

Jan. 16, 1945.

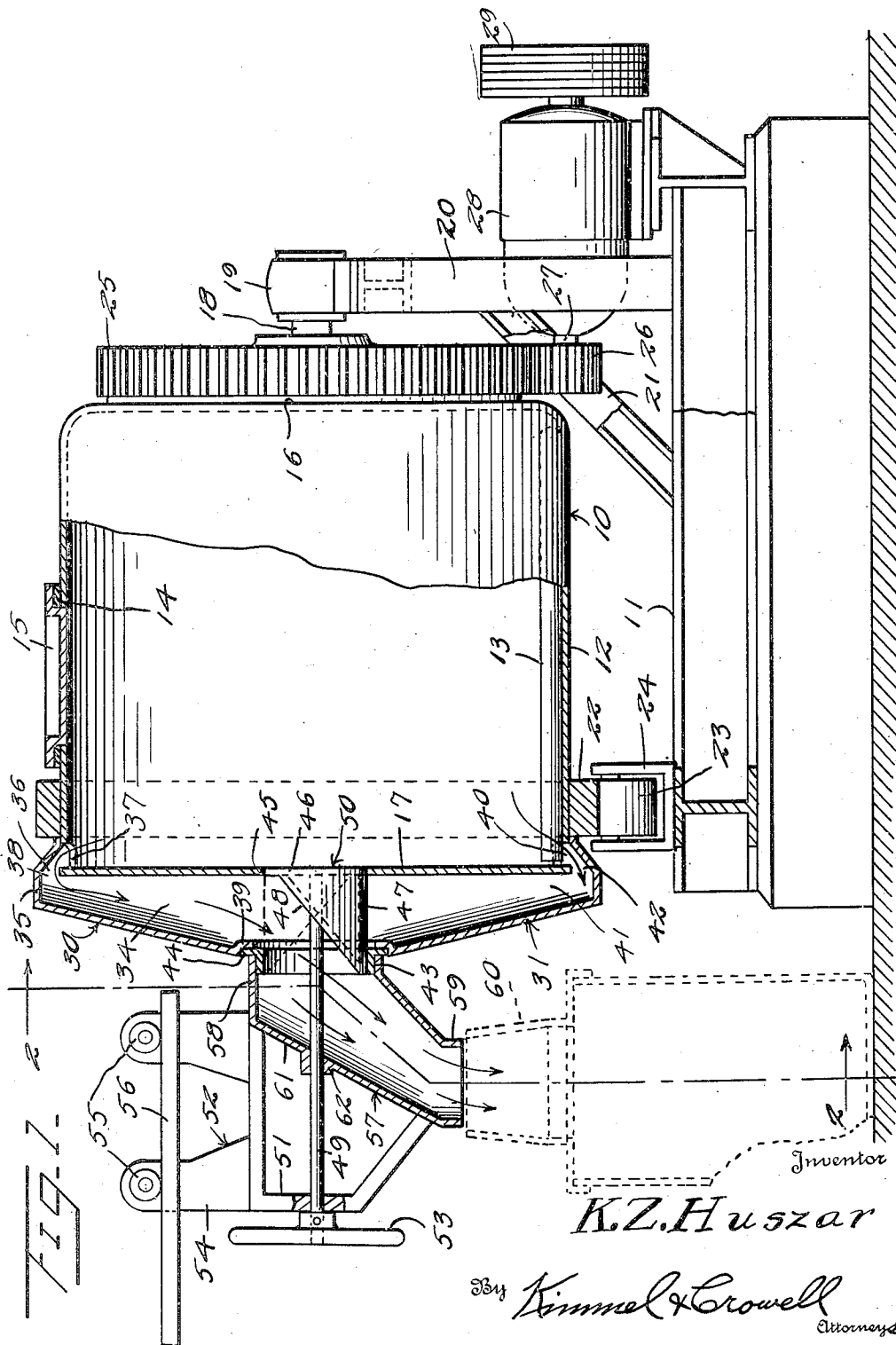
K. Z. HUSZAR

2,367,585

RODMILL

Filed Dec. 29, 1941

2 Sheets-Sheet 1



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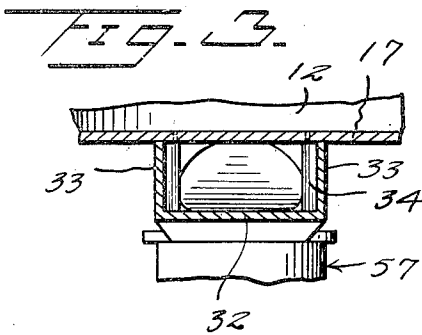
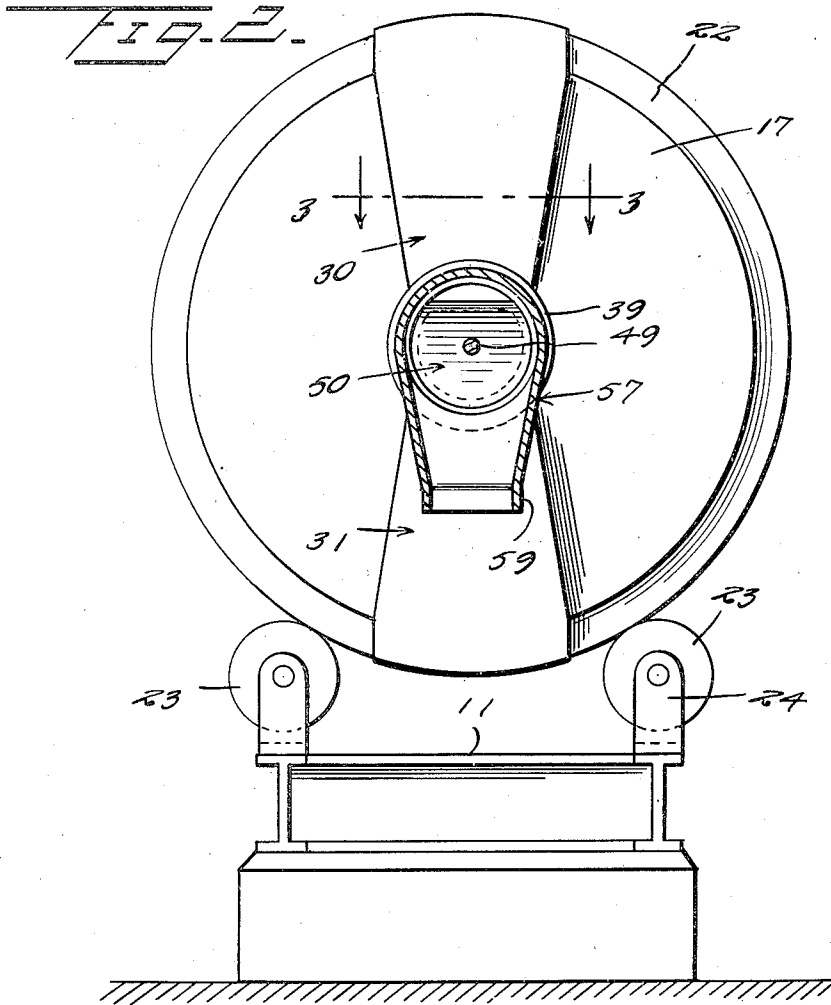
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ROD MILL

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2 Claims. (Cl. 241-171)

This invention relates to a rodmill for crushing, pulverizing, or mixing materials such as dye, face powder or the like.

A further object of this invention is to provide in a pulverizing mill an improved means whereby the ground material may be selectively discharged therefrom during the rotation of the mill.

A further object of this invention is to provide in a pulverizing mill of this kind an improved means whereby the ground material may be removed from an end of the mill and retained in a chamber at one end of the mill for rotation with the mill and subsequently discharged from the collecting chamber as the mill rotates.

To the foregoing objects and others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawings, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a detail side elevation partly in longitudinal section of a pulverizing mill constructed according to an embodiment of this invention.

Figure 2 is a sectional view taken on the line 2-2 of Figure 1.

Figure 3 is a sectional view taken on the line 3-3 of Figure 2.

Referring to the drawings, the numeral 10 designates generally a pulverizing mill member which is rotatably supported on a base structure 11. The mill member 10 includes a cylindrical body 12 containing a number of pulverizing units or bars 13. The cylindrical body 12 is formed with an opening 14 through which the material is charged for filling the mill. The closure member 15 is adapted to be removably secured to the cylindrical wall 12 for closing the filling opening 14.

