July 16, 1963 A. H. STONE 3,097,514

ARTIFICIAL CANDLE

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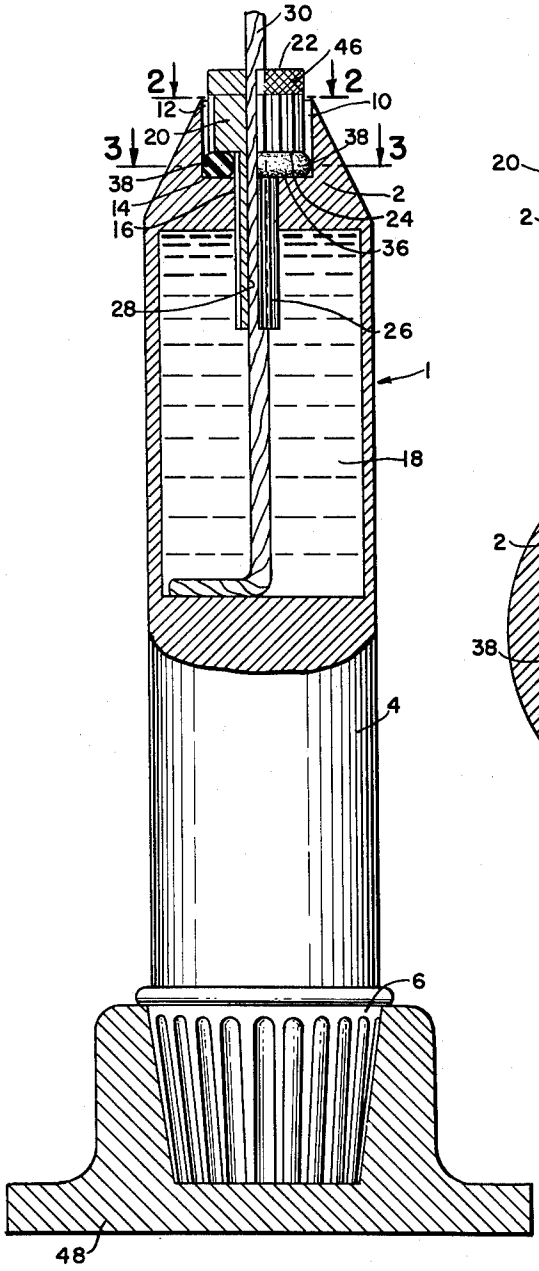


FIG. 1.

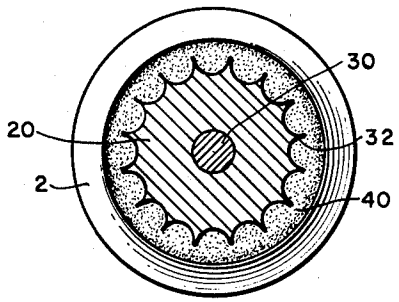


FIG. 2.

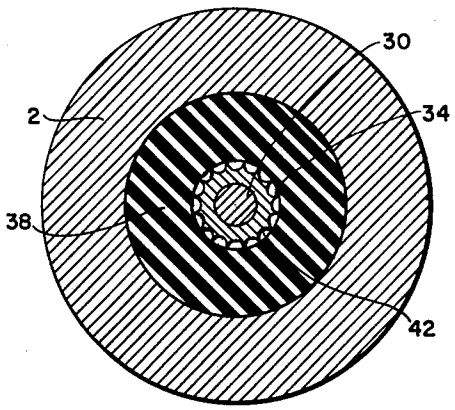


FIG. 3.

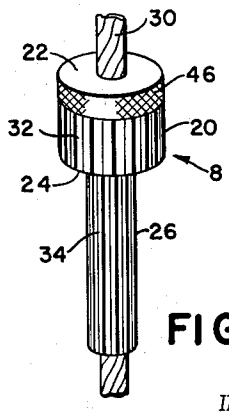


FIG. 4.

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ARTIFICIAL CANDLE

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This invention relates to illuminating devices and more particularly to a liquid fueled artificial candle simulative of known varieties of wax candles and possessed of features and advantages additional to the illuminating and decorative qualities of such conventionally familiar candles.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice of the invention, the same being realised and attained by means of the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

FIG. 1 is a vertical cross-section view of the present device wherein the wick-holder is received in operative position;

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken along line 3—3 of FIG. 1; and

FIG. 4 is an isolated perspective view of the wick-holder according to the invention.

The invention is generally directed to providing improvements in candle substitutes, and more specifically to the end of furnishing a portable lighting means of attractive appearance, comprised of few and simple parts, inexpensive with respect to production, and economical in performing its function of light production by the combustion of a liquid fuel.

