



CARTRIDGE FOR AIR FRESHENER DISPENSER

BACKGROUND TO THE INVENTION

5 The present invention relates to a design of a cartridge to house a wick containing a vaporizable substance with said cartridge deployed in a dispenser of a particular design for the purpose of freshening the air in a room specifically in a room meant for public use.

10 Currently the cartridge as used in the dispenser of the particular design houses a wick wherein said wick is held at a fixed position within the container of the cartridge. Draught created by a fan mounted within the dispenser flows pass the wick vapourises the vapourisable substance and discharges the scent from said dispenser to refresh the surrounding air. However in due course the vapourisable substance contained towards the upper part of the wick, closest to the draught, get used up thus reducing the efficiency of the dispenser. The
15 vapourisable substance at the lower end of the wick is in an area where the air is largely stagnant and its ability to vapourise significantly diminished. The result is that the atmosphere in the room is not being refreshed though there is still vapourisable substance contained within the wick but towards its lower end and away from the draught created by the fan.

20 It is an objective of the present invention to forward a cartridge to house a wick containing a vaporizable substance whereby said wick can be repositioned in said cartridge in order to expose the part of said wick that still contains vaporizable substance to the draught created by the fan in the particular designed dispenser.

25 It is still a further objective of the present invention wherein a marker is incorporated onto the body of the cartridge to provide a guide as to the level where the wick is to be positioned within said cartridge as the vaporizable substance contained in said wick gets progressively used up.

30 SUMMARY OF THE INVENTION

The dispenser to hold the cartridge of the present invention may comprise a housing, a fan mounted internal to the housing, a power source to operate the



fan and wirings connecting said power source to said fan. The housing further comprises a body with an open front face and a cover with a plurality of vents and with said cover mountable to cover said body. The housing is capable of standing freely on its bottom panel or it can be secured onto a vertical surface by fasteners engaged to mounting holes on the back panel of said housing. The fan is mounted at a position above the top opening of the cartridge and its content. Draught created by the operational fan flows downwards and passes over and vapourises partially the content held within the cartridge. The vapourised content discharges from the dispenser and refreshes the surround air in the room where said dispenser is sited. The fan is electrically operated and is capable of continuous operation or being operated intermittently with the inclusion of a timer.

The cartridge of the present invention comprises a container and a detachable wick holder. At the bottom of the container is a peripheral inward extending flange around an aperture towards the center. Extending upwards from the outer edge of the flange is a peripheral sidewall ending in a top opening and with the volume enclosed by the bottom of the container and the peripheral sidewall up to the top opening defining a chamber. The aperture provides an opening whereby the wick holder can be raised up the container by holding said container with one hand and then pushing the base of said wick holder up using a thumb of the other hand through said aperture.

The wick holder comprises a base and a surrounding upright wall extending from the outer edge of said base and along the top of the surrounding upright wall is a stiffening top rim. The height of the surrounding upright wall is substantially lesser than the peripheral sidewall of the container. A holding means to position and to hold the wick on the wick holder is present. The stiffening top rim of the wick holder fits cooperatively with the inner face of the peripheral sidewall of the container and with said wick holder being able to be raised or be lowered and held at a desired level position within the chamber of said container. A plurality of stiffeners on the external face of the surrounding upright wall provides rigidity to the wick holder. At the bottom outer face of the

base is a ridge with said ridge able to fit cooperatively into the aperture of the base of the container to form a seal at this joint.

A wick containing a vaporizable substance fits onto the wick holder and held in position by the plurality of ribs. The wick in the embodiment is tube shaped and when fitted onto the wick holder a circumferential clearance is present between the external upright surface of the wick and the internal face of the peripheral sidewall of the container. The wick holder with the wick is housed in the chamber of the container initially with said wick holder coming to rest at the bottom of said container and supported by the flange. A material impervious to the vapourisable substance contained in the wick forms a seal and covers the open top of the container in a new and unused cartridge and when the cartridge is ready for use the seal is removed from the open top of the container enabling the fresh wick to be exposed to the draught from the fan.

