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Solomon

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[54] **METHOD FOR APPLYING PATTERN TO CANDLES**

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[52] **U.S. Cl.** **156/234,** 117/45, 117/94, 156/241, 431/126

[51] **Int. Cl.** **B44c 1/24**

[58] **Field of Search** 117/12, 38, 45, 94; 431/126; 156/234, 241

[56] **References Cited**

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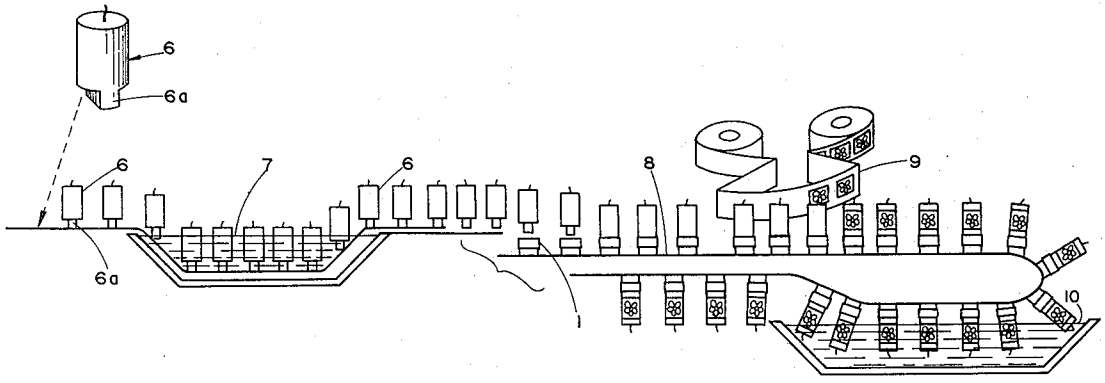
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Attorney, Agent, or Firm—Browdy & Neimark

[57] **ABSTRACT**

A method is described for ornamenting wax candles comprising the steps of submerging the candles successively in a bath containing a liquid promoting the adherence of an ornamental transfer layer thereto, rotating each candle to roll its side wall against an ornamental transfer layer carried on one face of a transfer web while pressing a heated platten against the opposite face of the web to effect a transfer of the ornamental transfer layer, and applying a protective coating over the transfer layer.

