

May 29, 1956

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2,747,541

APPARATUS FOR SURFACE COATING GLASSWARE

Filed June 21, 1954

2 Sheets-Sheet 1

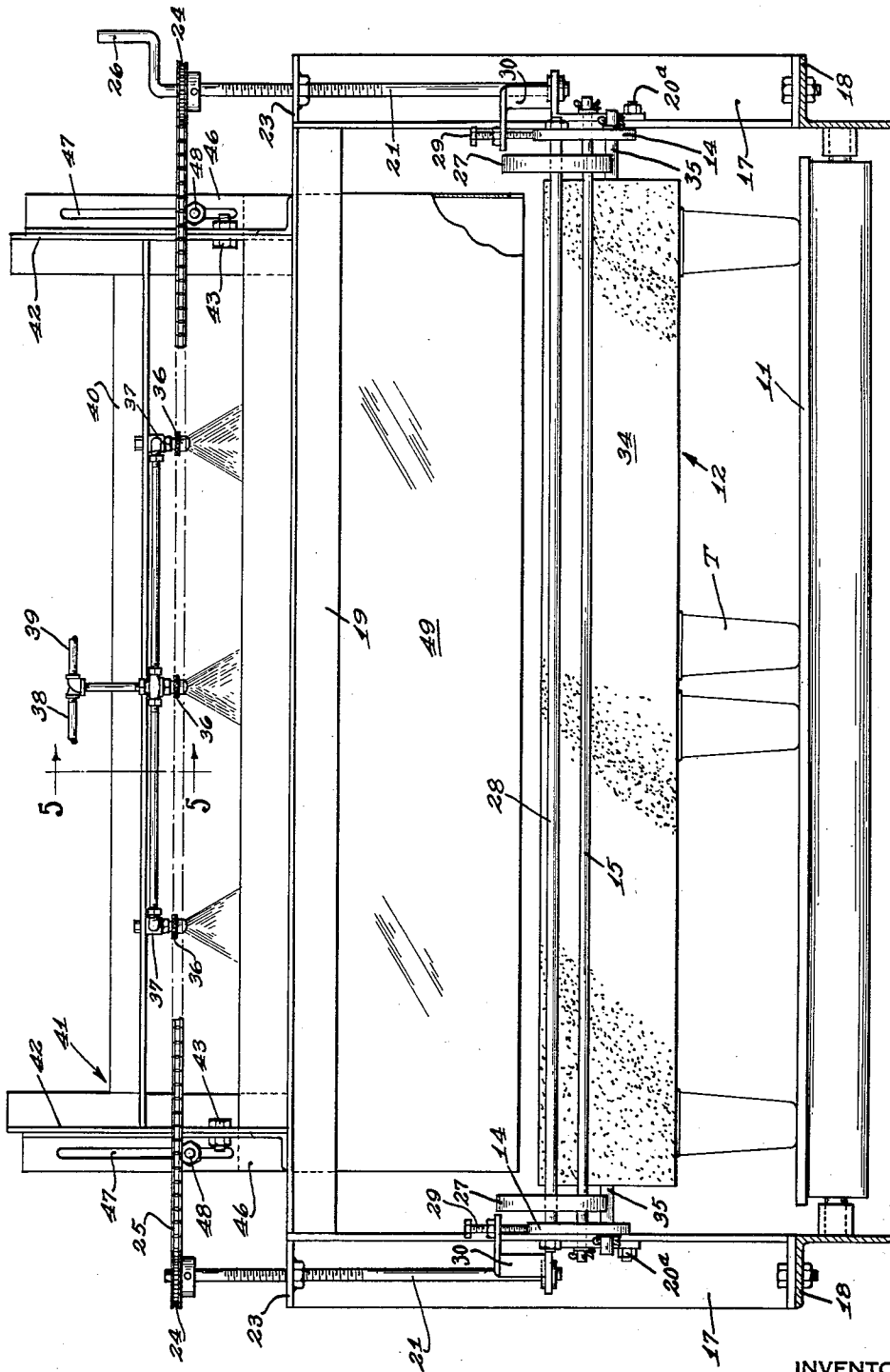


Fig. 1.

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2 Sheets-Sheet 2

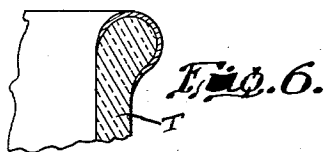


Fig. 6.

