

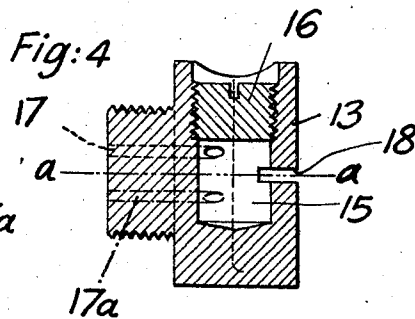
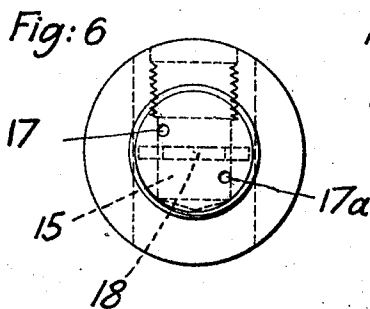
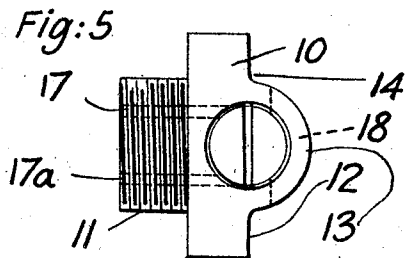
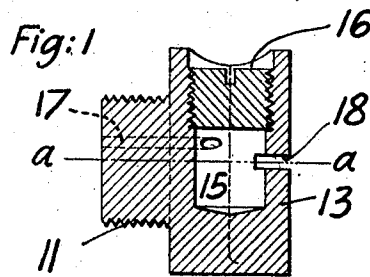
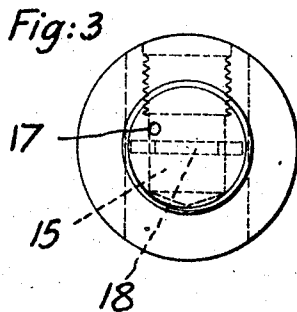
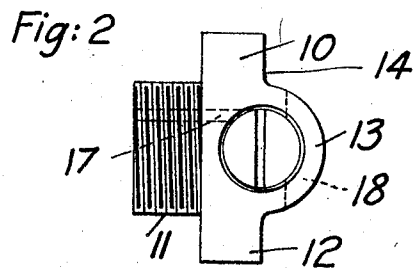
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1,581,752

F. MARTINDELL

NEBULIZER OF LIQUIDS

Filed May 3, 1921



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NEBULIZER OF LIQUIDS.

Application filed May 3, 1921. Serial No. 466,558.

To all whom it may concern:

Be it known that I, FRANK MARTINDELL, a citizen of the United States, and a resident of Baldwin, Long Island, in the county of Nassau and State of New York, have invented certain new and useful Improvements in Nebulizers of Liquids, of which the following is a specification.

This invention relates to nebulizers of liquids, that is apparatus for causing liquids to assume the form of an extremely fine mist; and the invention particularly relates to nebulizers of the free centrifugal type hereinafter disclosed, wherein the centrifugal action is obtained, not by moving parts or by stationary baffles in the discharge passage, but by the tangential direction of inlet orifices into a so-called centrifugal chamber within the nebulizer.

Nebulizers of this kind are used in connection with various devices, such as fuel oil burners, paint spraying apparatus, etc., and it is the particular object of this invention to provide the nebulizer with an outlet in a novel position which causes the spray issuing therefrom to assume a substantially fan-like or flat shape. This is of special advantage when using the device embodied with this nebulizer as a paint spraying medium, so as to give the effect of a brush; or, if used in connection with a fuel burner, when the same is mounted near the furnace arch, a flat or fan-like spray is of utmost advantage, to avoid the melting of the arch.

