

[54] **APPARATUS FOR DISPERSING LIQUIDS  
 OVER THE SURFACES OF OBJECTS**

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 220/23.4, 220/23.8

[51] Int. Cl. .... **B05c 11/14**

[58] Field of Search..... 118/500, 503, 506;  
 220/23.2, 23.4, 23.6, 23.8, 4 B, 60; 206/65 R,  
 46 FR; 217/26.5, 25.5

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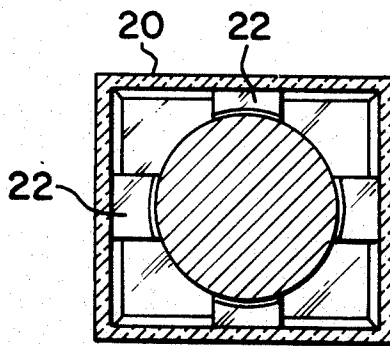
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[57] **ABSTRACT**

An apparatus for dispersing liquids over the surfaces of objects comprises a tray having a plurality of receptacles provided therein for receiving the liquid, and handles at the ends thereof for rotating the tray. A plurality of covers are disposed over each of the receptacles to form a liquid-tight container for treating the objects. Articles are supported, spaced from the container walls by a small plurality of widely spaced rib elements having free edges of minimal cross-section which extend from the inner surface of each cover and associated receptacle.

**10 Claims, 10 Drawing Figures**



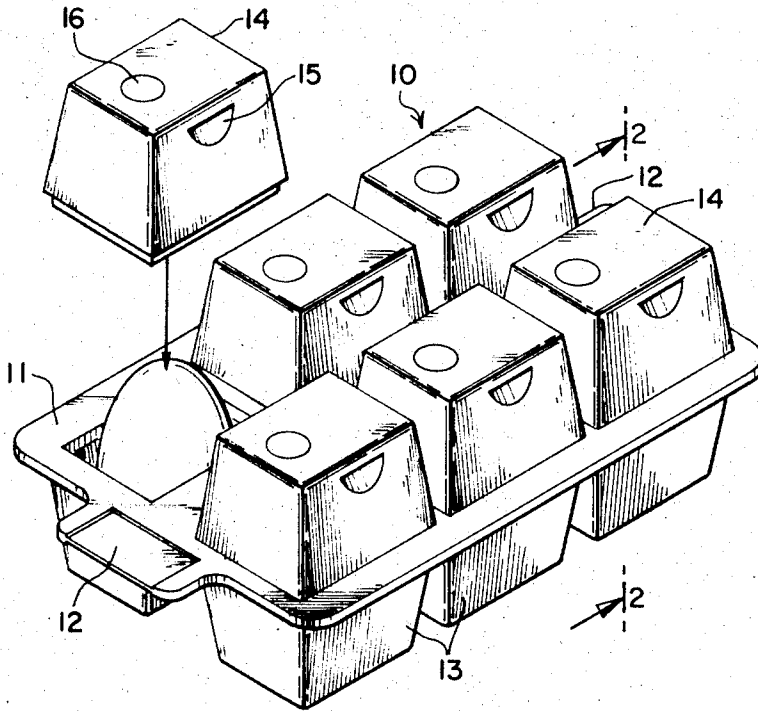


Fig. 1.

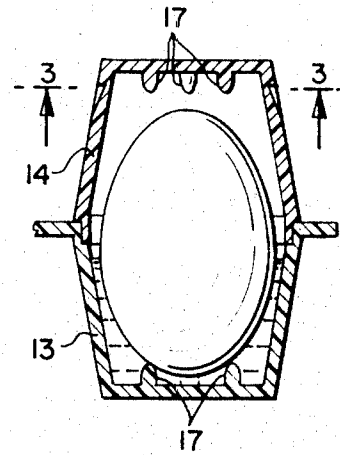


Fig. 2.

