The main embodiments of My Earlier Breath Actuated, Kink Valve Dispenser included a piston acted on by a differential breath induced pressure. The resultant force generated is generally sufficient to operate the dispenser by drawing the piston towards the dispenser's mouthpiece and extending and opening the kink valve. Nevertheless, I feel that the dispenser is susceptible of some improvement.

The object of the present invention is to provide improved breath actuated, kink valve dispensers.

According to the invention I provide a dispenser for a gaseous, gas borne or droplet substance contained in a source thereof, the dispenser including:

- a body with a mouthpiece;
- a junction member in the body for the substance source; and
- a breath actuable valve, for controlling the release of the gas or liquid containing or comprising the substance, the valve comprising:
    - a flexible tube for receiving the said gas or liquid, the tube extending from a valve inlet connected to the junction member and having a portion which is kinkable for closure of the valve and movable to an open position in which the tube is un-kinked for opening of the valve; and
    - a member arranged for movement in the body by inhalation to un-kink the valve;
- the tube being kinked to an obturating extent when the movable member is in a ready position and un-kinked when the movable member is moved on inhalation for release of the gas or liquid;
- a spray nozzle at the end of the flexible tube which is directed in accordance with the angle of the moveable member;

wherein:

- the movable member is or includes a flap arranged in the body for action of breath on it on inhalation;
- the junction member, the flexible tube and the movable flap are a single injection moulding of plastics material; and
- the movable flap is pivotally connected to the junction member.

Preferably, wherein the movable flap is pivotally connected to the junction member by a living hinge which is an integral part of the single injection moulding.

Claims:

1. A dispenser for a gaseous, gas borne or droplet substance contained in a source thereof, the dispenser including:

- a body with a mouthpiece;
- a junction member in the body for the substance source; and
- a breath actuable valve, for controlling the release of the gas or liquid containing or comprising the substance, the valve comprising:
    - a flexible tube for receiving the said gas or liquid, the tube extending from a valve inlet connected to the junction member and having a portion which is kinkable for closure of the valve and movable to an open position in which the tube is un-kinked for opening of the valve; and
    - a member arranged for movement in the body by inhalation to un-kink the valve;
- the tube being kinked to an obturating extent when the movable member is in a ready position and un-kinked when the movable member is moved on inhalation for release of the gas or liquid;
- a spray nozzle at the end of the flexible tube which is directed in accordance with the angle of the moveable member;

wherein:

- the movable member is or includes a flap arranged in the body for action of breath on it on inhalation;
- the junction member, the flexible tube and the movable flap are a single injection moulding of plastics material; and
- the movable flap is pivotally connected to the junction member.

2. A dispenser as claimed in claim 1, wherein the movable flap is pivotally connected to the junction member by a living hinge which is an integral part of the single injection moulding.

3. A dispenser as claimed in claim 1 or claim 2, wherein:

- the junction member is slidably mounted in the body for movement in a direction for dispensing a dose of the substance from the source and
- the dispenser includes:
    - means for pivoting the flap to its ready position on or prior to initial movement of the junction member and
    - junction member resilient means for returning the junction member after release of the dose.

4. A dispenser as claimed in claim 1, claim 2 or claim 3, wherein the dispenser includes means to hold the flap in its ready position prior to inhalation movement to un-kink the valve.

5. A dispenser as claimed in claim 4, wherein the flap holding means is an over-centre mechanism.

6. A dispenser as claimed in claim 5, wherein the over-centre mechanism comprises a lug and a spring, both integrally moulded with the said single injection moulding, one with the junction member and the other with the flap.

7. A dispenser as claimed in claim 6, wherein the lug is integrally moulded with the flap for pivotal movement with it about the living hinge and the spring is integrally moulded with the junction member.

8. A dispenser as claimed in claim 7, wherein the spring is a leaf spring normally urging the flap to an open position of the valve and urging the flap to its ready position when passed over-centre to this position.

9. A dispenser as claimed in any preceding claim, wherein the single injection moulding is provided with formations guiding it for movement in the body.

10. A dispenser as claimed in any one of claims 1 to 8, wherein the single injection moulding is mounted in a carrier provided with formations guiding it for movement in the body.

11. A dispenser as claimed in claim 3 or any one of claims 4 to 10 as appendant to claim 3, wherein:

- both the source and the single injection moulding, including the junction member (and the carrier where provided), are translationally mounted in the body for movement by depression of the source towards the body, and
- the junction member resilient means acts against the body, accommodates the movement of the junction member resulting in the pivoting of the flap, limits the junction member's movement on further movement of the source with respect to the junction member for dispensing of a dose and returns the junction member (and the source) on release of pressure on the source and

the flap pivoting means comprises:

- an actuator having:
    - an first abutment movably mounted with respect to the body and against which the flap is pressed for pivotal movement thereof on initial

movement of the junction member (and the source) moving the flap against the first abutment;

- a second abutment for disengaging the first abutment from the flap, the second abutment being:
  - connected to the first abutment,
  - movably mounted with respect to the body, and
  - arranged to abut the source and move it on its said further movement,
- abutment resilient means acting against the body, accommodating the said further movement of the source and the second abutment abutted against it, limiting said further movement on dispensing of the dose and returning the abutments on release of pressure on the source.

12. A dispenser as claimed in claim 11, wherein the actuator is another single injection moulding.

13. A dispenser as claimed in claim 11 or claim 12, wherein the first abutment is so positioned as to limit the movement of the flap on releasing of the dose that the outlet of the flexible tube is directed out of the mouthpiece.

14. A dispenser as claimed in claim 3 or any one of claims 4 to 10 as appendant to claim 3, wherein:

- the junction member resilient means is a spring in the source and
- the dispenser includes:
  - means for locating the source in the body with the junction member being slidable towards it and
  - means for displacing the junction member towards the source for dispensing the dose into the kinked tube.

15. A dispenser as claimed in any preceding claim, wherein the body includes a secondary body part attachable to a main body part to provide the mouthpiece and an air inlet between the two parts.

16. A dispenser as claimed in any preceding claim, wherein the source of the substance includes a metered dose valve, whereby it releases a metered dose each time the dispenser is operated.

17. A dispenser as claimed in any one of claims 1 to 28, wherein the source includes a non-metered dose valve, the dose being metered by the capacity of the breath actuable valve.

18. A dispenser for a gaseous, gas borne or droplet substance contained in a source thereof substantially as hereinbefore described with reference to Figures 1 to 5 of the accompanying drawings.