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GB 2177602 A EP 0308113 A2 US 4306679 A
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(54) Abstract Title
Aroma dispensing method and apparatus

(57) An aroma dispenser comprises a pair of substantially parallel plates 1,2 and an absorbent 5 containing a volatile substance located between the plates, the peripheral edge of the absorbent being exposed between the peripheral edges of the plates. In use, the dispenser may be placed in an air circulation path and/or heat applied to one of the plates. Preferably, a magnet 4 attaches the plates to each other, the magnet being in the form of a boss and the absorbent being a washer surrounding the boss. In order to attach the dispenser to a surface, a further magnet 3, an adhesive pad or a hook and loop gripping pad may be provided. The absorbent may consist of cotton or ceramic fibre. The plates may be metallic or plastic. In an alternative embodiment (Fig's 5,6), a dispenser comprises a plate (21,22) and a boss (23,24) for attaching the dispenser to a surface.

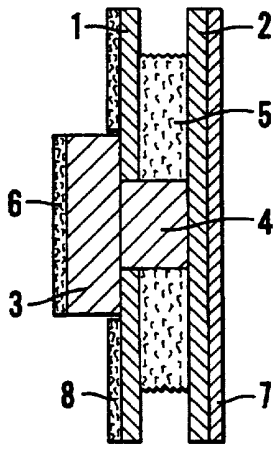

Fig.4

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

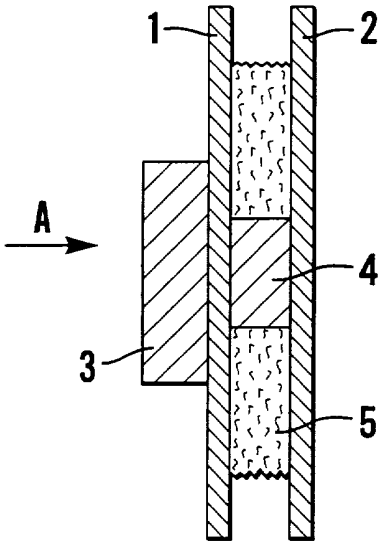

Fig.1

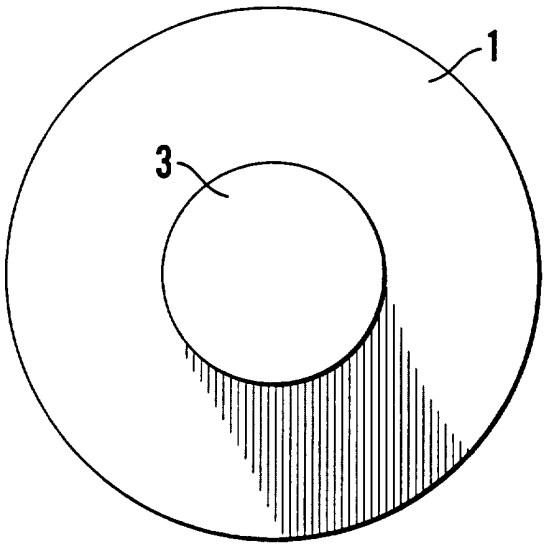

Fig.2

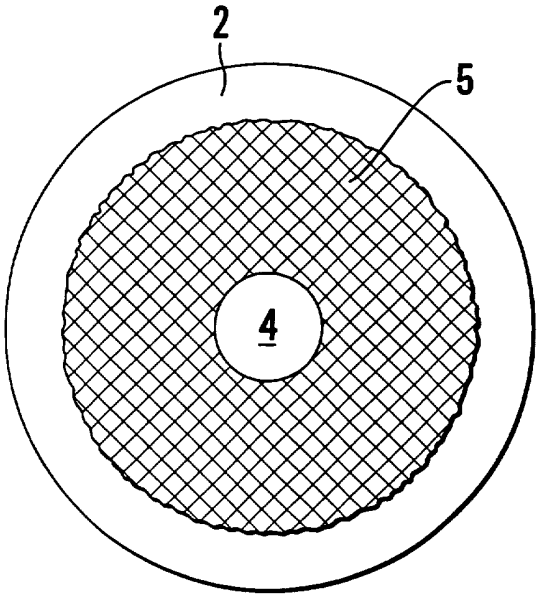

Fig.3

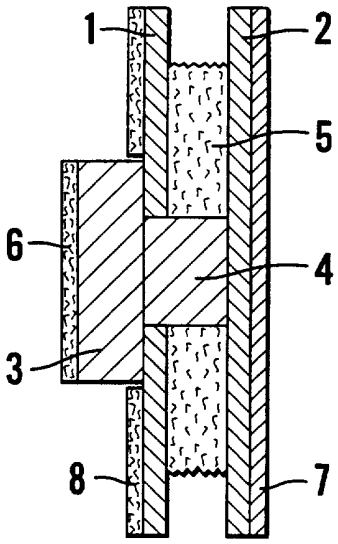

Fig.4

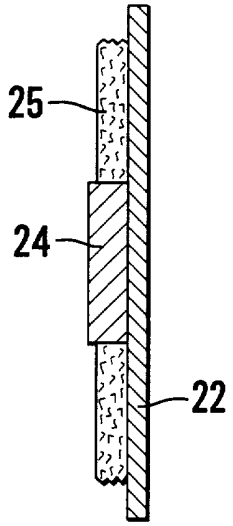

Fig.5(a)

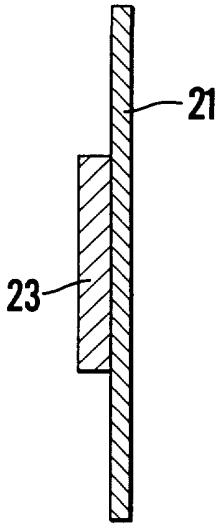

Fig.5(b)

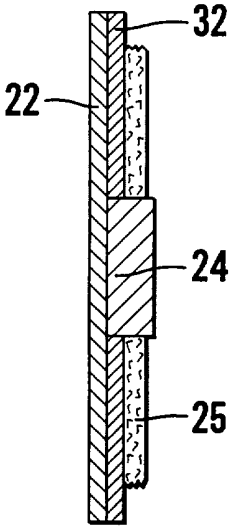

Fig.6(a)

