

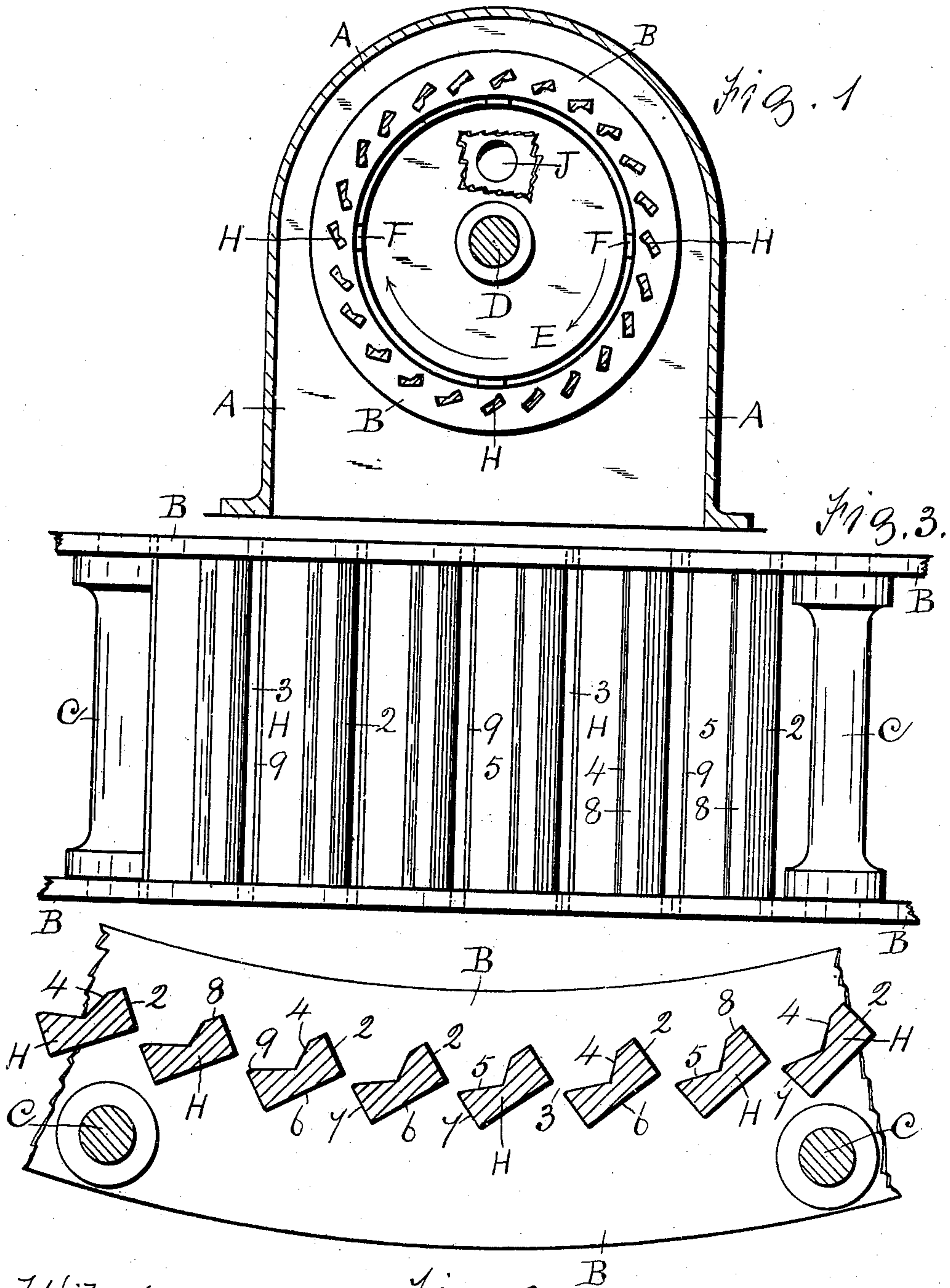
No. 861,437.

PATENTED JULY 30, 1907.

W. COX.

DISINTEGRATOR.

APPLICATION FILED JULY 14, 1906.



Witnesses.
L. E. George
Quallry

Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM COX, OF HAMILTON, ONTARIO, CANADA

DISINTEGRATOR.

No. 861,437.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed July 14, 1906. Serial No. 326,231.

To all whom it may concern:

Be it known that I, WILLIAM COX, a subject of the King of Great Britain, and a resident of Hamilton, in the county of Wentworth and Province of Ontario, Canada, have invented new and useful Improvements in Disintegrators, of which the following is a specification.

My invention relates to improvements in disintegrators in which two stationary rings a distance apart from each other have a circle of transverse bars placed at an angle and in relative position with the rings and secured therein. The rings are placed in a stationary casing, and a beater disk suitably mounted in the casing and adapted to revolve therein and the beaters on the disk in proximity to the inner parts of the transverse bars for disintegrating purposes.

