J. E. BASTER.

CRUSHER OR DISINTEGRATOR.

APPLICATION FILED NOV. 8, 1913.

1,121,454. Patented Dec. 15, 1914.

2 SHEETS—SHEET 1.

FIG. 1.

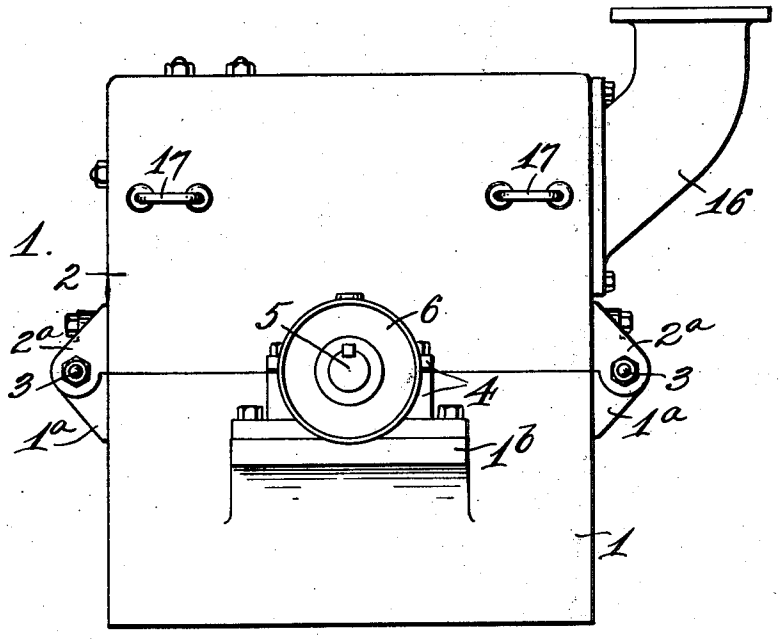
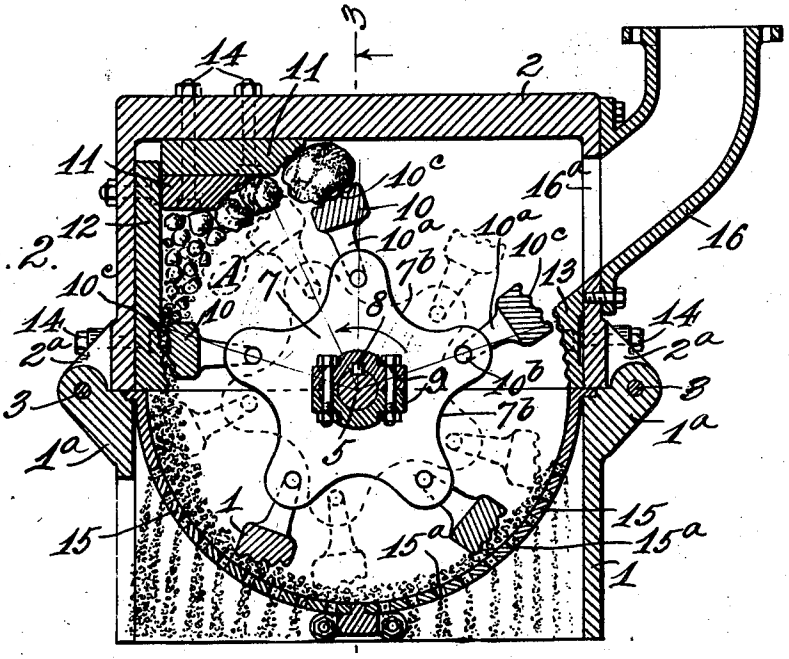


FIG. 2.



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2 SHEETS—SHEET 2.

FIG. 3.