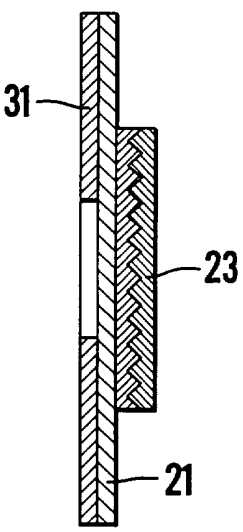

Fig.6(b)

AROMA DISPENSER

This invention is concerned with an aroma dispenser by which an aromatic or therapeutic or antiseptic vapour may be emitted in to a room or other space, and in particular that allows a pleasant aroma to be carried by air circulated by a heater.

A common complaint with convector heaters, whether electric, gas or solid fuel, is that the constant recirculation of room air over the heated portions of the convector heater result in a perception that the room is full of stale air and a general oppressiveness.

In the present invention this is overcome by providing means for dispensing a pleasant or a therapeutic aroma into a convection air current, or by application of heat.

In its broadest aspect the present invention provides a method of emitting an aromatic or therapeutic or antiseptic vapour into a living area, which comprises placing an absorbent layer containing a volatile aromatic substance between two substantially parallel plates so that the peripheral edge of the absorbent layer is exposed between the peripheral edges of the plates, and placing the plates in an air circulation path, or applying heat to one or both of the plates.

According to another aspect of the invention there is provided an aroma dispenser comprising a pair of substantially parallel plates, an absorbent pad for a volatile aromatic substance placed between the plates with the peripheral edge of the pad exposed between the peripheral edges of the plates, and means for attaching the plates to a surface.

