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(54) Liquid-fuel candle with adjustable flame.

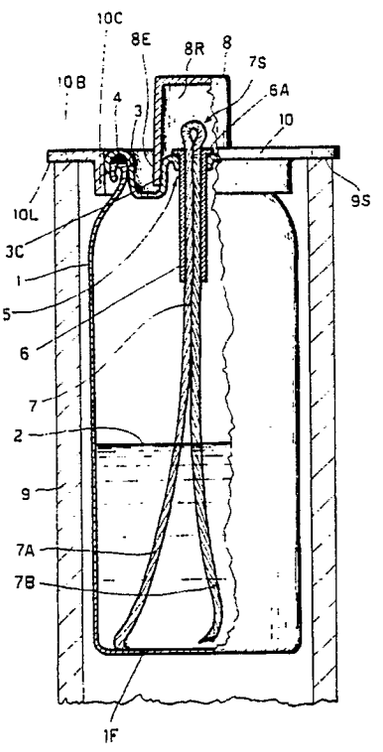
(57) This candle is formed of a reservoir preferably but not exclusively of elongated cylindrical shape, provided at its top with a cover hermetically fixable to it and holed in a central position to support and removably house in said hole a metal tube containing a wick consisting of a bunch of long glass fibres contained within a tubular fabric sheath preferably of cotton.

The length of this wick is such that it rests on the bottom of the reservoir so that it becomes soaked even if only little fuel is present.

The cover fixed to the reservoir is shaped in such a manner as to receive a cap of rubbery material able to retain and then return any liquid fuel which escapes from the central hole by accidental overturning of the candle during transportation or by mishandling.

The candle is also provided with an outer ring for its possible support on the edges of hollow containers of embellishing appearance.

Fig.1



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LIQUID-FUEL CANDLE WITH ADJUSTABLE FLAME

This invention relates to the field of flame candles.

Known candles are formed from an elongated body of wax, stearin or other fatty materials, provided in its interior with a cotton cord or wick.

In these candles the purpose of the cylindrical body is not only to impregnate the wick with the necessary fatty substances for combustion, but also to act as a mechanical support. This has the drawback that the amount of said fatty material surrounding the wick is generally more than is required. For this reason, during the burning of the candle the excess peripheral wax melts to produce dripping. Most of the fatty material (wax) therefore merely contributes to increasing the cost of the candle. In addition, the necessary use of solid fuels having a certain mechanical strength results in particularly smoky flames of not always pleasant smell.

When such candles are large and have a decorative and artistic function, especially in a church environment, they become considerably costly to burn, not only because of the explicit quantity of candles consumed in providing the possible related aesthetic effects, but also because when said wax candles become too short they are no longer able to perform a decorative function.

In the case of the so-called "Holy Candle" which burns perpetually in the vicinity of christian altars, this needs frequent manual replacement. Even if liquid fuels are used, a normal such candle has a flame of limited duration (generally four days) due to the carbonization of its cotton wick.

An object of the present invention is to provide a candle which, although emitting a flame, avoids the use of currently used solid waxes or the like, so obviating the aforesaid drawbacks and particularly dripping. A further object is to provide a candle which can be combined with large mock wax candles for religious functions, and burn economically without damaging said mock candles which are of high aesthetic and monetary value. A further object is to provide a candle which can be self-sufficient for some weeks.

A further object is to provide a candle having a flame of adjustable size, so that it can be adapted to the most varied economy and light requirements.

A further object is to provide a candle, of which the body does not have the typical greasiness of wax and the consistency does not depend on ambient temperature. A further object is to provide a candle which can generate a larger flame than conventional candles.

These and further objects will be seen to be attained, on reading the following detailed description, by a candle consisting of a reservoir preferably but not exclusively of elongated cylindrical shape, provided at its top with a cover hermetically fixable to it and holed in a central position to support and removably house in said hole a metal tube containing a wick which projects outwards from it by an adjustable extent and consists of a bunch of long glass fibres contained within a tubular fabric sheath preferably of cotton. The inward length of this wick is such that it rests on the bottom of the reservoir so that it becomes soaked even if only little fuel is present.

A fuel indicatively suitable for this purpose is odourless isoparaffin marketed under the brand name of ISOPAR-L.

The invention is illustrated by way of non-limiting example on the accompanying drawing, in which:

Figure 1 is a partly sectional side view of an embodiment of an extinguished candle with a closure cap mounted thereon;

Figure 2 shows a wick of suitable length to form a large flame;

Figure 3 shows a wick of suitable length to form a minimum flame;

Figure 4 shows the structure of a composite wick.

With reference to said figures, a reservoir 1 is designed to contain a liquid fuel 2 of low flammablity, such as isoparaffin (alkane hydrocarbons). Said reservoir 1 is closed upperly by a cover 3 clinched to it by normal methods by way of a seal gasket 4 of rubbery material.

The cover 3 is provided with a hole 5, the purpose of which is to house a metal tube 6 carrying a wick 7. Between the hole 5 and metal tube 6 there is a gap sufficient to allow air to flow into the reservoir 1.