In due course and with long exposure to the draught from the fan vapourizable substance contained at the upper end of the wick gets vapourised and effectiveness of the cartridge is then reduced. When this occurs the wick holder with the wick is raised up the container and by doing so vapourisable substance contained at the lower end of the wick gets exposed to the draught created by the fan.

These and other features, advantages and objectives of the present invention will be further understood and appreciated by those skilled in the art by the following specification, appended drawings and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows the components of the cartridge of the present invention with the first embodiment of the wick holder.

Fig. 1A shows another view of the components of the cartridge of the present invention.

Fig. 1B shows the container of the cartridge with the top open sealed.

Fig. 1C shows the components of the cartridge of the present invention with the second embodiment of the wick holder.

Fig. 2 shows the position of an open cartridge in a dispenser and with the dispenser opened up.

DETAIL DESCRIPTION OF THE INVENTION

5 The dispenser, as shown in Fig. 2, wherein the cartridge (1) of the present invention is deployed comprises a housing (30), a fan (50) mounted internal to said housing (30), a power source (52) to operate said fan (50) and wirings (not shown) connecting said power source (52) to said fan (50). The housing (30) comprises a body with an open front face and a cover (39), having a plurality of
10 vents (31), with said cover (39) mountable onto said body and in doing so conceals the open front face of said body and creating an internal chamber within. The body further comprises a back panel (33), a top panel (34) and a bottom panel (35) and side panels (36) with said back panel (33) having at least one mounting hole (37). The housing (30) is capable of standing freely on its bottom
15 panel (35) or it can be secured onto a vertical surface eg. a wall by fasteners engaged to the mounting holes (37) on the back panel (33) of said housing (30).

 The fan (50) that is mounted in the housing (30) is supported by brackets (51), as shown in Fig. 2. The fan (50) in the embodiment shown is the axial type and with said fan (50) mounted at a position above where the cartridge (1) is to
20 be placed and with a suitable gap between said fan (50) and the top opening of said cartridge (1) and its content. Draught created by the operational fan (50) flows downwards and passes over the content held within the cartridge (1) drawing out the vapourisable substance in the process. The vapourised content discharges from the dispenser and refreshes the surround air in the room where
25 said dispenser is sited. The fan (50) is electrically operated and is connected to a power source that in this example are two removable batteries (52). The batteries (52) selected are capable to operate the fan (50) continuously after they are electrically connected. The batteries (52) and the fan (50) can also be designed and connected to operate intermittently with the inclusion of a timer.

30 The cartridge (1) of the present invention comprises a container (10) and a detachable wick holder (16 or 16a) as shown in Fig. 1, Fig. 1A and Fig. 1C. At the bottom of the container (10) is a peripheral inward extending flange (12)

around an aperture (13) located towards the center. Extending upwards from the outer edge of the flange (12) is a peripheral sidewall (11) ending in a top opening (15). The volume enclosed by the bottom of the container (10) and the peripheral sidewall (11) up to the top opening (15) defines a chamber (14). The aperture (13) provides an opening whereby the wick holder (16 or 16a) can be raised up the container (10) by holding said container (10) with one hand and then pushing the base (22) of said wick holder (16 or 16a) up using a thumb of the other hand through said aperture (13). The aperture (13) also serves as a location for the ridge (23) on the bottom outer face of the base (22) of the wick holder (16 or 16a) as would be explained later. There is no restriction as to the cross-section for the container (10) to be used but in the preferred embodiment the container (10) has a substantially circular internal cross-section as shown in Fig. 1 and Fig. 1A. Likewise the wick holder (16 or 16a) as shall be described below should have a cross-section that cooperatively matches with that of the container (10). In a further embodiment of the container (10) said container (10) has a substantially circular internal cross-section but with the very slight outward sloping peripheral sidewall (11) internally. In yet another embodiment of the container (10) there is at least one marker that is above the height of the wick holder (16 or 16a) from the bottom of said container (10), in this case in the form of a rim (24) on the internal face of the peripheral sidewall (11), as shown in Fig. 1 to act as a guide to positioning the wick holder (16 or 16a) at a higher level in order to expose vaporizable substance at lower end of the wick (21) to the draught caused by the fan (50).