By trapping the absorbent layer or pad between parallel plates, the emission of the vapour is constrained to take place through the peripheral edge of the absorbent, so controlling the emission. Typically in this situation the absorbent layer is closely adjacent or preferably in contact with at least one of the plates, so that emission takes place only at the peripheral edge exposed between the plates.

According to a further aspect of the invention there is provided an aroma dispenser

consisting of a support plate, an absorbent washer for a volatile aromatic substance located on a boss on the support plate, and means for securing the boss to a surface.

To avoid undesired loss of volatile substance by vaporisation or contact, the absorbent pad is dimensioned so that it does not in use protrude beyond the adjacent plate or plates. Preferably the peripheral edge of the pad is stepped back from the edge of the adjacent plate or plates.

Preferably the pair of plates are similarly dimensioned, and conveniently are matching discs. The plates are typically flat plates, but curved plates may be used to give a dome-shaped appearance. The plates may be metallic, especially magnetisable metals, or non-metallic. Since magnets are convenient attaching means, non-magnetisable plates are preferably permeable to magnetic forces.

The attaching means may be conventional bolts, screw or hooks, which may pass through both plates, or there may be separate attaching means securing the plates together and securing the dispenser to a surface. Most conveniently the attaching means is a magnet, allowing easy attachment and removal to metal heater components such as radiators. When the dispenser is placed on non-metallic surfaces, for example when placed on a surface that is not part of a heating system and relying on solar radiation or ambient room temperature to volatilise the aroma, then the attachment means may be a self-adhesive pad or hook and loop gripping material. The two plates may also be secured to each other by one or more magnets or self-adhesive pads, or less preferably by a self-adhesive layer on the absorbent pad.

In a preferred embodiment, one or more spacers maintain the plates at a fixed distance from each other, to avoid compression of the layer of absorbent. The spacers may also be used to connect the plates to each other, for example, by adhesive or magnetically. Suitably, the spacer is a central boss positioned between the plates, substantially at the mid-point. The layer of absorbent may then be in the form of an annular washer of non-combustible paper or fibres, in particular, ceramic paper or fibre washer, mounted on the boss. More generally, the absorbent material may be

a woven or non-woven mat of fibres. Non-combustible fibres such as glass fibres, rock wool or China wool may be used, but natural fibres such as cotton are especially useful.

The means for attaching the aroma dispenser to a surface, in an air path or for exposure to radiated heat, is conveniently a magnet secured to the outer surface of one of the plates. When the plates are a magnetisable metal, such as steel, the spacer between the plates may also be a magnet secured to the inner surface of one of the plates, and securing the plates together while allowing the plates to be easily separated to replace the absorbent or to add a volatile substance to the absorbent. The spacer magnet is preferably of a lower power than the attachment magnet, so that the pair of plates can be separated without detaching the whole device from its location. Alternatively, if desired, the relative strengths of the pair of the magnets can be reversed, so that the whole device can be detached before separating to replace the washer or add more volatile substance. In fact, if the magnets are of suitable strength the spacer magnet is sufficiently attracted to the attaching magnet to allow use of non-magnetisable plates which are permeable to magnetic forces. Alternatively, the inner plate may be apertured to allow the spacer magnet to contact the attachment magnet.

The source of the aroma may be an aromatic oil or a gel containing aromatic substances. The aroma may be provided by conventional room freshener liquids or by volatile oils such as aromatic essential oils, or preferably aromatherapy oils. Oils having a therapeutic or antiseptic function may be used.

The aroma dispenser may be attached in an air circulation path of any heater that creates a convection air current or provides a forced air current. When a magnet attachment means is used, then the dispenser can be conveniently attached to the metal fire basket of a solid fuel convector, a central heating radiator or a metal component of a solid fuel-effect gas or electric fire, such as a metal grid placed over the entrance or exit to a chamber containing an electric fan which boosts the air circulation. The aroma dispenser may be used with any type of heater or air circulation system, such as a fan, where an air flow will help to dispense the aroma.

