be antibacterial, wherein the antibacterial state is limited exclusively to these surfaces.

Object and solution

[0007] ~~The object~~ Embodiments of the invention ~~is to~~ make available a protective cap for a dispenser, which ~~protective cap~~ permits rapid drying and alleviates the problems of admission of microorganisms into the protective cap. ~~The object~~Embodiments of the invention ~~is~~ also ~~to~~ make available a discharge device comprising a dispenser with a corresponding protective cap.

[0008] ~~According to a first aspect, a protective cap for a dispenser for discharging pharmaceutical and/or cosmetical liquids is provided, wherein the protective cap comprises an outer cap and an inner element inserted therein, at least one ventilation channel providing communication between an interior of the protective cap and an external environment is formed between the outer cap and the inner element, and the protective cap further comprises a shut-off element which is to be separated irreversibly from the protective cap before a first use and by means of which the at least one ventilation channel is closed in an airtight and germproof manner.~~

According to a first aspect of the present invention, there is provided a protective cap for a dispenser for discharging pharmaceutical and/or cosmetical liquids, wherein the dispenser has a housing, a liquid reservoir and an outlet opening provided in the housing through which the liquid can be discharged into a surrounding atmosphere, wherein the protective cap is provided for repeated detachment from and attachment to the housing and comprises an outer cap and an inner element inserted therein, at least one ventilation channel providing communication between an interior of the protective cap and an external environment is formed between the outer cap and the inner element, and the protective cap further comprises a shut-off element which is to be separated irreversibly from the protective cap before a first use and by means of which the at least one ventilation channel is closed in an airtight and germproof manner.

[0009] ~~According to a second aspect, a protective cap for a dispenser for discharging pharmaceutical and/or cosmetical liquids is provided, wherein the protective cap comprises an outer cap and an inner element inserted therein, the outer cap has at least one ventilation opening for communication between an interior of the protective cap and an external~~

~~environment, and the inner element is arranged to be adjustable relative to the outer cap at least between a shut-off position and a clearance position, wherein, in the shut-off position, the at least one ventilation opening is closed in an airtight and germproof manner by means of the inner element and, in the clearance position, the at least one ventilation opening connects the interior to the external environment.~~

According to a second aspect of the present invention, there is provided a protective cap for a dispenser for discharging pharmaceutical and/or cosmetical liquids, wherein the dispenser has a housing, a liquid reservoir and an outlet opening provided in the housing through which the liquid can be discharged into a surrounding atmosphere, wherein the protective cap is provided for repeated detachment from and attachment to the housing and comprises an outer cap and an inner element inserted therein, the outer cap has at least one ventilation opening for communication between an interior of the protective cap and an external environment, and the inner element is arranged to be adjustable relative to the outer cap at least between a shut-off position and a clearance position, wherein, in the shut-off position, the at least one ventilation opening is closed in an airtight and germproof manner by means of the inner element and, in the clearance position, the at least one ventilation opening connects the interior to the external environment.

[0010] ~~According to a third aspect, a discharge device is provided comprising a dispenser for discharging pharmaceutical and/or cosmetical liquids, with a liquid reservoir and an outlet opening through which the liquid can be discharged into a surrounding atmosphere, and a protective cap with an outer cap and an inner element inserted therein, wherein at least one ventilation channel providing communication between an interior of the protective cap and an external environment is formed between the outer cap and the inner element, and with a shut-off element which is to be separated irreversibly from the~~

~~protective cap before a first use and by means of which the at least one ventilation channel is closed in an airtight and germproof manner.~~

According to a third aspect of the present invention, there is provided discharge device comprising a dispenser for discharging pharmaceutical and/or cosmetical liquids, with a housing, a liquid reservoir and an outlet opening provided in the housing through which the liquid can be discharged into a surrounding atmosphere, and a protective cap is provided for repeated detachment from and attachment to the housing with an outer cap and an inner element inserted therein, wherein at least one ventilation channel providing communication between an interior of the protective cap and an external environment is formed between the outer cap and the inner element, and a shut-off element which is to be separated irreversibly from the protective cap before a first use and by means of which the at least one ventilation channel is closed in an airtight and germproof manner.