The tube 6 is supported on the cover 3 by its rim 6A, which prevents it falling into the reservoir 1. The fact that it can be extracted from the reservoir makes it comfortable to handle when the amount 7S of wick 7 projecting from the end of the tube 6 is to be adjusted. For this purpose the wick is sliding inserted into the tube 6. The wick 7 is inserted double and projects by its fold (amount 7S). The use of this fold results in various advantages, among which are the fact that the top of the wick is continuous and that the surface on which fuel is present can vary from a minimum value which depends on the diameter of the bore of the tube 6, to a high maximum value determined by the increase in wick surface deriving from its fold. These two possible extremes are shown in Figures

2 and 3, from which the different obtainable flame lengths F can be seen.

The wick, shown in Figure 4, is of composite type in the sense that it comprises an outer tubular cotton fabric sheath 7T which encloses a straight bunch of long glass fibres 7F. In this manner the wick material does not take part in the combustion process, so contributing to the creation of a flame which lasts a very long time before the need to renew its projecting length. This flame is also particularly clean and at the same time aids fuel transit by capillarity to an extent which is particularly effective.

As the wick 7 is folded, it has two ends 7A and 7B. They have a length such as to touch the bottom 1F of the reservoir in order to be able to completely draw up any residual liquid fuel.

There is no seal between the tube 6 and its containing hole 5 because of the need for clearance to facilitate extraction of the tube.

Notwithstanding this, the liquid fuel 2 cannot leak dangerously during transportation because of the use of a cap 8 of rubbery material which whatever its external shape engages at its bottom tightly over an outer conjugate portion 3C of the cover 3. By this means any fuel which leaks from the reservoir through the gap between the tube 6 and the hole 5 remains in the chamber 8R, from which it can freely flow back through the same gap when the candle is placed in its correct vertical position.

This candle can be used and operated with the body of its reservoir 1 exposed, however it can also be combined with aesthetically more decorative mock candles, ie false candles of large volume compatible with the function which they perform on church altars. These mock candles consist of yellow or off-white sleeves or tubes of plastics material (usually nylon).

To use such mock candles, indicated by 9 in Figure 1, the candle of the invention is provided with a plastics disc 10 which by means of a collar 10C is push-fitted over the outer clinched edge of the cover 3 or onto other equivalent parts of the candle.

In this manner the edges 10B of the disc can rest on the upper edge 9S of the mock candle, whatever the depth of the bore in this latter. The disc 10 can be constructed in different-diameter versions to adapt to the various diameters of the mock candles with which the candle of the invention is to be associated, such that a projection 10L remains to facilitate gripping by the fingers for withdrawal from and insertion into the mock candle for renewal purposes.

Claims

1. A candle characterised by a reservoir (1) preferably but not exclusively of elongated cylindrical shape, provided at its top with a cover (3) fixable hermetically (4) to it and holed (5) in a central position to support and removably house in said hole a wick (7) of such a length (7A, 7B) that it rests on the bottom (1F) of the reservoir (1) to completely absorb the liquid fuel (2) contained therein.

2. A candle as claimed in the preceding claim, characterised by a wick (7) formed from a bunch of long glass fibres (7F) surrounded by a tubular sheath (7T) of absorbent fabric, preferably but not necessarily cotton.

3. A candle as claimed in the preceding claims, characterised by a cover (3) shaped in such a manner (3C) as to receive a cap (8) of rubbery material able to retain and then return any liquid fuel (2) which escapes from the central hole (5) by accidental overturning of the candle during transportation or by mishandling.

4. A candle as claimed in the preceding claims, characterised in that the size of the flame (F) is adjusted by the degree of extraction (Figure 3, 3) or projection (7S) of the wick beyond the end of its support tube.

5. A candle as claimed in the preceding claims, characterised by a wick which projects (7S) in the form of a fold and dips into the liquid fuel by its consequent ends (7A, 7B).

6. A candle as claimed in the preceding claims, characterised by a wick (7) housed in a removable metal tube (6) which rests (6A) on the edge of the hole in the top cover.

7. A candle as claimed in the preceding claims, characterised by a disc push-fitted thereon for its support on the edge of mock tubular candles (9).

8. A candle as claimed in the preceding claims which uses as fuel a liquid based on odourless isoparaffins with characteristics equivalent to those of the product marketed under the name of ISOPAR-L.

