



US 20060024629A1

(19) **United States**(12) **Patent Application Publication**  
**Rivard**(10) **Pub. No.: US 2006/0024629 A1**(43) **Pub. Date: Feb. 2, 2006**(54) **LIQUID FUEL CANDLE**(52) **U.S. Cl. .... 431/126; 431/321**(76) **Inventor: David M. Rivard, Minneapolis, MN**  
**(US)**(57) **ABSTRACT**

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**BARRIGAR INTELLECTUAL PROPERTY**  
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**VANCOUVER, BC V6B 5A6 (CA)**(21) **Appl. No.: 10/901,157**(22) **Filed: Jan. 13, 2005**(30) **Foreign Application Priority Data**

Jul. 27, 2004 (CA) ..... 2,475,868

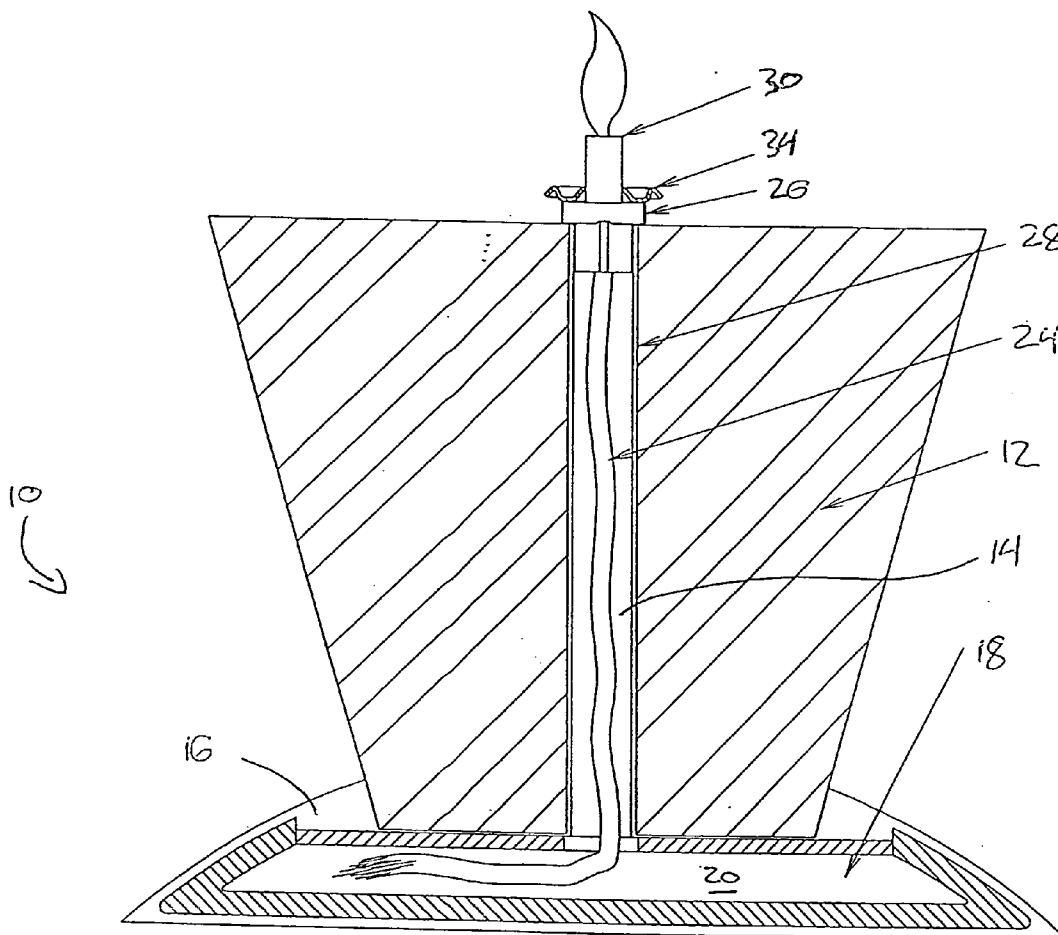
**Publication Classification**(51) **Int. Cl.****F23D 3/18**