[0011] ~~According to a fourth aspect, a discharge device is provided comprising a dispenser for discharging pharmaceutical and/or cosmetical liquids, with a liquid reservoir and an outlet opening through which the liquid can be discharged into a surrounding atmosphere, and a protective cap with an outer cap and an inner element inserted therein, wherein the outer cap has at least one ventilation opening for communication between an interior of the protective cap~~

~~and an external environment, and the inner element is arranged to be adjustable relative to the outer cap at least between a shut-off position and a clearance position, wherein, in the shut-off position, the at least one ventilation opening is closed in an airtight and germproof manner by means of the inner element and, in the clearance position, the at least one ventilation opening connects the interior to the external environment .~~

According to a fourth aspect of the present invention, there is provided a discharge device comprising a dispenser for discharging pharmaceutical and/or cosmetical liquids, with a housing, a liquid reservoir and an outlet opening provided in the housing through which the liquid can be discharged into a surrounding atmosphere, and a protective cap is provided for repeated detachment from and attachment to the housing having an outer cap and an inner element inserted therein, wherein the outer cap has at least one ventilation opening for communication between an interior of the protective cap and an external environment, and the inner element is arranged to be adjustable relative to the outer cap at least between a shut-off position and a clearance position, wherein, in the shut-off position, the at least one ventilation opening is closed in an airtight and germproof manner by means of the inner element and, in the clearance position, the at least one ventilation opening connects the interior to the external environment.

[0012] Rapid drying of the residual liquid is achieved by virtue of the communication between the interior of the protective cap and the external environment. The invention is also based on the knowledge that, before a first use and during storage, transport, etc., germs can gather on the protective cap over the course of time. The quantity of germs that have gathered is dependent, among other things, on the period of time before a first use and on a microbial burden of the environment. If germs

are left to gather, this can lead to germs entering the interior of the protective cap via a ventilation opening.

[0013] A protective cap as provided according to embodiments of this invention is a cap which can be separated from the dispenser' s housing to get access to the outlet opening provided on the housing. After usage of the discharge device the cap can be fixed to the housing again to cover the outlet opening.

[0014] The protective cap according to embodiments of the invention comprises an outer cap and an inner element inserted in the outer cap. Those two components can be attached to each other to be handled together. This attachment can

Claims

1. A protective cap for a dispenser ~~(2)~~ for discharging pharmaceutical and/or cosmetical liquids ~~(4)~~, wherein the dispenser ~~(2)~~ has

- a housing,
- a liquid reservoir ~~(21)~~ and
- an outlet opening ~~(24)~~ provided in the housing through which the liquid ~~(4)~~ can be discharged into a surrounding atmosphere,

wherein

- the protective cap ~~(3)~~ is provided for repeated detachment from and attachment to the housing and comprises an outer cap ~~(31)~~ and an inner element ~~(32)~~ inserted therein,
- at least one ventilation channel ~~(33)~~ providing communication between an interior of the protective cap ~~(3)~~ and an external environment is formed between the outer cap ~~(31)~~ and the inner element ~~(32)~~, and
- the protective cap ~~(3)~~ further comprises a shut-off element which is to be separated irreversibly from the protective cap ~~(3)~~ before a first use and by means of which the at least one ventilation channel ~~(33)~~ is closed in an airtight and germproof manner.

2. The protective cap as claimed in claim 1, comprising a tamper-evident safety device ~~(30)~~ with a first segment ~~(301)~~ which is to be removed irreversibly before a first use, wherein the first segment ~~(301)~~ to be removed serves as shut-off element, and the at least one ventilation channel ~~(33)~~ is closed in an airtight

and germproof manner by means of the first segment ~~(301)~~ before a removal of the first segment ~~(301)~~.

3. The protective cap as claimed in claim 2, wherein the tamper-evident safety device ~~(30)~~ has the first segment ~~(301)~~ and a second segment ~~(302)~~, wherein the first segment ~~(301)~~ is connected to the second segment ~~(302)~~ and to the outer cap ~~(31)~~ by means of predetermined breaking points ~~(313, 314)~~.

4. The protective cap as claimed in claim 1, wherein the inner element ~~(32)~~ has two sealing areas ~~(321, 322)~~ which are spaced apart in the axial direction and provide contact with the dispenser ~~(2)~~.

