

Nov. 8, 1966

GOICHI MATSUI

3,283,546

CANDLE IMPREGNATED WITH FLAME-COLOURING AGENTS

Filed Sept. 21, 1964

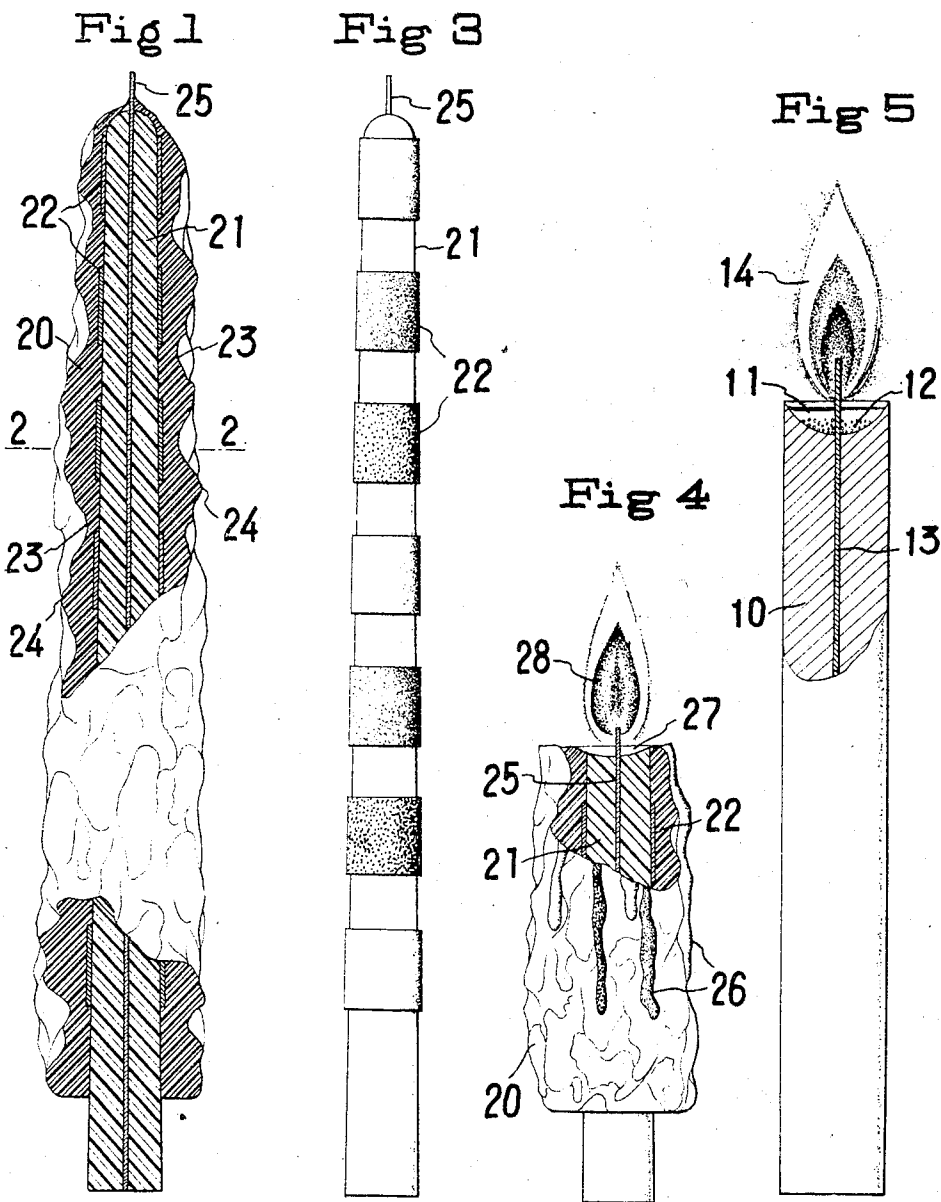
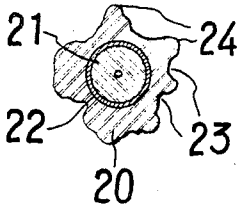


Fig 2



INVENTOR

Goichi Matsui

BY *Olson, Trexler, Walter & Bushnell*

ATTORNEY

1

3,283,546

CANDLE IMPREGNATED WITH FLAME-COLOURING AGENTS

Goichi Matsui, 1089-1 Nagasawa, Reiho Village,
Suzuka County, Mie Prefecture, Japan
Filed Sept. 21, 1964, Ser. No. 397,897
5 Claims. (Cl. 67-22.5)

This invention relates to candles, and more especially to ornamental candles including flame-colouring agents such as strontium, copper, barium, lithium, sodium, potassium and their compounds like cupric nitrate, barium chlorate, sodium chloride, nickel chloride and strontium carbonate.

Conventional candles impregnated with flame-colouring agents have not broadened the diameter of the candle body, the maximum being 10 mm. under the reasons described below.

(a) As the diameter of the candle body gets broadened and, accordingly so does the diameter of the wick, drawing-up of molten wax is done without a hitch, but in consequence, this leads to an enlargement of flame and a remarkable lowering of flame-colouring effect of flame-colouring agents affected by the brightness of yellow-colour which is the flame-colour of carbon present in the paraffin that constitutes the fundamental candle material.

