Sept. 1, 1925. 1,551,767

P. OEHMIG, JR

ROTARY GRATING MACHINE

Filed March 25, 1925 2 Sheets-Sheet 1

FIG. 1

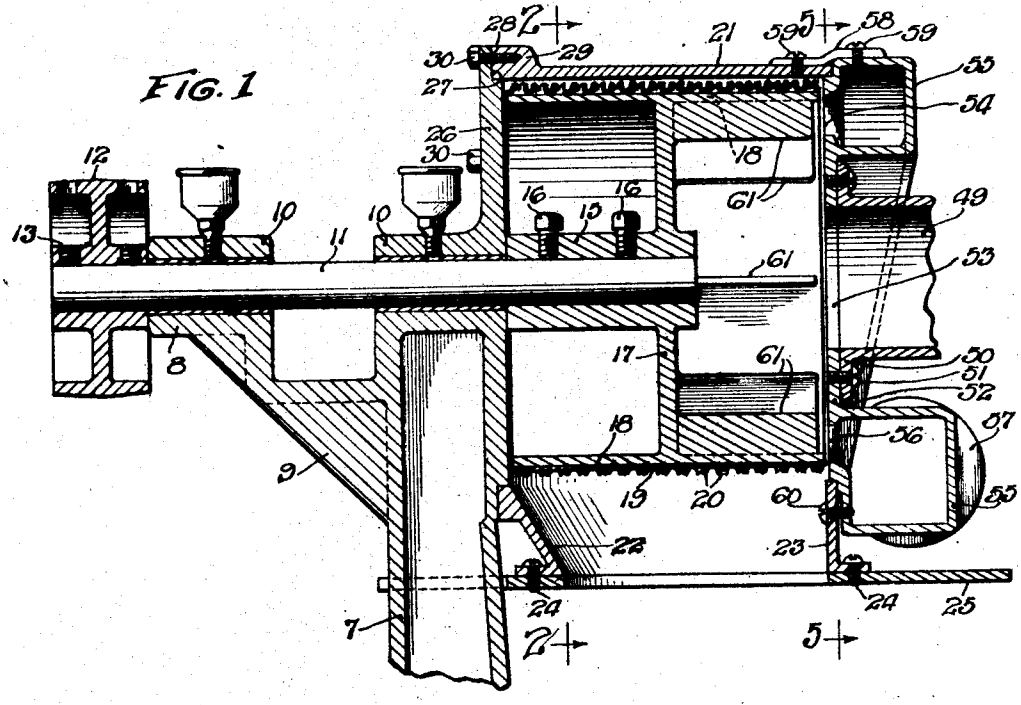
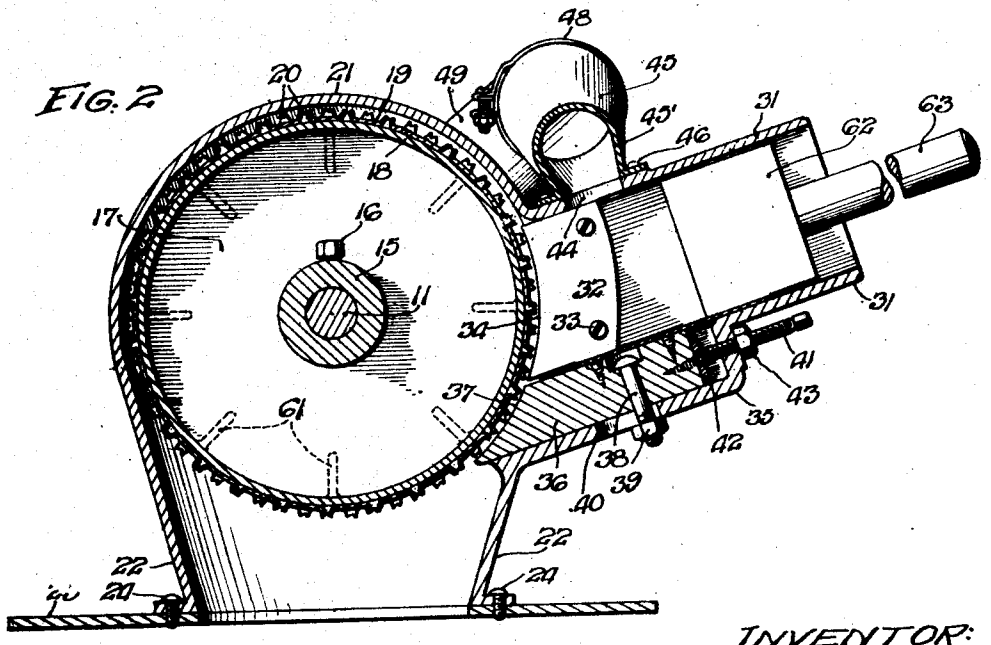