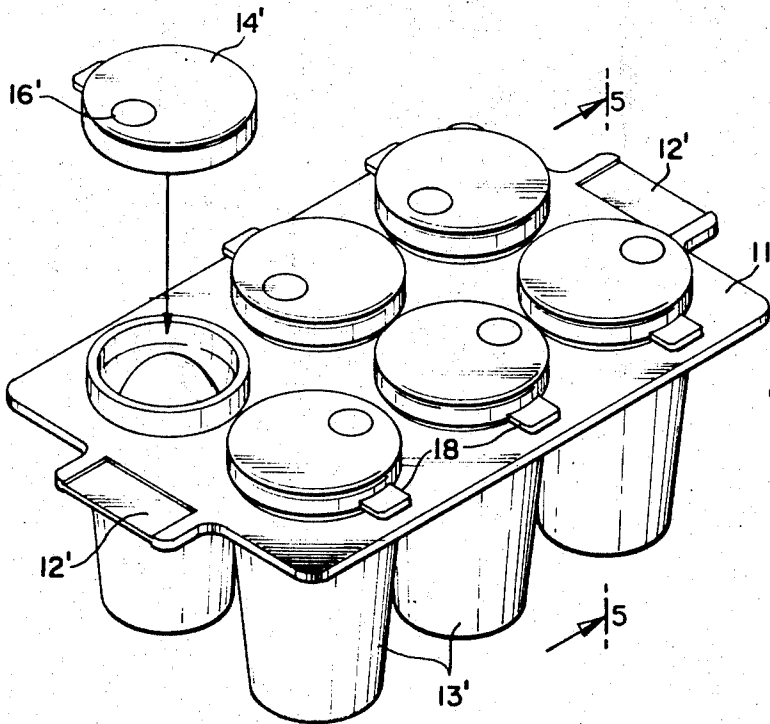


Fig. 4.

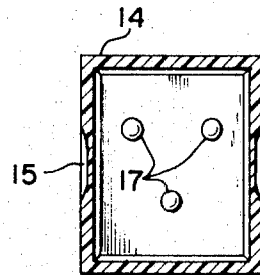


Fig. 3.

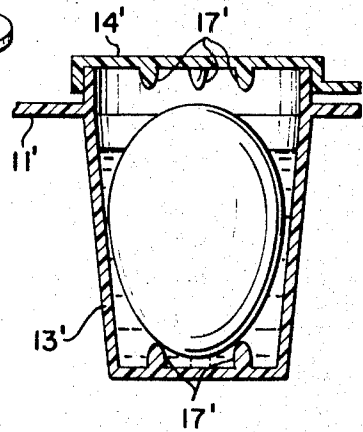


Fig. 5.

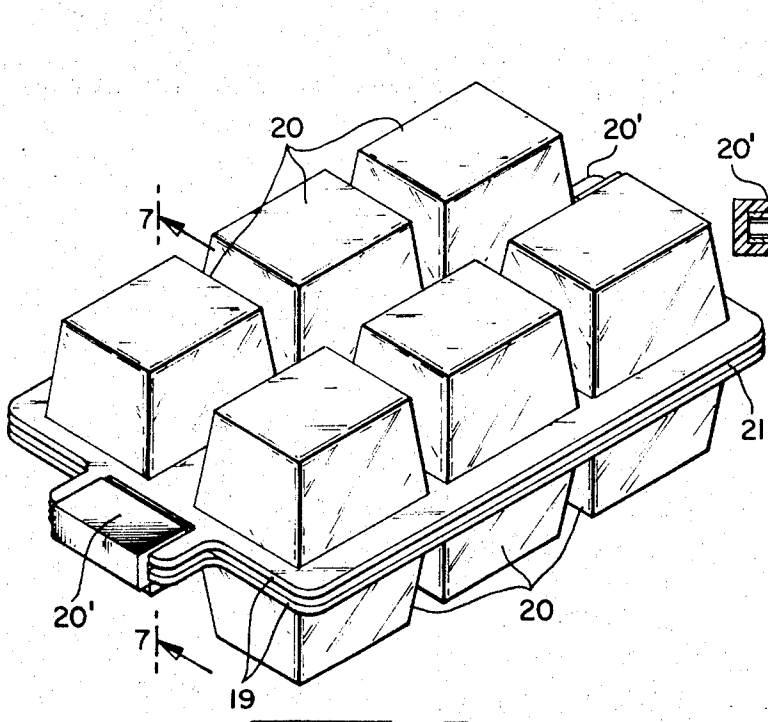


Fig. 6.