As an addition or alternative to emitting the vapour by air flow, the dispenser may be arranged so that radiated heat strikes one of the plates, for example, heat radiated from a heat source such as a radiator or fire hood will strike the innermost plate of a pair of plates secured by, for example, a magnet to the heat source. Alternatively, the dispenser may be positioned on a surface, for example, using a self-adhesive pad when the surface is non-metallic, so that the outermost plate receives solar radiation.

The aroma dispenser may be sold as a kit comprising one or a pair of plates or discs, with appropriate attachment means, typically magnets, or self-adhesive pads, one or more absorbent washers and a container of volatile oil, optionally with a dropper pipette.

The invention is illustrated by way of example only in the accompanying drawings, in which:

Figure 1 is a side view of a first embodiment of an aroma dispenser in accordance with the invention;

Figure 2 is a plan view in the direction A shown in Figure 1,

Figure 3 is a similar view to Figure 2, but with the uppermost plate removed;

Figure 4 is a sectioned side view of a second embodiment of an aroma dispenser in accordance with the present invention.

Figure 5(a) is a sectional side view of a simplified version of the embodiment of Figure 1.

Figure 5(b) is a sectional side view of a locator plate for use with the device of Fig. 5(a).

Figure 6(a) and (b) show modified versions of the embodiments of Figures 5(a) and (b) respectively.

Referring to Figures 1 to 3, in one embodiment a device of the invention comprises a pair of disc plates 1 and 2, of approximately 50 mm diameter and 1 mm thickness typically made of steel or aluminium or aluminium alloy. To the outer surface of plates 1 is secured a magnet 3 of approximately 20-30 mm diameter and 5-8 mm

thickness. The magnet is glued to the plate 1 but could be secured by other means. Attached to the plate 2 is a button magnet 4 of approximately 16 mm diameter and 3 mm thickness, again typically by gluing. A circular pad or washer 5 of cotton or ceramic fibre has a central aperture of around 16 mm diameter, so that it can be located on the magnet 4 against the plate 2, allowing the plate 2 to be secured to the plate 1 by the magnet 4, with the washer 5 forming a layer of absorbent between the plates 1 and 2. The washer 5 also has a thickness of approximately 1-3 mm, but has a diameter of approximately 40-45 mm, that is less than the diameter of plates 1 and 2, so that the peripheral edge of the washer 5 is stepped back from the peripheral edges of the discs 1 and 2. During assembly, a volatile aromatic oil is added to the absorbent washer 5.

The inner magnet 4 need not, in fact, be a magnet and could, for example, be replaced by a steel spacer that will be attracted to the magnet 3. It has been found, however, from a practical point of view, that magnets of a suitable size are commercially available at a lower price than it would cost to obtain purpose cut steel spacers.

The assembly of disc 1 and 2 and the oil-containing absorbent layer 5 can be attached to a metal component of a heater using the magnet 3, in a position where the dispenser is in a convection air path and/or the inner disc is exposed to heat radiating from the heater. The difference in sizes of the magnets 3 and 4 means that the magnet 3 has a greater attractive power than the magnet 4. Accordingly, when the device is secured to a metal component by the magnet 3, grasping the disc 2 with the fingers allows disc 2 and the washer 5 to be detached from disc 1, without pulling the plate 1 away from its attachment point. When the discs 1 and 2 are separated, the washer 5 can be replaced, or re-charged with more volatile oil. Magnet 3 is typically an anisotropic ferrile disc.

Because the outer edge of the layer of absorbent washer 5 is spaced back from the periphery of the discs 1 and 2, the oil-containing absorbent is shielded from the risk of combustion in the air path of the heater, but volatile oil is still able to escape, to

inject a pleasant aroma into the air path. The aroma can also be used in aromatherapy.

