CLAIMS

1. Device for dispensing an aqueous liquid, by doses spaced out over time, from a closed upstream space accommodating a liquid to an open downstream space via a capillary channel opening to ambient air, through an interface membrane produced to be partially hydrophilic and partially hydrophobic, in such a way that in operation, during each operation for dispensing a dose of liquid, the flows of air and of liquid circulate alternately in the capillary channel and a back flow of non-expelled remaining liquid takes place, characterized in that said interface membrane (7) is constituted by a filtration material the mass of which comprises biocidal metal cations, and in that said device comprises a porous insert (8), permeable both to liquid and to air, which is arranged upstream of the membrane on the path of the fluids and which is made of a material containing negatively charged sites capable of attracting biocidal metal cations originating from said membrane.

2. Device according to claim 1, characterized in that said biocidal metal cations comprise silver cations.

3. Device according to claim 1 or 2, characterized in that said biocidal metal cations of the membrane are supported by mineral macromolecules of the zeolite type incorporated in the mass of the base material of the membrane.

4. Device according to any one of claims 1 to 3, characterized in that said negatively charged sites capable of attracting biocidal metal cations are anionic carboxyl groups.

5. Device according to any one of claims 1 to 4, characterized in that said porous insert has a density comprised between 0.2 g and 0.8 g per cm^3.

6. Device according to any one of claims 1 to 5, characterized in that said insert is based on a polyolefin polymer, preferably chosen from polyethylene, polypropylene, and the copolymers of ethylene or of polypropylene with up to 25% higher homologues of carboxylic acids or esters.

7. Device according to any one of claims 1 to 6, characterized in that said insert is constituted by a compacted fibrous material.

8. Device according to any one of claims 1 to 7, characterized in that said negatively charged sites capable of attracting biocidal metal cations result from irradiation of the porous insert with rays of the beta or gamma type in the presence of oxygen.

9. Device according to any one of claims 1 to 8, characterized in that the material constituting said membrane has an average pore diameter comprised between 0.1 and 1 micrometer.

10. Device according to claim 9, characterized in that the material constituting said membrane has an average pore diameter comprised between 0.4 and 0.8 micrometer.

11. Device according to any one of claims 1 to 10, characterized in that said capillary channel is formed within a material incorporating biocidal metal cations, in particular borne by mineral macromolecules.

12. Sterile packaging bottle for an aqueous liquid to be dispensed in doses spaced out over time, by expulsion of a dose of liquid out of the bottle and entry of outside air in compensation, characterized in that it is equipped with a device for dispensing said liquid constituted according to any one of claims 1 to 11, said insert (8) of which is mounted as a non-sealing closure of the inside of the bottle, said closed space then being inside the bottle.

13. Bottle according to claim 12, having a wall that can be reversibly elastically deformed, in order to ensure the entry of outside air compensating for any dose of liquid expelled from the bottle as well as the back flow through said device of any non-expelled remaining liquid, said membrane being mounted with said porous insert (8) in said device for dispensing liquid in combination with means of organization of the circulation of the air and liquid fluids through it, and in which said membrane is arranged at the base of a dropper tip within which is arranged the capillary channel (18) for the expulsion of the drops, opposite a base of said tip in which are arranged respective means for guiding the air aspired from the outside and any remaining liquid that has not been dispensed and is required to flow back to the downstream portion of the duct for the circulation of the fluids, which tend to direct the airflow to the hydrophobic part of the membrane preferably arranged in the center of said membrane and to distribute the liquid over its hydrophilic part.

14. Bottle according to claim 12 or 13, in which said insert is intended to participate in the organization of the circulation of the fluids by constituting a flow regulator.

15. Method for the manufacture of a membrane loaded with biocidal cations for a device for dispensing an aqueous liquid stored in a sterile state as defined in any one of claims 1 to 11 or for a bottle according to any one of claims 12 to 14, in which, in a first step, said membrane is made from a porous material made of a hydrophilic polymeric material which is loaded with said biocidal cations throughout its entire mass, and then said polymeric material is made hydrophobic locally throughout the entire thickness of the membrane over a part of its extent, by a complementary polymerization treatment maintaining the biocidal activity of said biocidal cations.

16. Method according to claim 15, characterized in that the membrane is produced by shaping said material by fusion of said hydrophilic polymeric material with fusible granules of a masterbatch incorporating mineral macromolecules bearing biocidal cations, said shaped material being made uniformly porous throughout its mass.

17. Method according to claim 15 or 16, characterized in that said initially hydrophilic polymeric material is rendered locally hydrophobic by a radical cross-linking reaction between its constituents that is initiated by local irradiation of the membrane under ultraviolet radiation.