

CLAIMS

1. A device delivering for nasal medication, having:

- an ultrasonic energy generator, being a concave ultrasonic transducer, adapted to create a tapered ultrasonic focal zone of concentrated ultrasonic energy;
- ultrasonic energy transmission medium;
- a feeder chamber holding medication;
- an energising chamber smaller than the feeder chamber arranged to hold medication at the focal zone, and further arranged such that the transmission medium is between the transducer and the energising chamber;
- a mesh; and
- a nasal prong;

the device formed so that when it is activated:

- ultrasonic energy travels through the transmission medium and into a charge of the medication such that the charge becomes acoustically energised within the focal zone; and
- the feeder chamber continuously fills the energising chamber with medication, until the feeder chamber has insufficient medication left to achieve this so that there is a substantially constant supply of medication within the focal zone able to be energised and forced from the energising chamber so as to contact the mesh, as a consequence become an aerosol, and leave the device by way of the prong.

2. A device according to claim 1, having a mouthpiece adapted for a human user to blow into and sensing means which, in response to such blowing, causes the medication to be energised and the aerosol to form.

3. A device according to claim 1 or 2, wherein the energising chamber has a volume of 0.1 cm³ to 0.8 cm³.

4. A device according to claim 1, 2 or 3, wherein the transmission medium comprises a fluid and there is a membrane between the fluid and the energising chamber.

5. A device according to any one of the preceding claims, wherein the ultrasonic generator is adapted to focus ultrasonic energy on the focal zone when activated, such that medication in the energising chamber becomes acoustically energised and moves towards the mesh.

6. A device according to any one of the preceding claims, formed such that when activated it causes the mesh to vibrate as the medication contacts the mesh so as to assist in creating the aerosol.
7. A device according to any one of the preceding claims, having an exit which is part of the prong.
8. A device according to claim 7, wherein the mesh is integral with the prong.
9. A device according to claim 7 or 8, wherein the mesh is immediately adjacent to the exit so as to prevent or minimise condensation of the aerosol inside the device.
10. A device according to claim 7, 8 or 9, in each case when read as dependent on claim 2, wherein the energising chamber, the generator and exit are at an angle of about 40° to about 80° upwards with respect to the mouthpiece.
11. A device according to claim 7, 8, or 9 in each case when read as a dependent on claim 2, or according to claim 10, wherein the energising chamber, the generator and exit are at an angle of about 50° to about 70° upwards with respect to the mouthpiece.
12. A device according to any one of the preceding claims, wherein the medication is a pharmaceutical or saline solution.
13. A device according to any one of the preceding claims, wherein the feeder chamber has a funnel or flume formed to naturally encourage the medication into the energising chamber.

14. A device according to any one of claims 1 to 13, wherein the energising chamber has:

- a. a tapered floor and/or
- b. a well;

to urge medication to gather at the focal zone.

15. A delivery device for nasal medication according to claim 1, wherein:

- the ultrasonic energy acoustically energises a charge of the medication within the focal zone to produce an acoustic radiation pressure on an inner face of the mesh so that the mesh oscillates to cause a micro-pumping action of the medication; and
- the feeder chamber is at one side of the device only, and detachably cantilevers outwardly from a location between the nasal prong and the ultrasonic energy generator.