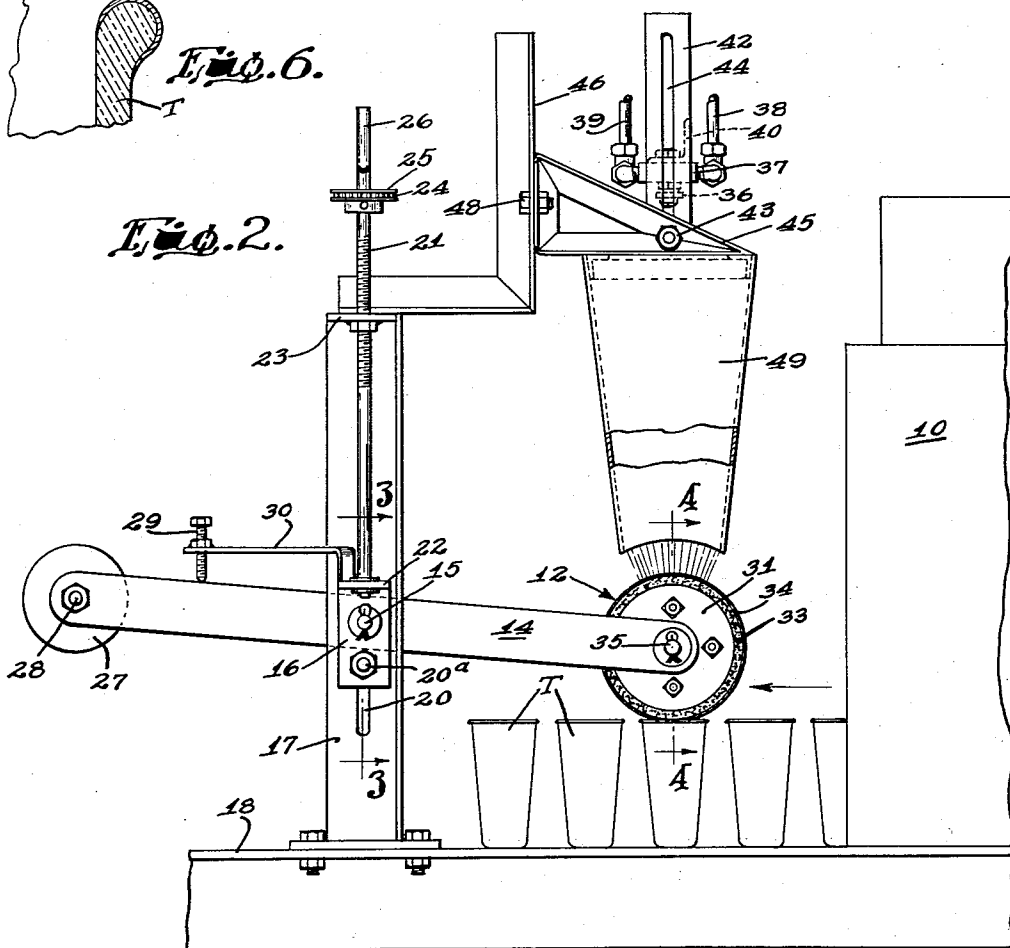


Fig. 2.

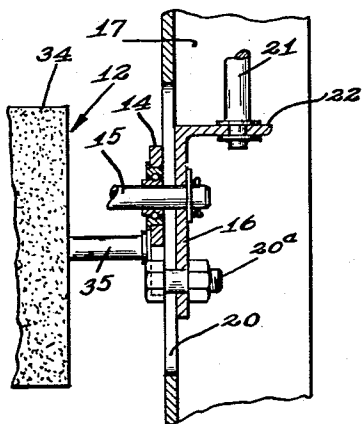


Fig. 3.

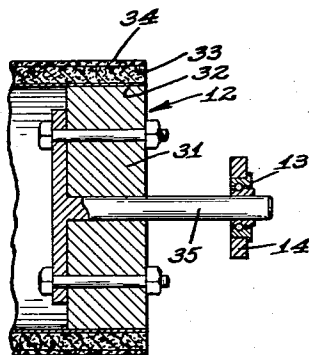


Fig. 4.

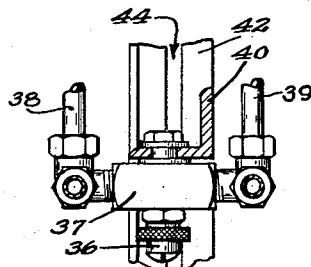


Fig. 5.

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## APPARATUS FOR SURFACE COATING GLASSWARE

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4 Claims. (Cl. 118—211)

The present invention is a novel method and apparatus for applying to the rim, or beaded edge portion, of glass tumblers and the like, a coating of wax which serves to protect these surfaces against scratching or chipping incident to contact between them while being subjected to the conventional handling which follows the annealing operation.

In the production of glass containers, particularly tumblers, which may or may not incorporate a protective bead encircling the open end, these containers, following their passage through an annealing lehr, are subject to comparatively rough handling incident to gaging the beaded ends to determine their dimensional accuracy, and placement in and removal from shipping cartons, etc. Incident to these operations, the rim portions are brought into contact with each other and if unprotected, frequently are scratched and/or chipped to such extent that the merchandise is unmarketable and must be discarded.