While the aroma dispenser has been described above with particular reference to its use in the air circulation path of a heater, it will be appreciated that it can be secured in any situation where a pleasant aroma is required. It can be moved from place to place so that, for example, in the summer it is placed in a position where it is exposed to the sun, and solar radiation heats the outer disc 2. In non-combustible situations, the recessed absorbent layer keeps the oil out of contact with its surroundings, such as surfaces that might be damaged by oil contact, and also out of contact with the skin of a person handling the dispenser.

An alternative embodiment is shown in Figure 4. In this embodiment, plate 1 includes a central aperture to receive and retain the inner button magnet 4, or alternatively a steel boss, attached to plate 2 to retain both plates in alignment. This configuration also allows the magnet or steel boss 4 to locate directly against the magnet 3. A pad 6 of ceramic fibre or a protective plastics film is applied to the outer magnet 3 to control heat conduction through the magnet to the plates 1,2 and also to prevent scratching to the surface upon which the aroma dispenser is applied. Clearly, the thickness of the pad or film is selected so that the magnetic force is not substantially diminished. A ceramic washer 8, having a diameter of about 46 mm and having a central hole of around 30mm, to correspond to the diameter of the magnet 3, can be fitted onto plate 1 to protect from excessive heat that could lead to excessive evaporation of the aromatic oils.

The outer visible surface of the outer disc 2 may be provided with an anodised plate 7 to provide a decorative surface and a surface which withstands heat. Also the outer surface may be given a heat absorbent or heat reflective finish depending on the primary intended use, i.e. for attachment to a heater or exposure to sun. Additionally, decorative designs may be applied to the disc.

The inner plate 1 may be made of an alloy or aluminium (optionally with a non-stick

surface such as Teflon® or a material of lower thermal conductivity than steel, such as fibreglass, Bakelite, plastics materials or hardened ceramics, to attenuate heat conduction to the cotton or ceramic fibre pad 5 holding the aromatic oil.

During the summer when heating appliances are not in use, the aroma dispenser can be placed in a position at which the outer plate 2 (rather than, as in normal use, the inner plate 1) receives heat, in this case by exposure to sunlight, conducting heat to the ceramic fibre pad 5 to release the aroma.

The aromatic oil used will, of course, be chosen by the user of the dispenser based on their own preferences, The use of oils containing insect repellent compositions provides a useful alternative application for the present invention. Citronella is a well-known and suitable repellent.

In a typical configuration, by way of example only, the plate 1 is built up from a 50 mm aluminium disc of 0.5 mm thickness with a 30 mm aperture to receive magnet 3, adhered to a 50 mm aluminium disc of 0.5 mm thickness with a 16.5 mm aperture to receive magnet 4. Magnet 3 is adhered to the exposed surface of the disc with the 16.5 mm aperture. The plate 2 may be built up from a 50 mm steel disc of 1 mm thickness, having adhered on one side a 50 mm aluminium disc of 0.5 mm thickness having an aperture of 16.5 mm in which magnet 4 is adhered to the steel disc. The other side of the steel disc is adhered to a 50 mm aluminium disc with no aperture but with a decorative, for example, brass effect, finish.

In a further variation, one or more disc units 2, magnet 4 and washer 5, can be attached to the unit shown in Fig. 1 or 4 in "piggy-back" fashion. This allows users to carry out their own blending of aromas, by using different oils on separate washers; or to double the emission of a single oil. If a dispenser is provided specifically for piggy-back use, then the intermediate discs 2 preferably having an outer thin disc with a central aperture to assist centralising of the magnet 4 of the outer disc unit 2.

