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(54) **CANDLE AND ASSEMBLY**

(57) Candle (1) comprising a support body (2) that delimits a housing cavity (4) and that comprises magnetic localisation means (6, 6') functionally connected to the cavity, a solid, melted fuel portion (8, 8'), inserted in such a way in the housing cavity (4), a wick (10) with a lighting end (10') projecting from the fuel portion (8, 8'), and a wick supporting clip (12) configured to hold the lighting end (10') outside of the fuel portion (8, 8') at least partially liquefied.

The wick supporting clip (12) comprises or is made of a ferromagnetic or paramagnetic material, the magnetic localisation means (6, 6') being magnetically coupled to said clip to keep the lighting end (10') at a distance from at least one body surface (14, 16) delimiting or surrounding the housing cavity (4).

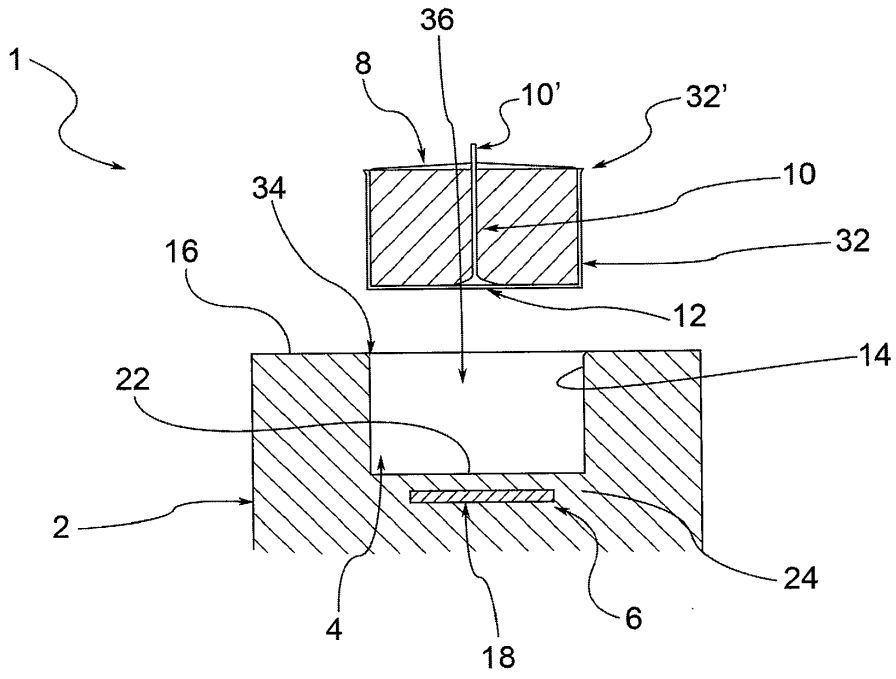

Fig.2a

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Description

[0001] This invention relates to a candle for lighting and, more precisely, a candle that is characterised by a particularly safe use.

[0002] The use of candles of lighting for lighting spaces, both interior and exterior, is well known and widespread, primarily due to the warmth - understood in a figurative sense - of the light they generate, and the ability to create a particularly intimate atmosphere.

[0003] The concerns linked to the safety of candles is also known: being bodies in combustion that can be transported, inclined or accidentally knocked over, they can be dangerous for persons and things.

[0004] This invention falls within the preceding context, proposing to provide a candle that is drastically safer in use compared to candles of the prior art, particularly by virtue of the impossibility of the wick to move inside the liquid fuel.

[0005] This purpose is achieved by means of a candle according to claim 1 and by means of an assembly according to claim 12. The claims dependent on these show variants of preferred embodiments.

[0006] The purpose of this invention will now be described in detail, with the help of the accompanying drawings, in which:

- Figure 1 is a perspective view, in separate parts, of the candle of this invention, according to a possible variant;
- Figures 2a and 2b respectively illustrate longitudinal sections of the candle of figure 1, according to distinct embodiments;
- Figure 3 shows a side view of an assembly covered by this invention, according to a further embodiment variant;
- Figure 4 shows a wick supporting clip according to a possible embodiment.