(2006.01)

**F23D 3/16**

(2006.01)

Provided is a liquid fuel candle comprising a wax body with a hollowed core, a base defining a reservoir for storage of liquid fuel attached to one end of the wax body, an insulator attached to the other end of the wax body, and a wick threaded through the hollowed core and communicating at one end with the liquid fuel and at the other end with the insulator. The base may be formed and dimensioned to resemble a conventional candle holder, and since the liquid fuel is stored within the reservoir provided by the base, the wax body may be very slender and thin without compromising candle burn time. A diffuser ring may be associated with the insulator for evaporation and dispersion of scented oils. More than one wax body, wick and insulator may be associated with a single base.



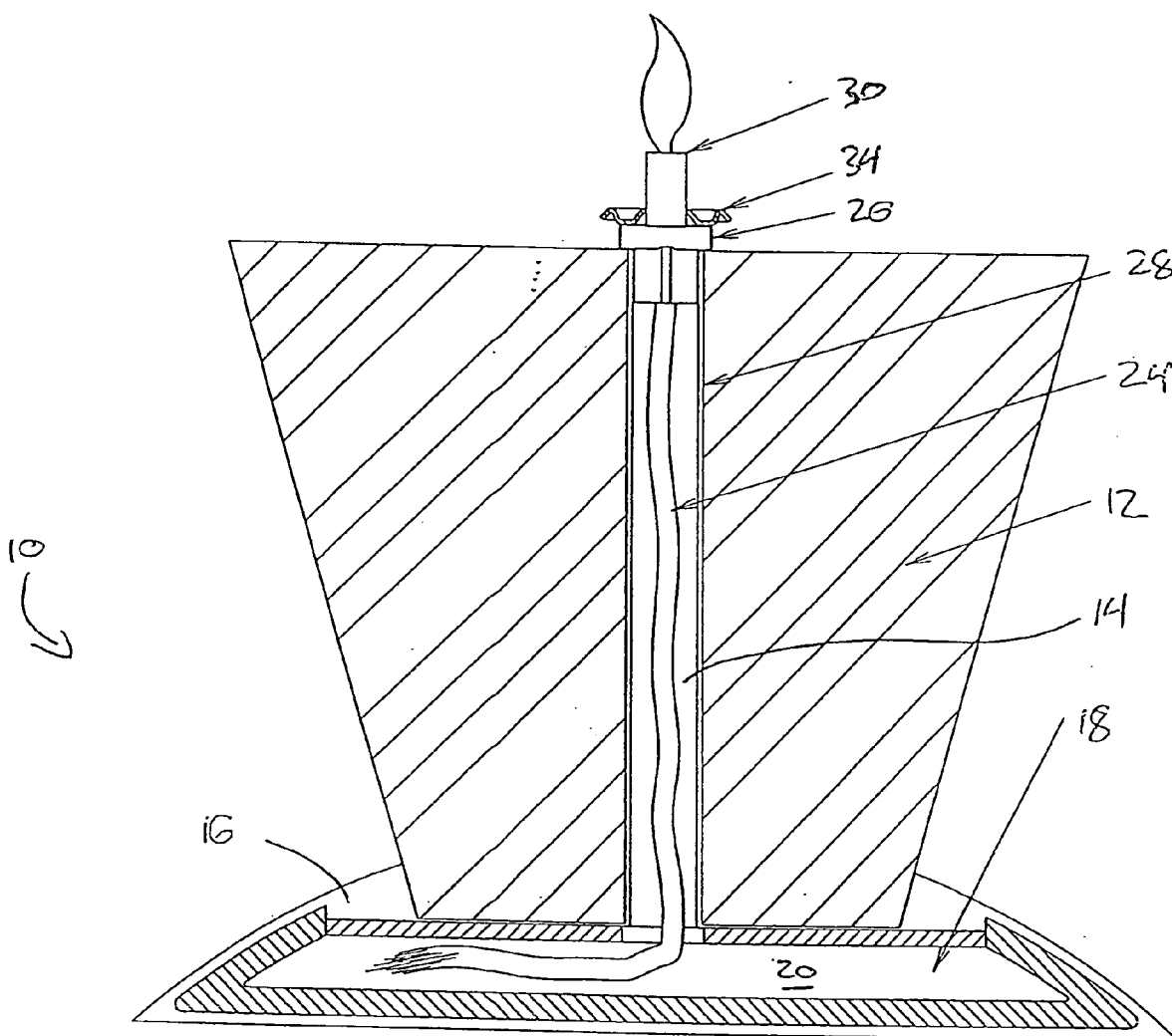


Figure 1

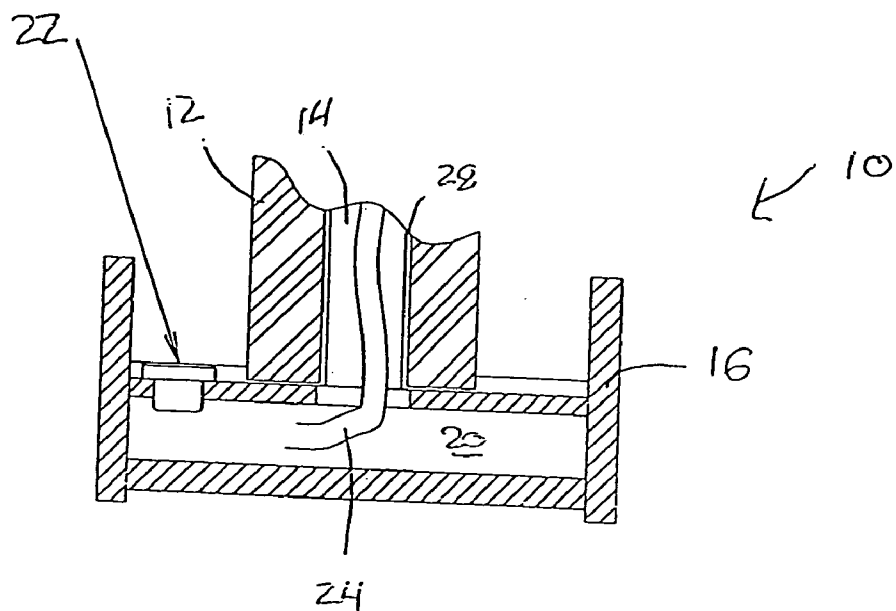


Figure 2

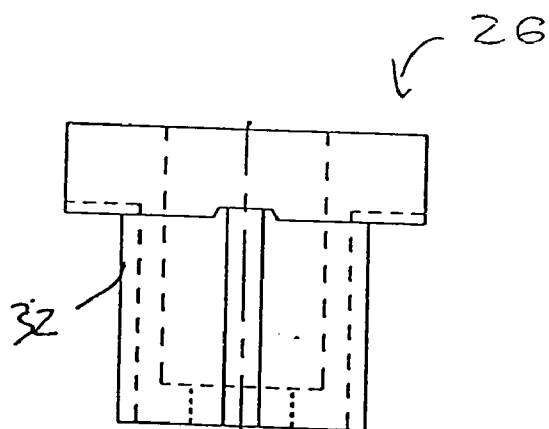


Figure 3

## LIQUID FUEL CANDLE

### FIELD OF THE INVENTION

[0001] The present invention relates to candles, and in particular to reusable liquid fuel candles having a wax body that is not consumed during use.