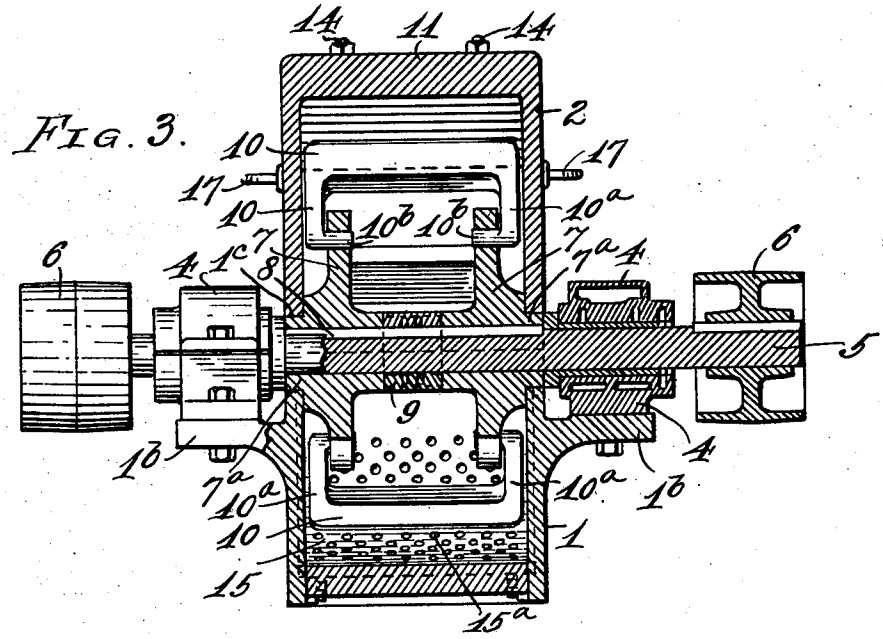
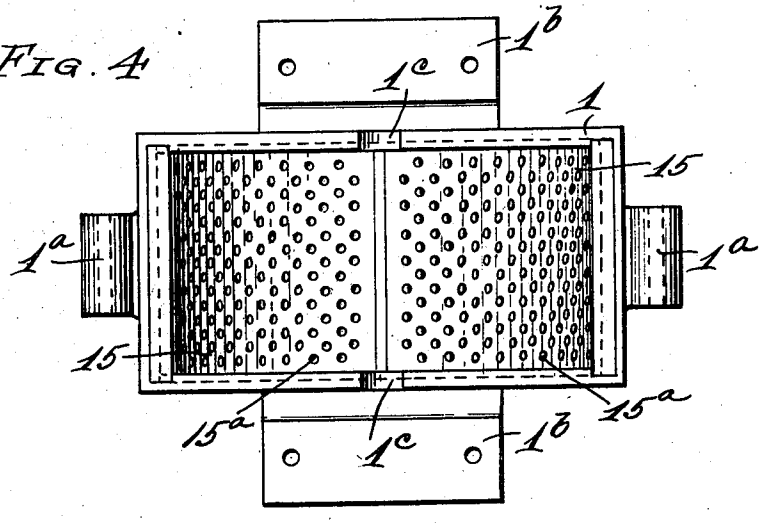


FIG. 4



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CRUSHER OR DISINTEGRATOR.

1,121,454. Specification of Letters Patent. Patented Dec. 15, 1914.

Application filed November 8, 1913. Serial No. 799,900.

To all whom it may concern:

Be it known that I, JOSEPH E. BASTER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Crushers or Disintegrators, of which the following is a specification.

My invention relates to improvements in crushers or disintegrators, the primary object being to provide a generally improved crushing or reducing mill for crushing, pulverizing or comminuting substances to a relatively fine or divided condition.

The improved crusher or disintegrator is adapted to crush or reduce an almost infinite variety of material whether of a relatively hard or soft character, the improved machine relating to that class or type commonly known as "centrifugal crushers," the present embodiment comprising a casing provided with stationary breaker members or plates and a plurality of centrifugal hammer bars pivotally carried by and circumferentially arranged about a driving shaft running at a relatively high speed and holding or projecting the hammer bars by centrifugal force, said hammer bars by reason of their centrifugal projection being adapted to "first strike and then crush" the intervening material between the stationary breaker members or plates and the respective crusher faces of the hammer bars.

In carrying out the above expressed function the centrifugal hammer or crusher bars have their initial striking and crushing faces so disposed or inclined relative to the stationary breaker members and their pivoted connection about the driving shaft, when the hammer bars are in their normal centrifugal positions, that their crusher faces will first strike the intervening material, and when the hammer bars in consequence thereof are slightly deflected or tilted rearwardly on the pivotal connections, the crusher faces of the hammer bars are caused to assume a crushing action upon the intervening material.

By reason of the construction described the hammer bars not only initially strike the material but follow such striking action with a crushing action upon the material between the face sides of the breaker members or blocks and the hammer bars, this latter action being a very powerful one and similar to the force exerted by the ordinary toggle joint mechanism. The result is, that by reason of the improved construction and arrangement of the breaker blocks and the face sides of the hammer bars, and the relative arrangement and disposition of the latter the centrifugal hammer bars or members are transformed into "combined hammer and crusher bars."