[0007] With reference to the aforesaid figures, the number 1 globally indicates a candle according to this invention.

[0008] The candle 1 includes a support body 2 that delimits a housing cavity 4.

[0009] Merely by way of example, the support body illustrated is generally cylindrical. Other embodiments may provide for a differently shaped support body, for example of parallelepiped, spherical or similar shape.

[0010] According to a possible variant, the support body 2 could be made of a material at least partially transparent to light.

[0011] Advantageously, the support body 2 may be at least partially constituted by a non-flammable polymer material, or by a metallic material optionally diamagnetic. Therefore, the support body according to this variant is the part of the candle that is not intended to be burned.

[0012] By way of non-limiting example, such a polymer could be or comprise a resin, a polyamide, polyethylene or mixtures thereof.

[0013] Optionally, the polymeric material could be partially loaded with a self-extinguishing agent, or with a flame retardant agent.

[0014] According to a variant, an outer surface 38 of the support body 2 could be polished.

[0015] According to a further variant, the outer surface 38 of the support body 2 could be opaque or matt.

[0016] The housing cavity 4 is preferably an open cavity (i.e., a cavity accessible from the outside), more precisely a cavity open upwards, i.e., in a vertical direction.

[0017] In particular, a mouth 34 of the support body 2 delimits an access opening 36 to said cavity.

[0018] According to a preferred variant, the housing cavity 4 extends in a cylindrical manner along an axis X of the cavity, for example in a circular cylindrical manner.

[0019] With regard to the dimensions of the cavity 4, it could have a depth equal to, or greater than, 10 millimetres, preferably equal to, or greater than, 20 millimetres, for example equal to, or less than, 20 centimetres.

[0020] Optionally, the diameter of the housing cavity 4 could be equal to, or less than, 15 centimetres, for example equal to, or less than, 10 centimetres, preferably equal to, or less than, about 70-80 millimetres.

[0021] According to a variant, the diameter of the housing cavity 4 could be equal to, or greater than, 38 millimetres, for example equal to, or greater than, 40 millimetres, preferably equal to, or greater than, 50 millimetres.

[0022] The support body 2 further comprises magnetic localisation means 6,6' functionally connected to said cavity, whose role will be clarified below.

[0023] In the variants shown schematically, the magnetic localisation means 6,6' are arranged in correspondence of an end wall 24 or a bottom surface 22 of the housing cavity 4.

[0024] According to a variant not shown, the magnetic localisation means 6,6' could be arranged in correspondence of a lateral tubular wall of the support body 2.

[0025] Making reference for example to Figure 2a, the magnetic localisation means 6 could comprise at least one magnetic element 18 having a cylindrical, disc or tablet shape. For example, this element 18 may be positioned in correspondence of the bottom of the housing cavity 4.

[0026] As for example shown schematically in the variant of Figure 2b, the magnetic localisation means 6' could comprise two or more magnetic elements 20,20', positioned or placed side by side in a plane P substantially parallel to the bottom surface 22 of the housing cavity 4 or parallel with respect to a substantially horizontal plane.

[0027] For example, the two or more magnetic elements 20,20' could be mutually in contact.

[0028] According to an advantageous variant, the magnetic localisation means 6 could be embedded in the support body.

[0029] According to a further advantageous variant,

the magnetic localisation means 6' could be placed or embedded in a body element 26, which creates the end wall 24 of the housing cavity 4.

[0030] Preferably, the body element 26 is releasably connected to the support body 2.

[0031] According to a further preferred variant, the body element 26 is shape-coupled to the body surfaces 14,22 that delimit part of the housing cavity 4, being in particular shaped in a manner corresponding to a side surface 14 and/or to the bottom surface 22 of this cavity.