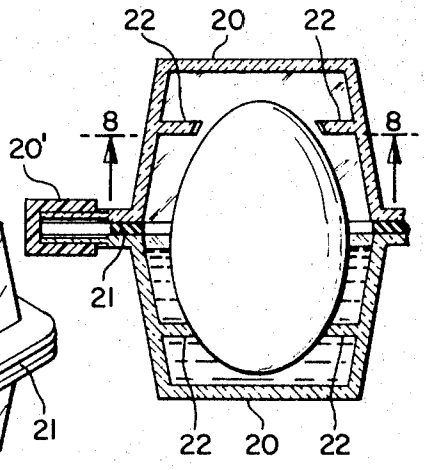


Fig. 7.

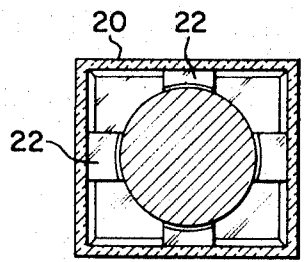


Fig. 8.

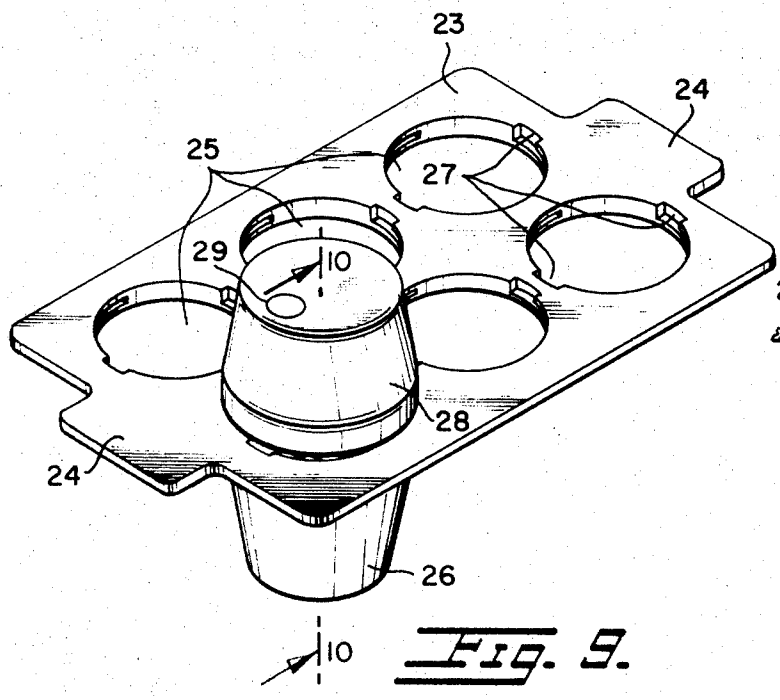


Fig. 9.

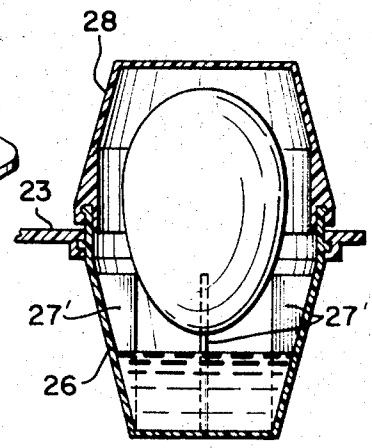


Fig. 10.

## APPARATUS FOR DISPERSING LIQUIDS OVER THE SURFACES OF OBJECTS

The present invention relates to an apparatus for coloring objects, such as eggs.

Presently, dye coloring of objects is carried out by placing dye pellets into a cup, adding vinegar and cold water, and mixing the described ingredients. The object to be colored is then placed in the liquid dye, and allowed to soak therein until it is dyed the desired color. The object is then removed and dried. Such dyeing methods are generally inconvenient and messy.

The present invention provides an apparatus which overcomes the disadvantages of the above-described method. The apparatus comprises a tray having a plurality of dye receptacles or wells in which the liquid dye is poured. A plurality of detachable covers are disposed over each of the receptacles to form an enclosed dyeing chamber in which the objects to be colored are treated. When the receptacle covers are secured over the wells and objects, water-tight dyeing chambers are formed for coloring the objects. The tray is then picked up and rotated a predetermined number of times through an angle of 360° in order to spread the liquid dye over the entire surface areas of the objects. The well covers are then detached from the tray, and the colored objects removed from the wells for drying.

It is, therefore, an object of the present invention to provide an apparatus for the coloring of objects which simultaneously colors a plurality of objects, and is simple, clean and easy to use.

It is another object of the present invention to provide an apparatus for dyeing objects which is simple in design, easy to manufacture, and efficient and reliable in operation.

