Sept. 17, 1968 A. SUTTER 3,401,888

SNOW NOZZLE

Filed Oct. 22, 1965

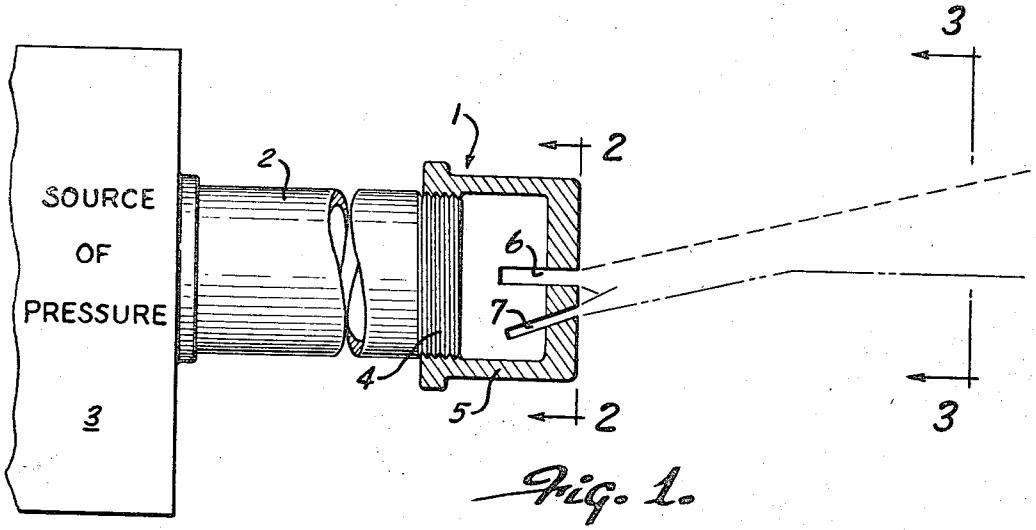


Fig. 1.

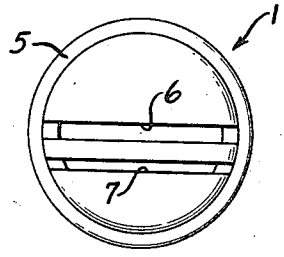


Fig. 2.

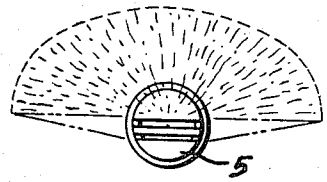


Fig. 3.

Fig. 4.

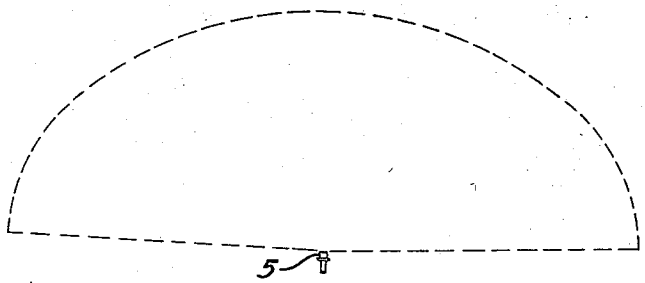
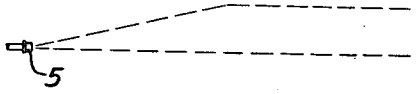


Fig. 5.



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SNOW NOZZLE

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ABSTRACT OF THE DISCLOSURE

A snow nozzle having a flat front face with two coextensive slots. One of the slots is disposed at an angle to the other and is about one-half the thickness of the other.

The present invention relates to an improved nozzle for spraying fluid material, such as to produce artificial snow.

Heretofore, such nozzles have been constructed so that they produce a circular cone of snow which is wet in the center. To get "dry" snow it has been necessary to aim the nozzle high. However, this makes the snow issuing from the nozzle susceptible to wind. In addition, previous nozzles have tended to deposit the snow in bumps or irregular piles, and wind increases this tendency to deposit irregularly.

Previous nozzles have had other disadvantages. Their angle of deposit is small, approximately 15°. They freeze easy and are noisy. They pulsate and are expensive to operate because of their usage of a substantial amount of air.

The principal object of this invention is to provide an improved nozzle which is faster in operation, is more efficient, and which produces a better quality, finer, denser and dryer snow.

The accompanying drawing illustrates the best mode presently contemplated by the inventor for carrying out the invention.

In the drawing:

FIGURE 1 is a side elevation, showing the nozzle of the invention being used for spraying snow;

FIG. 2 is a front end view of the nozzle taken on line 2—2 of FIGURE 1;

FIG. 3 is a transverse section taken on line 3—3 of FIGURE 1, and shownig the pattern of snow being sprayed;

FIG. 4 is a top view showing the flattened ellipse of spray; and

FIG. 5 is a side view of the spray cone configuration.

As shown in the drawing, the nozzle **1** may be secured to the end of a conduit, such as pipe **2** which is supplied through its other end with a suitable mixture of gas and liquid under pressure for producing snow. The supply means shown schematically at **3** may be of any well-known type.

Nozzle **1** comprises a cap-like member which, when secured as by threads **4** to the end of pipe **2**, forms a housing **5** which closes the end of the pipe. Housing **5** may have an outside diameter of approximately 1½". Nozzle **1** is constructed for discharging snow from pipe **2**. For this purpose, the outer flat face of housing **5** is provided with a centrally disposed generally planar cut or slot **6** which extends through the flat housing wall and is generally perpendicular thereto. Slot **6** also extends part way into the cylindrical housing wall side. The thickness of the slot is preferably 1/16"–⅛". A second generally planar slot **7** is disposed generally parallel

to slot **6** and coextensive therewith, and is spaced therefrom a distance preferably approximately ¼"–½". Slot **7** is substantially the same length as slot **6**, but is only about ½ the thickness of the latter; i.e., preferably 1/32"–1/16".

In order to lower the nozzle angle during spraying without increasing the amount of undesirably wet snow deposited, means are provided to flatten the cone of spray. For this purpose, slot **7** is extended through the wall of housing **5** at an angle of about 15°–20° to slot **6**. The resulting spray cone shape is shown in FIGS. 3–5. The top cone surface extends upwardly on an angle and then straightens out so that it is generally parallel to the flattened cone bottom.

The nozzle of the invention furnishes dry snow in the center. It produces a wide angle of deposit, almost 180°. It gives a widened elliptical spray pattern, versus the circular based cones sprayed by previous nozzles. In addition, the nozzle of the invention deposits snow evenly and gives out only a low quiet hiss. It is less costly to operate, using approximately ⅔ the air of former nozzles. The nozzle can be aimed only 2' off of the ground and parallel thereto.

With previous nozzles, water emerged therefrom and subsequently changed to rather wet snow. With the present nozzle, relatively dry snow emerges directly therefrom.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

I claim:

1. For use in spraying artificially produced snow material, a nozzle comprising:

(a) a housing having a front face with a generally flat wall connected to a generally annular side wall,

(b) said housing having a first generally planar slot disposed perpendicular to and extending horizontally through said flat wall and into said annular wall,

(c) and said housing having a second generally planar slot extending through said flat wall and into said annular wall, said second slot being coextensive with said first slot and being disposed in a plane below and at a diverging angle of about 15°–20° to said first slot such that the resulting spray from the second slot will intersect the spray from the first slot to provide a flattened cone spray pattern,

(d) said second slot being about one-half the thickness of said first slot.

2. The nozzle of claim **1** wherein the construction is such as to produce a generally elliptical cone of evenly distributed snow having a width of about 180°.

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