



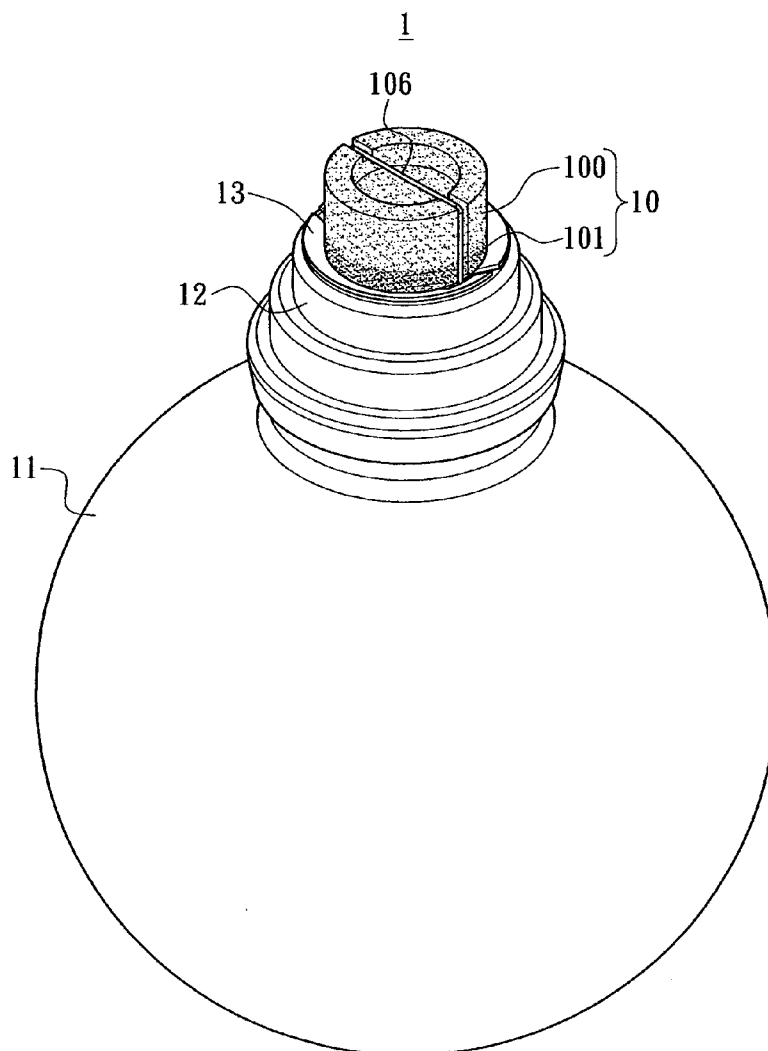
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(19) **United States**(12) **Patent Application Publication****Chen**(10) **Pub. No.: US 2007/0134607 A1**(43) **Pub. Date: Jun. 14, 2007**(54) **STRUCTURE FOR FORMING A BURNING WICK AND BURNING DEVICE WITH A BURNING WICK**(52) **U.S. Cl. 431/299**(76) Inventor: **Kuo-Tung Chen**, Yingge Township (TW)

Correspondence Address:

HDSL**4331 STEVENS BATTLE LANE
FAIRFAX, VA 22033 (US)**(21) Appl. No.: **11/297,451**(22) Filed: **Dec. 9, 2005****Publication Classification**(51) **Int. Cl.**
F23D 3/02 (2006.01)(57) **ABSTRACT**

A structure for forming a burning wick and a burning device with such burning wick. The burning device includes a hollow bottle body, a bottle mouth provided on the bottle body for accommodating the burning liquid, a bottle mouth cap provided on the bottle mouth of the bottle body, a heat-resistant ring provided on the top of the bottle mouth cap, a burning wick supported on the top of the bottle mouth cap by the heat-resistant ring and exposed outside, and a wick cotton thread connected to the underside of the burning wick and hung within the bottle body for absorbing the burning liquid in the bottle body. The burning wick is a ceramic body formed with an upper half portion and a lower half portion, and the structural density of the lower half portion of the burning wick is larger than that of the upper half portion.



