

W. YOULTEN.
DISINTEGRATOR.

APPLICATION FILED AUG. 17, 1910.

989,468.

Patented Apr. 11, 1911.

Fig 1

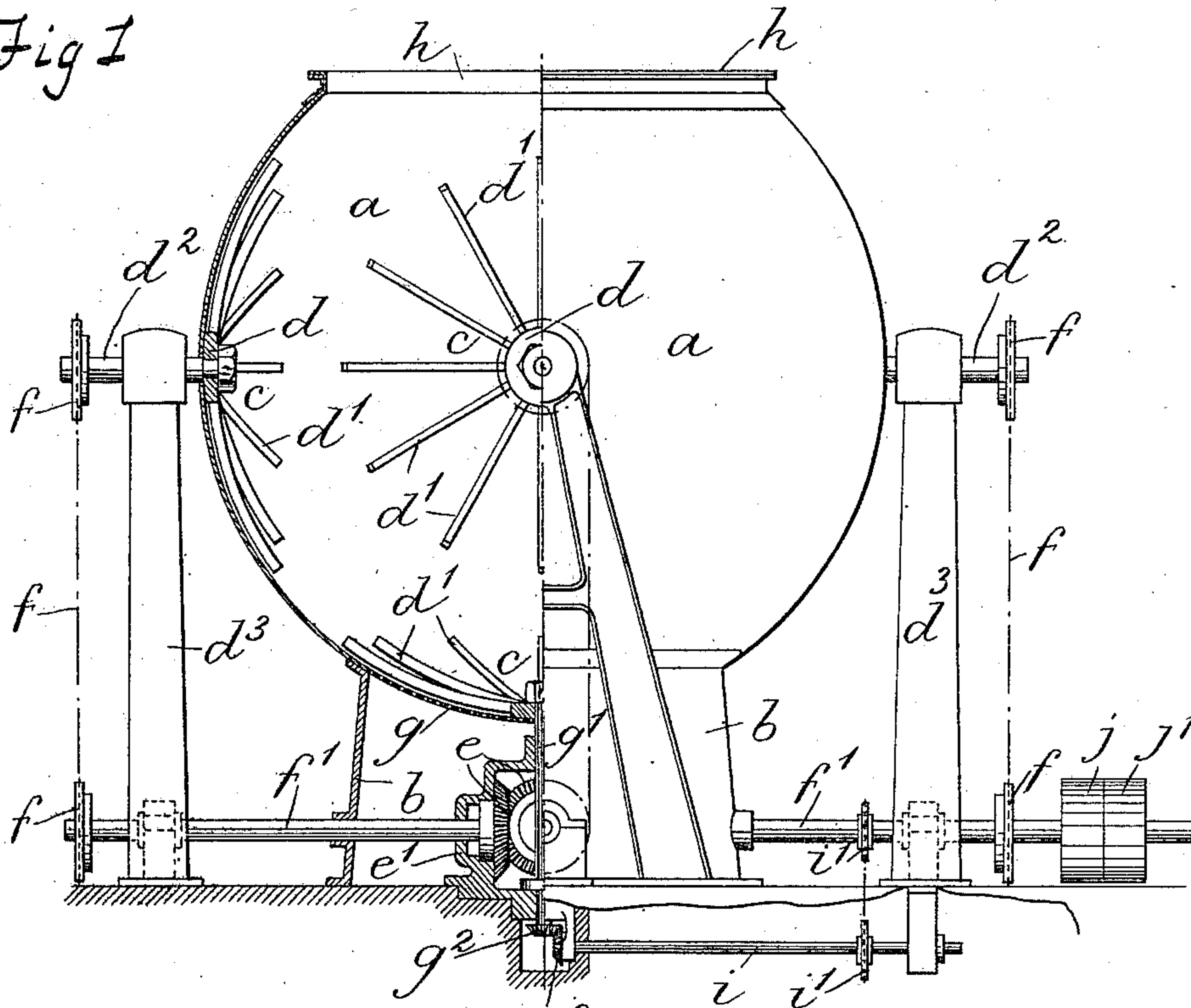
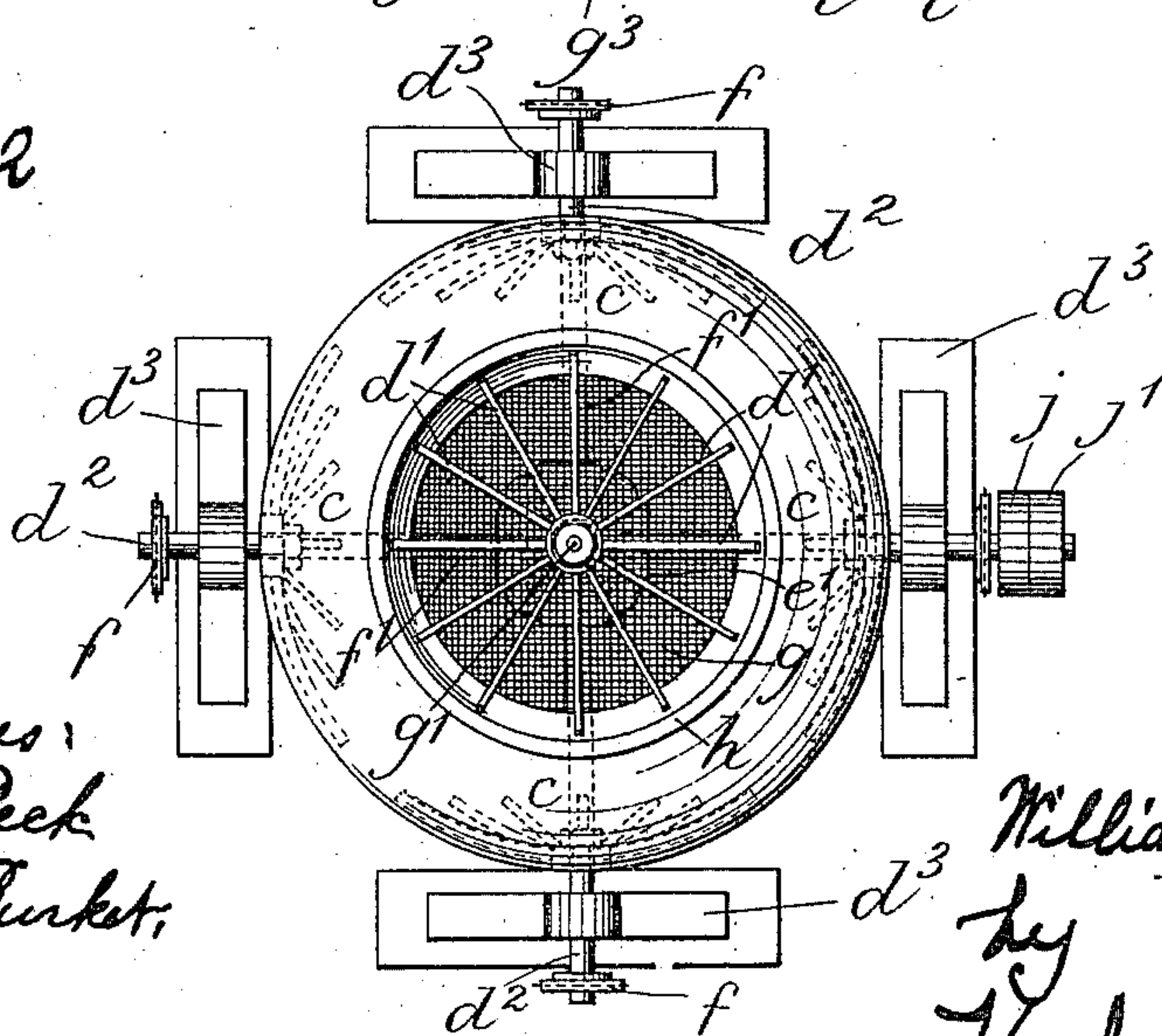


