C L A I M S

1. A bottle for packaging a liquid to be dispensed drop by drop comprising a dispensing head fitting in a sealed manner in the bottle and a reservoir with a wall with elastic deformation that is reversible by letting outside air be drawn into the reservoir through said dispensing head in place of a dose of liquid that has been expelled out through said dispensing head under the effect of a pressure exerted against said wall, said air being let in through the dispensing head via a same route as the expulsion of liquid,

wherein said dispensing head comprises a nacelle (13) by which it is fitted in a sealed manner inside the bottle in communication with said reservoir, and a dropper tip (1) extending outside the bottle which is pierced with a central channel leading to an expulsion orifice for the liquid expelled from the reservoir, outside air being let in through the dispensing head via the same route as the expulsion of liquid,

wherein a bacteria filtering membrane is mounted on the base of said tip and thereby interposed across the passage of the liquid and of the air, thereby preventing bacteria present in the air from entering into said reservoir when air is drawn in,

wherein further said membrane is a partly hydrophilic and partly hydrophobic bifunctional membrane allowing, on the one hand, said liquid selectively to pass through in the dispensing direction, from the reservoir to the dropper tip, under the effect of a pressure exerted by the user on said wall, and allowing, on the other hand, air selectively to pass through in the reverse direction, from outside into said reservoir, when said pressure is released after the dispensing of a drop of liquid, thereby ensuring alternatively the passage of air and liquid in said central channel through said dropper tip,

and wherein said dropper tip selectively, to the exclusion of said nacelle, is made of a material containing a bactericidal agent having effect in the prevention of a bacterial proliferation on its surface.

2. The bottle as claimed in claim 1, wherein said bactericidal agent in said dropper tip is an ion-bearing polymer which is uniformly distributed throughout its mass and has effect by migration of bactericidal ions towards the surface.

3. The bottle as claimed in claim 1 or 2, wherein said dispensing head further comprises a central core inserted in said central channel in said dropper tip which comprises a plurality of sub-channels for the alternate flow of liquid and air and is made out of a material comprising a bactericidal agent distributed in the mass.

4. The bottle as claimed in claim 3, wherein said core is made of a material containing a bactericidal agent based on a chlorine phenolic compound while the external body of the dropper tip beside said core is made of a material containing as a bactericidal agent an ion-bearing polymer uniformly distributed throughout its mass which has effect by migration of bactericidal ions towards the surface.

5. The bottle as claimed in claim 2 or 4 , wherein the bactericidal ions in said ion-bearing polymer are silver ions.

6. The bottle as claimed in claim 4 or in claim 5 as combined with claim 4, wherein said chlorine phenolic compound is 5-chloro-2-(2,4-dichlorophenoxy)phenol, known under the commercial name of triclosan.

7. The bottle as claimed in any of claims 3 to 6, wherein said core inside the dropper tip is a porous sintered thermoplastic material based on polyethylene.

8. The bottle as claimed in claim 7, wherein said porous material has a mean pore dimension in the order of magnitude of some hundred

micrometers whereas said membrane has a mean pore size not more than 0,2 micrometers so as to show filtering properties preventing bacteria to pass through with outside air entering into the reservoir.

9. The bottle as claimed in one of claims 3 to 6, wherein said subchannels in said core are formed by grooves hollowed out on the external surface of said core.

10. The bottle as claimed in one of claims 3 to 9, wherein said dropper tip comprises; at the base of the central channel, a peripheral boss interacting with a matching peripheral groove formed at the base of said core for the attachement by elastic snap-fitting effect of said core in said channel.

11. The bottle as claimed in any of the above claims, wherein said dispensing head comprises a flow regulating pad across the nacelle part of said dispensing head.

12. The bottle as claimed in any of the above claims, characterized in that around the central channel the dropper tip comprises corrugations supporting said membrane against the pressure exerted on it when the liquid is expelled from the reservoir.

CLAIMS

1. A bottle for packaging a liquid to be dispensed drop by drop comprising a reservoir for storing a preservative-free liquid, said reservoir having a wall with elastic deformation that is reversible by letting air into the reservoir by means of a dispensing head through which the liquid is delivered under the effect of a pressure exerted against said wall,

- wherein said head for dispensing the liquid comprises a nacelle (13) by which it is fitted in a sealed manner into the bottle, and a dropper tip (1) extending it to the outside of the bottle and which is pierced with a central channel (3) leading to an orifice for expulsion of the liquid,

- and wherein an antibacterial filtering membrane (6), mounted on the base (4) of said tip, between the latter and said nacelle, is interposed across the flow of the air required to enter the bottle after a dispensing of liquid;

characterized in that selectively said dropper tip (1), situated beyond said antibacterial filtering membrane, to the exclusion of said nacelle (13), is made of a material containing a bactericidal agent having effect in the prevention of a bacterial proliferation on the surface of the material,

and characterized in that the tip (1)is made in two parts comprising a body (12) and a central core (7), said central core being inserted into the central channel of the tip and comprising a plurality of sub-channels in order to define the circuit of expulsion of the liquid through said body, said body and said core both being made of materials containing bactericidal agents.

2. The bottle as claimed in claim 1, characterized in that it also comprises a pad for regulating the flow in said nacelle (13).

3. The bottle as claimed in claim 1 or 2, characterized in that the material of said body (12) contains a bactericidal agent distributed throughout its mass having effect by migration to the surface of the material while the central core (7) is made of a material comprising a bactericidal agent based on a chlorinated phenolic compound.

4. The bottle as claimed in claim 3, characterized in that said chlorinated phenolic compound in said core (7) is 5-chloro-2-(2,4-dichlorophenoxy)phenol, or triclosan.

5. The bottle as claimed in any one of claims, characterized in that said body (12) of the tip is made of a material containing as a bactericidal agent an ion-bearing polymer which is uniformly distributed throughout its mass.

6. The bottle as claimed in claim 5, characterized in that said bactericidal ions are silver ions.

7. The bottle as claimed in any one of claims, characterized in that the core (7) inside the tip (1) is a porous sintered thermoplastic material, in particular based on polyethylene.

8. The bottle as claimed in claim 7, characterized in that the porous material has a mean pore dimension, the order of magnitude of which is some hundred micrometers.

9. The bottle as claimed in one of claims 7 or 8, characterized in that the terminal portion of the expulsion channel of the external main body of the tip and the core made of porous material have a cylindrical shape, the cylindrical shape of the terminal portion of the

expulsion channel conforming to the cylindrical shape of the core made of porous material.

10. The bottle as claimed in claim 9, characterized in that the body (12) of the tip is made by overmolding of the porous material constituting said core.

11. The bottle as claimed in any one of claims, characterized in that it is used for the packaging of an ophthalmic solution with no preservative.

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