[0032] According to an advantageous variant, the body element 26 could be made of a magnetically-permeable material, for example, a borosilicate glass with a low thermal expansion coefficient. This type of glass is for example known under the trade name Pyrex®.

[0033] The candle 1 further comprises at least a solid, meltable fuel portion 8,8' mainly or substantially completely inserted in the housing cavity 4.

[0034] In other words, the fuel portion is, or comprises, the flammable "ration" or "charge" necessary for the sustenance of the candle flame, which is gradually consumed during combustion up to its exhaustion.

[0035] According to a variant, the fuel portion 8 comprises or consists of a block of wax or paraffin.

[0036] According to a further variant, for example shown schematically in Figures 1 and 2a, the fuel portion 8 is externally delimited by a container body 32 made of fireproof material, for example a paper or plastic material.

[0037] According to this variant, the container body 32 thus acts as a wrapper for the fuel portion, insertable in the housing cavity 4 and, when the combustible material of the portion is exhausted, removable from the support body through the access opening 36.

[0038] Advantageously, the container body could comprise a free rim 32' flared outwardly to go in abutment against the mouth 34 of the support body 2. This mouth 34 is preferably counter-shaped with respect to the flare of the free rim.

[0039] The candle 1 includes at least one wick 10 having at least one lighting end 10' projecting from the fuel portion 8,8', and a wick supporting clip 12 that comprises or is made of a ferromagnetic or para-magnetic material.

[0040] In other words, the wick 10 passes at least partly through the fuel portion 8,8' so that the lighting end 10' - which is the inflamed end of the wick in combustion - protrudes externally of the combustible material.

[0041] According to a variant not shown, the candle 1 comprises a plurality of wicks associated to the same fuel portion.

[0042] For example, the diameter of the wick 10 may be equal to, or greater than, about 1.0 millimetre, optionally equal to, or greater than, about 1.5 millimetres. According to an embodiment, the maximum diameter of the wick 10 may be equal to, or less than, about 10 millimetres.

[0043] The wick supporting clip 12 is, instead, configured to hold the lighting end 10' outside the fuel portion 8,8', at least partially melted.

[0044] In fact, in the absence of the clip 12, after the complete melting of the fuel portion 8,8' the wick could not possibly rest on its own end 10' in the emerged position of the liquid fuel.

[0045] According to a variant, the wick supporting clip 12 comprises a support base 28 substantially in the shape of a circular plate. In this circumstance, the wick develops in a direction incident to that plate.

[0046] According to a further variant, the wick supporting clip 12 comprises a support base 28, for example of a circular shape, from which a hollow stem 30 extends inside which part of the wick 10 is inserted. This variant is shown schematically in Figure 4.

[0047] For variants that provide a support base 28 in the shape of a circular plate and a circular cylindrical housing cavity, the ratio of the diameters of the cavity with respect to the base could be equal to, or greater than, about 1.5, for example equal to, or greater than, 2, advantageously equal to, or less than, 50.

[0048] The magnetic localisation means 6,6' are also magnetically coupled to the wick supporting clip 12 to keep the lighting end 10' at a distance from at least one body surface 14,16 delimiting or surrounding the housing cavity 4.

[0049] It follows that, innovatively, in any condition of use, transport or accidental impact of this candle, the flame will be magnetically anchored at a safe distance from surfaces that may catch fire in contact with the wick in combustion.

[0050] According to a particularly advantageous variant, the magnetic field generated by the magnetic localisation means 6,6 is oriented so as to stop the wick supporting clip 12 in a substantially central area of the housing cavity 4.

[0051] According to a further preferred variant, the magnetic localisation means 6,6' are separated in a watertight manner from the liquefied fuel portion 8,8'.