FIG. 2



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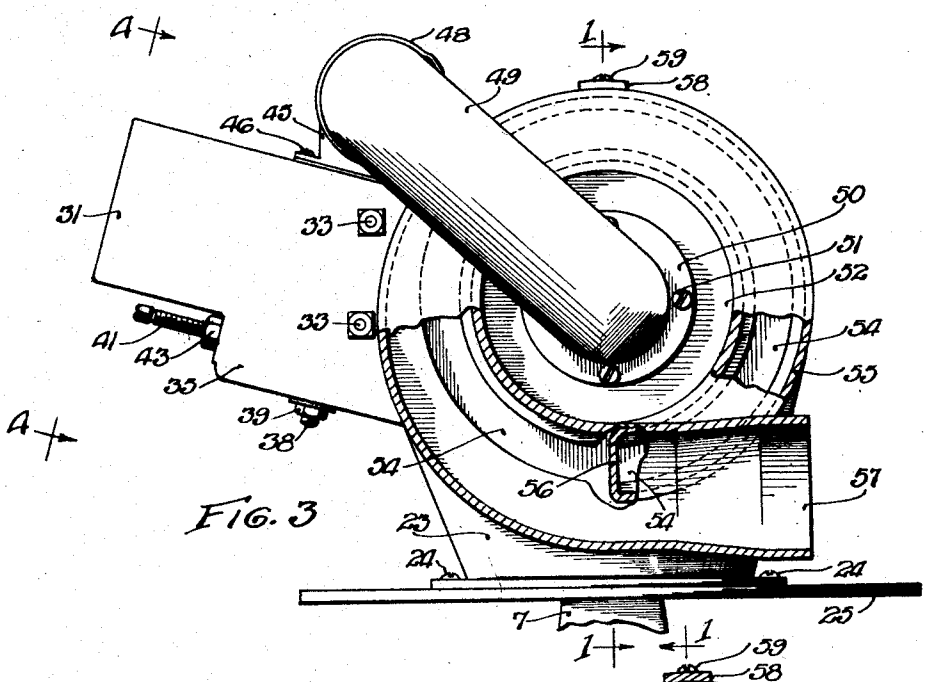


FIG. 3

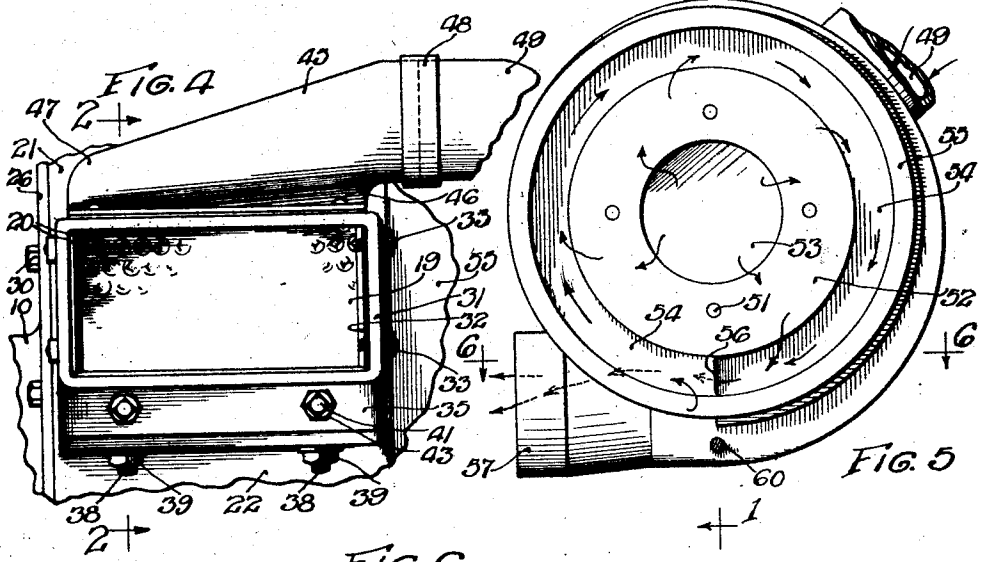
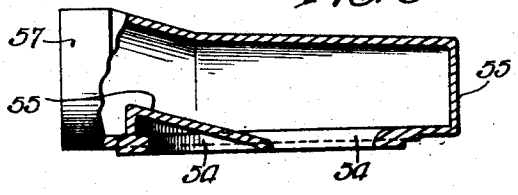


FIG. 4

FIG. 5

FIG. 6



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UNITED STATES PATENT OFFICE.