5. A protective cap for a dispenser ~~(2)~~ for discharging pharmaceutical and/or cosmetical liquids ~~(4)~~, wherein the dispenser ~~(2)~~ has

- a housing,
- a liquid reservoir ~~(21)~~ and
- an outlet opening ~~(24)~~ provided in the housing through which the liquid ~~(4)~~ can be discharged into a surrounding atmosphere,

wherein

- the protective cap ~~(3)~~ is provided for repeated detachment from and attachment to the housing and comprises an outer cap ~~(31)~~ and an inner element ~~(32)~~ inserted therein,
- the outer cap ~~(31)~~ has at least one ventilation opening for communication between an interior of the protective cap ~~(3)~~ and an external environment, and

- the inner element is arranged to be adjustable relative to the outer cap ~~(31)~~ at least between a shut-off position and a clearance position, wherein, in the shut-off position, the at least one ventilation opening is closed in an airtight and germproof manner by means of the inner element ~~(32)~~ and, in the clearance position, the at least one ventilation opening ~~(30)~~ connects the interior to the external environment.

6. The protective cap as claimed in claim 5, wherein the inner element ~~(32)~~ is designed as an inner sleeve that is rotatable about the longitudinal axis relative to the protective cap ~~(3)~~.

7. The protective cap as claimed in claim 1 or 5, wherein the protective cap ~~(3)~~ has an absorber element ~~(5)~~ that rests on the outlet opening ~~(24)~~ during use.

8. A discharge device comprising

- a dispenser ~~(2)~~ for discharging pharmaceutical and/or cosmetical liquids ~~(4)~~, with
  - a housing,
  - a liquid reservoir ~~(21)~~ and
  - an outlet opening ~~(24)~~ provided in the housing through which the liquid ~~(4)~~ can be discharged into a surrounding atmosphere, and
- a protective cap ~~(3)~~ is provided for repeated detachment from and attachment to the housing with
  - an outer cap ~~(31)~~ and an inner element ~~(32)~~ inserted therein, wherein at least one ventilation channel ~~(33)~~ providing communication

between an interior of the protective cap ~~(3)~~ and an external environment is formed between the outer cap ~~(31)~~ and the inner element ~~(32)~~, and

- a shut-off element which is to be separated irreversibly from the protective cap ~~(3)~~ before a first use and by means of which the at least one ventilation channel ~~(33)~~ is closed in an airtight and germproof manner.

9. The discharge device as claimed in claim 8, wherein a tamper-evident safety device ~~(30)~~ is provided with a first segment ~~(301)~~ which is to be removed irreversibly before a first use, wherein the first segment ~~(301)~~ to be removed serves as shut-off element and, before a removal, bears sealingly in an airtight and germproof manner on a housing of the dispenser ~~(2)~~, in particular a housing ~~(220)~~ of an outlet assembly ~~(22)~~, such that the at least one ventilation channel ~~(33)~~ is closed in an airtight and germproof manner by means of the first segment ~~(301)~~ before a removal of the first segment ~~(301)~~.

10. A discharge device comprising

- a dispenser ~~(2)~~ for discharging pharmaceutical and/or cosmetical liquids ~~(4)~~, with
  - a housing,
  - a liquid reservoir ~~(21)~~ and
  - an outlet opening ~~(24)~~ provided in the housing through which the liquid ~~(4)~~ can be discharged into a surrounding atmosphere, and
- a protective cap ~~(3)~~ is provided for repeated detachment from and attachment to the housing having an

outer cap ~~(31)~~ and an inner element ~~(32)~~ inserted therein, wherein

- the outer cap ~~(31)~~ has at least one ventilation opening for communication between an interior of the protective cap ~~(3)~~ and an external environment, and
- the inner element is arranged to be adjustable relative to the outer cap ~~(31)~~ at least between a shut-off position and a clearance position, wherein, in the shut-off position, the at least one ventilation opening is closed in an airtight and germproof manner by means of the inner element ~~(32)~~ and, in the clearance position, the at least one ventilation opening ~~(30)~~ connects the interior to the external environment.

11. The discharge device as claimed in claim 8 or 10, further comprising an outlet channel ~~(23)~~, which connects the liquid reservoir ~~(21)~~ to the outlet opening ~~(24)~~, and an outlet valve ~~(25)~~, which opens depending on pressure or can be manually actuated and which is arranged in the outlet channel ~~(23)~~ and, in a closed state, closes the outlet channel ~~(23)~~.