July 30, 1963 R. L. DYAR 3,099,580

ADHESIVE COATING APPARATUS

Original Filed Aug. 13, 1959

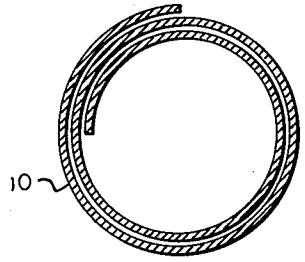


FIG. 1

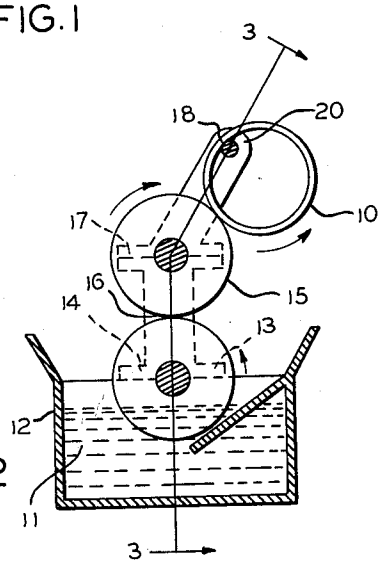


FIG. 2

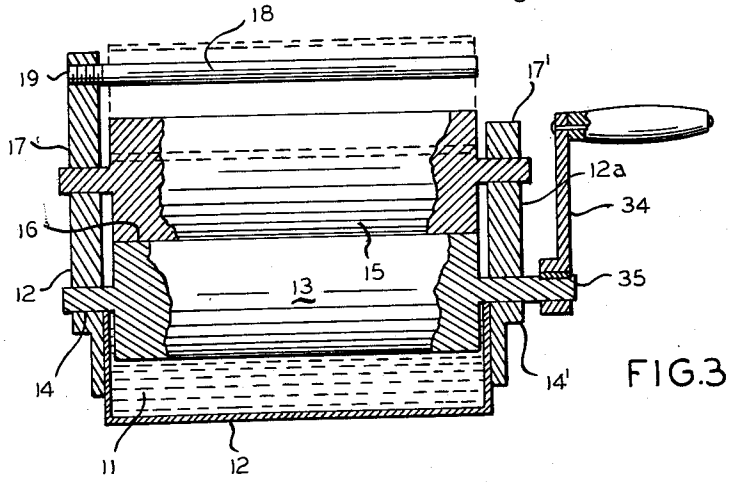


FIG. 3

INVENTOR.
ROBERT L. DYAR

BY

ATTORNEYS

United States Patent Office 3,099,580 Patented July 30, 1963

3,099,580
ADHESIVE COATING APPARATUS

Robert L. Dyar, 1825 S. Kinnickinnic Ave., Milwaukee, Wis.

Original application Aug. 13, 1959, Ser. No. 833,445, now Patent No. 3,023,121, dated Feb. 27, 1962. Divided and this application July 13, 1960, Ser. No. 42,600
2 Claims. (Cl. 118—233)

My invention relates to abrasive grating cylinders, and more particularly to a method and apparatus for coating cylinders with an evenly applied quantity of abrasive grain. This application is a division of my co-pending application, Serial No. 833,445, filed August 13, 1959, now Patent No. 3,023,121.

It is common practice to slideably support hollow abrasive cylinders on solid rolls. This is especially true in the processing of vegetables or the like, in the canning industry. Cylinders of various types are employed, as described in my co-pending application, Serial No. 782,110, filed December 22, 1958, and now abandoned. That application discloses a method for manufacturing the cylinders from a continuous sheet of material which is laminated in spiral fashion to form the desired thickness of wall, and treated in a manner to resist moisture and acids used in the industry. It is the primary object of this invention to provide a method and apparatus for mechanically coating and treating the outer peripheral surface of the cylinders.

Other and further objects of my invention will become more apparent from the following specification and claims, when taken in conjunction with the drawings, in which:

FIGURE 1 is an end view of a cylinder constructed of a single laminated sheet and reinforced by an adherent agent.

FIGURE 2 is a cross-sectional end view of a reservoir and roller arrangement, and showing a rod for rotatably supporting the cylinder while it is being coated with an adhesive.

