March 3, 1942. A. T. CANDY, JR 2,274,823

METHOD OF MAKING CANDLES

Original Filed Jan. 17, 1940

Fig. 1.

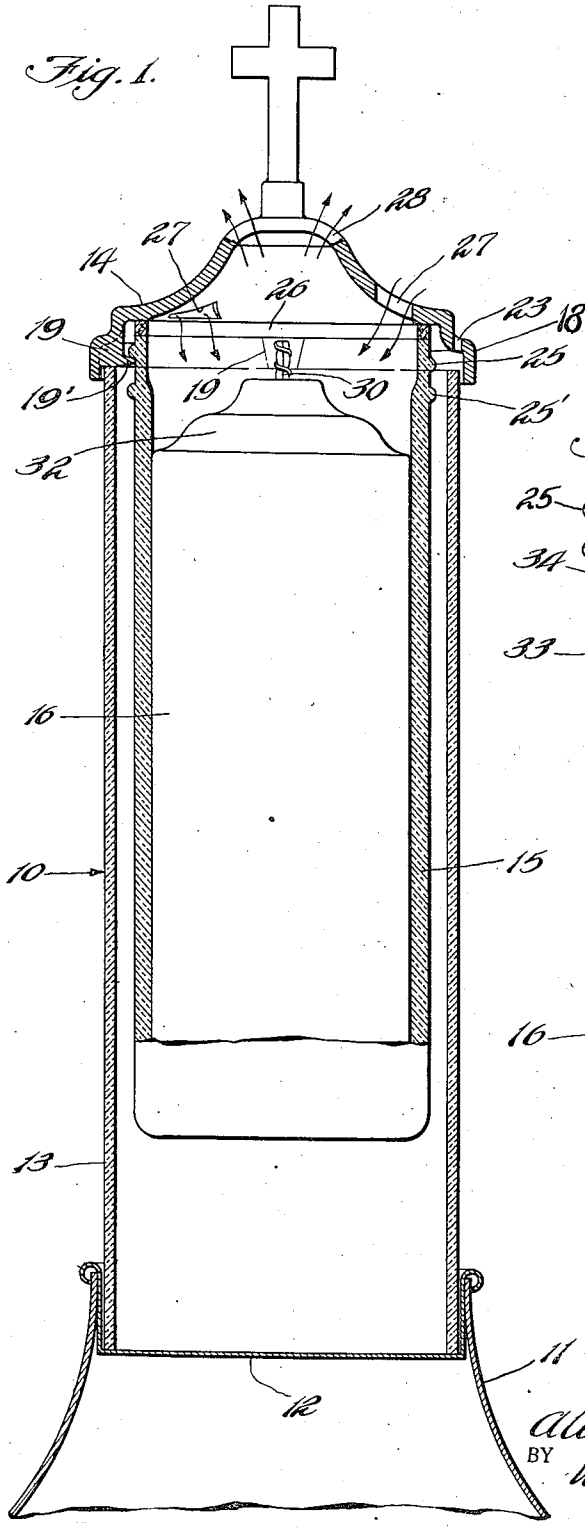


Fig. 3.