Other objects and features of the present invention, will become apparent from the following detailed description taken in connection with the accompanying drawings which disclose several embodiments of the invention. It is to be understood, however, that the drawings are designed for the purposes of illustration only, and are not intended as a definition of the limits and scope of the invention.

FIG. 1 is a perspective view of an apparatus for dyeing objects, constructed in accordance with the present invention;

FIG. 2 is a cross-sectional side view of a receptacle of the apparatus, taken along section 2—2 of FIG. 1;

FIG. 3 is a cross-sectional interior view of a receptacle of the apparatus, taken along section 3—3 of FIG. 2;

FIG. 4 is a perspective view of another embodiment of an apparatus for dyeing objects, constructed in accordance with the present invention;

FIG. 5 is a cross-sectional side view of a receptacle of the apparatus, taken along section 5—5 of FIG. 4;

FIG. 6 is a perspective view of still another embodiment of an apparatus for dyeing objects constructed in accordance with the present invention;

FIG. 7 is a cross-sectional side view of a receptacle of the apparatus, taken along section 7—7 of FIG. 6;

FIG. 8 is a cross-sectional interior view of a receptacle of the apparatus, taken along section 8—8 of FIG. 7;

FIG. 9 is perspective view of still another embodiment of an apparatus for dyeing objects constructed in accordance with the present invention; and

FIG. 10 is cross-sectional side view of a receptacle of the apparatus, taken along section 10—10 of FIG. 9.

Referring to the drawings, specifically FIGS. 1-3, there is shown one embodiment of an apparatus for dyeing objects, such as eggs, generally denoted as 10. The apparatus comprises a tray 11, formed of resilient plastic material, having handles 12 integrally formed at each end thereof, and a plurality of dyeing wells or receptacles 13 in which liquid dye is poured. A cover 14, having gripping recesses 15 in the sides thereof, and a colored decal 16 corresponding to the color of the dye in the well disposed on the top surface thereof, is detachably disposed over each of the receptacles. Each cover has a recess which receives the edges of the tray around each well so that a water-tight seal is formed between the covers and the receptacles to prevent any dye from leaking therefrom. The bottom interior surface of each of the receptacles, and the top interior surface of the covers, are provided with a plurality of vertically upwardly and downwardly disposed projecting members 17 which support the egg or object being dyed in the compartment formed by the cover and receptacle during dyeing.

The covers and tray are preferably constructed of transparent polystyrene plastic material. Other suitable plastics, however, may be used. The transparent plastic allows visual observation of the dyeing process so that the desired color intensity of the object is achieved.

To color the eggs or other objects, dye mixtures are poured into the different receptacles in tray 11. An egg or object is then disposed in each receptacle on projecting members 17 as shown in FIG. 2, and covers 14 are snapped onto the tray over the eggs and the receptacles. Tray 11 is then picked up by handles 12 by the user and rotated through an angle of 360° a number of times to spread the dye over the entire outer surface of the egg. The rotation of the egg is repeated as many times as is necessary to produce the desired color intensity of each of the eggs.

FIGS. 4 and 5 illustrate another embodiment of the invention. The apparatus of this embodiment comprises tray 11', having handles 12' at each end thereof and a plurality of conically-shaped receptacles or wells 13' integrally formed with the tray 11'. A plurality of caps 14' are slidably disposed over the openings of receptacles 13', and have colored decals 16' disposed on the top surface thereof for indicating the color used in each of the wells. A radially outwardly extending flange 18 is integrally formed with each cap to enable easy removal of the caps from the receptacles. A plurality of projecting members 17' are disposed in a triangular arrangement on the inside surfaces of caps 14' and receptacles 13'. As in the previously described embodiment, the projecting members support the eggs during the dyeing operation.

The preferred construction materials for this embodiment are polystyrene plastic for tray 11', and polyethylene plastic for caps 14'. The plastic material forms a water-tight seal between the receptacles and caps 14' to prevent any liquid dye from leaking therefrom. The dyeing operation using this embodiment of the invention is the same as described above with respect to the embodiment of FIGS. 1-3.