One object of the invention is to provide an artificial candle comprising a casing simulating the appearance of a wax candle, a wick-tube being removably received within the head of the casing, and frictionally retained therein to facilitate ready removal thereof for the purpose of fuel replenishment and wick adjustment.

Another object of the instant invention is the provision of a candle substitute adapted to burn liquid fuel and having a wick-holder, which by virtue of its fluted surface configuration, is adapted to provide communication between the fuel chamber and the atmosphere without the candle structure.

A further object of the present invention is to provide a simulated candle having a frictionally secured wick-holder within the head thereof, said wick-holder having a surface configuration of desirable heat radiating characteristics to thereby effectuate minimization of heat transfer between the wick-holder and the candle casing.

Another object of the invention is the provision of an artificial candle having a readily accessible and graspable wick-tube enabling quick removal thereof and subsequent exposure of a large fuel receiving opening in communication with the fuel chamber.

Still another object of the instant invention is the provision of a liquid fuel burning candle having a wick-holder receivable within the head of the candle and readily adjustable for permitting or curtailing venting communication between the fuel chamber and the atmosphere without the candle structure.

A still further object of the invention is to provide an artificial candle which permanently retains its shape, length, and light producing properties and which is substantially resistant to distortion or deterioration.

It will be understood that the foregoing general objectives and the following detailed description as well are exemplary and explanatory but are not restrictive of the invention.

Referring now in detail to the present preferred embodiment of the invention illustrated by way of example in the accompanying drawings, FIGURE 1 shows the artificial candle designated generally by numeral **1**, the said candle being comprised of substantially cylindrical casing formed of head portion **2**, body portion **4** and base portion **6**.

Wick-holder **8** illustrated perspectively in FIGURE 4 of the drawings is, in said FIGURE 1 thereof, shown received within vertical bore **10** contained within the upper region of said head portion **2**, said bore being defined by upper end **12** in communication with the atmosphere and lower end **14** in communication with passage **16** which leads directly to fuel chamber **18**.

Referring to FIGURE 4, it is observed that said wick-holder **8** is formed of top piece **20** terminating at upper end **22** and annular collar **24** at the lower end respectively, and reduced tubular sleeve **26** depending centrally of said collar. A reduced bore **28** extends axially through said tubular sleeve to the upper end of the said top piece for receiving a wick **30** which projects at the end of the wick-holder, the other portion of the wick depending into said fuel chamber **18**. The wick **30** is preferably of sufficient length that it will extend, as shown, through the upper end of the wick-holder and to the bottom of the chamber, thereby assuring consumption of the entire liquid contents without replenishment thereof.

In the artificial candle art, heretofore, several formidable difficulties have been encountered, a most salient problem being the preclusion of heat transfer between wick and candle casing, the pronouncement of this problem being occasioned primarily where plastic casings are employed. To the end of obviating this among other problems to be described herein, the wicker-holder according to this invention is provided with a vertically fluted surface at **32**, with respect to said top piece, and at **34**, with respect to said reduced sleeve, seen in FIGURES 2 and 3 respectively.

Annular shoulder **36** illustrated in FIGURE 1 and disposed at the lower end of said vertical bore **10**, provides a seat for a toroidal shaped O-ring **38**, said O-ring being adapted for frictionally securing said wick-holder within said vertical bore. Inasmuch as the top piece **20** is vertically oriented within the said bore, space **40** is provided peripherally of said top piece and said head portion **2**, there being no heat conduction therebetween. By dint of the fluted surface configuration aforedescribed, heat absorbed by metallic wick-holder **8** is readily dissipated within said space, negligible heat being convected to said plastic head portion of said casing.

Inasmuch as the wick substantially seals the reduced bore **28**, transfer of air from without the candle to within the said fuel chamber is not readily permitted. Accordingly, and especially with utilization of non-volatile liquid fuels, a vacuum created within the fuel chamber upon depletion of the fuel hinders normal capillary flow of fuel to the end of the wick thereby causing flickering and ultimate extinguishment of the flame. It will therefore be appreciated that orifices **42** provided by virtue of the cooperation between fluted surface **34** and the inside surface of the said O-ring enables atmospheric communication through said O-ring, said reduced sleeve **26**, and the said fuel chamber thereby providing for essential venting.