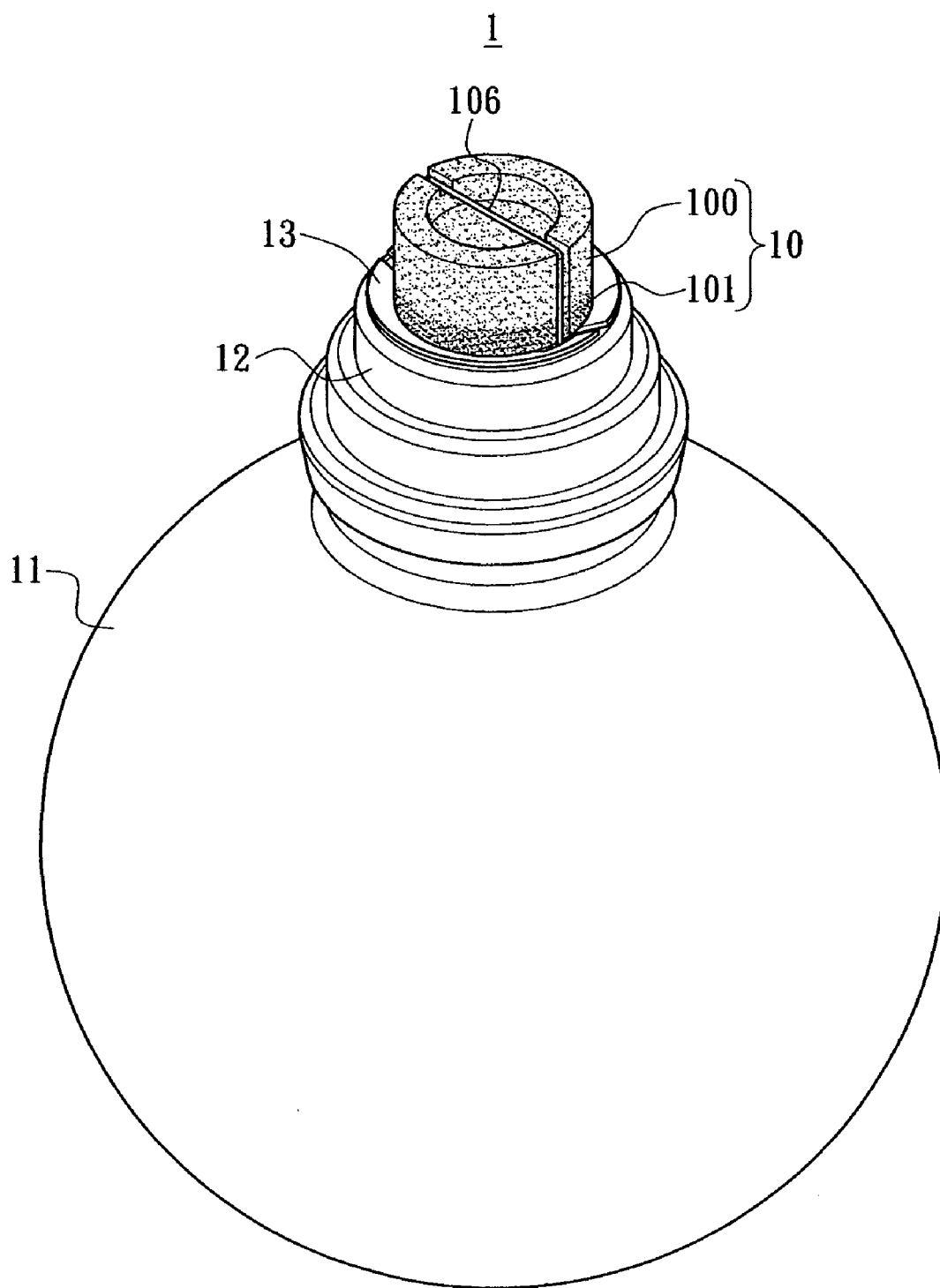


FIG. 1

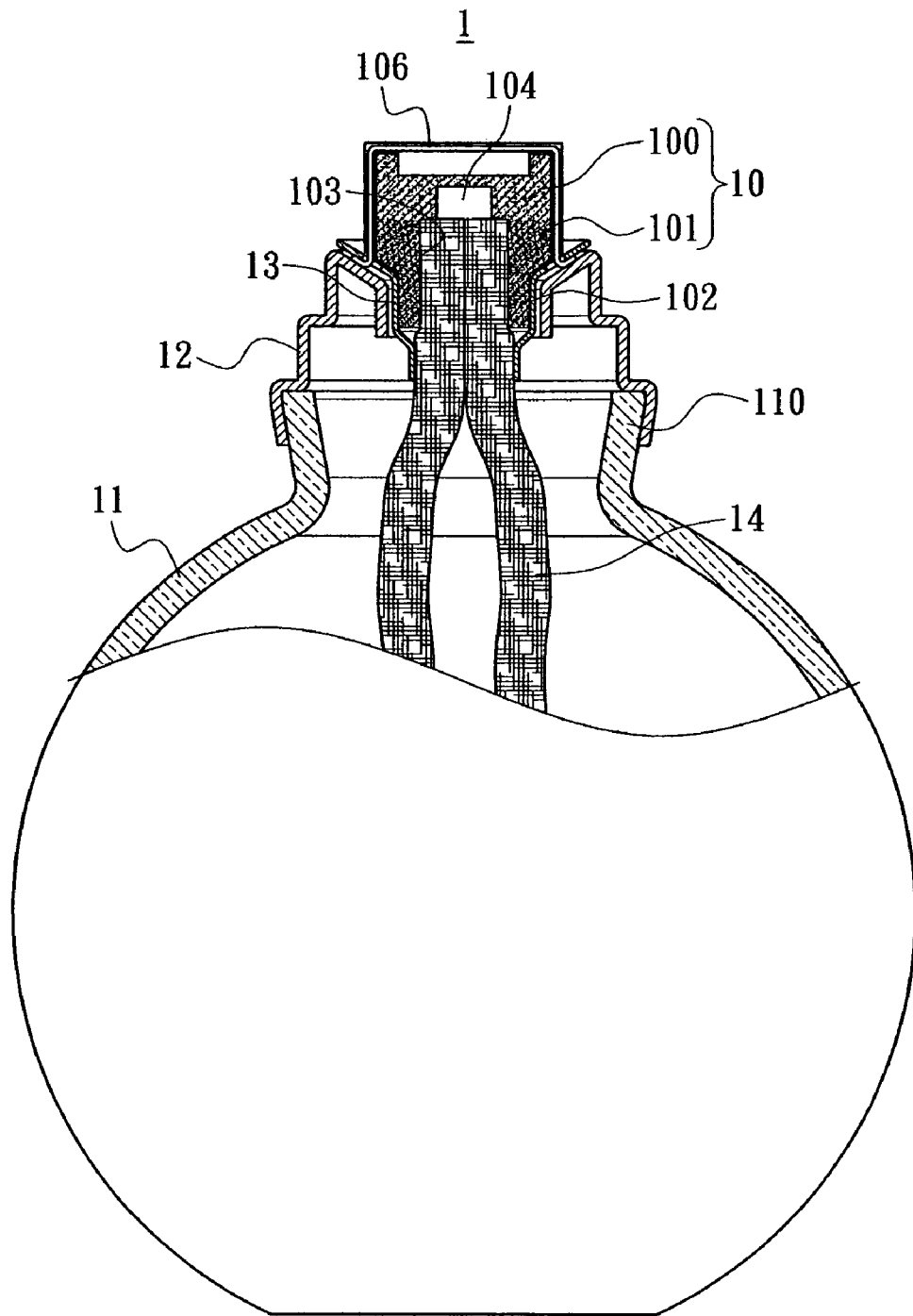


FIG. 2

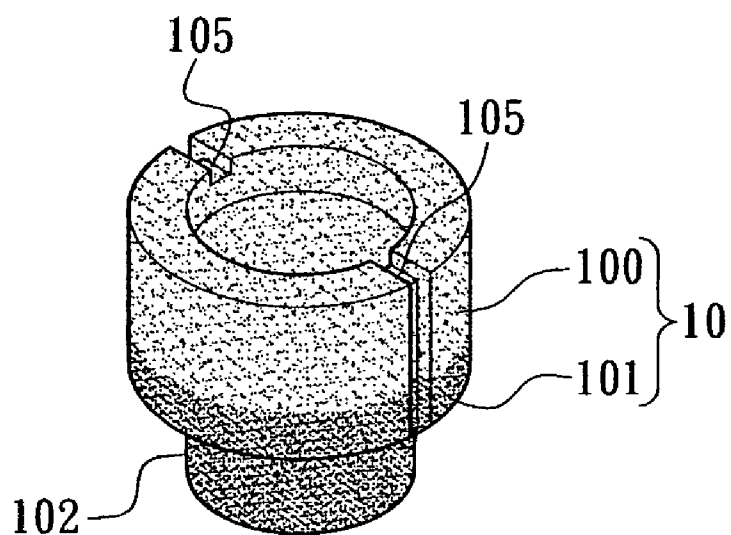


FIG. 3

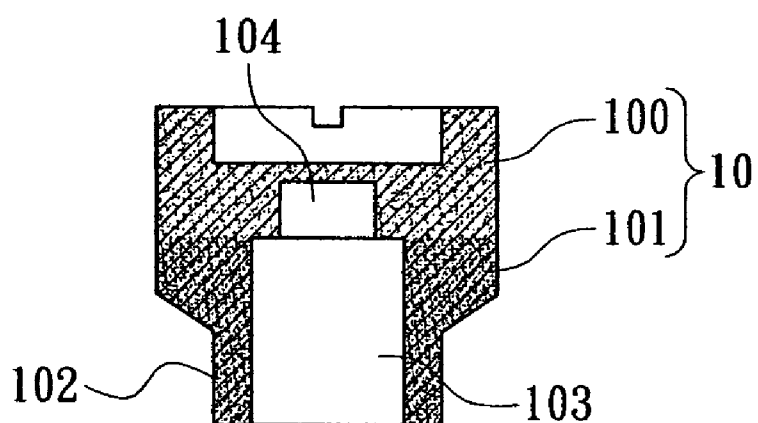


FIG. 4

STRUCTURE FOR FORMING A BURNING WICK AND BURNING DEVICE WITH A BURNING WICK

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a structure for forming a burning wick and a burning device with such burning wick. In particular, the present invention is directed to an improved structure for forming a burning wick and a burning device with such burning wick via the differences in density of ceramic and porous structures.

[0003] 2. Description of Prior Art

[0004] Ceramics are water-absorbent by its physical nature, and thus also inherently have porosity and water-absorbency. For example, the standards of purchasing ceramic tiles and bricks must specify the range of the percentage of absorbing water. It is apparent that the water-absorbency of the ceramics is well known.

[0005] Existing catalyst burning wicks used in burning devices for essential oils are formed by a ceramic structure with the same density. However, such structure is liable to accumulate carbons, cause insufficient burning and even affect the life of the burning wick.

[0006] In view of the above, the inventor contemplates the foregoing drawbacks, employs related principles and thus provides a feasible design to efficiently improve the above drawbacks.

SUMMARY OF THE INVENTION

[0007] The object of the present invention is to provide a structure for forming a burning wick and a burning device with such burning wick, wherein the density of the lower half portion of the wick in the burning device is designed to be larger (i.e. denser) while the density of the upper half portion is smaller (i.e. looser). With such arrangement, the property of absorbing burning liquids or catalyzing the burning can be greatly improved.

[0008] In order to achieve the above objects, the present invention provides a structure for forming a burning wick, which is a ceramic body formed with an upper half portion and a lower half portion. The lower half portion is provided with an inserting hole on the bottom surface thereof for inserting an end of a wick cotton thread. Further, the structural density of the lower half portion is larger than that of the upper half portion.

