March 7, 1967 F. R. A. MAILLOUX 3,307,380

CANDLE

Filed Sept. 15, 1965

FIG. 1

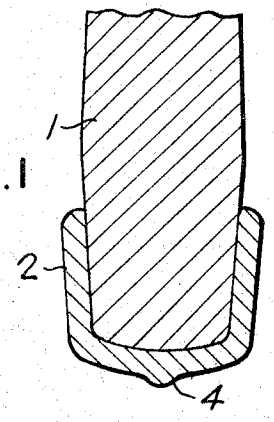


FIG. 1a

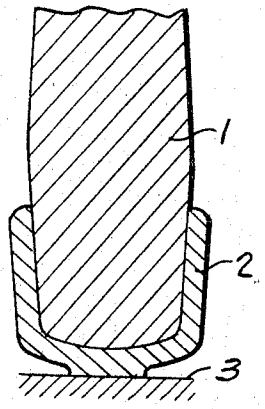


FIG. 2

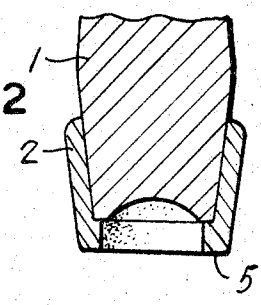


FIG. 2a

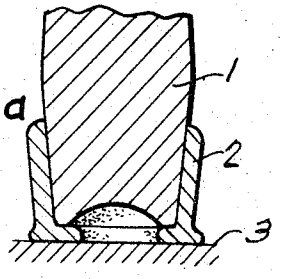


FIG. 3

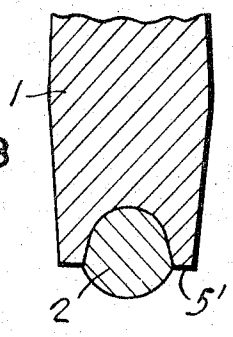
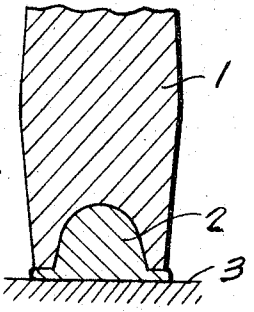


FIG. 3a



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CANDLE

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This invention relates to candles.

There has been disclosed a candle which has a cup-shaped jacket covering the entire bottom end surface of the candle body and extending around the bottom edge thereof and over the adjacent body, the jacket being formed of a pliable plastic mastic material, more specifically, microcrystalline wax. The purpose of this structure is to enable the bottom of the candle to be butted against a plane surface to which it will stick and thus hold the candle in upright position in the absence of a candle holder.

In the alternative, if the hole in the candle holder is too large, the candle will still stay upright because its bottom end will stick to the horizontal base of the candle holder opening.

One of the disadvantages of this structure is that when the candle is made and the microcrystalline wax is applied to the lower end by dipping, a drop of the microcrystalline wax forms a protuberance at the middle of the bottom of the candle. The protuberance has a relatively small surface, so when the lower end of the candle is butted against the surface, particularly when the temperature is not high enough to make the wax soft, there is a tendency for the structure not to work and the candle falls.

It is a main object of the present invention to provide a structure which avoids these disadvantages and one which will always work for the purpose intended. To this end, the applicant provides a candle, the bottom or base end surface of which includes an annular rim or shoulder, the adherent or sticky material being provided either on this rim or within a cavity which the rim surrounds, giving advantages which will become apparent.

More specifically, there is provided in accordance with the invention a candle having an upper elongate body portion of wax, a base portion comprising a core of said wax and adhered thereto a body of adherent material extending longitudinally beyond said core, said adherent material being tacky at a temperature below the softening temperature of said candle wax and being adapted to seat the candle to a horizontal seating surface, said base portion having a transversely extending substantially planar shoulder of annular configuration.

In one embodiment of the invention, a central cavity is provided in the bottom end of the candle surrounded by a peripheral annular rim. A layer of relatively sticky material is applied to the end of the candle so that it covers the end surface of this rim at the bottom of the candle and provides a sticky ring for butting against the plane surface. This ring gives a large area of contact and by the fact that the candle within the ring is depressed avoids any contact of the centre part of the candle with the surface and consequently avoids the possibility of there being any protuberance of small area to interfere with the general contact of the sticky material about the ring with the plane surface.