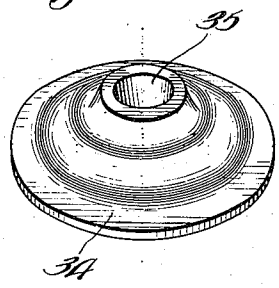
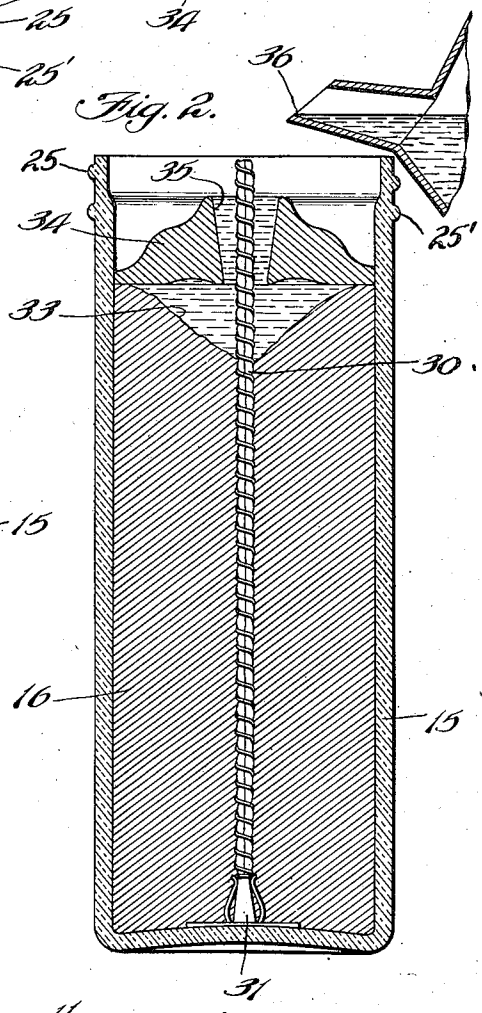


Fig. 2.



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METHOD OF MAKING CANDLES

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Original application January 17, 1940, Serial No. 314,199. Divided and this application June 28, 1940, Serial No. 342,856

6 Claims. (Cl. 18—58)

My invention relates to a method of making candles, and especially candles such as sanctuary candles which are formed within their own packaging containers in which they are shipped and in which they are subsequently burned in the sanctuary lamps. In the exemplary disclosure herein, the candle container, within which the candle is formed, is a glass jar.

The usual method employed for forming candles in their own containers is to pour the wax or other candle body material, while in a molten form, into the container, and allow it to harden therein. If the container is relatively deep, the pouring has been done in several stages so that one pouring may solidify before the next pouring. In that way the central crater formed by the shrinkage of the candle material upon solidifying is filled by the next pouring. When the last major pouring has solidified, a central conical crater is left at the top, which has to be filled by a final minor pouring. But even that does not provide the usual central knob for the upper end of the candle.

My invention is directed especially to a solution of the problem of providing the central knob on a candle poured in its open top container.

One solution has been to pour the candle material so that as its body finally solidifies, it is substantially flat across the top, and then to "machine" the top of the candle by a rotary cutting operation which turns the upper end down to the desired central knob or dome. This has the disadvantage of an additional manufacturing operation and the deposit of a film of wax on the inner surface of the container above the top of the finished candle, which film has to be removed by a second additional operation.

Another expedient for forming the knob is to set a temporary mold in the top of the container before the final pouring, the bottom end of the mold being shaped to form the desired knob when the final pouring solidifies. One objection to this temporary top mold expedient is that the pressure head of the melted material will cause it to flow upwardly between the lower periphery of the mold and the container, since the container is not accurately round and there must be some clearance to permit ready insertion and removal of the mold. Also, when the mold is withdrawn, it is likely to deposit a film on additional areas of the inside of the container above the finished top, and this additional deposit and film must be removed by a separate operation.

My solution to the problem of forming the top knob is one which is simple and permits the pouring of the candle about a pre-positioned wick, but does not leave a film on the inside of the container above the top of the finished candle and which, therefore, eliminates the necessity of a final cleaning operation.

The foregoing, together with further objects, features and advantages of my invention are set forth in the following description of a specific embodiment thereof, as illustrated in the accompanying drawing, wherein:

Fig. 1 is a vertical diametrical cross-section of a sanctuary lamp showing my completed candle in its container and how the container is employed in the lamp;

Fig. 2 is a diametrical vertical section of the candle and its container during the final pouring operation; and

Fig. 3 is a detail perspective view of the preformed top piece of the candle.

This application is a division of my copending application Serial No. 314,199, filed January 17, 1940, on Sanctuary lamps.