4 Claims, 3 Drawing Figures



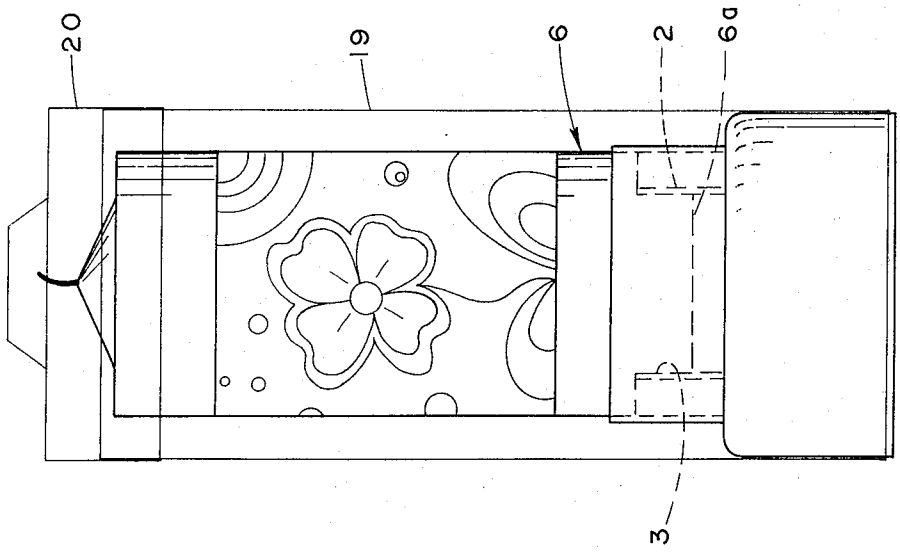


Fig. 3

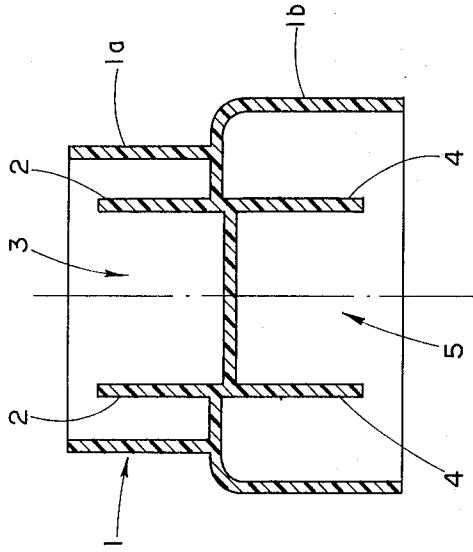


Fig. 1

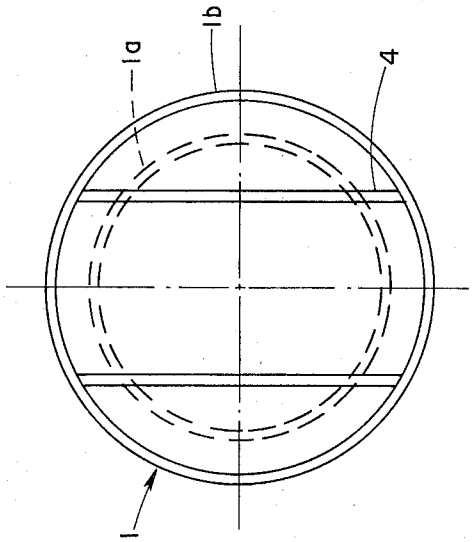


Fig. 2

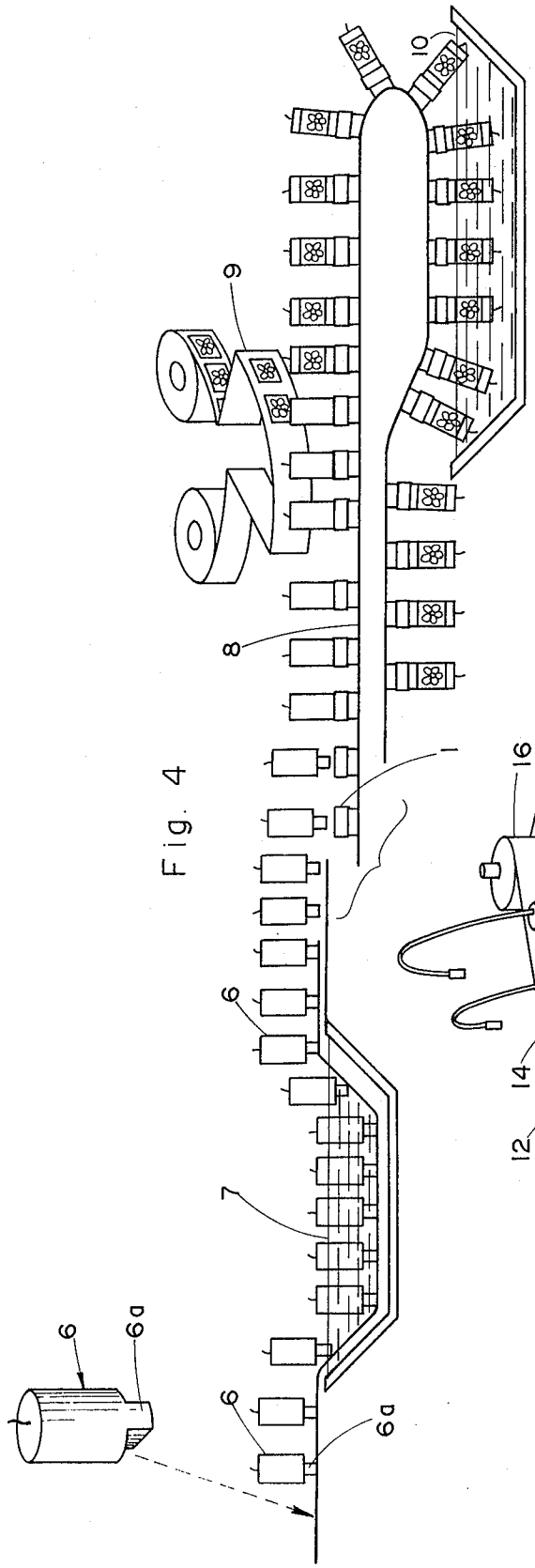


Fig. 4

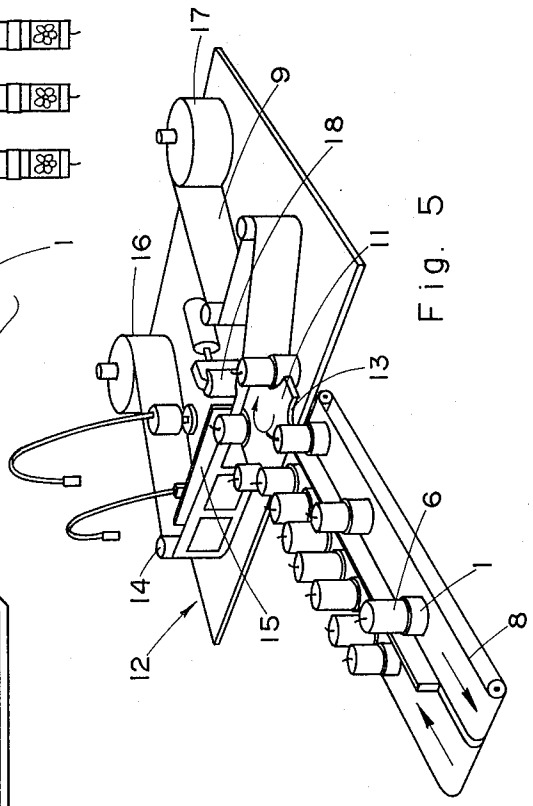


Fig. 5

METHOD FOR APPLYING PATTERN TO CANDLES

This invention relates to a method and apparatus for applying a preferably multi-coloured pattern to candles and to candles ornamented thereby.

The known technique of heat-transfer printing, in which an ornamental transfer layer is carried on one face of a heat-transfer web, has hitherto been used in applying such patterns to bottles, jars, vials, tubes and the like, made of, e.g., glass or plastics. All these articles are characterized by their relative resistance to heat deformation below a certain temperature. In the known process the pattern is transferred to the article e.g., from a paper web coated with a special release coating, on which the pattern has previously been printed.

The heat-transfer process may be carried out automatically by known apparatus, in which the web, drawn off from a supply roll, is preheated and applied by pressure to the article to be printed, while the latter is translationally and/or rotationally displaced in relation to the web. In the known automatic apparatus these motions are imparted to the article by a so-called "turret," which consists of a rotatable disc provided with a plurality of recesses along its periphery. These recesses are of such shape and dimension as to accommodate the particular articles which are to be printed.

It is an object of the present invention to provide a method for applying a preferably multi-coloured pattern to candles by heat transfer printing.

According to the present invention, there is provided a method of ornamenting wax candles in which the candles are first submerged successively in a bath containing a liquid promoting the adherence of an ornamental transfer layer. The candles are then successively advanced to an ornamenting station, while a web carrying a succession of ornamental transfer layers on one face is also advanced to the ornamenting station. In the latter station each candle is rotated to roll its side wall along and in direct contact with an ornamental transfer layer carried on one face of the web, while a heated platten is pressed against the opposite face of the web to effect a transfer of the ornamental layer to each candle. Each candle so ornamented is then coated, preferably with wax.

Preferably the lower end portion of each candle is fitted to a rigid adapter or holder each such adapter being gripped and rotated by a turret of an automatic heat transfer printing apparatus.

The use of the adapter according to the invention avoids any damage which the candle would suffer, were it to be submitted without the adapter to automatic heat-transfer printing. Such damage would arise, i.e., from the candle being pushed against the edges of the recess of the turret housing the candle under the pressure of the preheated transfer web.

The adapter may be made of any suitable material, such as, for example, a plastics material.