[0052] This invention also covers an assembly 100 comprising:

- a body element 26, in which magnetic localisation means 6' are placed or embedded and which is insertable in a housing cavity 4 of a candle to create an end wall 24 of this cavity, the element 26 being connectable in a releasable manner to a support body 2 of the candle;
- at least one solid, meltable fuel portion 8,8' insertable mainly or substantially completely in the housing cavity 4;
- at least one wick 10 having at least one lighting end 10' protruding from the fuel portion 8, 8';
- a wick supporting clip 12 configured to hold the lighting end 10' outside the fuel portion 8,8', when at least partially melted;

where the wick supporting clip 12 is in a ferromagnetic or paramagnetic material, the magnetic localisation means 6,6' being magnetically coupled to said clip to

keep the lighting end 10' at a distance from at least one body surface 14,16 delimiting or surrounding the housing cavity 4.

[0053] With regard to the preferred or accessory characteristics of such assembly and its individual components, please refer to the preceding description.

[0054] Innovatively, the invention described is able to overcome the above-mentioned drawbacks complained of in relation to the known technique.

[0055] More precisely, the candle described above allows anchoring the wick, and therefore the flame, to the support body. It follows that, if the candle is inclined in any way, the flame will always, and in any case, be at a safe distance from surrounding surfaces, so as to avoid ruining the support body, or worse setting it on fire.

[0056] Moreover, advantageously, the candle covered by this invention allows using magnets of any type, which are protected during use and which can be reused indefinitely without loss of yield.

[0057] Advantageously, the candle of this invention allows keeping the flame in an approximately central position of the cavity, a circumstance not exclusively possible by virtue of the arrangement and the intensity of the magnetic field.

[0058] Advantageously, the candle of this invention is designed to confine the melted fuel in a reliable manner.

[0059] Advantageously, the candle of this invention is designed to avoid wasting materials, especially plastics, in an act of responsible eco-sustainability.

[0060] Advantageously, the magnetic means described can be removed from the support body, for example, to thoroughly wash the second without damaging the first or causing it to rust.

[0061] Moreover, the aforesaid means are, in any case, well protected at least from the melted fuel.

[0062] Advantageously, the candle of this invention candle can be used with fuel portions of any size, always remaining level with respect to the outer surfaces of the candle.

[0063] Advantageously, the assembly covered by this invention can be integrated into any existing candle, without the need for factory preparations.

[0064] To embodiments of the aforesaid candle and assembly, one skilled in the art, in order to meet specific needs, may make variants or substitutions of elements with others functionally equivalent.

[0065] Even these variants are contained within the scope of protection, as defined by the following claims.

[0066] Moreover, each of the variants described as belonging to a possible embodiment can be realised independently of the other variants described.

Claims

1. Candle (1) comprising:

- a support body (2) which defines a housing cavity (4), and which comprises magnetic localisation means (6, 6') functionally connected to said cavity;
- at least a solid, meltable fuel portion (8, 8') mainly or substantially completely inserted in the housing cavity (4);
- at least a wick (10) having at least one lighting end (10') protruding from the fuel portion (8, 8');
- a wick supporting clip (12) configured to hold the lighting end (10') outside the fuel portion (8, 8'), when at least partially melted;

wherein the wick supporting clip (12) is in a ferromagnetic or paramagnetic material, the magnetic localisation means (6, 6') being magnetically coupled to said clip to keep the lighting end (10') at a distance from at least one body surface (14, 16) delimiting or surrounding the housing cavity (4).

2. Candle according to claim 1, wherein the magnetic field of the magnetic localisation means (6, 6) is oriented so as to stop the wick supporting clip (12) in a substantially central area of the housing cavity (4).

3. Candle according to claim 1 or 2, wherein the magnetic localisation means (6) comprise at least one magnetic element (18) having a cylindrical, disc or cylindrical-padded shape positioned on the bottom of the housing cavity (4).

4. Candle according to any of the previous claims, wherein the magnetic localisation means (6') comprise two or more magnetic elements (20, 20'), positioned in a plane (P) substantially parallel to a bottom surface (22) of the housing cavity (4) or to a substantially horizontal plane.