A forward end wall 16 is secured to one end of the cylindrical body 12 and a rear end wall 17 is secured to the opposite end of the cylindrical wall 12. A trunnion 18 is secured to the end wall 16 and is rotatably supported in a bearing 19 carried by an upstanding bearing support 20 which is fixed to the base 11 and braced by means of one or more bracing members 21. The cylindrical body 12 adjacent the end wall 17 thereof has secured to the outer peripheral surface thereof a circular track or rail 22, which engages a pair of spaced apart rollers 23 carried by bearing members 24 which are fixed to the base 11.

A ring gear 25 is fixed to the outer side of the end wall 16 and is adapted to mesh with a driving pinion 26 carried by a shaft 27. The shaft 27 is connected to a reduction gearing 28 of conventional construction which has connected therewith a driving wheel 29. The driving wheel 29 may be operated in any suitable manner from a power member (not shown).

The end wall 17 has secured thereto a pair of diametrically opposed and outwardly extending or offset housings 30 and 31. The housing 30 is formed of an outer side wall 32 and opposite end walls 33, thereby forming a pulverized material receiving chamber 34. The outer end of the housing 30 has an outer end wall 35 which is connected with the walls 33 and with the wall 32, and is outwardly offset from the outer marginal edge of the end wall 17. An inwardly extending wall 36 is connected at one end to the forward end of the outer wall 35, and at the other end is fixed to the peripheral surface of the cylindrical body 12 forwardly of the end wall 17.

The cylindrical wall or body 12 is formed with an opening 37 communicating with the passage 38 formed by the wall 36, so that when the housing 30 is in a lowermost position, the pulverized material will flow downwardly through the opening 37 and the passage 38 into the lower portion of the housing 30. The inner portion of the housing 30 is connected to the inner portion of the housing 31 by means of an annular connecting wall 39 which, as shown in Figure 1, is inwardly offset from the outer walls of the two housings 30 and 31.