FIGS. 6-8 illustrate another embodiment of the present invention. A pair of trays 19, each having a plurality of rectangular-shaped receptacles 20 integrally formed therewith, are disposed towards each other and cou-

pled together by U-shaped clips 20' at the handles thereof. A gasket 21 is disposed between the trays and around the receptacles, in order to provide a water-tight seal. Each receptacle of both of the trays is provided with horizontally-disposed support members 22 5 which engage the egg disposed in the dyeing compartment formed by the receptacles of both trays and support the egg therein during the dyeing operation. Tray members 19 may be pivotably coupled together at one end by a hinge, or may be two separate joined at each end by the clips. The clips also serve as part of the handles for grasping the apparatus and rotating it to dye the eggs. The operation of this embodiment of the apparatus is the same as described above, and the construction materials are preferably rubber for gasket 21, 15 and polyethylene or polystyrene plastic for trays 19 and clips 20'.

In FIGS. 9 and 10, still another embodiment of the present invention is shown. This embodiment of the invention includes a planar tray 23, having handles 24 at each end thereof and a plurality of circular apertures 25 disposed therethrough. A plurality of conically-shaped cups 26 are slidably inserted in apertures 25, and form the receptacles or wells of the apparatus. The cups have radially outwardly extending members integrally formed on the outside surface thereof which are received in slots 27 disposed on the inside surfaces of apertures 25. To insert each cup in the tray, the radially outwardly extending members are disposed in the slots, and the cups are twisted. Each receptacle is provided with a plurality of vertically-disposed support members 27' which support the egg in the receptacle at a level above the surface of the dye mixture. The support members insure that the eggs do not contact the dye mixture before the beginning of the dyeing operation, and prevent variance in the coloring of the surfaces of the objects. After the dyeing operation is finished, the support members allow excess dye to drain from the egg surfaces and the object to dry. A detachable cover 28 is slidably disposed over the edges of each of the receptacles 26, and provide a water-tight seal to prevent the dye mixture from leaking therefrom. A color decal 29 is disposed on the top surface of each cover in order to indicate the color of the dye being used in each receptacle. The operation of the apparatus is the same as 45 described above, and the tray, receptacles and covers may be polyethylene or polystyrene plastic material. Receptacle 26 could also be a paper cup with sufficient rigidity to maintain a water-tight seal between itself and cover 28. Each of receptacles 26 may also be used individually, with tray 24, to color an object or objects.

It should be noted that the apparatus of the invention disclosed herein may be used for purposes other than the coloring of objects. For example, when it is desired to lubricate an object thoroughly, the lubricating liquid and the object may be disposed in the receptacles and the lubricating liquid disposed on the object by rotating

the trays. Wherever it is required to disperse a liquid over the surface of an object, the apparatus disclosed herein may be used.

While only several embodiments of the present invention have been shown and described, it will be obvious to those persons skilled in the art that many changes and modifications may be made thereunto without departing from the spirit and scope of the invention.

What is claimed is:

1. Coating apparatus comprising:

an elongated plate member having a plurality of apertures therein and handles therewith located at the ends thereof;

a removable vessel disposed in each aperture; means releasably interlocking each said vessel, at the junction of association, with the plate member; a removable cover member forming a liquid tight seal with each vessel;

a small plurality of widely spaced short, thin, support ribs disposed within, and extending substantially from the wall of, each said cover and vessel; each said rib having a free edge of relatively small cross-section; and

a coating fluid disposed in each said vessel; whereby an article to be coated may be disposed within a receptacle formed by a said vessel and associated cover and supported and retained in position spaced from the receptacle walls by the said free edges and with minimal contact therewith; and the assemblage of plate and loaded receptacle adapted to be inverted whereby to effect flow of said coating fluid and coating of said article.

2. The apparatus of claim 1 wherein said each cover member comprises an inverted vessel whereby to accommodate articles of an elongated dimension.

3. The apparatus of claim 2 wherein all said vessels are generally of frusto-conical configuration.

4. The apparatus of claim 2 wherein all said vessels are rectangular in lateral cross-section.

5. The apparatus of claim 2 wherein said each cover member includes a recess formed in a vertical wall thereof whereby to facilitate manipulation of the cover.

6. The apparatus of claim 1 wherein each said cover member includes a tab element to facilitate manipulation thereof.

7. The apparatus of claim 1 wherein said ribs extend vertically.

8. The apparatus of claim 1 wherein said ribs extend horizontally.

9. The apparatus of claim 1 wherein the said covers include indicia means relating to the associated coating fluid.

10. The apparatus of claim 1 wherein the receptacle parts are formed of a transparent plastic.

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