5. Candle according to any of the previous claims, wherein the magnetic localisation means (6, 6') are positioned at an end wall (24) of the housing cavity (4), and are separated in an airtight manner from the melted fuel portion (8, 8').

6. Candle according to any of the previous claims, wherein the magnetic localisation means (6') are placed or incorporated in a body element (26), which forms an end wall (24) of the housing cavity (4) and which is connected in a releasable manner to the support body (2), said element being shape-coupled to the body surfaces (14, 22) delimiting part of the housing cavity (4).

7. Candle according to the previous claim, wherein the body element (26) is in a magnetically-permeable material, such as borosilicate glass with a low thermal expansion coefficient.

8. Candle according to any of the previous claims,

wherein the wick supporting clip (12) comprises a support base (28), for example of a circular shape, from which a hollow stem (30) extends inside which part of the wick (10) is inserted.

9. Candle according to the previous claim, wherein the housing cavity (4) extends in a circular cylindrical manner along a cavity axis (X), wherein the support base (28) is in the form of a circular plate and wherein the ratio of the diameters of the cavity to the base is equal to or greater than about 1.5, for example equal to or greater than 2.

10. Candle according to any of the previous claims, wherein the fuel portion (8) is delimited by a container body (32) in a paper or plastic material, optionally fireproof, said container body having a flared free rim (32') to abut with a counter-shaped mouth (34) of the support body (2).

11. Candle according to any of the previous claims, wherein the support body (2) is at least partially made of a non-inflammable polymer material, for example a resin, a polyamide, polyethylene, or mixtures thereof.

12. Assembly (100) comprising:

- a body element (26), in which magnetic localisation means (6') are placed or embedded and which is insertable in a housing cavity (4) of a candle to create an end wall (24) of said cavity, said element being connectable in a releasable manner to a support body (2) of the candle;
- at least a solid, meltable fuel portion (8, 8') insertable mainly or substantially completely in the housing cavity (4);
- at least a wick (10) having at least one lighting end (10') protruding from the fuel portion (8, 8');
- a wick supporting clip (12) configured to hold the lighting end (10') outside the fuel portion (8, 8'), when at least partially melted;

wherein the wick supporting clip (12) comprises or is in a ferromagnetic or paramagnetic material, the magnetic localisation means (6, 6') being magnetically coupled to said clip to keep the lighting end (10') at a distance from at least one body surface (14, 16) delimiting or surrounding the housing cavity (4).