FIGURE 3 is a longitudinal cross section taken at the line 3—3 in FIGURE 2.

Similar characters of reference indicate corresponding parts throughout the drawings, and referring specifically now to the same, the character **10** shows a cylinder open at both ends and consisting of a sheet of material, such as asbestos, rolled over a mandrel, the sheet material being laminated in spiral fashion and with the several layers joined together by an adherent agent or adhesive such as a phenol formaldehyde resin.

FIGURE 2 illustrates a means for applying adhesive to the roll **10**. In FIGURE 2, a body of a liquid adhesive **11** is disposed within a reservoir **12**. A roller **13** is journalled in bearings **14** and **14'** supported by the opposite ends of the reservoir **12** in a manner whereby the roller **13** is partially submerged in the adhesive **11**. The adhesive should be of a type that is resistant to water, mild acid and alkali. Phenol formaldehyde resin adhesives are satisfactory. A second transfer roller **15** extends across the entire length of the roller **13** and is held in contact therewith at **16** by means of bearings shown as **17** and **17'**. A longitudinal roll or shaft **18** is supported at one end **19** in cantilever fashion and extends the entire length of the roller **15** and spaced apart therefrom. The bearings **14**, **14'**, **17** and **17'** may be supported by arms **12** and **12***a* which are upstanding from the reservoir **12**. In this manner it will become manifest by referring to FIGURE 2 that the roller **13** partially submerged in the adhesive **11**

and when revolved, will cause the adhesive **11** to be carried upward by the roller **13**, when the roller **13** is revolved in the direction of the arrow, and come in contact with the peripheral face of the roller **15** and be spread evenly thereon, while causing the roller **15** to revolve in the direction of the arrow.

The shaft **18** is supported on one end only by the arm **12**, will permit a laminated cylinder **10** to be disposed thereon, and by offsetting the shaft with respect to the axis of roller **15** and by making shaft **18** of a smaller diameter than the opening in the cylinder **10**, the cylinder **10** will contact the top of the rod **18** at **20**, and be permitted to rest by gravity on the peripheral face of the coated roller **15**. Roller will spread an even coating of the adhesive **11** on the peripheral face of the cylinder **10** when roller **13** is rotated, as by means of handle **34** attached to the shaft **35** on the end of roller **13**.

In carrying out the method of the present invention, the practitioner, after forming a cylindrical backing roll, as illustrated at **10** in FIGURE 1, coats the external peripheral surface of the cylinder with adhesive, as is illustrated in FIGURE 2. The coating so applied should completely cover the peripheral surface of the cylinder and have a thickness consistent with the amount of abrasive desired on the cylinder. For relatively fine grains of abrasive, the initial coating may be relatively thin, whereas with larger grains the coating can be more thick.

Before the adhesive forming the first coating has set, the cylinder **10** is impressed with abrasive grains.

Obviously, various sizes of abrasive particles can be used in the process, as long as they are of such size that they will adhere to the initial coating of adhesive.

Whereas I have shown and described an operative form of the invention, it should be understood that this showing and description thereof are to be taken in an illustrative or diagrammatic sense only. There are many modifications to the invention which will fall within the scope and spirit thereof and which will be apparent to those skilled in the art. The scope of the invention should be limited only by the scope of the hereinafter appended claims.

I claim:

1. Apparatus for applying an adhesive coating to a thin-walled cylinder including a reservoir adapted to contain an adhesive, an adhesive transfer roller, means for transferring adhesive from said reservoir to said adhesive transfer roller, a cylinder-supporting shaft spaced from said transfer roller a distance greater than the wall thickness of said cylinder, positioned above the axis of said transfer roller, and offset laterally from but parallel to the axis of said transfer roller whereby said cylinder, having an external opening greater than the diameter of the shaft and placed upon said shaft will swing by gravity into pressure contact with said transfer roller, and means for rotating said roller and thereby said cylinder carried by said shaft.

2. The structure of claim 1 wherein said roller and said shaft are supported at one end thereof by an upstanding arm on said reservoir, the other end of said roller being supported by an additional arm upstanding from said reservoir, said shaft being supported in cantilever fashion from said first named arm.

References Cited in the file of this patent
UNITED STATES PATENTS
2,015,669 Gravely et al. ---------- Oct. 1, 1935