[0009] In order to achieve the above objects, the present invention provides a burning device having a bottle body, wherein the interior of the bottle body is hollow. A bottle mouth is provided at the upside of the bottle body with a burning liquid therein. A bottle mouth cap is provided on the bottle mouth of the bottle body. A heat-resistant ring is provided on the top portion of the bottle mouth cap. The heat-resistant ring is used to receive a burning wick in the top portion of the bottom mouth cap and expose the burning wick outside. A wick cotton thread is connected to the underside of the burning wick, such that the wick cotton thread is hung in the interior of the bottle body for absorbing the burning liquid within the bottle body. The burning wick is a ceramic body formed with an upper half portion and a

lower half portion. The structural density of the lower half portion of the burning wick is larger than that of the upper half portion.

BRIEF DESCRIPTION OF DRAWING

[0010] FIG. 1 is a perspective view showing the external appearance of the burning device of the present invention;

[0011] FIG. 2 is a partial cross-sectional view of the burning device of the present invention;

[0012] FIG. 3 is a perspective view showing the external appearance of the burning wick of the present invention; and

[0013] FIG. 4 is a cross-sectional view of the burning wick of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0014] In order to make the Examiner further understand the characteristics and technical contents of the present invention, the present invention will be explained with reference to the accompanying drawings. However, it should be noted that the drawings are used to illustrate but not to limit the scope of the present invention.

[0015] With reference to FIGS. 1 and 2, FIG. 1 is a perspective view showing the external appearance of the burning device of the present invention, and FIG. 2 is a partial cross-sectional view of the burning device of the present invention. The present invention provides a structure for forming a burning wick and a burning device with such burning wick. The burning wick 10 is provided on a burning device 1 (such as an essential oil lamp). The burning device 1 substantially includes a hollow bottle body 11, a bottle cap 12 provided on a bottle mouth 110 of the bottle body 11, a heat-resistant ring 13 supported on the top of the bottle mouth cap 12, and the burning wick 10. The burning wick 10 is supported on the heat-resistant ring 13. The heat-resistant ring 13 is used to support the burning wick 10 on the top of the bottle mouth cap 12 and expose the burning wick outside. The lower portion of the burning wick 10 is inserted into both ends of a wick cotton thread 14, such that the wick cotton thread 14 is hung in the interior of the bottle body 11. With this arrangement, the burning liquid (such as essential oil) within the bottle body can be absorbed and introduced to the burning wick 10 by the wick cotton thread 14.

[0016] With references to FIGS. 3 and 4, the burning wick 10 of the present invention is a ceramic body formed with an upper half portion 100 and a lower half portion 101. The lower half portion 101 of the burning wick 10 is formed into a narrowed neck portion 102 at its lower portion, such that the burning wick 10 can be supported on the heat-resistant ring 13. The burning wick 10 is provided with an inserting hole 103 at the bottom surface of the lower half portion 101. The inserting hole 103 is a blind hole for inserting the end of the wick cotton thread 14. The top of the inserting hole 103 is further provided with an evaporating region 104. Also, the structural density of the lower half portion 101 of the burning wick 10 is larger than that of the upper half portion 100.

[0017] With the above arrangement, the burning wick 10 can produce the following effects during burning:

[0018] (1) Stable Amount for Supplying the Oil

[0019] Since the lower half portion 101 of the burning wick 10 is formed of porous structure with greater density, the speed of absorbing in the lower half portion 101 of the burning wick 10 becomes slower even the wick cotton thread 14 absorbs large amount of burning liquid. The burning liquid absorbed in the lower half portion 101 is transported to the upper half portion 100 through the interior of the burning wick 10, the above transported amount of the burning liquid is exactly identical to the amount necessary for the upper half portion 100 of the burning wick 10 burning with the catalyst. Thus, the burning wick 10 will not supply too much burning liquid during the burning to cause the burning wick 10 submerge and thus snuff out.

[0020] (2) Reduce the Possibility of Accumulating Carbons in the Porous Structure:

[0021] With proper supply for the burning oil, insufficient burning of the burning liquid and the accumulation of carbons in the porous structure can be prevented. As a result, the life of the burning wick 10 can be prolonged and the working temperature can be main steady.