The wick holder (16 and 16a), as shown in Fig. 1, Fig. 1A and Fig. 1C, comprises a base (22) and a surrounding upright wall (26) extending from the outer edge of said base (22) and along the top of the surrounding upright wall (26) is a stiffening top rim (19). The height of the surrounding upright wall (26) is substantially lesser than the peripheral sidewall (11) of the container (10). A holding means to position and hold the wick (21) on the wick holder (16 and 16a) is present. In one embodiment the holding means is in the form of a plurality of ribs (17) extends inwards from the internal face of the surrounding upright wall (26) of the wick holder (16), as shown in Fig. 1, and with the wick (21) held in

position at its outer circumferential wall by said plurality of ribs (17). In another embodiment the holding means is in the form of at least a protrusion extending up from the base (22) of the wick holder (16a). Specifically the protrusion is in the form of a plurality of upward extending curved fins (17a), as shown in Fig. 1C, with the outer surfaces of said curved fins (17a) collectively presenting a substantial surface for the inner face of the wick (21) to locate and be held in position.

The stiffening top rim (19) of the wick holder (16 or 16a) fits cooperatively with the inner wall of the peripheral sidewall (11) of the container (10) and with said wick holder (16 or 16a) being able to be raised or be lowered and held at a desired level position within the chamber (14) of said container (10). Also on the external face of the surrounding upright wall (26) is a plurality of stiffeners (18) to provide rigidity to the wick holder (16 and 16a). At the bottom outer face of the base (22) is a ridge (23), as shown in Fig. 1A, with said ridge (23) able to fit cooperatively into the aperture (13) of the container (10), when the wick holder (16 or 16a) is lowered to rest at the bottom of said container (10), and with said ridge (23) is slotted into the rim of said aperture (13). The dimensions of the ridge (23) and the aperture (13) are such that when said ridge (23) cooperatively fits into said aperture (13) a seal is created at this junction. As mentioned earlier the container (10) in the preferred embodiment has a substantially circular cross-section and likewise the stiffening top rim (19) of said wick holder (16 or 16a) too is substantially circular in order for it to fit cooperatively with the inner wall of the peripheral sidewall (11) of said container (10). In the further embodiment of the container (1) where said container has a substantially circular cross-section but with the very slight outward sloping peripheral sidewall (11) the stiffening top rim (19) of the wick holder (16 or 16a) will then experience greater interference with said outward sloping peripheral sidewall (11) at the bottom then at the top of said container (10). This design is intentional as when the cartridge (1) is new, with an unused wick (21), the wick holder (16 or 16a) will be at the bottom of the container (10) and the greater interference between the stiffening top rim (19) of said wick holder (16 or 16a) and the outward sloping peripheral sidewall (11) of said container (10) will

provide a better seal to prevent escape of vapourisable substance contained in said wick (21).

A wick (21), containing a vaporizable substance, fits onto the wick holder (16 or 16a) and held in position by a holding means. The wick (21) in the embodiment, as shown in Fig. 1, Fig. 1A and Fig. 1C, is shaped as a tube having an annular cross-section and when said wick (21) is suitably fitted onto said wick holder (16 or 16a) a circumferential gap or clearance is present between the external upright surface of the wick (21) and the internal face of the peripheral sidewall (11) of the container (10). The wick holder (16 or 16a) with the wick (21) is housed in the chamber (14) of the container (10) initially with said wick holder (16 or 16a) coming to rest at the bottom and supported by the flange (12).

A material impervious to the vapourisable substance contained in the wick (21) forms a seal (25) and covers the open top (15) of the container (10) in a new and unused cartridge (1) as shown in Fig. 1B. Accordingly the height of the wick (21) is such that when said wick (21) is positioned onto the wick holder (16 or 16a) and said wick holder (16 or 16a) placed into the container (10) said wick (21) should not protrude above the peripheral sidewall (11) of said container (10) in order that the seal (25) is able to effectively close the top opening (15) of said container (10). When the cartridge (1) is ready for use the seal (25) is peeled off and removed from the open top (15) of the container (10) enabling the fresh wick (21) contained within said container (10) to be exposed to the draught from the fan (50) when the cartridge (1) is correctly placed in the housing (30) of the dispenser.