(b) As the diameter of the candle body gets broadened leaving the wick diameter as it is, the amount of molten wax increases as compared with the drawing-off amount of wax by the wick for a given time so that as shown in FIG. 5 there creates a pool 11 of molten wax on the top of the candle body 10, and with the difference of gravity, the flame-colouring agents 12 sink to stay at the bottom of the pool 11 and the wick 13 draws up only the upper-laid molten wax so that the flame 14 doesn't only accompany almost any colouring effect of the flame-colouring agents 12 but also the said flame-colouring agents 12 cling to the wick 13 to make the flame 14 unstable.

Under the reasons given above, the conventional candle impregnated with flame-colouring agents is generally narrow and looks meager and therefore to promote the colouring effect by merely adding plenty of flame-colouring agents is far to be materialized.

This invention has been devised to overcome the aforesaid disadvantages. The primary object is to provide a candle enabling it to remove automatically excess wax, incombustible and difficultly combustible materials by means of guttering while burning.

Another object of this invention is to provide a candle making the flame stabilized by means of the said guttering and increasing the flame-colouring effect.

One of the other objects of this invention is to provide a big-sized and good looking candle.

One of the other objects is to provide a candle that may give a highly artistic sense likely to add brilliancy to the candle body while burning by incorporating brilliant colour with the said guttering.

With these and other objects in view, the invention consists of certain novel features of construction as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

FIG. 1 is a front view, partly in vertical section, of a candle incorporated with this invention.

FIG. 2 is a vertical section of line 2-2 in FIG. 1.

FIG. 3 is a front view that has been removed the portion of outer wax.

FIG. 4 is a front view, partly in vertical section, of a lighted candle.

FIG. 5 is a front view, partly in vertical section, of a conventional candle impregnated with flame-colouring

2

agents when the candle body has been enlarged as compared with the wick as described above.

20 is the portion of outer wax (preferably white colour); it consists of about 90% paraffin wax, about 10% stearine and other substances and has a good number of concaves 23 and convexes 24 in an irregular form. Inner this portion of outer wax is the portion of stem wax 21 (preferably white colour) with its lower end being exposed. This portion of stem wax 21 consists of about 77% paraffin wax, about 8% stearine wax and, as a flame-colouring agent 15% cupric nitrate and other substances.

Between the portion of outer wax 20 and the portion of stem wax 21 lies a colouring substance 22 (for instance, coloured wax, or colours and dyes themselves or the mixture of those and oil) (hereinafter simply called colouring substance). Explaining more particularly, the colouring substance 22, as shown in FIG. 3, lies on the surface of the portion of stem wax 21 at a proper spacing. The colours of the colouring substance 22 are different from that of the outer wax 20 and stem wax 21 with the colours being red, blue, green, yellow, purple and etc. in order. At the center of the stem wax 21 is a wick 25 which consists of an ordinary candle jointly with the stem wax 21. Therefore the candle that contains excess colouring 22 and outer wax 20 as shown in FIG. 1 may naturally result in having a slender wick as compared with the size of candle body which consists of the outer wax 20, stem wax 21 and colouring substance 22.

As the candle shown in FIG. 1 is lit for combustion, the combustion will be kept on in a state shown in FIG. 4. Under this state, as the wax content of the candle body is excess as compared with the slender wick 25, the molten wax that remains unabsorbed will remarkably increase and tend to form a pool 27 of molten wax at the upper part but will drop down in the form of guttering 26 from the good many concaves 23 on the outer wax 20 so that there creates merely a shallow and small pool 27 of molten wax. As the guttering 26 contains excess wax and incombustible substances, the flame 28 is stabilized and the flame-colouring reaction by the flame-colouring agent is effectively done. The colouring substance 22 in variety grow differently-coloured gutterings 26 periodically; as these gutterings drop down along the white surface of outer wax 20, it will certainly give a splendid colour.

The flame-colouring agent may be impregnated in the wick body and/or the candle body.

In order to make the outer wax uneven, groove-like concaves and convexes may also be arranged or, alternatively, round hole shaped concaves and convexes may also be arranged systematically.

Although one specific example of the inventive concept has been described the same should not be construed as limited thereby to the specific features mentioned therein but to include various other equivalent features as set forth in the claims appended hereto. It is understood that any suitable changes, modifications and variations may be made without departing from the spirit and scope of the invention.

What is claimed is:

1. A candle comprising: a wick defining a candle axis; a first wax body surrounding said wick; a second wax body surrounding said first wax body in substantially co-axial relationship therewith; and a plurality of bodies of colouring substance disposed between said first and second wax bodies and substantially surrounding said first wax body, said bodies of colouring substance being of different hues and said bodies of colouring substance being disposed in longitudinally spaced sequence along said candle axis, whereby to prevent merging of the different hues and whereby to produce a superposed colour effect on the candle upon its use.

3

2. A candle according to claim 1 wherein said first wax body includes a flame-colouring agent.

3. A candle according to claim 1 wherein the other surface of said second wax body is cratered with a plurality of cavities to promote rapid dripping of molten wax from the region of the ignited wick. 5

4. A candle according to claim 1 wherein said first and second wax bodies are generally white in colour.

4

5. A candle according to claim 1 wherein said bodies of colouring substance are annular in cross-section.

References Cited by the Examiner

UNITED STATES PATENTS

2,184,666	12/1939	Fredericks	67—22
2,845,785	8/1958	Weglin	67—22.5

CHARLES J. MYHRE, *Primary Examiner.*

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,283,546

November 8, 1966

Goichi Matsui

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 3, for "other" read -- outer --.

Signed and sealed this 12th day of September 1967.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

EDWARD J. BRENNER

Commissioner of Patents