In fact the outer unit of the "piggy back" arrangement can be used as a simplified

version of the device of the invention, as shown in Figure 5(a). This consists of an outer plate 22 and spacer 24 (which preferably also acts as a means for attachment to a surface, magnetically or mechanically) with surrounding absorbent washer 25. When the spacer is magnetic, a simplified device can be used by itself for attachment to a heat-radiating surface, in the air-circulation path of a heater or in sunlight. When the simplified device is attached to a flat surface, then the flat surface effectively forms a second plate, thus controlling the release of vapour as in the previous embodiments. If the simplified device will be used on surfaces where the magnet is ineffective, for example when used in non-heater situations, such as for exposure to sunlight, then the spacer 24 may be a self-adhesive pad or a hook and loop gripping pad, such as Velcro®. Alternatively, a magnetic spacer 24 can be provided with a thin self-adhesive strip covered by a release layer, allowing the user a choice of attachment methods.

Because a self-adhesive pad is not easily removable from a surface for re-charging aromatic oil into the absorbent washer, the simplified version preferably uses a magnetic attachment means. When used in locations where it may need to be attached to a non-magnetisable surface, for example a car dashboard, the simplified version may be provided with a magnetisable metal locator plate 21, which is fixed to the desired surface with a self-adhesive pad (as shown in Figure 5(b)). The locator plate also protects the underlying surface from contact with oil. The locator plate for the simplified version is not necessarily co-extensive with the outer plate as in the preferred embodiment of the invention.

A modification of the device of Figure 5(a) is shown in Figure 6(a). In addition to the components shown in the previous Figure, the spacer, in this embodiment preferably a magnet 24, is surrounded by a metal washer 32 which is glued to plate 22. This rigidifies the structure to avoid situations where flexing of plate 22 may break the adhesive bond between a magnet 24 and the plate 22.

Similarly Figure 6(b) shows a modification of Figure 5(b). A metal washer 31, preferably dimensioned to match washer 32, at least regarding the size of the central

aperture, is secured, for example glued, to locator plate 21. This again rigidifies the structure and the central aperture serves to locate the magnet 24 centrally when the unit of Figure 6(b) is combined with the unit of Figure 6(a).

In this instance, the attachment means 23 is preferably a Velcro® pad having interlocking hook and loop layers and also self-adhesive layers, one of which is secured to locator plate 21. The other half of the pad 23 may be secured by its self-adhesive layer to a surface, allowing the locator plate 21 to be removably attached.

This embodiment finds particular use in automobiles. In winter the outer Velcro® pad is attached adjacent a vent for heated air, such as the windscreen demister, so that when the locator plate is connected via the other half of the Velcro® pad, a portion of the plate is in the airstream. The heat transmitted to the locator plate 21 vaporises oil from the pad 25 when the magnet 24 is located on the plate 21. In summer the plate 22 can also absorb solar heat through the windscreen to release aroma into the cold airstream from the vent.

Also, the plate 21 may be detached from the portion of the Velcro® pad secured to the vent, and the other half of the Velcro® pad (arranged to be the hook portion) is then attachable to an upholstered surface in the automobile, such as a seat back, carpet, rear parcel shelf, or upholstered door insert, so that the plate 22 is in sunlight. The plate 22 is preferably given a matt-black finish so that it is non-reflective. The Velcro® pad portion remaining near the heater vent is also non-reflective and may be retained in position until there is a need to re-position the locator plate 21.

In the above, where reference has been made to gluing or adhering components together, then any adhesive suitable to glue the intended surfaces, e.g. aluminium to aluminium, aluminium to steel, magnet to steel, may be used, bearing in mind that for any glued bond which will come into contact with the aromatic oil, the glue should be selected so as to be resistant to the oil. Metal plates may also be spot-welded or rivetted.

CLAIMS

1. A method of emitting an aromatic or therapeutic or antiseptic vapour into a living area, which comprises placing an absorbent pad containing a volatile oil between two substantially parallel plates so that the peripheral edge of the pad is exposed between the peripheral edges of the plates, and placing the plates in an air circulation path, or applying heat to one or both of the plates.