The housing 31 is similar in every detail to the construction of the housing 30, the cylindrical wall 12 being formed with a discharge opening 40 adjacent the end wall 17 which communicates with the chamber 41 through a passage 42 similar to the passage 38. An annulus or cylindrical valve seat 43 extends outwardly from the inner end portions of the two housings or chutes 30 and 31, and is formed at its inner end with an annular flange 44 secured to the annular connecting member 39. The end wall 17 is formed with an axial opening 45 coaxial with the annulus 43 and through which the material from the uppermost of the housings 30 and 31 is adapted to be discharged into the interior of the mill 10 depending upon the type of valve used in opening 45.

In order to provide a means whereby the pulverized material may be discharged from the mill 10 during the rotation of the mill, I have provided a manually operable valve structure comprising a circular inner plate 46 which is rotatable with-

in the opening 45. The plate 46 has fixed thereto an arcuate wall 47 which extends outwardly from the plate 46, having the inner end thereof fixed relative to the plate 46, and the outer end portion of the arcuate wall or body 47 is rotatably disposed within the annulus or bearing sleeve 43.

An inclined plate 48 is fixed to the arcuate wall or body 47 and constitutes a valve plate which in one position thereof, as shown in full lines, is adapted to guide the pulverized material from the housings 30 and 31, and which in another position thereof, as shown by the dotted lines in Figure 1, is adapted to prevent the material which is being ground from being discharged from the housings 30 and 31. A valve operating shaft 49 is fixed to the valve structure generally designated as 50 and comprising the plate 46, the arcuate body 47, and the angularly disposed plate 48. The shaft 49 extends horizontally outwardly from the mill 10, and is journaled in a vertically disposed bearing 51 which is carried by a horizontally movable carriage 52. The outer end of the shaft 49 has fixed thereto a handle or wheel 53 by means of which the shaft 49 may be manually rotated. The carriage 52 includes a plurality of upstanding arms 54 which have rollers 55 rotatably mounted on the upper end portions thereof, and the rollers 55 movably engage on horizontally disposed tracks 56 supported in any suitable manner rearwardly of the mill 10. A material delivery spout or nozzle generally designated as 57 is fixed relative to the carriage 52, and is formed at its upper end portion with a cylindrical sleeve 58 which snugly engages about the collar 43.

The lower end of the spout or nozzle 57 is formed with a vertically disposed delivery member 59 which is adapted to engage over a suitable receiver 60 positioned below the nozzle or spout 57. The rear wall 61 of the nozzle 57 is formed with a bearing boss 62 through which the shaft 49 rotatably engages.

When it is desired to discharge the material from the mill 10 during the rotation thereof, the handle 53 is rotated to dispose the valve member 50 in the full line position shown in Figure 1. In this delivery position the material, gravitatingly moving downwardly in the uppermost housing which as shown in Figure 1 is the housing 30, will move out through the spout 57 and be discharged into the collector or receiver 60. The valve member 50 is stationary so that continued rotation of the mill 10 will bring the housing 31 to an uppermost position and the housing 30 to a lowermost or material receiving position.

When the housing 31 is in an uppermost position, the material collected therein will be discharged therefrom in the same manner as the material from the housing 30, when the housing 30 is in its uppermost position.

What I claim is:

1. In combination a pulverizing mill including a rotatable body formed with a cylindrical side wall and opposite end walls, a number of radially disposed housings carried by one of said end walls, each housing comprising a rear wall and opposite side walls fixed to said one end wall, said cylindrical wall having opposed openings, passage forming means fixed to said housings and extending outwardly therefrom, said passage forming means communicating with said housings and encompassing said openings, means forming an annular valve seat between the adjacent ends of said rear walls, said one end wall having an axial opening, a valve engaging in said valve seat and said axial opening, said valve including an arcuate body, an inner wall fixed to said latter body, an inclined guide plate carried by said latter body extending from said inner end wall to the outer end of said latter body, a shaft fixed to said valve, operating means for said shaft and a discharge nozzle encompassing said valve seat.

2. In combination a pulverizing mill including a rotatable body formed with a cylindrical side wall and opposite end walls, a pair of radially disposed housings carried by one of said end walls, each housing comprising a rear wall and opposite side walls fixed to said one end wall, said cylindrical wall having opposed openings, passage forming means fixed to said housings and extending outwardly therefrom, said passage forming means communicating with said housings and encompassing said openings, means forming an annular valve seat between the adjacent ends of said rear walls, said one end wall having an axial opening, a valve engaging in said valve seat and said axial opening, said valve including an arcuate valve body, an inner end wall secured to the base of said latter body, an inclined plate fixed to said body and inclined outwardly from said inner end wall to the outer end of said latter body, a shaft fixed to said valve and extending outwardly therefrom, a shaft supporting carriage, means movably supporting said carriage and a discharge nozzle fixed relative to said carriage and encompassing the outer portion of said valve seat.

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