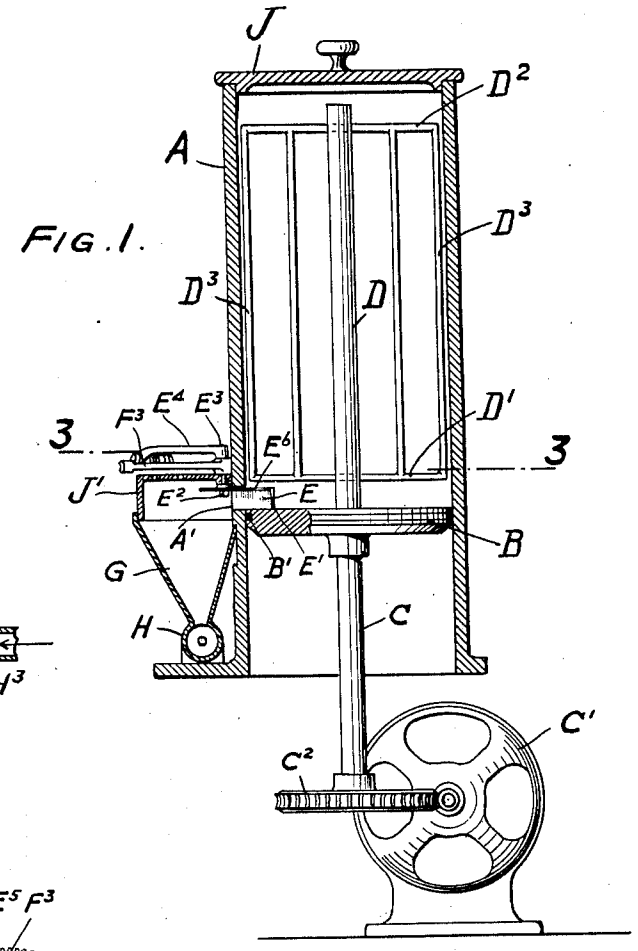
Dec. 19, 1933. H. S. HUNT ET AL 1,939,703

FEEDING DEVICE FOR FINELY DIVIDED MATERIAL

Filed Oct. 29, 1932

FIG. 1.



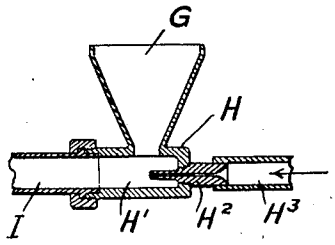


FIG. 2.

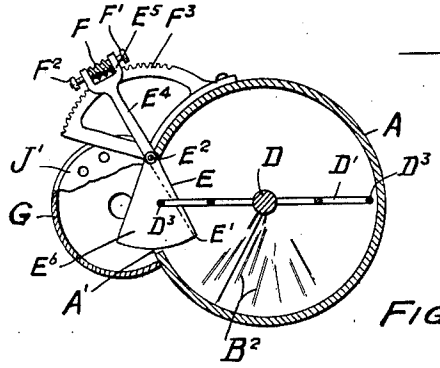


FIG. 3.

INVENTORS

Horace S. Hunt
Paul L. Arnold
BY
Francis J. Chamberlain
ATTORNEY.

WITNESS:
Robt. R. Mitchell

Patented Dec. 19, 1933 1,939,703

UNITED STATES PATENT OFFICE

1,939,703

FEEDING DEVICE FOR FINELY DIVIDED MATERIAL

Horace S. Hunt, Burlington, and Paul L. Arnold, Edgewater Park, N. J., assignors to United States Pipe and Foundry Company, Burlington, N. J., a corporation of New Jersey

Application October 29, 1932. Serial No. 640,258

4 Claims. (Cl. 221—118)

Our invention relates to feeding devices and has for its object to provide a feeding device for finely divided material which will be adapted to separate and deliver from a mass of finely divided material a constant and regular supply of any desired quantity.

The essential features of our invention consist of an upright cylinder adapted to receive a charge of finely divided material and provided with a lateral outlet opening through its wall, the provision of rotating means rotating in the cylindrical container and adapted to engage and rotate the mass of finely divided material contained therein and a knife located at the outlet opening having a sharpened edge projecting into the cylinder and adapted to pare off from the revolving contents of the cylinder and direct into the outlet opening a portion or layer of the revolving mass contained in the cylinder.

Other features of our invention will be best understood as described in connection with the drawing in which we have illustrated a feeding machine embodying our improvements in what we believe to be their best form and construction and in which

Figure 1 is a sectional elevation taken through the center of the cylindrical container on a plane which passes through the outlet opening in the wall of the container, the receiving hopper for the finely divided material fed from the container and a device for transporting the finely divided material being also shown in section. In this view the mechanism contained in the cylinder and adapted to support and rotate the charge of the cylinder is shown in elevation with a portion of the rotating disc broken away to show the packing.

Figure 2 is a longitudinal section of the transporting device for the pulverized material received from the hopper with the hopper also shown in section and

Figure 3 is a horizontal cross-section on the line 3—3 of Fig. 1, with the hopper and mechanism for adjusting the knife blade shown in plan and with the cover of the hopper shown as partly broken away.