2. A method according to claim 1, in which plates are substantially co-extensive and the peripheral edge of the absorbent pad is spaced back from the edges of the plates.

3. A method according to claim 1 or 2, in which the plates are placed in an air circulation path of a heater, or fan.

4. A method as claimed in claim 3, in which at least one of the plates is a magnetisable metal, and the plates are attached to a metal component of the heater by a magnet.

5. A method as claimed in claim 1 or 2 in which one of the plates is exposed to solar radiation.

6. A method as claimed in claim 1 in which one of the plates is a surface of a heater.

7. A method as claimed in claim 6 in which the other plate is attached to the heater surface by magnet.

8. A method according to claim 1 in which the vapour is emitted from a dispenser substantially as described herein with reference to any of the accompanying drawings.

9. An aroma dispenser comprising a pair of substantially parallel plates, a layer of absorbent for a volatile aromatic substance placed between the plates with the peripheral edge of the pad exposed between the peripheral edges of the plates, and means for locating the plates on a surface.

10. An aroma dispenser according to claim 9, in which the absorbent layer does not extend to the periphery of the plates.

11. An aroma dispenser according to claim 9 or 10, in which a spacer is positioned between the plates to prevent compression of the absorbent.

12. An aroma dispenser according to claim 11, in which the spacer is a central boss and the absorbent is a fibrous washer located on the boss.

13. An aroma dispenser according to any one of claims 9 to 12, in which at least one of the plates is a magnetisable metal and the locating means is magnetic.

14. An aroma dispenser according to claim 13, comprising an outer metal plate, a magnetic or magnetisable disc as spacer, an inner plate which is metal or a heat resistant material, and a magnetic disc on the outer surface of the inner plate.

15. An aroma dispenser according to claim 14, in which the inner plate has a central aperture which allows the spacer to contact the magnetic locating means.

16. An aroma dispenser according to any one of claims 9 to 15, in which a heat insulating pad is placed on the external surface of the magnetic locating means and/or inner plate.

17. An aroma dispenser according to any one of claims 9 to 16, in which a heat resistant plate is placed on the external surface of the outer plate.

18. An aroma dispenser according to claim 9 substantially as described herein with

reference to Figures 1 to 4 of the accompanying drawings.

19. An aroma dispenser consisting of a support plate, an absorbent washer for a volatile oil located on a boss on the support plate, and means for attaching the boss to a surface.

20. An aroma dispenser according to claim 19, in which the boss is a magnetic disc secured to the plate, and also serves to attach the dispenser to a surface.

21. An aroma dispenser according to claim 20 in which the plate is metallic.

22. An aroma dispenser according to claim 20 or 21 in combination with a locator plate of magnetisable metal provided with means for attaching the locator plate to a surface.

23. An aroma dispenser according to any one of claims 19 to 22 in which the attaching means is a self-adhesive pad or film.

24. An aroma dispenser according to claim 19 substantially as described herein with reference to Figures 5(a) or 6(a) of the accompanying drawings.

25. A combination according to claim 22 substantially as described herein with reference to Figures 5(a) and 5(b) or Figures 6(a) and 6(b) of the accompanying drawings.

The Patent Office

13.

Application No: GB 9809717.3 **Examiner:** Gavin Dale
Claims searched: 1-18 **Date of search:** 17 July 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): A5G (GV)

Int Cl (Ed.6): A61L 9/02, 9/03, 9/04, 9/12

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2177602A	(BRADCO CHEMICALS LIMITED) See Fig 3 & page 2 lines 7-10	1 and 9 at least
X	EP 0308113A2	(MICHEGAN CONSOLIDATED GAS) See Fig's 1 & 2	1 and 9 at least
X	US 4306679	(DUSEK et al) See Fig's 1 & 3	1 and 9 at least
X	US 3964684	(SCHIMANSKI) See Fig's 4a, 5 & 8	1 and 9 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.