Fig.1

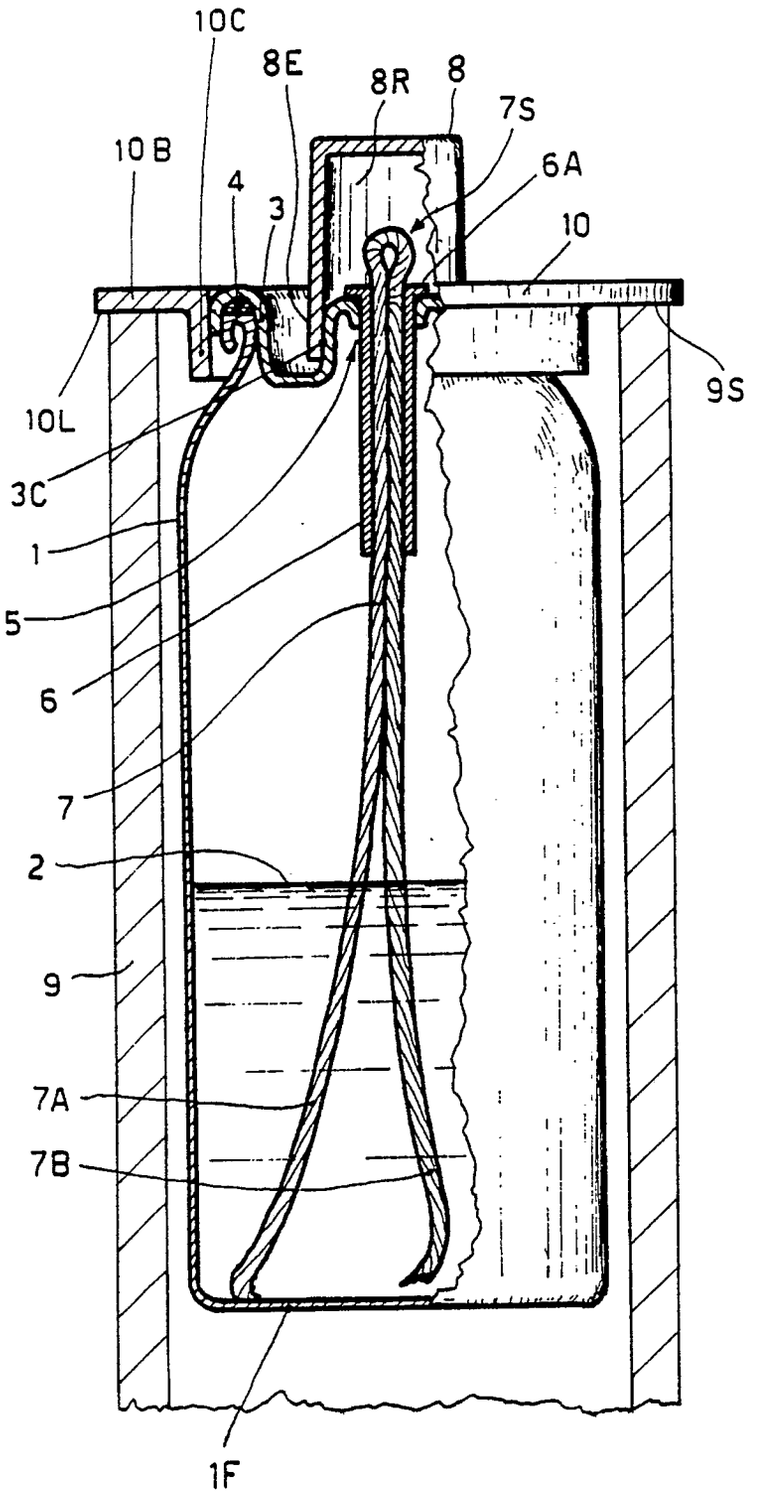
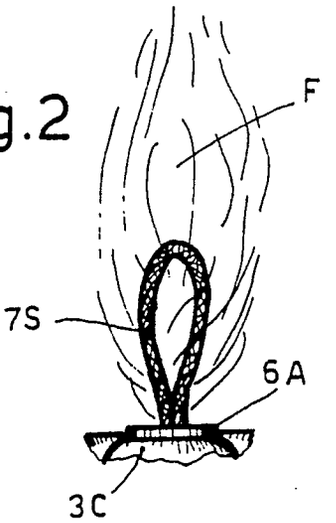


Fig.2



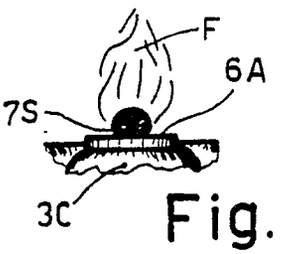


Fig.3

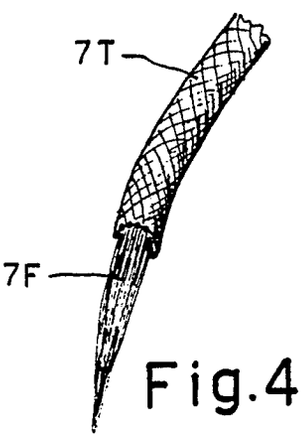


Fig.4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 89 10 3011

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-3 994 672 (D.M. NOVAK) * Claims 1-4; column 2; figures *	1,5	C 11 C 5/00 F 23 B 3/00
Y		6	
A		3,8	
Y	GB-A-1 486 962 (L.P. STUART WILSON) * Claims 1-5; page 1, lines 34-45; figures *	6	
A		2	
A	US-A-4 496 307 (J.L. GINARDI) * Claim 1; column 3, lines 45-68; column 4, figures *	1,4,6	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

C 11 C
F 23 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26-09-1989	SANTOS Y DIAZ A.I.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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