In the sanctuary lamp **10** illustrated in Fig. 1, a shell-like base **11** is closed by a cup **12**, which receives the lower end of a cylindrical ruby glass **13**. At its upper end, the ruby glass supports a cap or top piece **14**, from which the glass container **15** for the candle **16** is suspended within the ruby glass.

The lower outer margin of the cap **14** terminates in an outer skirt **18**, which embraces the upper margin of the ruby glass. A set of four arcuately spaced lugs **19** extend inwardly from the skirt with the bottom shoulders of the lugs spaced a fraction of an inch above the lower edge of the skirt, thereby forming a seat for reception of the upper edge of the ruby glass whereby the cap is suspended on the ruby glass.

A set of long arcuate ventilating slots **23** are formed vertically through the skirt **18** and above the top of the ruby glass, whereby to ventilate the air space between the ruby glass and the candle container **15**.

One convolution of an external screw thread **25** is molded into the glass container **15** adjacent its upper edge, and below this is an annular bead **25'** of similar cross-section.

Each lug **19** carries an inwardly extending screw-engaging projection **19'** of minimum feasible size. These projections **19'** are progressively offset vertically so that they constitute, in effect, a cutaway convolution of an internal screw thread, and in that manner they co-operate with the screw thread of the glass container. Thus, the container is detachably secured to the cap

14 by screwing the upper end of the container into the cap, and the cap thereby suspends the container 15 within, but free of, the ruby glass to leave an annular intervening air space. An asbestos gasket 26 may be employed to seal the upper end of the container to the cap to preclude combustion gases from the candle flame passing into the annular air space between the ruby glass and candle container, where the gases might leave deposits, as well as to insulate the container from the conduction of heat thereto from the cap.

The cap 14 has inlet openings 27 for the supply of combustion air and outlet openings 28 for the combustion gases.

The candle 16 is formed in the container 15, as distinguished from being preformed and being set into the container. The container 15 serves as a packaging container for the candle. It also serves as a container and support for the candle when the candle is being burned in the lamp. When one candle is exhausted, the cap is lifted from the ruby glass, which also lifts the old candle container 15 out of the ruby glass. Then the old candle container is unscrewed from the cap and a new one screwed in its place, which is then replaced, using the cap as a handle. Thus, the container 15 performs the four-fold function of (1) a mold for originally forming the candle, (2) a packaging container in which the candle is shipped and handled, (3) a support for holding the candle in the lamp while it is burning, and (4) a receptacle in which all incidental debris and all unconsumed portions of the old candle are retained and by which they can be lifted out of the lamp without the necessity of cleaning the lamp.

While my present invention is concerned chiefly with the first function of the container 15—forming the mold for the candle—it will be seen that my method also has a bearing on the third function of the container as a support for the candle while it is burning. If the forming of the candle within the container were by a method which left opaque deposits of candle material as film on the inside of the container above the finished candle, those deposits would interfere with the brightness of the initial flame, because the light would have to pass through the opaque or only partially translucent deposits, whereas if there were no such film deposits, the light from the flame would pass unhindered through the glass container 15 and through the ruby glass.

The candle 16 has a central wick 30, the lower end of which is mounted in a stamped metal holder 31 and the upper end of which protrudes through the central candle knob 32 to a height which, for protection, is preferably slightly less than that of the top of the container 15 (or of the top of the gasket, if the gasket be affixed to the container at the factory).

The candle 16 is formed in its container 15 by the following method:

The wick 30 is set centrally of the container and is supported at its lower end by the stamped holder 31, which rests on the bottom of the container. Molten candle material—usually wax or a wax compound—is poured into the container. Preferably the pouring is done in successive stages, so that one pouring is allowed to harden before the next. There is considerable contraction of the candle material when it solidifies, and if a single first pouring were continued to the height indicated in Fig. 2, the shrinkage would be excessive and not leave a sufficiently solid candle in the higher sizes. By pouring in successive stages, the crater left in the top of the one pouring by its contraction on solidifying will be filled by the next pouring, and a more satisfactorily solid candle will result.