The invention is illustrated by means of the accompanying drawings in which—

Fig. 1 is a vertical longitudinal sectional view of the nebulizer;

Fig. 2 is a plan view of the nebulizer, in which are indicated in dotted lines the inlet and outlet orifices;

Fig. 3 is an end view of the nebulizer;

Figs. 4, 5 and 6 are similar views showing two inlet orifices.

Like characters of reference denote similar parts throughout the several views and the following description.

10 is a nebulizer, having a shank 11 threaded exteriorly for suitably connecting with an apparatus. 12 is a cylindrical head, having a half cylindrical protuberance 13 across its outer face 14. 15 is a hollow core within the nebulizer, cylindrical in shape, substantially at right angles to an axis $a-a$ of shank 11. One end of the core 15 is

closed solidly, the other end by a threaded plug 16. The core 15 will hereinafter be referred to as "centrifugal chamber". 17 is an inlet opening drilled through shank 11, so positioned as to impinge the circumference of the centrifugal chamber 15, somewhat above the axis $a-a$. 18 is a slot, preferably in line with axis $a-a$ which serves as an outlet from centrifugal chamber 15.

17^a in Figs. 4, 5 and 6 is an additional inlet orifice, located somewhat below the axis $a-a$, and preferably on a side of the centrifugal chamber opposite to that of inlet 17, as shown in the drawings.

The operation of the device is by free centrifugal action, as follows:

The liquid enters under pressure through the tangential inlet 17 (see Figs. 1-3) or, inlets 17 and 17^a (see Figs. 4-6) into the centrifugal chamber 15 and revolves around in the same, to be discharged therefrom through outlet 18. Each particle of the liquid on reaching the outlet 18 is discharged in a straight line tangent to the centrifugal chamber at the point in the outlet slot where it leaves the chamber, resulting in a fan like spray.

When two inlets are used, as shown in Figs. 4, 5 and 6, one above and one below the outlet slot, and on opposite sides of the centrifugal chamber, two fans of spray are produced which blend to result in a single fan.

It is obvious that the angle of the fans in both the single and double inlet types may be varied by altering the depth, width and shape of the outlet. The capacity may be altered by changing the size of the inlets. The capacity and character of the spray may be further altered by varying the dimensions of the centrifugal chamber. Also, while in the drawings, the outlet is shown in the plane of the axis of the nebulizer, the same may be located at any desired position in the walls of the centrifugal chamber.

It is understood that various changes in the form, proportions and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

What I claim as new, is:

1. A liquid nebulizer comprising a swirl chamber of cylindrical smooth bore closed at its ends, a tangential inlet through the

curved wall of said chamber adjacent one end, and a discharge through the curved wall at a point farther removed from said end.

5 2. A liquid nebulizer comprising a swirl chamber of cylindrical smooth bore closed at its ends, a tangential inlet through the curved wall of said chamber adjacent one end, and a discharge through the curved wall at a point farther removed from said end and substantially opposite the said inlet.

15 3. A liquid nebulizer comprising a swirl chamber of cylindrical smooth bore closed at its ends, a tangential inlet through the curved wall of said chamber adjacent one end, and an oblong discharge through the curved wall at a point farther removed from said end.

20 4. A nebulizer of liquids comprising a structure having in combination a centrifugal chamber having two inlet openings tangential to the side wall thereof, an outlet opening through the side wall of the said

centrifugal chamber, the said outlet opening being located in a plane between those of the two inlet orifices.

5. A nebulizer of liquids comprising a structure having in combination a centrifugal chamber with two inlet openings tangential to the side wall thereof, an outlet opening through the side wall of the said centrifugal chamber, the said outlet opening being located in a plane between and equidistant from the planes of the two inlet orifices.

6. A nebulizer of liquids comprising a structure having in combination a centrifugal chamber with two inlet orifices tangential to the side wall thereof and in staggered relation to each other, and an oblong outlet through the side wall of the said centrifugal chamber, the said outlet being located in a plane between and equidistant from the planes of the two inlet orifices.

In testimony whereof I have hereunto set my hand.

FRANK MARTINDELL.