The objects of my invention are first, to provide a disintegrator with screen bars adapted to grind products such as spice, roots, barks, leaves and seeds of various kinds to a granular form. Second, to provide a disintegrator with said screen bars adapted to grind products to a less granular form, third, to provide screen bars of a form and design to allow the disintegrated and granular material to immediately drop from the angle of the bars and direct through the openings or passages between the bars, fourth, to provide stationary bars of a form and design to allow the product to be ground and reground on account of the ground material finding a rebounding surface on the bars and fifth, to afford a more indirect passage through the bars to produce a less granular material. I attain these objects by the mechanism illustrated in the accompanying drawing, in which:—

Figure 1 is a sectional elevation of the disintegrator showing the ring of screen bars in position in a stationary casing, and a beater disk mounted on a shaft in the casing and adapted to revolve in either direction and in proximity with the inner sides of the bars, a part of the disk broken therefrom to show the opening in the rear of the casing for the entrance of the material to be disintegrated. Fig. 2 is an enlarged sectional elevation of a segment of the ring with a number of the screen bars. Fig. 3 is a plan of Fig. 2 of the drawing, two of the bars being removed to show the brace-rods which fasten the ring plates together.

Similar letters refer to similar parts throughout the several views.

In the drawing A is a stationary casing of suitable design and shape, B and B are ring plates secured together by means of a number of brace-rods C, and secured in the central part of the casing A. A central shaft D, is suitably mounted and passes through the casing, and on the shaft is mounted a disk E which is adapted to revolve in either direction together with the shaft. On the disk and in suitable places are a number

of steel beaters F to operate in proximity with the inner sides of the circle of transverse screen bars H, which extend through the rings B, and flush therewith and are secured thereto. J, is a hole through the rear side of the casing to admit material to be disintegrated.

All the above indicated parts of the disintegrator, excepting the screen bars H, are not new, nor do I claim the same, see my United States Patents #769,253, Sept. 6th. 1904, and #794,785, July 18th. 1905.

The circle of screen bars H, as formed and placed in the rings B, are of the same angular form, and a distance apart and proportionate to each other, and also to the rings, these are the features of the invention.

When the disk E with beaters revolve in the direction indicated by arrow, in Fig. 1 of the drawing, the material is forced against the breaking and cutting edges 2, of the bars H, and said material when broken, and granular, falls by gravity, through the direct openings 3, between the bars H. It will be noticed that the cutting and breaking edges 2, are formed with considerable wearing surface.

When the disk is revolved in an opposite direction the material is forced by the beaters against the less inclined face 4, of the bars H to disintegrate the material and said material finds a temporary lodgment on the inclined surface 4 and 5 of the bars and more particularly on the surface 4, thereby becoming less granular and more of the nature of flour previous to its fall through the now indirect openings 3, between the bars. The rebounding surfaces 4, of the bars also present a large wearing surface similar to the wearing surface 2 previously referred to. It will also be noticed that immediately the disintegrated material has passed through the openings 3, that said openings widen out very extensively and allow the material to freely pass through said openings by the fact of the parts 6 and 7 of the bars receding from each other, thereby preventing any possible clogging of the disintegrated material. The flat part 8 of the bars allow the large wearing surfaces 2 and 4 referred to, and the opposite part of the bars have a similar, but smaller flat wearing surface 9 to allow wear on the surface 5 for a length of time before an acute angle is produced by the inclined surface 5 and the part 7 of the bars.

The bars H are made of hardened steel to more fully endure the wear and tear of the disintegrating process.

The operation of the disintegrator is as follows:—The material to be disintegrated is passed through an opening J, in a convenient place in the casing, and allowed to fall on the bars H at the same time that the beater disk is revolving as indicated by arrow, to disintegrate the material against the parts 2 of the bars. When disintegrated the material falls through the direct openings 3 as shown in Fig. 2 of the drawing, and then

through the lower opening in the casing and into any receptacle placed in desired position.

In order to disintegrate similar or other material to a less granular product, the disk beater together with its
5 central shaft D is revolved in an opposite direction to that indicated by arrow, and the material is forced against the rebounding surfaces 4 and 5 of the bars H, previous to passing through the now indirect openings
3, thence downward by gravity, to any desired re-
10 ceptacle.

In disintegrating material to produce less granular products the same result would be obtained by reversing the circle of bars H.

What I claim as my invention and desire to secure by Letters Patent, is:

A disintegrator comprising a stationary casing, ring plates opposite to each other secured therein, transverse bars of similar angular form supported by the ring plates an equal distance apart, two breaking surfaces on each of said bars at right angles to each other; one of said surfaces
20 being plane, the other having an obtuse-angled depression therein, and rotary beaters coacting with said breaking surfaces to produce a fine or coarse pulverization according to the direction of rotation of said beaters.

WILLIAM COX.

Witnesses:

JOHN H. HEMDRY,
RICHARD BUTLER.