### BACKGROUND OF THE INVENTION

[0002] It is well known that the burning of conventional paraffin or other wax candles involves the liquefaction, deformation and consumption of the candle itself. The expectation of such deformation and consumption may make it difficult to decide whether or not to light a conventional wax candle, particularly in the case of expensive ornamental candles. Liquefied wax also frequently runs down the sides of lit conventional wax candles, thereby creating a mess, and potentially damaging furniture or even constituting a fire hazard. It is, of course, also well known that conventional wax candles are normally secured on candle holders in order to ameliorate these latter hazards and disadvantages (and in many cases also to enhance the aesthetic appearance of the candle), but it nevertheless remains that conventional paraffin or other wax candles are deformed and consumed during use.

[0003] Liquid fuel candles that are fashioned to appear like conventional wax candles while for the most part avoiding the principal drawback of conventional wax candles (namely the consumption of the candle itself during use) are also known. Canadian Patent No. 2,125,118 to Maclea et al., entitled Reusable Candle, discloses a liquid fuel candle that has a hollowed core at one end for receiving an internal reservoir and wick structure that is refillable with a liquid fuel. The body of the candle (that surrounds the internal reservoir) is made of wax so that the liquid fuel candle of Maclea may resemble a conventional wax candle, and so that it may be secured on a candle holder in the same way as would be a conventional wax candle.

[0004] Although liquid fuel candles of the kind disclosed by Maclea may address the deformation and consumption issues inherent to conventional wax candles, it has been found that the placement of the liquid fuel reservoir within the core of such liquid fuel candles presents new difficulties. In particular, the volumetric capacity of the internal fuel reservoir is necessarily limited relative to the size of such candles. This limits the burn time of a given prior-known liquid fuel candle between refills, and also effectively precludes the creation of particularly slender liquid fuel candles of this sort. Additionally, refilling the fuel reservoir of a liquid fuel candle of the sort disclosed by Maclea is messy and prone to spillage, and spilled liquid fuel may ruin the finish of the wax body of the candle or surrounding articles.

[0005] It is accordingly one object of the present invention to provide a reusable liquid fuel candle that looks like a conventional candle, but that avoids the drawbacks of conventional wax candles and known liquid fuel candles discussed above.

### SUMMARY OF THE INVENTION

[0006] In accordance with one aspect of the present invention, there is provided a liquid fuel candle comprising a wax body having a hollowed core, and a base releasably or

permanently associated with the wax body at one end thereof. The base is formed and dimensioned to resemble a conventional candle holder, and defines a reservoir within which liquid fuel may be stored. A wick threaded through the hollowed core of the wax body communicates at one end with the liquid fuel within the base, and projects at its second end slightly beyond the top of the wax body, where it is situated within an insulator that prevents the wick from contacting the outer surface of the wax body. In some embodiments, the insulator is embedded into the top of the wax body, but the insulator may also simply be held in position atop the wax body by gravitational force or by other means.

[0007] The liquid fuel is drawn by capillary action into the wick, and the insulator prevents the flame from liquefying or consuming the wax body when the second end of the wick is lit. Since the liquid fuel is stored within the reservoir provided by the associated base (and not within the wax body as in prior known liquid fuel candles), the wax body may be very slender and thin without compromising burn time. Overall burn time may also be enhanced relative to prior-known liquid fuel candles as the reservoir within the base can readily be made quite large without compromising the aesthetic qualities of the inventive liquid fuel candle.

[0008] In embodiments of the invention where the wax body is permanently associated with the base, the base preferably also includes a re-sealable opening through which the reservoir may be safely re-filled without risking the spillage of liquid fuel over the wax body.

[0009] The insulator may preferably be constructed of a material having a high specific heat capacity in order to lessen the transfer of heat through to the wax body, and may in some embodiments include or be associated with a conduit formed of a separate heat resistant material (such as glass) surrounding the wick at or near its second end. In such embodiments, the interposition of the heat resistant conduit between the flame and the insulator avoids or lessens possible heat damage to the insulator during use of the liquid fuel candle. In some embodiments, the insulator also includes grooves or channels cut therethrough to permit air to communicate between the outside atmosphere and the liquid fuel reservoir to eliminate possible vapour lock.