The pouring is preferably continued by successive stages until the last major pouring brings the candle body to the height indicated in Fig. 2, leaving a central crater 33 at the top of the body when the last major pouring solidifies.

A preformed top piece 34 is then set on top of the body through the open top of the container. This preformed top piece 34 has previously been molded to provide an upper face contoured to the desired candle knob 32, and with a central spew hole 35. The spew hole is of considerably greater diameter than the wick which protrudes through it.

The bottom face of the top piece 34 may be more or less flat. The top piece 34 is preferably formed of the same material as the rest of the candle body.

The final pouring of molten material is made from a vessel with a pouring spout 36, whereby the stream of molten material is directed into the spew hole 35. In this last pouring, the crater 33 is first filled up to the bottom of the top piece 34 and then continued up through the spew hole until the latter is just filled.

Fig. 2 shows the candle at the completion of the last pouring, but before the last pouring has set.

When this final pouring has solidified, the candle (except for the wick and its holder) is a homogeneous one-piece body. By this method, there is no occasion for any deposit of candle material on the inside surface of the container 15 above the top margin of the candle, and hence no occasion for an additional cleaning operation.

While I have illustrated and described this specific method of forming the candle, I contemplate that changes and substitutions may be made without departing from the scope or spirit of my invention.

I claim:

1. The method of forming a sanctuary candle in its own packaging and burning jar, which consists in pouring molten candle material into the jar and permitting it to solidify to build the candle up to a height less than its ultimate height, thereafter inserting through the mouth of the jar a preformed annular centrally spew-holed knob piece of candle material and resting it upon the previously formed candle body, and then pouring molten candle material through the spew hole to fill the space between the previously formed candle body and the preformed knob, and into the spew hole to fill it.

2. The method of forming a sanctuary candle in its own packaging and burning jar, which consists in pouring molten candle material into the jar and about a central wick and permitting it to harden to build the candle up to a height less than its ultimate height, with the upper end of the wick protruding therebeyond, thereafter positioning a preformed annular knob piece of candle material, with a central spew hole within the jar and above the previously formed candle body, with the wick protruding through the spew hole, and then pouring molten candle material through the spew hole to fill the space between the previously formed candle body and the preformed knob and into the spew hole, and permitting the latter pouring to harden to bind it, the previ-

ously formed candle body and the central knob into a unitary homogeneous candle.

3. The method of forming a one-piece candle body which consists in seating a preformed top piece contoured to provide a candle knob of candle material, above a solidified candle body of lesser height than the desired candle, and pouring molten candle material through a spew hole in the knob piece to fill the space between the knob piece and the last-mentioned candle body to unite it, the top piece and the said pouring into a one-piece candle body.

4. In the manufacture of sanctuary candles, the method of forming a candle knob of candle material on the upper end of a previously poured and solidified candle body left with a crater in its upper end, which consists in seating upon the top of the candle body a preformed annular centrally spew-holed knob piece of substantially the diameter of the candle body, and then pouring molten candle material through the spew hole to fill the crater space between the candle body and the preformed knob piece and into the spew hole, and permitting the said pouring to solidify to unite itself, the candle body, and the knob piece into a homogeneous candle.

5. The method of forming a sanctuary candle in its own packaging and burning jar, which consists in pouring molten candle material into the jar in successive stages to permit it to solidify to build up a candle body of less than its ultimate height, placing a spew-holed preformed candle knob piece of candle material over the upper end of the main body, and binding the main body to the knob piece by molten material to unite the main body and knob piece into a homogeneous one-piece candle.

6. A top piece for a sanctuary candle to be placed upon the body of the candle in the course of completion of molding the candle, and to be incorporated therein by the final pouring of molten candle material, the top piece being formed of candle material and having a very low peripheral height and a high central height, with its top face contoured as the knob of a candle and provided with a central vertical spew hole of a diameter considerably greater than the diameter of a wick appropriate to a candle of the diameter of the top piece, the spew hole being adapted to permit the pouring therethrough of molten candle material to fill any void between a previously partially completed candle body and the top piece.

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