An object of the present invention is the provision of novel means for applying a wax coating to the top and contiguous side surfaces of the bead, or rim, of the tumblers and like containers, in such manner as not to interfere with normal production speeds. Additionally, it is desirable and according to my invention and accomplished fact, to so apply the coating that it remains as a permanent part of the article.

Another object of my invention is the provision of a coating device positioned over the ware conveyor of an annealing lehr at the exit end of the tunnel, such device including a freely rotating applicator roll which is rotated solely by contact with the tumblers or other glass articles which are positioned upright upon the ware conveyor and move continuously toward the cold end of the lehr.

Another object of my invention is the provision of novel means for regulably controlling the pressure of the applicator roll upon the glassware and adjusting such roll and its supporting carriage vertically to accommodate articles of glassware varying in height.

It is also an object of my invention to apply the wax solution while the glass is heated at a temperature of approximately 125° F., such temperature being due to the residual heat remaining from the annealing operation. Thus, the desired temperature is obtained without any need for a special heating chamber, or the like, and the temperature is such that to some extent at least, it effects rapid adhesion of the wax to the bead or rim by reason of the short period required to remove the liquid carrier for the wax.

Other objects will be in part apparent and in part pointed out hereinafter.

In the drawings:

Fig. 1 is an elevational view showing the apparatus spanning and positioned above the ware conveyor of a conventional annealing lehr;

Fig. 2 is a side elevational view of the apparatus shown in Fig. 1;

Fig. 3 is a sectional view taken along the line 3—3 of

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Fig. 2 showing the means for effecting vertical adjustment of the applicator roll;

Fig. 4 is a fragmentary vertical sectional view taken along the line 4—4 of Fig. 2 showing the applicator roll construction and mounting;

Fig. 5 is a sectional elevational view taken substantially along the line 5—5 of Fig. 1; and

Fig. 6 is a fragmentary detail sectional view of the beaded rim end of a tumbler, or such article, indicating the approximate extent to which the protective coating is applied to the surface.

In the illustrated embodiment of my invention it is shown at the exit end of an annealing lehr tunnel 10 and spanning a continuously moving horizontal ware conveyor 11 which transports the articles of glassware through the tunnel 10 to the cold end where they are manually or otherwise removed, inspected for mechanical defects, and placed in shipping cartons, or otherwise disposed of.

The apparatus includes a horizontal applicator roll 12 positioned with its axis at right angles to the direction of travel of the ware conveyor 11, said roll being journaled in bearings 13 carried at one end of a pair of supporting arms 14 or frame. These arms 14 are swingably mounted upon a horizontal rod 15 which has its ends mounted in a pair of hanger plates 16, the latter in turn being mounted for vertical adjustment upon stationary frame members 17 rising from a pair of angle members 18 of the lehr. The upper ends of these vertical frame members 17 are interconnected by means of a bar 19. Adjustment of the hanger plates 16 which are connected by a slot 20 and bolt 20<sup>a</sup> with the upright frame members 17, is obtained by means of a pair of threaded vertical rods 21 rotatively connected at their lower ends to a lateral extension 22 on each of said hanger plates 16 and extending vertically upward and threaded through a horizontal end wall of said frame member. Above these frame members 17 the threaded rods 21 carry sprockets 24 over which a sprocket chain 25 is trained. A handle or crank 26 at the upper end of one of these threaded rods provides means for manually rotating both rods and thereby effecting vertical adjustment of the frame or arms 14 which supports the applicator roll 12. The aforementioned bolt and slot connection performs the secondary function of locking the hanger plates 16 in any desired adjusted position.

In order to regulably control the pressure of the applicator roll 12 upon the tumblers or other articles being transported by the ware conveyor, the ends of the frame or arms 14 opposite the roll supporting end carries counterweights 27, the latter being mounted upon a horizontal transverse rod 28 which interconnects the arms 14. A pair of adjusting screws 29 (Figs. 1 and 2) carried by arms 30 on the hanger plates 16 provide means for adjustably controlling the lowermost operating position of the applicator roll.

I have determined that exceptionally satisfactory results can be obtained where the applicator roll 12 comprises end disks 31 properly fitted into the ends of a sheet metal cylinder 32 and having a soft yieldable facing composed of an inner sleeve 33 of felt and a chamois skin facing 34 which transfers the wax solution to the glassware. Each of these end members 31 carries a stub shaft 35 which is journaled in the aforementioned ballbearing 13 at one end of the arms 14.