A indicates an upright cylindrical container shown as having a rotating disc B at its lower end which, as shown, is provided with a packing ring B^1. The upper face of the disc B is roughened to better engage the supported load of finely divided material, the roughening being indicated in Fig. 3 as formed by radial grooves B^2 on the face of the disc. The disc is supported and rotated by attachment to a spindle C, driven at regulated speed by a motor, indicated at C^1, preferably through a worm gear, as indicated at C^2. D indicates a spindle extending up from the upper face of the disc B and coaxial therewith and to this spindle are attached radial arms, as indicated at D^1 and D^2, the outer ends of which are connected by more or less upright bars, indicated at D^3. An outlet opening A^1 is formed through the wall of the cylinder, preferably, as shown, slightly above the disc B. This outlet opening is shown as of rectangular form and, at one of its upright sides, is pivotally secured a plate E which extends across the outlet opening and is provided with a sharpened edge E^1 which is intended to project into the cylinder. As shown, the hinged connection of the plate E is indicated at E^2 and from the hinged edge of the plate a spindle E^3 extends upward and has attached to its upper end a lever arm E^4 provided with a forked end, as indicated at E^5. In the fork E^5 is journalled a worm, indicated at F, which can be turned by a button F^1 and locked in position by a jam nut indicated at F^2. The worm F engages a stationary sector, indicated at F^3. As shown, the plate E is provided with a laterally extending flange E^6 extending outwardly from its upper edge and lying close to the top of the outlet opening A^1. This flange, as shown, is of sector shape and is provided to prevent the escape of any of the finely divided contents of the cylindrical container into the outlet opening over the top edge of the plate E. G indicates a hopper located to receive finely divided material fed through the opening A^1 and, as shown, opening at its bottom into the chamber H^1 of a transporting device indicated as a whole at H. Into the end of the chamber H^1 opens an air blast nozzle, indicated at H^2, connected with a source of compressed air, not shown, by a conduit indicated at H^3. The chamber H^1 is shown as connecting with a pipe or conduit, a fragment of which is indicated at I, through which the finely divided material carried by the carrier gas injected into the chamber H^1 can be transported to a point of delivery. J indicates a cover for the container and J^1 a cover for the hopper. Such covers may be conveniently provided to keep extraneous matter out of the container and hopper but need not be air tight and, in fact, for the hopper the cover should be of such a character as to permit a fairly free passage of air.

In operation, the upright cylindrical container A is charged with finely divided material, the plate E adjusted by means of the worm F so that its sharpened edge E^1 will project into

the cylindrical container to an extent determined by the rate of feed desired and the disc B and the connected bars D, D^1, D^2 and D^3 are rotated by means of the connected motor with the effect of causing the cylindrical mass of finely divided material in the container to rotate in the container and, as the sharpened edge E^1 of the plate E projects beyond the inner wall of the cylinder, it shaves off from the rotating mass of material a layer of the material, the amount of which can be very nicely determined and directs the material so cut away from the revolving mass into the outlet opening A^1 and into the hopper G from which, as shown, it is delivered into the chamber H^1 and carried away by the jet of air or other gas entering the chamber H^1 through the nozzle H^2; the conveyor gas carrying the particles of finely divided material is delivered from the chamber H^1 into the conduit I and carried to the point of use.

The feeding device above described was especially designed by us for feeding finely divided mold coating material to a jet or nozzle, not shown, through which the particles of finely divided material are projected into contact with a rotating mold surface but, obviously, our invention is well adapted for use in all cases where an exceedingly regular and regulable supply of finely divided material is required.

It will be obvious that while as we believe the construction illustrated in the drawing and above described is the one which we believe to be best adapted for use, it is capable of many modifications without departure from the essential features of our invention.

Having now described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. A feeding device for pulverized material comprising an upright container of circular cross section, a rotatable closure for the lower end of said container, an outlet opening formed through the wall of the upright container adjacent to the rotatable closure, a knife blade extending from a point adjacent one end of the outlet opening in front of the opening to a point lying within the container, said knife blade having a height substantially equal to that of the opening and having a ledge projecting outwardly from its top adapted to extend through the opening in the container and to lie in close proximity to the upper wall of said container opening and means rotating in synchronism with the rotative movements of the rotatable closure projecting into the upright container and adapted, in coaction with the rotating closure, to impart rotative movement to the pulverized material with which the container is charged.

2. A feeding device as called for in claim 1, in which the knife blade is made angularly adjustable to vary the distance to which its free end will project into the container.

3. A feeding device as called for in claim 1, provided with a spindle extending upward from the center of the rotating closure and rotatable with said closure, with arms extending laterally from said spindle through the body of the container and with vertically extending bars secured to the outer ends of said laterally extending bars, portions of said lateral and vertical bars being located at levels above but adjacent to that of the outlet opening at the bottom of the container.

4. A feeding device as called for in claim 1, in which the upper face of the rotatable closure at the bottom of the container is roughened and in which bars rotating in synchronism with the rotating closure are located within the container at a level close to but somewhat above the level of the outlet opening.

HORACE S. HUNT.
PAUL L. ARNOLD.