It will be further observed that wick-holder **8** being slidably and frictionally related to the said O-ring **38**, may be raised or lowered to either sealingly engage top piece-collar **24** and O-ring or to provide an annular pas-

sage therebetween to permit continual venting. That is, substantially positive shut-off of fuel flow from fuel chamber 18 to without the candle is accomplished by pressing the said wick-holder downwardly in said vertical bore to a position of contiguity with said O-ring, such position being desirable during periods of candle storage or non-use.

With reference to FIGURES 1 and 4, knurled region 46 peripherally located adjacent the upper end 22 of said top piece is provided to both materially enhance rapid heat dissipation from said wick-holder and to facilitate grasping of the said wick-holder for removal thereof from said vertical bore for purposes of refueling through said passage 16 and for adjustment or replacement of said wick 30.

Base portion 6 shown received within the well of a candelabra or other supporting base 48 is preferably of hollow construction thus encouraging snugness between its convergingly tapered contour and the correspondingly complementary base configuration.

Although the construction of the aforedescribed artificial candle is preferably one piece or integral with respect to the casing members, it will be understood that severable member construction is within the contemplation of the invention. Similarly, plastic construction, e.g., polystyrenes, polycarbonates, etc., while preferred do not preclude choice and utilization of other suitable materials. It will be further understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

What is claimed is:

1. An artificial candle comprised of a casing having head, body and base portions, a bore within said head portion, a wick holder, a fuel chamber within said body portion, and a wick extending through said wick holder into said fuel chamber, said wick holder including a vertically fluted top piece having upper and lower ends, a vertically fluted tubular sleeve depending integrally and centrally of said lower end, said tubular sleeve being smaller of diameter than said top piece so as to form an annular collar at the junction of said lower end and said tubular sleeve, an O-ring frictionally secured annularly of said tubular sleeve and contiguously with said annular collar, said bore having an upper passage and a substantially smaller lower passage, a shoulder disposed annularly at the juncture of said passages, said passages being disposed in vertical coaxial relation and in communication with said fuel chamber, said tubular sleeve being slidably received within said lower passage, said O-ring being slidably and sealingly secured within said upper passage and adapted for seating engagement with said shoulder.

2. An artificial candle comprised of a casing having head, body, and base portions, a bore within said head portion, a wick holder, a fuel chamber within said body portion, and a wick extending through said wick holder into said fuel chamber, said wick holder including a top piece having upper and lower ends, a vertically fluted sleeve depending integrally and centrally of said lower end, said sleeve being smaller of diameter than said top piece so as to form an annular collar at the junction of said lower end and said sleeve, an O-ring frictionally secured annularly of said sleeve and contiguously with said annular collar, said bore having an upper passage and a substantially smaller lower passage, a shoulder disposed annularly at the juncture of said passages, said passages being disposed in vertical coaxial relation and in communication with said fuel chamber, said sleeve being slidably received within said lower passage, said O-ring being slidably and sealingly secured within said upper passage, and adapted for seating engagement with said shoulder.

3. An artificial candle comprised of a casing having head, body, and base portions, a bore within said head portion, a wick holder, a fuel chamber within said body portion, and a wick extending through said wick holder into said fuel chamber, said wick holder including a top piece having upper and lower ends, a vertically fluted sleeve depending integrally and centrally of said lower end, said sleeve extending into said fuel chamber, said sleeve being smaller of diameter than said top piece so as to form an annular collar at the junction of said lower end and said sleeve, an O-ring frictionally secured annularly of said sleeve and contiguously with said annular collar, said bore having an upper passage and a substantially smaller lower passage, a shoulder disposed annularly at the juncture of said passages, said passages being disposed in vertical coaxial relation and in communication with said fuel chamber, said sleeve being slidably received within said lower passage, said O-ring being slidably and sealingly secured within said upper passage, and adapted for seating engagement with said shoulder.

4. An artificial candle comprised of a casing having head, body, and base portions, a bore within said head portion, a wick holder, a fuel chamber within said body portion, and a wick extending through said wick holder into said fuel chamber, said wick holder including a top piece having upper and lower ends, said top piece being knurled adjacent its upper end and vertically fluted adjacent its lower end, a vertically fluted sleeve depending integrally and centrally of said lower end, said sleeve extending into said fuel chamber, said sleeve being smaller of diameter than said top piece so as to form an annular collar at the junction of said lower end and said sleeve, an O-ring frictionally secured annularly of said sleeve and contiguously with said annular collar, said bore having an upper passage and a substantially smaller lower passage, a shoulder disposed annularly at the juncture of said passages, said passages being disposed in vertical coaxial relation and in communication with said fuel chamber, said sleeve being slidably received within said lower passage, said O-ring being slidably and sealingly secured within said upper passage, and adapted for seating engagement with said shoulder.

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