PAUL OEHMIG, JR., OF CHICAGO, ILLINOIS.

ROTARY GRATING MACHINE.

Application filed March 25, 1925. Serial No. 18,104.

To all whom it may concern:

Be it known that I, PAUL OEHMIG, Jr., a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rotary Grating Machines, of which the following is a specification.

This invention relates to improvements in rotary grating machines, heretofore consisting of a perforated grating cylinder, a casing therefor, a power-driven shaft, provided with an exhaust fan located internally of the casing for discharging from the machine obnoxious odors given off by the material being grated, and conducting them to a point distant therefrom, such, for example, as the obnoxious odors given off by horse radish.

The prime object of my invention, broadly stated, is a rotary grating machine in which the grated materials are confined to the periphery of the grating cylinder and discharged in their entirety therefrom, and from which machine obnoxious odors are forcibly expelled by means located internally of said cylinder.

More specifically stated, the object of my invention is a rotary grating machine in which the grating surface is formed separately from, surrounds and is mounted upon an imperforate power driven cylinder from which the obnoxious odors are forcibly expelled by fan blades secured to and suspended from the internal surface of the cylinder.

Another object of my invention is a rotary grating machine, provided with means for introducing air thereto through the wall of the feed chute in the path of the materials to be grated, in their passage therethrough, and to discharge the air so supplied axially of the grating cylinder.

Another object of my invention is a grating machine provided with means for holding the materials to be grated against the cylindrical grating surface, and which is adjustable for regulating and controlling the fineness or coarseness of the grated materials and for taking up wear, when of wood, which is the preferred material therefor.

A further object of my invention is a grating machine in which the feed chute is provided with means for preventing the lateral deflection of the materials passing through the chute to direct contact with the cylindrical grating surface.

With these ends in view, my invention finds embodiment in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects are attained, all as hereinafter fully described with reference to the accompanying drawings and more fully pointed out in the claims.

In said drawings,—

Fig. 1 illustrates a vertical longitudinal section taken on the line 1—1 of Figs. 3 and 5 of the grating machine in which my invention finds embodiment.

Fig. 2 is a transverse section taken on the line 2—2 of Figs. 1 and 4.

Fig. 3 is an end elevation.

Fig. 4 is a detail rear elevation of the feed chute and the air supply pipe therefor, taken on the line 4—4 of Fig. 3.

Fig. 5 is an end elevation of the grating machine, showing the relative position of the air supply and discharge pipes thereto, taken on the line 5—5 of Fig. 1, looking in the direction of the arrows.

Fig. 6 is a sectional view on line 6—6 of Figure 5.

Similar characters of reference indicate the same parts in the several figures of the drawings.

7 indicates a pedestal, provided with a suitable base (not shown) for supporting the machine of my invention from the floor in a position convenient for the operator, from which post projects a bracket 8, strengthened by a web 9, the bracket and post being bored out and each provided with a lining 10 for a shaft 11.

Shaft 11 projects outwardly beyond the bracket 8 and has mounted thereon a pulley 12, secured to the shaft by set-screws 13, but may be by any other suitable means, which pulley, however, may be secured to the shaft and located in the recess 14 in the bracket.

Shaft 11 projects outwardly beyond the pedestal 7 and has secured thereto a hub 15 by means of set-screws 16, 16, from which hub projects a web 17, upon which is mounted an imperforate open-end cylinder 18, the periphery of which is surrounded by a grat-

ing surface, consisting of a band of sheet metal 19, provided with teeth 20, projecting outwardly therefrom by punching.

Surrounding the rotating grater is a cylindrical casing 21, open at its bottom and extending below the grater cylinder to form a chute through which to discharge the grated materials, one of the side walls 22 for which is inclined, and the other side 23 straight, as shown in Fig. 1, but may both be inclined, as shown in Fig. 2, each of which walls is provided with an outwardly projecting perforated flange 24, adapted for securing thereto an annular cover 25 by means of set-screws 25^a or other fastening devices suitable for a receptacle receiving the grated materials.

Casing 21 is closed at one end by a circular plate 26, secured to the post 7, preferably by casting it therewith, which plate is provided with a shoulder 27, forming a seat for the adjacent end of the casing, adjacent which the casing is provided with a flange 28 at intervals of its circumference, and with lugs 29, receiving a set-screw 30, passing through the plate and the flange.