With the above mentioned and other ends in view, the invention consists in the novel construction, arrangement, and combination of parts, hereinafter described, illustrated in one of its embodiments in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings, forming a part of this specification, Figure 1, is a side elevation of the improved crusher or disintegrator. Fig. 2, a central longitudinal sectional view, illustrating the action of the centrifugal hammers when in operation. Fig. 3, a transverse sectional view taken on line 3—3 of Fig. 2. Fig. 4, a top plan view of the base or screen containing portion of the crusher casing, the driving shaft, and centrifugal hammers carried thereby, being removed.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The improved crusher or disintegrator comprises a casing consisting of a stationary base portion 1, and a hinged top or cover 2, the latter being connected to the stationary base at either end by means of hinge members 2^a, and 1^a, connected by bearing bolts 3. The stationary base 1, is provided with laterally extending members 1^b, adapted to support suitable journal or bearing blocks 4, the latter carrying a driving shaft 5. The shaft 5, is adapted to be driven at a comparatively high rate of speed by means of pulleys 6. The shaft 5, is provided with a pair of bearing hubs or cheek blocks 7, the latter being secured by means of a suitable key member 8, said hubs 7, being held and spaced apart by means of a two-part spacing collar 9, said hubs or blocks 7, being adapted to abut against the inner sides of the base and top members 1, and 2, respectively, and being preferably provided with bearing hubs 7^a, fitting within cylinder shaped bearing openings 1^c, in the meeting sides of the base and top members 1, and 2, as shown most clearly in Fig. 3, of the drawings. The hub or cheek blocks 7, are pro-

vided about their outer periphery with a plurality or series of centrifugal hammer bars or members 10, the latter being provided at their ends with crank arms 10^a, pivotally connected to the bearing hubs 7, by means of bearing members 10^b, extending toward each other and taking into suitable bearing openings in the hub or check members 7. When in repose the centrifugal hammer bars 10, are adapted to rest within the recess portions 7^b, of the bearing or hub members 7.

The casing is provided with a plurality or series of breaker plates or members 11, 12, and 13, said breaker plates or members, in the present instance, being removably secured within the walls of the removable top or cover 2, by means of bolts 14. The members 11, 12, and 13, are preferably transversely corrugated as shown and arranged in suitable proximity or relation to the faces of the hammer bars when the latter are in their normal outstanding or centrifugal working positions, and the breaker plates or bars 11, which initially receive the material to be crushed or disintegrated are preferably arranged as shown most clearly in Fig. 2, of the drawings.

As a means for causing the hammer bars or members 10, to have both a striking and a crushing action upon the material intervening between the same and the plates or members 11, 12, and 13, or in other words, transforming said bars into "combined hammer and crusher bars" the segmental face portions 10^c, of the bars are eccentrically arranged with respect to the bearing members 10^b, or pivotal connections of the hammer bars, so that when the latter are moved rearwardly or tilted upon their pivots 10^b, after initially striking the material, a crushing toggle-like action will take place as indicated by the dotted lines A, in Fig. 2, of the drawings. As shown in the present embodiment of this invention, the eccentrically arranged or cam-shaped faces are normally carried by centrifugal force in a position in advance of that of the true radial position with respect to the pivots 10^b, and shaft 5, as indicated by the radial lines shown in Fig. 2, of the drawings.

The segmental face portions 10^c, of the bars or hammers 10, are preferably transversely corrugated as shown, and the normal inclined position of the face portions 10^c, of these bars assist in not only crushing the material but also in expelling the crushed material through the openings 15^a, of the segmental screens 15, removably mounted in the base portion 1, of the casing.

The material to be crushed is adapted to be fed into the crusher or disintegrator through the medium of a hopper or feed neck 16, communicating with an opening 16^a, at the front portion of the top or cover 2, and when it is desired to inspect or remove any of the internally arranged parts, or to clean out the machine, one or both of the bearing bolts 3, may be removed, and the top or cover either tilted up or removed as desired, through the medium of handles 17, attached to the sides of the top or cover 2.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of my invention will be readily understood.

Having thus described one of the embodiments of my invention, what I claim and desire to secure by Letters Patent, is,—

1. In a centrifugal crusher, a pivoted centrifugal hammer bar having a segmental crusher face eccentrically arranged with respect to its pivoted connection.

2. In a crusher, a casing provided with breaker members at its front and a feed neck at the rear, and a driving shaft carrying a plurality of pivoted centrifugal hammer members having eccentrically disposed crusher faces.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOSEPH E. BASTER.

Witnesses:
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