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LITURGICAL CANDLE

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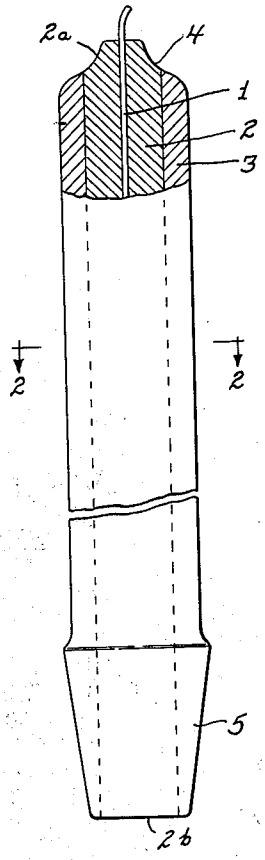



FIG. 1

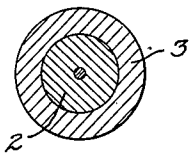



FIG. 2

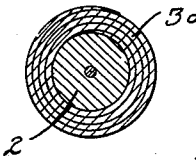



FIG. 3

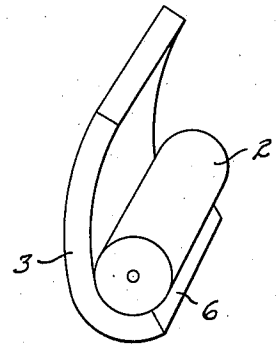



FIG. 4

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## LITURGICAL CANDLE

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3 Claims. (Cl. 18—59)

Candles for liturgical purposes are required to contain specified ingredients, as to fuel content. For certain liturgical purposes the candles must be purely beeswax, or vegetable fat. To meet this requirement candles that are 100% beeswax are supplied and so branded. In other cases (composite candles) the beeswax or vegetable fat must predominate, that is to say, a larger percentage thereof must be used than of other materials making up the fuel body of the candle. Beeswax is the usual material used as the required component. Such candles are usually sold, using an appropriate percentage sign as the identifying mark; for example: "51% beeswax" or "60% beeswax," branded on the candles.

Prior to the present invention composite candles for liturgical purposes have been made by blending beeswax with other materials, such as paraffin or stearic acid, or both, presumably in the right proportion. The brand is relied upon by the user, and usually this is the only means he has of knowing the supposed beeswax content. Sometimes due to carelessness, and possibly to intent the required proportion of beeswax is not maintained by the manufacturer. Failure in maintaining the prescribed percentage can occur when the materials e. g. beeswax and paraffin, are melted together but not stirred sufficiently or often enough to maintain the mixture uniform while making the candles from it. In the case of paraffin and beeswax, the latter has a higher specific gravity and tends to sink to the bottom; wherefore candles made from the upper portions of an inadequately stirred mixture naturally will contain less beeswax than they should. The above explanation is usually offered whenever the user has sample candles tested and finds them to contain less than the prescribed proportion of beeswax. He may then be told that if the entire shipment were to be analyzed, he would find that some of the candles would contain more than enough beeswax. It is of course impracticable to test an entire shipment for each and every candle would have to be analyzed, in order to determine whether the manufacturer is or is not using too little beeswax. Furthermore, when beeswax is blended with other material, it becomes very expensive to make a proper analysis at all.

With the above in view, the principal object of the present invention is to provide a method of making liturgical candles whereby the user can easily determine the relative proportions of the supposed beeswax and other materials used and can, if desired, by simple chemical analysis, determine if the beeswax is actually pure.

Another object is to provide a liturgical candle, comprising beeswax and other fuel material, wherein the materials are so associated as to be consumed together in burning but so arranged that the beeswax may be separated from such other material by mechanical means, for enabling testing of the same.

A specific object is to provide a candle containing beeswax and other fuel material, wherein the proportion of the beeswax supposedly used in the composition may be observed independently of any branding.

A further specific object is to provide a composition liturgical candle, which may be made by any desired method, such as casting in a mold, dipping or pouring, but wherein a prescribed fuel material may quickly be separated from all the remaining fuel content of the candle.

Various advantages of the invention will later be pointed out more in detail in connection with the accompanying drawing, wherein Fig. 1 is a side view of a candle made in accordance herewith, a portion thereof being broken away in central cross-section; Figs. 2 and 3 are transverse sectional views, taken as on the lines 2—2 on Fig. 1, each showing a different construction; and Fig. 4 is a perspective view, showing a short test section of a candle, the component parts of which are being taken apart for testing.

In Fig. 1, 1 indicates the wick which extends centrally through a fuel core 2 for its entire length and projects from one end of the candle, as usual. The core is solid fuel and is exposed at both ends as at 2a and 2b for inspection.

