Patent Claims

1. Portable inhaler ~~(1)~~ for propellant-free metered nebulisation of a medicament preparation ~~(2)~~ preferably for an animal, particularly a horse ~~(32)~~,

having a pressure generator ~~(5)~~, ~~which is preferably in the form of a pump and/or which is preferably operating mechanically,~~ and

having an expulsion nozzle ~~(12)~~ for delivering the nebulised medicament preparation ~~(2)~~ as an aerosol ~~(14)~~,

~~the inhaler (1) being constructed in particular as a soft mist inhaler,~~

~~**characterised in that**~~

the inhaler ~~(1)~~ comprises an add-on device ~~(23)~~ with a chamber ~~(24)~~ for receiving and~~/or~~ intermediately storing the aerosol ~~(14)~~, ~~the inhaler (1) having at least one of the following features:~~

characterised in

that the inhaler being constructed as a soft mist inhaler, that the pressure generator is in the form of a mechanically operating pump, and

that a housing of the inhaler comprises a grip or a handle for holding the add-on device during use, or that a tensioning device is associated with the inhaler, the tensioning device comprising a holding portion or a grip member and holding the inhaler and the add-on device during use.

~~the introduction of the aerosol (14) into the chamber (24) takes place at right-angles to a main dispensing direction and/or longitudinal direction of the chamber (24);~~

~~the add-on device (23) comprises an inlet valve (29) for admitting supply air into the chamber (24) and for preventing flow in the opposite direction, the inlet valve (29) being arranged upstream of a connector (25) for admitting the aerosol (14) into the chamber (24);~~

~~the add-on device (23) comprises a breath intake indicator (30) for indicating a flow of air through the chamber (24) in the dispensing direction;~~

~~the add-on device (23) comprises a dispensing connection (26) for connecting to a dispensing device (27) only in a defined rotational position;~~

~~the inhaler (1) comprises a dispensing device (27) which can be connected to the add-on device (23) or is formed thereby, the dispensing device (27) having a larger diameter or cross-section than the chamber (24);~~

~~the inhaler (1) is constructed to be capable of being tensioned and released using one hand;~~

~~the inhaler (1) comprises a trigger element (8) which is arranged on the long side with respect to a main dispensing direction and/or longitudinal direction of the chamber (24); and/or~~

~~the inhaler (1) comprises means for covering and/or cleaning the expulsion nozzle (12).~~

2. Inhaler according to claim 1, characterised in that the add-on device ~~(23)~~ or the chamber ~~(24)~~ is ~~at least substantially~~ cylindrical, elongate or conical in construction.

3. Inhaler according to claim 1 or 2, characterised in that ~~the~~ a connector ~~(25)~~ for admitting the aerosol ~~(14)~~ is arranged between opposite ends of the chamber ~~(24)~~ or opens laterally into the chamber ~~(24)~~.

4. Inhaler according to one of the preceding claims, characterised in that the chamber ~~(24)~~ has a volume of more than at least 0.2 l, preferably more than 0.25 l, in particular about 0.3 to 0.6 l.

5. Inhaler according to one of the preceding claims, characterised in that the add-on device ~~(23)~~ has an inlet opening ~~(28)~~ for admitting supply air into the chamber ~~(24)~~, the inlet opening ~~(28)~~ being arranged upstream of the connector ~~(25)~~ for allowing the aerosol ~~(14)~~ into the chamber ~~(24)~~.

6. Inhaler according to one of the preceding claims, characterised in that the add-on device comprises a breath intake indicator for indicating a flow of

air through the chamber in the dispensing direction, preferably wherein the breath intake indicator ~~(30)~~ operates mechanically and/or comprises an element that can be deflected or pivoted by the flow of air.

7. Inhaler according to one of the preceding claims, characterised in that the inhaler comprises a dispensing device which can be connected to the add-on device or is formed thereby, the dispensing device having a larger diameter or cross-section than the chamber, preferably wherein the dispensing device ~~(27)~~ comprises or forms a soft end piece having an outlet ~~(33)~~, preferably wherein the dispensing device is constructed as a nasal adapter for insertion in a nostril of a horse or other animal.