In due course and with long exposure to the draught from the fan (50) vapourisable substance contained at the upper end of the wick (21) gets vapourised and the effectiveness of the cartridge (1) is then reduced. When this occurs the wick holder (16 or 16a) and hence the wick (21) is raised up the container (10) by the method as explained earlier. By doing so vapourisable substance contained at the lower end of the wick (21) can then be exposed to the draught created by the fan (50).

The foregoing description is considered as illustration of the principles of the invention. Furthermore, since numerous modifications and changes will

readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

CLAIMS

1. A cartridge (1) for use in a specific design of a dispenser, functioning as a air freshener, with said dispenser having a housing and a fan (50) mounted within with said fan (50) used to create a draught over wick containing vapourisable substance and with said cartridge (1) comprises :-

a container (10) having at its bottom an inward extending peripheral flange (12) around an aperture (13) towards the center and extending upwards from the outer edge of said flange (12) is a peripheral sidewall (11) ending in a top opening (15) and with the volume enclosed by the bottom of said container (10) and the peripheral sidewall (11) up to the top opening (15) defining a chamber (14);

a detachable wick holder (16 or 16a) located within the container (10) with said wick holder (16 or 16a) comprises a base (22), a surrounding upright wall (26) extending from the outer edge of said base (22) and a stiffening top rim (19) along the top of said surrounding upright wall (26) and with the height of said surrounding upright wall (26) substantially lesser then that of the peripheral sidewall (11) of the container (10) and with stiffening top rim (19) fits cooperatively with said inner wall of the peripheral sidewall (11) of said container (10) and with said wick holder (16 or 16a) being able to be held at a desired level position within the chamber (14) of said container (10); and

a wick (21) containing a vaporizable substance fitting onto the wick holder (16 or 16a); and

a holding means to position and to hold the wick (21) on the wick holder (16 and 16a).

2. A cartridge as in claim 1 wherein the internal cross-section of the container (10) and the stiffening top rim (19) of the wick holder (16 or 16a) are substantially circular.

3. A cartridge as in claim 1 wherein the holding means to position and to hold the wick (21) on the wick holder (16) is in the form of a plurality of ribs (17) extends inwards from the internal face of the surrounding upright wall (26) with said wick (21) held in position at its outer circumferential face by said
5 plurality of ribs (17).

4. A cartridge as in claim 1 wherein the holding means to position and to hold the wick (21) on the wick holder (16a) is in the form of at least a protrusion extending up from the base (22) of said wick holder (16a).
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5. A cartridge as in claim 4 wherein the protrusion is in the form of a plurality of upward extending curved fins (17a) with the outer surfaces of said curved fins (17a) collectively presenting a substantial surface to locate and hold in position the inner face of the wick (21).
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6. A cartridge as in claim 1 wherein a ridge (23) is present on the bottom outer face of the base (22) of the wick holder (16 and 16a) and with said ridge (23) able to fit cooperatively into the aperture (13) at the bottom of the container (10) and when said ridge (23) is slotted into the rim of said aperture
20 (13) a seal is created at a joint between the container (10) and the wick holder (16 and 16a).

7. A cartridge as in claim 1 wherein the container (10) has a substantially circular cross-section and a very slightly outward sloping peripheral
25 sidewall (11).

8. A cartridge as in claim 1 wherein there is at least one marker that is above the height of the wick holder (16 or 16a) from the bottom of the container (10) to act as a guide for positioning said wick holder (16 or 16a) at a
30 higher level in said container (10) in order that a vaporizable substance at a lower end of the wick (21) becomes exposed to the draught caused by the fan (50).

9. A cartridge as in claim 8 wherein the marker is in the form of a rim (24) on the internal aspect of the peripheral sidewall (11) of the container (10).

5 10. A cartridge as in claim 1 wherein the cartridge is further provided with a seal (25) of a material impervious to the vapourisable substance contained in the wick (21) to cover and seal the open top (15) of the container (10) in a new and unused cartridge