[0022] (3) Produce Evaporation

[0023] After the burning liquid has been absorbed to the lower half portion 101 of the burning wick 10 through the wick cotton thread 14, at this time, the lower half portion 101 of the burning wick 10 and the wick cotton thread 14 are saturated with the burning liquid. Thus, the burning wick 10 is in a state of steady burning. The temperature in the catalyst reaction region is about 380 to 420° C. The temperature transmitted to the lower half portion 101 of the burning wick 10 and the interior of the inserting hole 103 is about 180° C. The temperature at the boiling point of the Isopropyl Alcohol (IPA) contained in the burning liquid (e.g. essential oil) is about 82° C., which can exactly supply for the burning liquid absorbed in the lower half portion 101 of the burning wick 10, the interior of the inserting hole 103 and the end of the wick cotton thread 14 for evaporating in the evaporating region 104. Therefore, after partial burning liquid has been evaporated, the evaporated liquid will physically produce gasified molecules. Those molecules will pass through the upper half portion 100 of the burning wick 10 to reach the catalyst region, and thus efficiently facilitate the burning of the burning wick 10. As a result, the insufficient burning in prior art can be completely improved.

[0024] (4) Completely Suppress the Discharging of the IPA

[0025] According to the above, since the burning wick 10 is subjected to a steady burning, the temperature transmitted to the top of the burning wick 10 by natural heat transfer is about 220 to 260° C. At this time, if the gasified molecules pass through the top of the burning wick 10, they can be catalyzed via the temperature of the top of the burning wick. As a result, the possibility of leaking the IPA contained in the burning liquid can be prevented, and thus it is impossible for the IPA to contact with the humane body. Further, after the IPA has been catalyzed, the essential oil contained in the burning liquid can also be gasified and catalyzed. The purity of the perfume after being catalyzed can be higher and thus obtain a purer perfume.

[0026] In addition, as shown in FIGS. 1 to 3, the burning wick 10 is provided with a slot 105. A locking piece 106 can be positioned in the slot 105 and hooked on the heat-resistant ring 13, such that the burning wick 10 will not easily fall off.

[0027] According to the above, the present invention can solve the drawbacks of prior art and achieve the expected purposes. Further, it indeed involves novelty and inventive steps and thus conforms to the requirements for a patent.

[0028] Although the present invention has been described with reference to the foregoing preferred embodiment, it will be understood that the invention is not limited to the details thereof. Various equivalent variations and modifications can still be made in view of the teachings in the claims and specification of the present invention. Thus, all such variations and modifications are also embraced within the scope of the invention as defined in the appended claims.

What is claimed is:

1. A structure for forming a burning wick, comprising a ceramic body formed with an upper half portion and a lower half portion, and an inserting hole provided on the bottom surface of the lower half portion for inserting an end of a wick cotton thread, wherein a structural density of the lower half portion of the burning wick is larger than that of the upper half portion.

2. The structure for forming a burning wick according to claim 1, wherein the lower portion of the lower half portion is formed into a narrowed neck portion.

3. The structure for forming a burning wick according to claim 1, wherein the inserting hole is a blind hole.

4. The structure for forming a burning wick according to claim 1, wherein the top of the inserting hole is provided with an evaporating region.

5. A burning device, comprising:

a hollow bottle body used to accommodate a burning liquid and provided with a bottle mouth at upside;

a bottle mouth cap provided on the bottle mouth of the bottle body;

a heat-resistant ring provided on the top of the bottle mouth cap;

a burning wick supported on the top of the bottle mouth cap by the heat-resistant ring and exposed outside; and

a wick cotton thread connected to the underside of the burning wick and hung within the bottle body for absorbing the burning liquid in the bottle body,

wherein the burning wick is a ceramic body formed with an upper half portion and a lower half portion, and a structural density of the lower half portion of the burning wick is larger than that of the upper half portion.

6. The burning device according to claim 5, wherein a slot is provided on the burning wick for inserting a locking piece therein and the locking piece is adapted to be hooked on the heat-resistant ring.

7. The burning device according to claim 5, wherein the lower portion of the lower half portion of the burning wick is formed into a narrowed neck portion.

8. The burning device according to claim 5, wherein the bottom surface of the lower half portion of the burning wick is provided with an inserting hole for inserting the end of the wick cotton thread.

9. The burning device according to claim 8, wherein the inserting hole is a blind hole.

10. The burning device according to claim 8, wherein the top of the inserting hole is provided with an evaporating region.