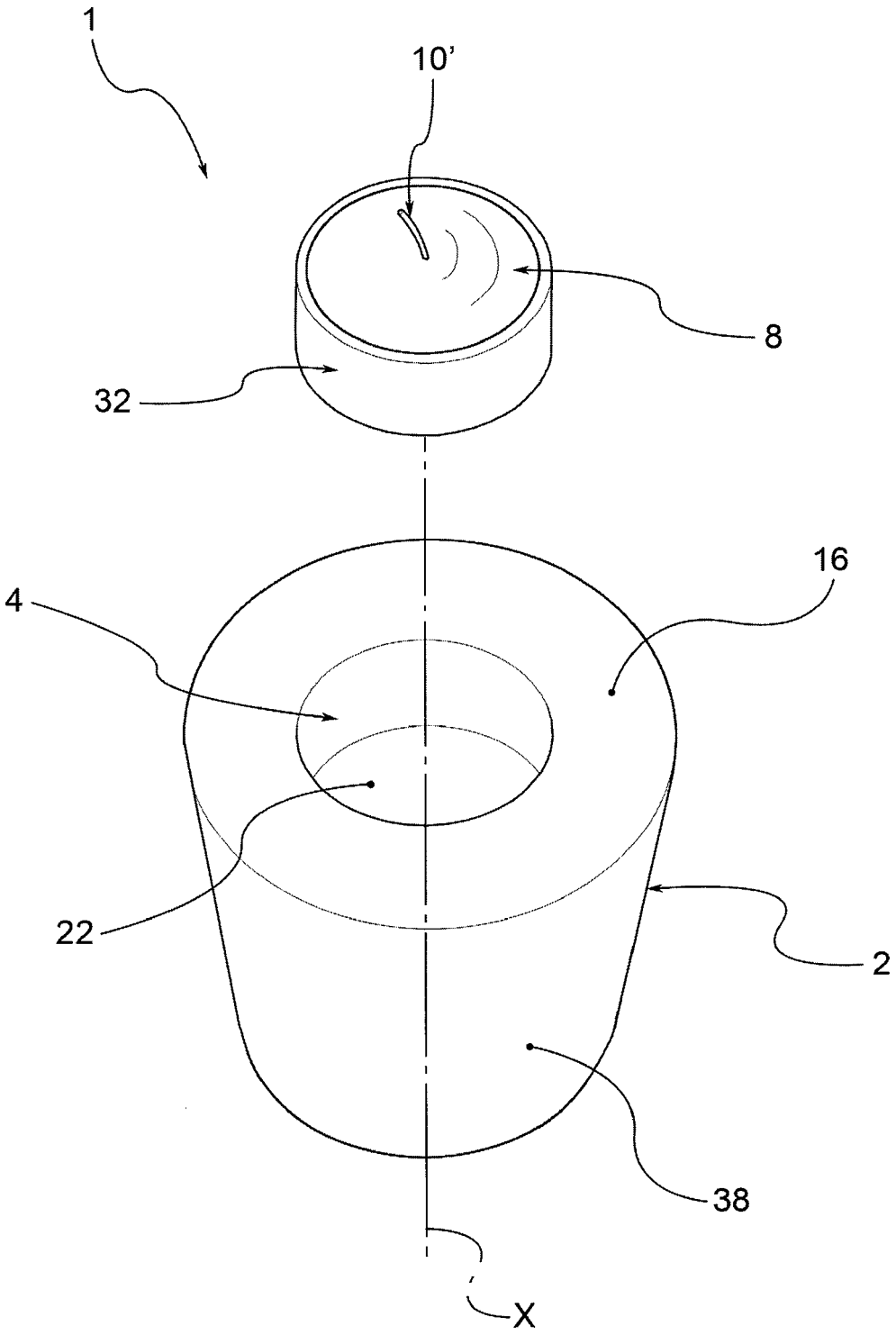


Fig.1

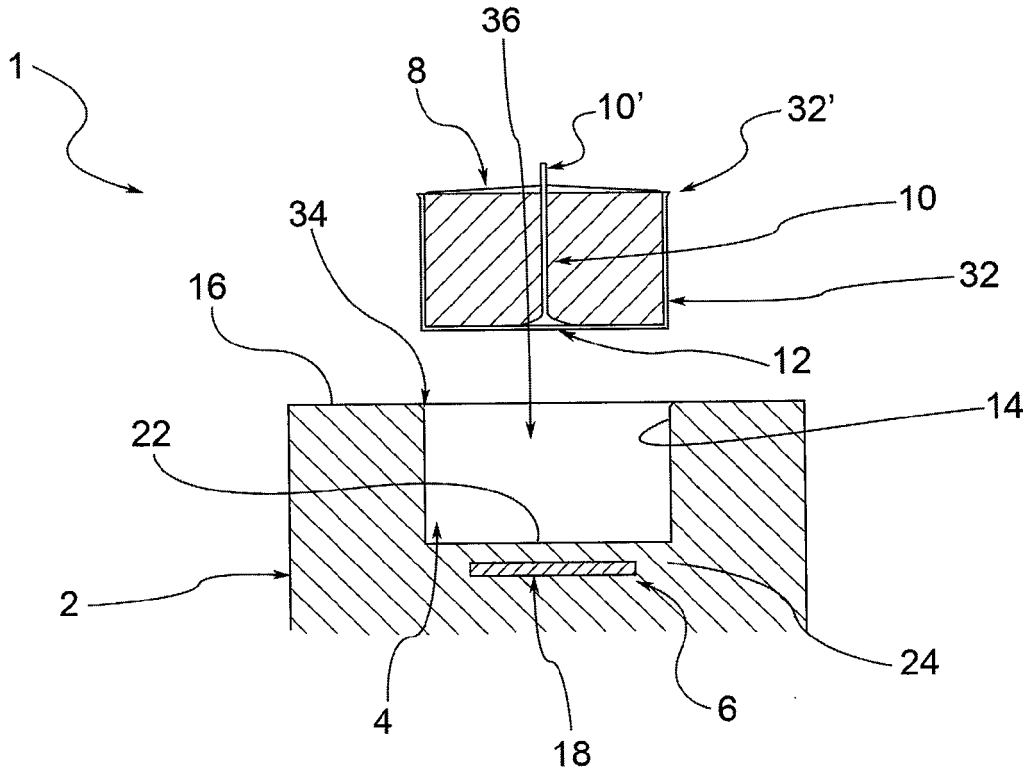
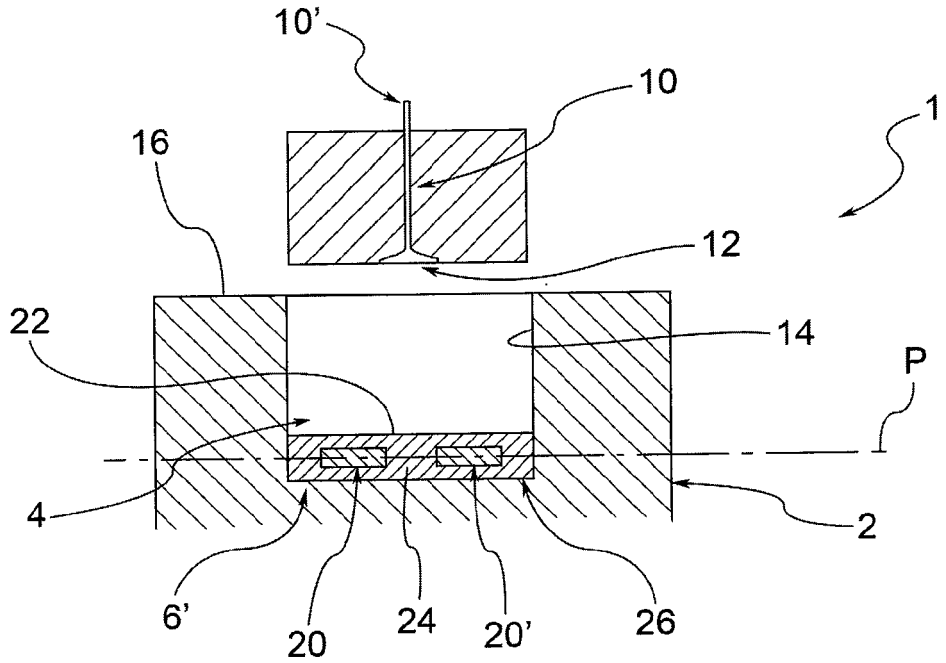

1
36
8
10'
32'
10
34
32
16
12
14
22
2
24
4
18
6

Fig.2a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6'
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24
20'
26

