[0011] The solutions of the prior art are not suitable for the formation of mists with droplets of very small dimensions, which have a high flame-extinguishing efficiency.

[0012] Prior art patent FR2376384 produces, for example, artificial snow formed by frozen flakes of large dimensions, several millimeters or even one or more centimeters, which is absolutely not suitable for extinguishing a fire.

[0013] The solutions of the prior art are notably sensitive to the flow rate ratio of the gas phase/flow rate of the liquid phase, and when the ratio drifts relative to the optimal value, the droplets are not correctly micronized. It is therefore not possible to modulate the flow rate and the dilution rate without losing efficiency. Furthermore, the solutions of the prior art generally require a high pressure and therefore a high flow rate for the gas phase, which limits the possibilities of use for a portable equipment, making it impossible to transport a reserve of gas that is too bulky and heavy.

SOLUTION PROVIDED BY THE INVENTION

[0014] ~~To remedy these drawbacks, the present invention relates in its most general sense to a device for generating a jet of two-phase fluid according to claim 1.~~

According to an aspect of the present invention, there is provided a device for generating a jet of two-phase fluid comprising a nozzle having a main duct supplied with a pressurized gaseous fluid and opening into a mixing chamber, as well as at least one secondary duct supplied with at least one pressurized liquid fluid opening into said mixing chamber in a direction forming a non-zero angle with the axis of said main duct characterized in that

- said mixing chamber has a convergent-divergent cylindrical wall having a constriction defining a disc opening in the plane perpendicular to the axis of said main duct, said disc opening

● the convergent part of said wall has a frustoconical region in the continuation of the axis of the at least one secondary duct so as to form a fragmentation chamber for the liquid phase.

DETAILED DESCRIPTION OF NON-LIMITING EMBODIMENTS

[0015] The present invention will be better understood from reading the following description, which refers to non-limiting exemplary embodiments illustrated by the appended drawings, in which

[0016] [FIGURE 1] Figure 1 shows a view along a first longitudinal sectional plane of a nozzle according to the invention

[0017] [FIGURE 2] Figure 2 shows a view along a second longitudinal sectional plane, perpendicular to the previous one, of a nozzle according to the invention

Claims

1. A device for generating a jet of two-phase fluid comprising a nozzle having a main duct ~~(1)~~ supplied with a pressurized gaseous fluid and opening into a mixing chamber ~~(400)~~, as well as at least one secondary duct ~~(301 to 305)~~ supplied with at least one pressurized liquid fluid opening into said mixing chamber ~~(400)~~ in a direction forming a non-zero angle with the axis of said main duct characterized in that

- said mixing chamber ~~(400)~~ has a convergent-divergent cylindrical wall having a constriction ~~(430)~~ defining a disc opening in the plane perpendicular to the axis of said main duct, said disc opening
- The convergent part ~~(410)~~ of said wall has a frustoconical region in the continuation of the axis of the at least one secondary duct ~~(301 to 305)~~ so as to form a fragmentation chamber for the liquid phase.

2. The device for generating a jet of two-phase fluid according to claim 1, characterized in that said axis ~~(311, 312)~~ of said at least one secondary duct ~~(301 to 305)~~ forms with the axis ~~(10)~~ of said main duct ~~(1)~~ an angle of between 2° and 20°.

3. The device for generating a jet of two-phase fluid according to claim 1, characterized in that the axes ~~(311, 312)~~ of the secondary ducts ~~(301 to 305)~~ define with the generator ~~(411)~~ of the cone of the convergent part ~~(410)~~ an angle of between 0° and 60° and preferably of 45° ± 10°.

4. The device for generating a jet of two-phase fluid according to claim 1, characterized in that the diameter of said opening of the constriction ~~(430)~~ is between 0.8 and 1.2 times the diameter of said main duct.

5. The device for generating a jet of two-phase fluid according to claim 1, characterized in that it includes a plurality of secondary ducts ~~(301, 305)~~

converging towards said mixing chamber ~~(400)~~, distributed at the periphery of said main duct.

6. The device for generating a jet of two-phase fluid according to claim 1, characterized in that the ejection channel ~~(420)~~ of said nozzle, located in the divergent part, has a truncated bullet shape.

7. The device for generating a jet of two-phase fluid according to claim 1, characterized in that the ejection channel ~~(420)~~ of said nozzle is extended by a deformable ejection tip.

8. The device for generating a jet of two-phase fluid according to ~~the preceding~~ claim 7, characterized in that said deformable ejection tip consists of a deformable sleeve ~~(500)~~ arranged between two movable jaws ~~(530, 540)~~ articulated between a position where they ensure the pinching of the front portion ~~(510)~~ of said deformable sleeve ~~(500)~~ and a spaced position where the sleeve has a nominal section.

9. The device for generating a jet of two-phase fluid according to ~~the preceding~~ claim 8, characterized in that said movable jaws ~~(530, 540)~~ have a ramp ~~(536, 546)~~ against which the connecting rods ~~(531, 541)~~ are supported in order to control the tightening of the front end of said movable jaws ~~(530, 540)~~.

10. The device for generating a jet of two-phase fluid according to claim 1, characterized in that it is integrated into a body ~~(700)~~ having a fixed rear handle ~~(703)~~ and a front tilting handle ~~(705)~~ controlling the variation of the jet parameters.

11. The device for generating a jet of two-phase fluid according to ~~the preceding~~ claim 10, characterized in that said body ~~(700)~~ has a fitting ~~(709)~~ for connecting a supply pipe of an air mask.