[0010] In some embodiments, a diffuser ring or tray into which scented aromatherapy oils or the like may be placed (so as to diffuse into the air) may be affixed to or associated with the insulator. In use, the heat generated by the nearby flame accelerates the evaporation and dispersion of the scented oil.

[0011] The wick may be formed of fibreglass fibres or other suitable materials, and in some embodiments may be surrounded by a housing placed into the hollowed core of the wax body. Such wick housing may help prevent possible contamination of the wax body with the liquid fuel, and may also help to insulate the wax body from heat generated when the wick is lit.

[0012] In other embodiments, the liquid fuel candle may comprise more than one wax body, wick and insulator associated with a single base, thereby to give the visual effect of an arrangement of conventional wax candles set upon an elaborate candle holder. In such embodiments, a single reservoir of liquid fuel may be shared among several wax bodies and flames.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0013] **FIG. 1** is a front elevational cross-section of a liquid fuel candle in accordance with one embodiment of the present invention;

[0014] **FIG. 2** is a partial side elevational cross-section of the liquid fuel candle of **FIG. 1**; and, **FIG. 3** is an enlarged cross-sectional view of the insulator of the liquid fuel candle of **FIG. 1**.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0015] Referring to the Figures, the liquid fuel candle **10** comprises a wax body **12** defining a hollowed core **14**. The wax body **12** is attached releasably or permanently to base **16** at one end of the wax body **12**, and the base **16** is formed and dimensioned to resemble a conventional candle holder. Base **16** defines a reservoir **18** within which liquid fuel **20** may be stored, and also includes a re-sealable filling hole **22** in embodiments (as shown) where the wax body **12** and base **16** are permanently attached to one another.

[0016] A wick **24** preferably formed of fibreglass fibres is threaded through hollowed core **14** of wax body **12**, and communicates at one end with liquid fuel **20** within base **16**. At its second end, wick **24** projects slightly beyond the top of wax body **12**, and is there situated within an insulator **26** that prevents wick **24** from contacting the outer surface of wax body **12**. Housing **28** separates wick **24** from hollow core **14** of wax body **12** in order to avoid possible contamination of wax body **12** with the liquid fuel **20**. In the illustrated embodiment, insulator **26** is constructed of a material having a high specific heat capacity in order to lessen the transfer of heat through to the wax body, and includes glass conduit **30** that surrounds wick **24** at or near its second end. The interposition of conduit **30** between the second end of wick **24** and insulator **26** helps to avoid possible heat damage to insulator **26** when wick **24** is lit, and also serves to crimp wick **24** in order to tidy the flame produced when wick **24** is lit. Insulator **26** also includes grooves **32** (best seen in **FIG. 3**) to permit air to communicate between the outside atmosphere and liquid fuel reservoir **18** to eliminate possible vapour lock. Optional annu-

lar diffuser ring **34** into which scented aromatherapy oils or the like may be placed (so as to diffuse into the air when the liquid fuel candle is lit) sits atop insulator **26**, and surrounds conduit **30**.

[0017] As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are:

1. An liquid fuel candle comprising;

a wax body having a hollowed core;

a base associated with one end of the wax body in communication with the hollow core, the base defining a reservoir for storage of liquid fuel;

an insulator associated with the other end of the wax body in communication with the hollowed core for holding a wick and preventing the wick from contacting the outer surface of the wax body; and,

a wick threaded through the hollow core of the wax body, the wick communicating at one end with the liquid fuel within the base, and at the other end with the insulator.

2. The liquid fuel candle of claim 1, wherein the base further comprises a re-sealable aperture for filling of the reservoir with liquid fuel.

3. The liquid fuel candle of claim 1, wherein the insulator is constructed of a material having a high specific heat capacity.

4. The liquid fuel candle of claim 1, wherein a heat resistant conduit is interposed between the wick and the insulator.

5. The liquid fuel candle of claim 1, further comprising a diffuser associated with the insulator for holding scented fluids.

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