In another form of the invention, the applicant provides a cavity in the base of the candle, that is, in the normal wax thereof, the cavity being surrounded by an

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annular rim or shoulder as in the preceding example, but instead of applying microcrystalline wax or other sticky material to this rim, he applies a pellet of such material in the cavity so that it protrudes from the cavity. Because of the relative thickness of the pellet, it is deformable to a greater extent than a mere layer on the surface of the wax of the candle and when the candle is pressed downwards, base-first against the horizontal plane surface of the holder, the pellet is deformed to provide a relatively expansive flat lower surface which adheres to the plane surface of the holder, while the surrounding rim or shoulder is held away from the holder surface by the pellet and does not interfere with the sticking properties of the pellet. The pellet is pressed into the normally hemispherical cavity in the end of the candle and is held in place by its push-fit in the opening, or the pellet may be heated, or dipped in a pool of molten microcrystalline wax prior to insertion in which event there will be an improved adhesion between the surface of the pellet and the inner surface of the cavity.

Various types of plastic material may be employed as the adherent material. One example is microcrystalline wax having a melting point about 170 to 180° F., a congealing point of 169° F., and a needle penetration of about 27.6 at 77° F. Parawax 613 is one suitable product. Such wax is sufficiently tacky under pressure for the candle to be seated without being heated. However, improved adherence may be obtained by slightly warming the bottom of the candle before applying pressure.

Alternatively, a sticky gum composition may be used, in which event there is no need to soften the material by heat before application to the candle holder. However, if normally tacky material is used, the base of the candle requires to be wrapped with, for example, grease proof paper or cellophane during packaging and sale.

Having thus generally described the invention, the mode of construction and advantages of a candle in accordance therewith will be more readily apparent from the preferred embodiments illustrated (not to scale) in the accompanying drawings and in which:

FIGURE 1 is a longitudinal section through the base portion of a known type of candle employing a coating of a microcrystalline adherent wax;

FIGURES 2 and 3 are similar sections of different embodiments of candle in accordance with the invention; and

FIGURES 1*a*, 2*a* and 3*a* illustrate the resulting shape of the corresponding sections of FIGURES 1, 2 and 3 when such candles are pressed against a horizontal holder surface.

In the drawings, **1** denotes the main body or core of the candle made conventionally of hard paraffin wax, and **2** denotes a coating of a softer microcrystalline wax, the thickness of which has been exaggerated for the sake of clarity, used to cause adherence of the candle at least to the horizontal surface **3** of a candle holder.

The coating of adherent in the known candle of FIGURE 1 is formed by dipping the base of the candle into a bath of the molten material and upon solidification of the adherent there is formed a protuberance **4**. When the candle is stuck to the horizontal surface **3** by melting the wax at the base and applying downward pressure, adherence is obtained only at the flattened portion of the protuberance as shown in FIGURE 1*a*. Consequently, if the candle holder is of too large a diameter to grip the candle at the sides, the candle will be insecurely held and liable to be upset.

In the inventive embodiment of FIGURE 2, the adherent microcrystalline wax is formed with an annular extension from the base of the candle, forming an annular rim or shoulder 5. Consequently, when the candle is pressed to the floor of the candle holder as shown in FIGURE 2*a*, the annular rim spreads to form a substantially thick annular adherent surface with a maximum diameter at least as large as, and normally larger than the diameter of the base of the candle, and so provides a broad and stable base and at the same time a large area of adherence.

The candle shown in FIGURE 2 may be formed by dipping the base of the candle in a bath of the molten microcrystalline adherent wax, after solidification of the wax, boring or scraping a depression or cavity as illustrated in the central portion of the base of the candle. Such a cavity or bore may readily be made with a conventional drill bit.

FIGURE 3 illustrates a second embodiment within the scope of the present invention wherein a central bore or cavity is first formed in the base of the main body of the candle, having an annular shoulder or rim 5, and the cavity is subsequently filled with a pellet of the microcrystalline adherent wax so that such pellet protrudes centrally from the base. Such a pellet may be pressed in a heat-softened condition into the cavity provided.

It is notable that in distinction from the known candle of FIGURE 1, the pellet is of substantial thickness or depth, so that upon the application of heat sufficient only to melt the adherent, all of the latter material is available to form a seating adherent surface and in practice it spreads as shown in FIGURE 3*a* to form such a seating surface of a diameter approximating to and normally larger than the base of the main body of the candle.

A base of comparable area is not formed in the case of the known candle of FIGURE 1, and this may be attributed to three main reasons. Due to the relative thinness of the layer of adherent wax, only a small amount of the latter is available for spreading. Since it lies closely adjacent to the hard body of the candle, there is insufficient accommodation for downward movement, and consequently, the degree of spreading of the wax obtained by the movement is small. Thirdly, the thin layer of adherent is of small heat capacity and is thus rapidly cooled both by the ambient air and by conduction to the adjacent surface of the main body of the candle, and the wax is liable to solidify before the seating operation is complete.

