

Claims

1. A flap (20) for an inhalation actuated mechanism (18) of a powder inhaler,
5 comprising:
a base member (29) comprising a plate-shaped flat portion (60);
a skirt structure (24), wherein
the skirt structure (24) comprises first side wall portions (26B), which substantially
extend in a longitudinal direction of the base member (29), and a second side wall
10 portion (26A) which extends between the first side wall portions (26B) in a width
direction of the base member (29) such that the skirt structure (24) comprising the first
side wall portions (26B) and the second side wall portion (26A) extends along the
circumference of the base member (29), but is open toward a front end of the base
member (29); and
15 a coupling portion (21) to be coupled to a resilient member (40') of the inhalation
actuated mechanism (18), wherein the coupling portion (21) projects from a lower
surface of the base member (29) downward, characterized in that the skirt structure (24)
projects upward from the plate-shaped flat portion (60) of the base member (29)..
- 20 2. The flap (20) according to claim 1,
wherein the base member (29) comprises a shaft portion (28) at a rear end of the flat
portion (60) of the base member (29), the shaft portion (28) being provided to pivotably
support the flap (20) in the inhalation actuated mechanism (18).
- 25 3. The flap (20) according to claim 2,
wherein the flat portion (60) has a first straight longitudinal side and a second straight
longitudinal side, the first and second longitudinal sides being connected by a
combination of a straight front end portion and a rounded front end portion,
wherein a length of the first longitudinal side is shorter than a length of the second
30 longitudinal side.
4. The flap (20) according to any one of the preceding claims,

wherein the second side wall portion (26A) comprises an elongate thickening (27) extending from the base member (29) in a middle portion of the second side wall portion (26A).

5 5. The flap (20) according to any one of the preceding claims,
wherein the skirt structure (24) comprises two first side wall portions (26B) which are spaced from one another in the width direction of the base member (29) and are wedge-shaped such that a height of the first side wall portions (26B) gradually increases from a front end of the base member (29) towards a rear end of the base
10 member (29).

6. The flap (20) according to any one of the preceding claims,
wherein the second side wall portion (26A) is inclined towards a rear end of the base
15 member (29).

7. The flap (20) according to claim 3,
wherein the first side wall portions (26B) extend along the first and second longitudinal sides of the flat portion of the base member (29), and
wherein the first side wall portion (26B), which extends along the first longitudinal side
20 of the flat portion of the base member (29), is angled such that a part thereof extends substantially parallel to the straight front end portion of the base member (29).

8. The flap (20) according to any one of the preceding claims,
wherein the coupling portion (21) for the resilient member (40') of the inhalation
25 actuated mechanism (18) extends downward from the lower surface of the base member (29) which is opposite to the surface from which the skirt structure (24) projects upward.

9. The flap (20) according to any one of the preceding claims,
30 wherein the flap (20) comprises a projection (23) that projects from a shaft portion (28) of the flap (20) backwards, wherein the projection (23) and the coupling portion (21) are spaced in a width direction of the flap (20) and extend substantially parallel to one another; and

wherein the projection (23) is wing-shaped and is designed such that it acts as a counterweight upon a rotation of the flap (20) in the inhalation actuated mechanism (18).

- 5 10. A powder inhaler, comprising
a container (4) for storing a powdered medicament;
a metering member (5) having a dosing recess (15) to be filled with a dose of the
powdered medicament from the container (4);
a mouthpiece (3) being in communication with an inhalation channel (9) for enabling
10 inhalation of the dose of the powdered medicament contained in the dosing recess (15)
of the metering member (5); and
an inhalation actuated mechanism (18) which is coupled to a protective member (7) for
the dosing recess (15) of the metering member (5) such that, if the protective member
(7) is in a closed position in which it covers the dosing recess (15), the inhalation
15 actuated mechanism (18) causes the protective member (7) to move to an open
position, in which the protective member (7) does not cover the dosing recess (15), if an
inhalation suction force exerted by a user on the inhalation channel (9) exceeds a
predetermined value;
wherein the inhalation actuated mechanism comprises the flap (20) according to any
20 one of the preceding claims.

11. The powder inhaler according to claim 10,
wherein the flap (20) is arranged such that it is pivotable between a first position and a
second position, wherein the flap (20) is coupled to the protective member (7) such that,
25 if there is an inhalation suction force exceeding the predetermined value, the flap (20) is
moved from the first position to the second position, thereby causing the protective
member (7) to move from the closed position to the open position.

12. The powder inhaler according to claim 11,
30 wherein the inhalation actuated mechanism (18) comprises a resilient member (40')
which is tensioned by a movement of the metering member (5) from a filling position, in
which the dosing recess (15) is in alignment with an opening of the container (4) so as
to be filled with the dose of the powdered medicament, to an inhalation position, in

which the dosing recess (15) is in alignment with the inhalation channel (9), wherein the resilient member (40') is allowed to discharge upon a movement of the metering member (5) from the inhalation position to the filling position;

wherein the resilient member (40') is arranged such that it holds the flap (20) in its first position if the resilient member (40') is discharged, while the resilient member (40') releases the flap (20) if the resilient member (40') is tensioned, so as to allow the flap (20) to be moved from its first position to its second position by the inhalation suction force exceeding the predetermined value;

wherein the inhalation actuated mechanism (18) comprises a coupling member (30) coupling the flap (20) to the protective member (7) with the resilient member (40') being coupled to the coupling member (30); and

wherein the coupling member (30) comprises a portion (34) which is held by the flap (20) if it is in its first position, while the portion (34) of the coupling member (30) is released by a movement of the flap (20) from its first position to its second position.

13. The powder inhaler according to claim 12,

wherein the resilient member (40') is a spring arranged at the coupling member (30).

14. The powder inhaler according to claim 12 or claim 13,

wherein the inhalation actuated mechanism (18) comprises a further resilient member (50) which is arranged at an opposite side with respect to the resilient member (40').

15. The powder inhaler according to claim 14 and any one of claims 12-13,

wherein the further resilient member (50) is a spring mounted on a shaft-like portion of the coupling member (30) at an opposite side with respect to the resilient member (40'); and

wherein the further resilient member (50) has a first end (51) coupled to the coupling member (30) and a second end (52) coupled to chassis of the powder inhaler.