~~8. Inhaler according to one of the preceding claims, characterised in that the dispensing device (27) is constructed as a nasal adapter for insertion in a nostril (31) of a horse (32) or other animal.~~

~~9. Portable inhaler (1) for the propellant-free metered nebulisation of a medicament preparation (2) preferably for an animal, particularly a horse (32),~~

~~having a pressure generator (5), which is preferably in the form of a pump and/or which is preferably operating mechanically, and~~

~~having an expulsion nozzle (12) for delivering the nebulised medicament preparation (2) as an aerosol (14),~~

~~particularly according to one of the preceding claims,~~

~~**characterised in that**~~

~~the inhaler (1) comprises means for mechanically cleaning the expulsion nozzle (12).~~

8~~10~~. Inhaler according to one of the preceding claims, characterised in that the inhaler comprises means for covering and/or cleaning the expulsion nozzle, in particular wherein the means comprises a swivel element ~~(36)~~ and/or a cleaning element ~~(37)~~.

9~~11~~. Inhaler according to one of the preceding claims, characterised in that the pressure generation or nebulisation is carried out by spring force.

~~12. Portable inhaler (1) for the propellant-free metered nebulisation of a medicament preparation (2) preferably for an animal, particularly a horse (32),~~

~~having a pressure generator (5), which is preferably in the form of a pump and/or which is preferably operating mechanically, and~~

~~having an expulsion nozzle (12) for delivering the nebulised medicament preparation (2) as an aerosol (14),~~

~~the pressure generator (5) having a drive spring (7) for pressure generation and nebulisation,~~

~~the inhaler (1) having a tensioning device (38) for tensioning the drive spring (7),~~

~~particularly according to one of the preceding claims,~~

~~**characterised in that**~~

~~the inhaler (1) or the tensioning device (38) is constructed to be operable with one hand.~~

10. Inhaler according to one of the preceding claims, characterised in that the tensioning device is designed such that the movement of an actuating element is converted into rotation of a housing part of the inhaler for tensioning the drive spring.

11~~13~~. Inhaler according to one of the preceding claims ~~claim 12~~, characterised in that the tensioning device ~~(38)~~ comprises an actuating element ~~(39)~~ that can be operated manually for tensioning the drive spring ~~(7)~~, said actuating element ~~(39)~~ being in particular pivotable and/or movable in a linear manner.

12. Inhaler according to one of the preceding claims, characterised in that the grip member is formed by the outside of a receptacle.

13~~14~~. Inhaler according to one of the preceding claims, characterised in that the inhaler ~~(1)~~ is constructed so that the aerosol ~~(14)~~ is delivered at low speed,

in particular at a speed of less than 2 m/s, particularly preferably about 1.6 m/s or less, at a distance of 10 cm from the expulsion nozzle ~~(12)~~.

1~~4~~15. Inhaler according to one of the preceding claims, characterised in that the inhaler ~~(1)~~ is constructed so as to expel and nebulise 10 to 50 µl of the medicament preparation ~~(2)~~ per actuation or dose over a period of more than 0.7 s, particularly substantially 1 s or more.

15. Inhaler according to one of the preceding claims, characterised in that the introduction of the aerosol into the chamber takes place at right-angles to a main dispensing direction and/or longitudinal direction of the chamber and/or the add-on device comprises an inlet valve for admitting supply air into the chamber and for preventing flow in the opposite direction, the inlet valve being arranged upstream of a connector for admitting the aerosol into the chamber and/or the inhaler is constructed to be capable of being tensioned and released using one hand and/or, the inhaler comprises a trigger element which is arranged on the long side with respect to a main dispensing direction and/or longitudinal direction of the chamber and/or the add-on device comprises a dispensing connection for connecting to a dispensing device only in a defined rotational position.