The pellet of adherent wax 2 of FIGURE 3 is, on the contrary, of relatively large heat capacity, is of substantial volume and not subject to the rapid cooling problem presented by a thin coating layer.

It is apparent that many modifications may be made within the scope of the invention. For example, the candle of FIGURE 2 may be modified by forming the adherent wax as a ring around the base of the case so that the adherent wax itself forms the cavity. This may be accomplished by applying the base of the candle to an annular shaped open mould containing the molten microcrystalline wax and allowing the latter to harden and adhere to the base of the candle.

Alternatively, the cavity may first be made in the base of the main body of the candle so as to provide an annular end, and subsequently the annular end may be dipped into the bath of molten adherent wax so as to coat either the annular end only, or to coat the surface of the cavity and part of the side of the main body in addition. In each such case, there is formed an annular ring of microcrystalline wax capable of providing a stable support to the candle.

The thickness of the microcrystalline wax layer should be sufficient to provide adhesion to a flat horizontal surface and preferably also to the side surfaces of a candle holder. In the embodiments of FIGURES 2 and 2*a* a thickness of about $\frac{1}{32}$ of an inch at the sides, and about $\frac{1}{16}$ of an inch around the bottom of the candle is preferred, but this is not critical, and an overall thickness of $\frac{1}{32}$ of an inch is sufficient. Thicker layers may be built up by repeated dipping actions. In the case of the candle of FIGURES 3 and 3*a* the pellet should protrude $\frac{1}{16}$ to $\frac{1}{4}$ of an inch, preferably about $\frac{1}{8}$ of an inch.

I claim:

1. A candle having an upper elongate body portion of wax, a base portion comprising a core of said wax and adhered to said base portion, a body of adherent material extending longitudinally beyond said core, said adherent material being tacky at a temperature below the softening temperature of said candle wax and being adapted to seat the candle to a horizontal seating surface, said base portion having a transversely extending substantially planar shoulder of annular configuration, wherein said base portion is shaped with an end surface including said annular shoulder, and centrally of said shoulder, a cavity, at least a surface portion of said shoulder being composed of said adherent material.

2. A candle as claimed in claim 1 wherein said adherent material is composed at least partly of microcrystalline wax.

3. A candle as claimed in claim 1 wherein the said adherent material is a normally tacky gum composition.

4. A candle having an upper elongate body portion of wax, a base portion comprising a core of said wax and adhered to said base portion, a body of adherent material extending longitudinally beyond said core, said adherent material being tacky at a temperature below the softening temperature of said candle wax and being adapted to seat the candle to a horizontal seating surface, said base portion having a transversely extending substantially planar shoulder of annular configuration, wherein said base portion is formed with an end surface including said annular shoulder and, centrally of said shoulder, a longitudinally protruding portion of a pellet of said adherent material, said pellet having a remaining portion seated in a central cavity in the base end surface of the core of said candle and adhered to the core at the surface of the cavity.

5. A candle as claimed in claim 4 wherein said adherent material is composed at least partly of microcrystalline wax.

6. A candle as claimed in claim 4 wherein the said adhering material is a normally tacky gum composition.

7. A candle having an elongate body of wax which is hard at normal temperatures, said body having a base portion at least partly coated with a layer of an adherent material which is tacky at a temperature below the softening temperature of said candle wax, wherein the coated base portion has an end surface formed with a central cavity surrounded by an annular rim, said coating layer extending at least to cover said annular rim, said rim being thereby adapted for adhering the candle to a horizontal holder surface.

8. A candle as claimed in claim 7 wherein said base portion has side surfaces also coated with said adherent material.

9. A candle as claimed in claim 7 wherein said adherent material is composed at least partly of microcrystalline wax.

10. A candle as claimed in claim 7 wherein said adherent material is tacky under pressure at ambient temperatures.

11. A candle as claimed in claim 10 wherein said adherent material is composed at least partly of microcrystalline wax.

12. A candle having an elongate body of wax which is hard at normal temperatures, said body having a base portion having adhered thereto a pellet of an adherent material which is tacky at a temperature below the softening temperature of said candle wax, wherein said

base portion of the body of the candle is formed with a central cavity surrounded by an annular rim, said pellet being seated in said cavity and protruding longitudinally therefrom so as to provide means for adhering the candle to a horizontal holder surface.

13. A candle as claimed in claim 12 wherein said adherent material is tacky under pressure at ambient temperatures.

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CHARLES J. MYHRE, *Primary Examiner.*