Fig.2b

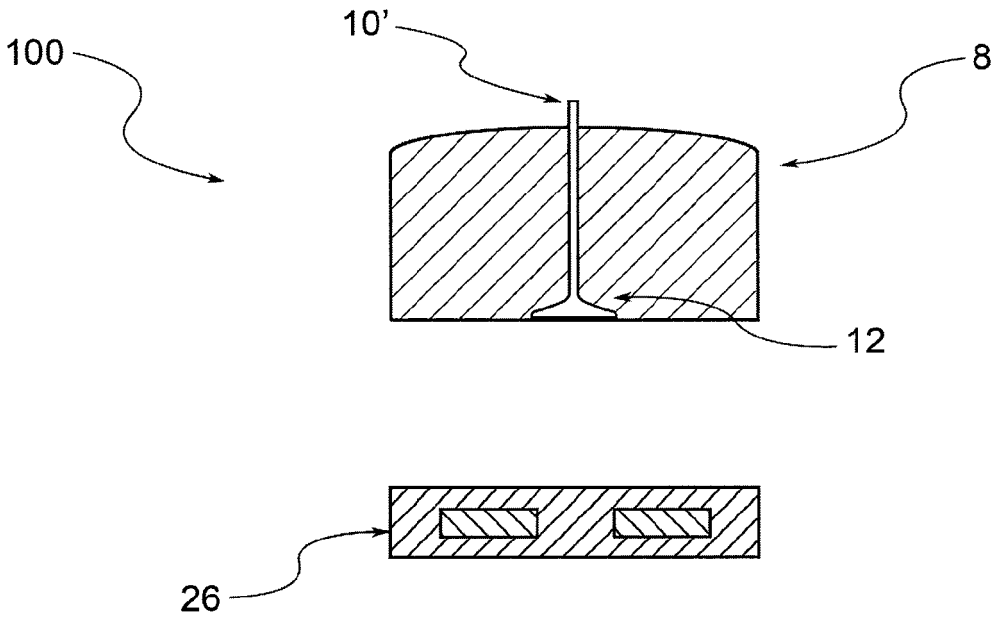

Fig.3

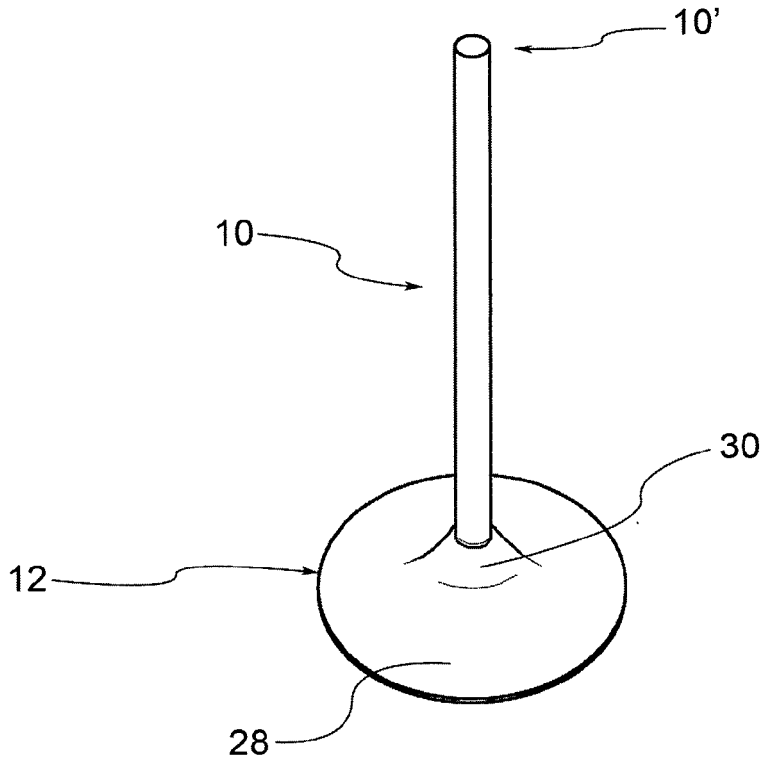

Fig.4

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EUROPEAN SEARCH REPORT

Application Number
EP 16 16 4051

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X	US 6 444 156 B1 (SCHWARZ RALPH G [US] ET AL) 3 September 2002 (2002-09-03) * figures 2a, 2b, 3 * * column 4, line 11 - column 6, line 35 *	1-12	INV. F21V35/00 C11C5/00 F21L19/00 F21V17/10
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	9 September 2016	Sacepe, Nicolas

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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