In order to ensure that the candle is rotated together with the adapter while the latter is gripped, the candle must be firmly lodged in its adapter. To this end the inner dimensions of the hollow recess of the adapter may be chosen so as to closely match the cross section of the candle. The adapter may be removed from the candle after the transfer printing and reused with a fresh candle. Alternatively and preferably the adapter

may be left on the candle and serves as a candle holder.

In the latter case, according to a further embodiment of the invention, the bottom end of the candle may be provided with a polygonal tongue, adapted to fit into a correspondingly shaped recess provided in the bottom of the hollow recess of the adapter.

The invention will be described by way of example in the accompanying drawing in which:

FIG. **1** is a longitudinally sectioned view of a candle adapter,

FIG. **2** is a plan view of the adapter,

FIG. **3** is a side elevation of a candle and an adapter together with a transparent sleeve and end covers,

FIG. **4** shows schematically the heat transfer printing method in accordance with the invention, and

FIG. **5** is a perspective view of apparatus for carrying out of one stage of the method shown in FIG. **4.**

As seen in FIG. **1,** an adapter **1** comprises an upper portion **1***a* and an integral lower portion **1***b* of increased diameter compared to the upper portion **1***a*. The upper portion **1***a* is provided with a pair of transverse ribs **2** defining between them a recess **3.** Similarly the lower portion **1***b* is provided with a pair of ribs **4** defining between them a recess **5.**

A candle **6** has lower portion **6***a* formed as a rectantular tongue which, as shown in FIG. **3,** fits into the recess **3.**

As seen in FIG. **4** of the drawings candles **4** pass through a bath **7** in which they are coated with a coating promoting the adherence of a transfer layer (e.g., a pentaerythritol ester of hydrogenated resin) after which the coated candles **6** are allowed to dry. They are then fitted with their tongue-like ends **6***a* into the adapters **1** and are fed on a conveyor belt **8** past a heat transfer web **9** so as to receive the transfer. The ornamented candle is then passed through a bath **10** containing a protective material such as molten paraffin wax and the coated candle is allowed to dry.

As seen in greater detail in FIG. **5** of the drawings the candles **6** in their adapters **1** are fed on the belt **8** to a turret **11** of an automatic heat transfer printing apparatus **12** of known kind. The turret **11** which is rotatably mounted is provided with a plurality of recesses **13** each of which is adapted to grip an adapter **1** and to rotate it past the heat transfer web **9** which passes via intermediate guide rollers **14** and a heating platen **15** from a supply roll **16** to a take-off roll **17.** The web **9** is passed against each candle **6** by a rubber transfer roller **18.**

The operation of the apparatus is conventional and is therefore not described in detail. Suffice it to say that at no time is a candle gripped or otherwise contacted by the turret and is not damaged thereby.

The finished ornamented candle **6** in its adapter **1** can be packaged, as shown in FIG. **2** of the drawings, e.g., by being enclosed in a transparent sleeve **19,** an upper cover cap **20** and a lower one (not shown) being provided at the upper and lower ends of the sleeves **19.**

In this manner the adapter **1,** in addition to serving in its essential protective role during the heat transfer also serves as a candle holder.

Where, as in the case just described, the adapter is formed of two portions of different diameter both portions can be adapted to receive alternately candles of differeing diameters.

I claim:

1. A method of ornamenting wax candles comprising the steps of: coating the candles successively with a liquid promoting the adherence of an ornamental transfer pattern thereto; advancing the candles successively to an ornamenting station; advancing to the ornamenting station a transfer web carrying on one face thereof a plurality of ornamental heat transfer patterns; rotating each candle in the ornamenting station to roll its side wall along and in direct contact with ornamental heat transfer pattern carried on the one face of the web; pressing a heated platten against the opposite face of the web to effect a transfer of an ornamental transfer pattern to each candle as it rolls along the transfer layer on the web; and applying a protective coating over the transferred ornamental pattern.

2. A method as defined in claim 1, including the further step of attaching the bottom of each candle, before the first coating step, to an adapter having a groove, the bottom of the candle being formed with a depending tongue which is inserted in said groove.

3. A method as defined in claim 1, wherein said liquid contains pentaerythritol ester of hydrogenated resin.

4. A method as defined in claim 1, wherein said protective coating is paraffin wax.

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