The wax solution which may well be "polyethylene 100 monostearate," is sprayed upon the surface of the applicator roll by means of a series of spray heads 36 of which there may be three or more uniformly spaced across the width of the lehr and each suitably connected to a mixing chamber 37, which in turn is connected to air and wax solution supply pipes 38 and 39 respectively. These units

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are suspended from a carrier bar 40 (Figs. 1 and 5) which is part of a frame 41 and may be adjustably mounted in upright supports 42 by means of bolts 43 and slots 44. These upright supports 42 in turn are mounted upon a pair of carrier arms 45 which extend horizontally from and are vertically adjustable upon brackets 46 which are secured to the aforementioned frame members 17. These brackets 46 are connected by means of slots 47 and bolts 48 with said carrier arms.

In order to control the application of the wax solution to the applicator roll and prevent wind, currents, etc., from deflecting the sprayed solution, a hood 49 is secured to the lower side of the carrier arms 45, such hood tapering downwardly and opening at a point in close proximity to the peripheral surface of the applicator roll.

In view of the foregoing it will be understood that the tumblers proceed through the lehr from one end to the other in the customary manner and without the least interruption or interference with the conventional procedure. As the tumblers move out of the exit end of the annealing tunnel or oven and while still comparatively warm from the annealing operation, being approximately 125° F., they pass beneath and in contact with the chamois skin faced wax solution carrying periphery of the applicator roll 12. This applicator roll is sufficiently soft to permit a very slight projection of the rim or bead portions of the glassware thereinto so that the wax application coats not only the upwardly facing surfaces of the rim or bead, but additionally, at least a part of the exterior side surfaces (Fig. 6) whereby to provide a protective coating in the areas of frequent contact between tumblers or similar articles. Thus, these tumblers, after the coating operation, proceed toward the discharge end of the lehr and incident to cooling to room temperature, the wax firmly sets and becomes a more or less permanent part of the article. In any event the permanence is sufficient to protect the rim or bead areas during normal and to a large extent, abnormal rough handling.

Modifications may be resorted to within the spirit and scope of the appended claims.

I claim:

1. Apparatus of the character described positionable over a ware conveyor at the exit end of an annealing chamber, comprising a horizontal applicator roll having a soft resilient peripheral facing for rolling contact with the upper ends of glass containers moving with said conveyor, a pivoted counterweighted frame supporting said applicator roll, adjustable means for regulably controlling the pressure of the applicator roll upon the glass containers, means for spraying a wax solution onto the periphery of said applicator roll, and means whereby the applicator roll supporting frame and said spraying means may be adjusted vertically relative to the conveyor to accommodate glass containers of different height.

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2. Apparatus of the character described, comprising a horizontally disposed applicator roll having a soft yieldable peripheral surface, a counterweighted frame directly supporting said applicator roll, a pair of spaced upright stationary frame members, a pair of hanger plates slideably mounted upon said upright frame members, a pivot rod interconnecting said hanger plates and rockably supporting the frame which carries the applicator roll, manually operable means connected to the hanger plates for moving the latter vertically and thereby correspondingly adjusting the position of the applicator roll, means for locking said hanger plates in any adjusted position, and means for applying a wax solution to the periphery of the applicator roll.

3. Apparatus of the character described, comprising a horizontally disposed applicator roll having a soft yieldable peripheral surface, a counterweighted frame directly supporting said applicator roll, a pair of spaced upright stationary frame members, a pair of hanger plates slideably mounted upon said upright frame members, a pivot rod interconnecting said hanger plates and rockably supporting the frame which carries the applicator roll, manually operable means connected to the hanger plates for moving the latter vertically and thereby correspondingly adjusting the position of the applicator roll, means for locking said hanger plates in any adjusted position, and a plurality of spray heads for applying a wax solution to the periphery of the applicator roll.

4. Apparatus of the character described, comprising a horizontally disposed applicator roll having a soft yieldable peripheral surface, a counterweighted frame directly supporting said applicator roll, a pair of spaced upright stationary frame members, a pair of hanger plates slideably mounted upon said upright frame members, a pivot rod interconnecting said hanger plates and rockably supporting the frame which carries the applicator roll, manually operable means connected to the hanger plates for moving the latter vertically and thereby correspondingly adjusting the position of the applicator roll, means for locking said hanger plates in any adjusted position, a plurality of spray heads for applying a wax solution to the periphery of the applicator roll, means for adjusting the spread heads vertically relative to the applicator roll, and a hood interposed between said spray heads and the periphery of the applicator roll.

#### References Cited in the file of this patent

#### UNITED STATES PATENTS

|           |                 |                |
|-----------|-----------------|----------------|
| 1,945,086 | Schmitt         | Jan. 30, 1934  |
| 2,004,079 | McManus         | June 4, 1935   |
| 2,132,138 | Williams et al. | Oct. 4, 1938   |
| 2,522,121 | Keller          | Sept. 12, 1950 |