Casing 21 is provided with a longitudinal opening, surrounded by an inclined chute 31, through which to feed to the grating cylinder the materials to be grated, which chute has preferably secured to each inner side thereof, plates 32, by means of screws 33, the inner edges 34 of which plates are curved to conform to the grating surface opposed thereto, for preventing the grated materials from escaping laterally from the chute.

Chute 31 also has an offset 35, providing a receptacle for an adjustable wooden block 36, extending the width of the chute, the function of which is to adjustably control the uniformity and fineness of the grated material, to which end, a bolt 38 is projected through an elongated slot 39 in the offset 35, on the screwthreaded end of which is a nut 40, for holding the block in its adjusted position, in which it is additionally maintained by means of a key-bolt 41, adapted to abut against an end-plate 42, secured to the block and locked in its adjusted position by means of a lock-nut 43.

In other words, the key-bolt is adapted for both taking up wear, rigidly locking and preventing injury to the block from forces tending to bend the bolt 38.

A further and important feature of my invention is a simple and effective means for conducting into the grater cylinder obnoxious fumes as fast as they are formed in the feed chute of the machine, and discharging them, together with those formed in and around the cylinder, to a point distant from the machine.

To these ends, the feed chute is provided transversely with an elongated slot 44, in open communication with a flanged hood 45, secured to the walls of the chute by set-screws 46, one end of which hood is closed as at 47 and diverges thence to a coupling 48, connecting the hood with a bent pipe 49, the other end of which is provided with a flange 50, secured by means of set-screws 51 to the adjacent end-plate 52 for the cylindrical casing, which end-plate is provided with an opening axial to the cylindrical grater, in open communication with and in register with the pipe 49, and through which and from the pipe 49, air currents are discharged into the chamber formed by the disk 52 and said end-plate.

End-plate 52 is provided next its periphery (see Figs. 1, 3 and 5) with a circular slot 54, opening into a pipe 55, closed at its inner end 56, which extends across and closes the circular groove at that point.

Pipe 55 is spirally arranged with reference to the end-plate 52 and is gradually increased in size from its inner end 56 to its outer and discharging end 57, whence it extends tangentially with reference to its axis and is adapted to be coupled with another pipe (not shown) for conducting the air currents therefrom outside of the room in which the grating machine is located, or to any other distant point therefrom that may be desired.

End-plate 52 is secured in and to the end of casing 21 by means of a bar 58, attached to the periphery of the cylinder and to the spiral pipe 55 by means of set-screws 59, 59, and by one or more set-screws 60, projecting through the flange 23, secured into the spiral pipe 55, as will be seen by reference to the bottom portion of the casing 21 in Figs. 3 and 5.

As a means for forcibly abstracting obnoxious fumes as fast as they are formed in the feed chute for conducting them into the grater cylinder and expelling them from the machine, together with the fumes formed in the cylinder and the casing, a number of spaced fan blades 61 (see Figs. 1 and 2) are secured to and depend from the inner surface of the cylinder 18, which suspended fan blades are located between the disk 17 and the inner ends of the axial opening 53 and circular slot 54, and secured in their operative position by any suitable means, but preferably by casting them with the cylinder and with the disk, as indicated in the drawings.

In Fig. 2, is shown a pusher block 62, provided with a suitable handle 63, as a means for facilitating the feeding of the materials and for forcing them against the grating surface.

In operation, with the cylinder in open communication with the feed chute and revolving in the direction indicated by the arrow in Fig. 2, a vacuum will be produced

in the feed chute inducing air currents, conducting the fumes from the chute into the cylinder, which fumes, together with those formed in the cylinder, and casing, will, through the centrifugal force of the fan, be discharged through the hood into the spiral pipe 55, and thence to their ultimate destination, there being only an instant when the circular slot is in open communication with the spiral pipe, and which is indicated by the thickness of the closed end wall 56 of the spiral pipe, and so short a time that there is no possibility for any of the fumes in any part of the machine escaping therefrom in the presence of the operator, or into the room in which the grating machine of my invention is located.

My invention, however, is not to be limited to the details of construction herein shown and described, such, for example, as for the form of the bend for the pipe 49 through which the fumes forming in the feed chute are conducted into the cylinder for the grater, or to the spiral formation and to increasing the diameter of the discharge pipe 55, or the length and curvature of the slot 54, so long as these several parts and features are adapted for producing the results attributable to my invention as particularly pointed out and distinctively set forth in appended claims.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. A grating machine, comprising in combination a grating surface, an imperforate cylindrical support therefor, and spaced fan blades located within said cylinder.

2. A grating machine, comprising in combination a grating surface, an imperforate cylindrical support therefor, and spaced fan blades located within and suspended from the inner walls of said cylinder.