Fig 2



Witnesses:
E. R. Peck
L. L. Burkett

Inventor:
William Youten
by
Thurston Peck

UNITED STATES PATENT OFFICE.

WILLIAM YOULTEN, OF BRIGHTON, ENGLAND.

DISINTEGRATOR.

989,468.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed August 17, 1910. Serial No. 577,620.

To all whom it may concern:

Be it known that I, WILLIAM YOULTEN, a subject of the King of Great Britain, residing at Brighton, in the county of Sussex, England, have invented Improvements in Disintegrators, of which the following is a specification.

This invention relates to means for separating materials of different character such as impurities from material to be cleaned and which is applicable also for reducing or disintegrating materials for different requirements, with or without a separation of such reduced or disintegrated material. For this purpose there is employed a machine or apparatus comprising a number of devices comprising rotary hubs having breaking arms radiating therefrom against and from which the material to be treated is directed, the said devices according to the present invention being arranged so that they rotate in planes corresponding to at least five sides of a cube, and operate in the manner hereinafter set forth.

In the accompanying drawings Figure 1 is a part sectional elevation and Fig. 2 a plan view on a smaller scale, both more or less diagrammatic, of a machine suitable for the treatment of fibrous materials.

In this example the chamber a is in the form of a hollow sphere carried by a frame b for attachment to such floor or equivalent. Five rotary devices c are arranged entirely within the sphere, four having their axes in a horizontal plane passing through the center of the sphere and one in a vertical plane passing through such center. Each device c comprises a hub d from which extend spokes d^1 curved as shown to agree with the spherical surface of the chamber a . All the devices are shown as arranged with the concave side of the spokes facing the center of the sphere, the four that rotate in vertical planes being mounted upon shafts d^2 journaled in standards d^3 , each severally connected by chain and sprocket wheel gear f to a shaft f^1 also journaled in a standard d^3 . On the inner end of each of the shafts f^1 is a bevel gear e located within a casing e^1 . The said gears e are of the same diameters and so mesh that their speeds are equal and the directions of each reversed with respect to the one next in order. The lowermost device c is located above an opening in the sphere fitted with a grid g through

which the refuse descends, and is secured to a shaft g^1 journaled in the gear case e^1 and driven by bevel wheels g^2 g^3 from a shaft i in turn driven by chain and sprocket gear i^1 from one of the shafts f^1 , conveniently one whereon are mounted a fast pulley j and a loose pulley j^1 and so constituting a main shaft.

The spokes of the devices c are preferably rectangular in cross section and curved as shown to agree with the spherical surface of the chamber a so that any particle or body coming in contact therewith is driven therefrom at varying angles.

The material may be introduced to the sphere through an opening at the top having a flange h adapted to receive a suitable cover.

What I claim is:—

1. Material separating or disintegrating apparatus, comprising a casing, a series of rotary devices, in the form of hubs having radial breaking arms, rotating in planes corresponding to five sides of a cube and adapted to engage material in the casing and means for rotating said devices in directions such that the direction of any one is reversed with respect to the next in order.

2. Material separating or disintegrating apparatus, comprising a casing having a discharge opening in the bottom, a rotary device, in the form of a hub having a series of breaking arms, a vertical shaft arranged concentrically with and extending below the discharge opening upon which the rotary device is mounted, a set of four rotary devices similar to the first named rotary device adapted to rotate in vertical planes, horizontal shafts arranged in a common plane above the lower rotary device upon which the said rotary devices are mounted, and gearing connecting together the several shafts for simultaneous rotation of the devices.

3. Material separating or disintegrating apparatus, comprising a casing having an inlet at the top and a discharge opening at the bottom, a grid in such discharge opening, a device in the form of a hub having breaking arms arranged to rotate in a horizontal plane above the grid, a vertical shaft carrying said device, a set of four rotary devices similar to the first named device arranged to rotate in vertical planes and a corresponding set of shafts carrying said

devices and arranged in a horizontal plane intermediate of the inlet and discharge opening.

4. Material separating or disintegrating apparatus, comprising a spherical casing and five rotary devices arranged entirely in such casing, four of the devices having their axes in a horizontal plane passing through the center of the sphere and one in a vertical plane passing through such center.

5. Material separating or disintegrating apparatus comprising a spherical casing having an outlet opening in the bottom, a rotary device, having curved arms conforming to a portion of the interior spherical surface of the casing, arranged to rotate above the discharge opening and a series of similar rotary devices arranged within the casing to rotate about axes in a horizontal plane passing through the center of the sphere.

6. Material separating or disintegrating apparatus comprising a spherical casing having an outlet at the top and a discharge opening at the bottom, a grid in such discharge opening, a rotary device having curved arms conforming to a portion of the interior spherical surface of the casing arranged to rotate above said grid, a vertical shaft extending through the grid and carrying the said rotary device, a set of four rotary devices similar to the first named rotary device, mounted upon shafts arranged horizontally in a common plane intermediate of the inlet and discharge open-

ing, and gearing connecting together the several shafts for simultaneous rotation of the rotary devices.

7. Material separating or disintegrating apparatus, comprising a spherical casing having an inlet at the top and a discharge opening at the bottom, a supporting frame surrounding said opening, a grid mounted in said frame, a vertical shaft extending through the grid, a rotary device having curved arms arranged with the convex side lowermost to sweep over the grid and connected to the vertical shaft, a set of horizontal shafts extending through the casing, arranged in a horizontal plane and converging toward the center of the sphere, exterior bearings for such shafts, a rotary device, similar to the first named rotary device, on each shaft, a main driving shaft, three supplementary shafts, bevel gear, connecting such supplementary shafts to the main shaft, chain and sprocket gear connecting the main and supplementary shafts to the horizontal shafts before referred to, a counter shaft, bevel gears connecting same to the vertical shaft and chain and sprocket gear connecting the counter shaft to the main shaft.

Signed at London England this 3rd day of August 1910.

WILLIAM YOULTEN.

Witnesses:

CHARLES COPS,
H. D. JAMESON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."