-extending collar, said hood being provided with an opening in one side and a flanged neck at its upper end, the bearings seated in the said flanged neck of the hood and the collar of the disk, and the central vertical shaft journaled in the said bearings and having a driving-pulley located within and protected by the hood, substantially as and for the purpose herein set forth.

2. A grinding mill or decorticator comprising an upper grinding-disk provided on its under side with alternate annular grooves and ridges, the latter of which have teeth or cutters, the surrounding casing having a discharge-opening, the lower grinding-disk having on its upper side alternate grooves and ridges, which latter are provided with teeth or cutters, the grooves of the lower disk registering with the ridges of the upper disk, and vice versa, the base, the table supported upon the same on uprights, a disk resting upon the base and having an upwardly-extending hood and a downwardly-extending collar, the said hood having an opening in one side and a flanged neck at its upper end, the bearings seated in the said flanged neck of the hood and in the collar of the disk, and the central vertical shaft journaled in the bearings, having a driving-pulley within the hood and bearing the lower grinding-disk at its upper end, as and for the purpose shown and set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of January, 1884.

JEAN BAPTISTE TOUYA, FILS.

Witnesses:

CAMILLE CHARROPPIN,

EMILE KANTER.