3. A grating machine, comprising in combination a grating surface, an imperforate cylindrical support therefor, a disk transversely dividing said cylinder, a casing surrounding said cylinder and surface closed at one end and provided with openings in its opposite end, and fan blades suspended from the inner walls of the cylinder located between said disk and end-plate openings.

4. A grating machine, comprising in combination a grating surface, an imperforate cylindrical support therefor, a disk transversely dividing said cylinder, a surrounding casing closed at one end and provided at its opposite end with an axial opening, and with a circular slot surrounding said opening, and spaced fan blades located between said disk and opening, adapted for inducing air currents into and discharging them from the cylinder and casing.

5. A grating machine, comprising in combination an imperforate cylinder, a grating surface mounted thereon, a casing substantially surrounding said cylinder and surface, having an axial opening at one end thereof, a feed chute secured to said casing, provided with an opening at one side thereof towards its inner end, a hood and a pipe connecting the feed chute with the cylinder in open communication with the opening in the feed chute and the axial opening in the casing, and means for discharging from the casing air currents passing from the feed chute into the cylinder.

6. A grating machine, comprising in combination a grating surface, an imperforate cylindrical support therefor, a fan secured to and revolving with said cylinder, and a casing substantially surrounding said cylinder and surface, which casing is provided with an inlet and an outlet for air currents produced by said fan.

7. A grating machine, comprising in combination a grating surface, an imperforate cylindrical support therefor, a fixed casing substantially surrounding said surface and support closed at one end and provided at its opposite end with an axially located opening and inwardly adjacent from its periphery with a curved slot, and a hood extending over and closing said slot at one end, provided with an extension for conducting obnoxious fumes from the machine to a point distant therefrom.

8. A grating machine, comprising in combination an imperforate cylinder, a grating surface mounted thereon, a casing substantially surrounding said cylinder and surface, provided at one end with an axial opening through which to conduct obnoxious fumes into the cylinder, a feed chute, and means connecting the feed chute with and in open communication with said axial opening.

9. A grating machine, comprising in combination a rotatable grating surface, a casing substantially surrounding and enclosing said surface, one end of which is provided with an air inlet and a circular slot surrounding and spaced therefrom, and a pipe closed at one end in open communication with said slot for discharging obnoxious odors formed in the cylinder and casing at a point distant therefrom.

10. A grating machine, comprising in combination a rotatable grating surface, a casing substantially surrounding and enclosing said surface, one end of which is provided with an air inlet and a circular slot surrounding and spaced therefrom, and a spiral pipe closed at one end in open communication with said slot.

11. A grating machine, comprising in combination a rotatable imperforate cylinder, having mounted thereon a grating surface, a casing substantially surrounding said cylinder and surface, provided at one end

with an air inlet and an air outlet adjacently below the periphery of the casing, and a fan located within the cylinder adapted in operation to produce an exhaust adjacent the air inlet and to forcibly expel the air through said outlet and thereby discharge obnoxious fumes supplied to and formed within the casing therefrom.

12. A grating machine, comprising in combination a drive shaft, a cylindrical grater mounted upon and operated by said shaft, a casing for said grating cylinder, one end of which is provided with an air supply inlet opening internally of the cylinder, an air outlet located adjacent the periphery of the casing, and fan blades located internally of and suspended from the grater cylinder.

13. A grating machine, comprising in combination a rotatable shaft, a driving pulley secured thereto, a grating surface connected with and rotated by said shaft, a cylindrical casing converging below its bottom to provide a discharge chute therefor, and with a feed chute and with end plates, one of which end plates is provided with an axial opening into the cylinder connected with the feed chute, and also adjacent its periphery with a discharge opening through which to discharge obnoxious odors accumulating within the casing and cylinder to a point distant therefrom.

14. A grating machine, comprising a rotatable cylindrical grater, a housing surrounding the same, a feed chute peripherally of and in open communication with the grating surface of the cylinder, and plates located internally of and at opposite sides of the feed chute, the edges of which are curved to conform to the surface of the grating cylinder and adapted to prevent the materials passing through the feed chute from discharging laterally thereof and longitudinally of the cylinder.

15. A grating machine, comprising in combination a cylindrical grater, a housing, a feed chute, an adjustable block forming a part of the feeding surface of the feed chute for regulating the fineness of the grating of the materials supplied to the surface of the grating cylinder, and means for adjusting said block and taking up the frictional wear thereof.

In witness whereof, I have hereunto set my hand this 21st day of March, 1925.

PAUL OEHMIG, JR.