Surrounding the core for its full length is an envelope 3, which in keeping herewith is pure beeswax, and may comprise more than half the fuel content of the candle, for instance, 51% or 60%, as prescribed for different reasons of use. This serves to provide a good exterior finish for the candle. If the core is of a composition such that it does not tend to mix with beeswax the latter may be placed on the core in molten condition; that is embodied therewith by one of the common methods of making candles (dipping, pouring or casting the same into a mold). In the event of molding, the usual procedure is modified in that the core is placed centrally of the mold and the beeswax poured in about the core and allowed to harden in the mold. Dipping and pouring are preferred, because it is difficult to eject beeswax from a candle mold. After

formation, the candle may be brought to the right size by passing the body through a hot die. Similarly a tip effect 4 may be formed at the top and a conventional taper 5 at the bottom.

In order to distinguish composition candles, made in accordance herewith from 100% beeswax candles, the core material selected has or is given a color, which contrasts with that of beeswax. For example, it may be a darker yellow or nearly white as in the case of refined paraffin. This means of distinguishing one grade of candle from another is more dependable than branding, since brands can easily become defaced.

Irrespective of what fuel material is selected for the core, the latter, after a short starting period, is consumed simultaneously with the envelope, just as though the materials had been blended to start with; and one can see the blending take place in the fuel cup as the candle burns.

In making candles as above described, I propose to use simply paraffin for the core. In some cases this may require the addition of a small amount of tempering material such as ceresin, to raise the melting point of the core nearly to that of the beeswax. If any appreciable amount of saponifiable material such as stearic acid is used with the paraffin, or if stearic acid alone is used for the core, then I have found the beeswax becomes welded to the core and is separated therefrom only with great difficulty. Practically any saponifiable fuel material so used, becomes to an extent mixed with the beeswax even though the core is chilled to start with. This would make an accurate simple analysis impossible. On the other hand, if paraffin is used alone or with other non-saponifiable material, such as ceresin, then there is no welding between the core and the envelope, such as will prevent clean separation of the two parts, as with a knife. Ceresin is therefore preferred to carnauba wax as a tempering agent, although a small percentage of the latter can be used. There is always enough surface unevenness to the paraffin core so that it will not slip out of the envelope. The tipping and base formation also assist in holding the core in place.

In the event it is desired to use an appreciable amount of stearic acid or other saponifiable material with the paraffin in the core, or for instance, stearic acid alone, with or without a hardening agent for the core, then I prefer to embody the beeswax in the candle following one step according to my prior Patent 1,863,416, issued June 14, 1932. As disclosed and claimed in that patent, candles may be made by rolling the wick in a sheet of fuel material, such as beeswax, preferably the same as used to make comb foundation. In the present case, the stearic acid and/or paraffin core may readily be rolled into sheeted beeswax, building up the desired thickness by successive wrappings as shown at 3a in Fig. 3. Surface finish may be effected by forcing the candle through a hot die. In that event there will be no such firm bonding between the envelope and the core as will prevent ready separation of the two due to absence of fusing heat.

Referring to Fig. 4, this, as mentioned above, shows simply a short section of candle, made, for example, according to Fig. 2, in which the envelope has been cut, as at 6, and partially removed from the core. If the envelope is wrapped about the core, per Fig. 3, it can be removed simply by unwrapping the envelope layers.

Now, when the materials are separated, it is easy enough to determine by organoleptic methods whether or not the beeswax is substantially pure. It has a distinctive aroma, color, stickiness and texture. In any event, if it is desired to make a chemical analysis of it, it is easy enough to determine whether or not it contains any substantial percentage of adulterants. So long as the core material is consumed along with that of the envelope, the user is not interested in the composition of the core. Among other advantages, there is the fact that paraffin may be used alone, without any stearic acid, thereby reducing manufacturing costs. Usually stearic acid is blended with paraffin, in making candles, in order to produce a better and smoother surface. In the practice of the present invention, irregularities of surface as a result of using paraffin alone are of no consequence, since the beeswax envelope furnishes the exterior finish desired. On the other hand, if one wishes to use stearic acid or other saponifiable material in the core, then by following the procedure according to Fig. 3, the ready separation of the core and envelope materials may be had, notwithstanding the fact that if such core material had molten beeswax applied thereover the beeswax would weld on and prevent the formation of a definite cleavage surface.

I claim:

1. In the art of making composite candles for liturgical purposes and which include beeswax and paraffin, a method for enabling the user easily to check the proportion of beeswax in the individual candles, comprising forming a fuel core which includes the paraffin, enveloping the core by applying molten beeswax around the same for its full length, the paraffin being maintained sufficiently free from saponifiable material so that the beeswax will not weld thereto, whereby sufficiently definite cleavage surfaces are maintained between the core and the beeswax to enable all the beeswax to be easily separated from the core material in the finished candle.

2. In the art of making composite candles for liturgical purposes and which include beeswax, a method for enabling the user easily to check the proportion of beeswax in the individual candles, comprising forming a fuel core substantially entirely from non-saponifiable fuel material, and enveloping the core with beeswax by applying the same in molten condition to the core.

3. In the art of making composite candles for liturgical purposes and which include beeswax, a method for enabling the user easily to check the proportion of beeswax in the individual candles comprising forming a fuel core substantially entirely from non-saponifiable fuel material of a color contrasting with that of beeswax and enveloping the core with beeswax by applying the same in molten condition to the core.

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