

March 5, 1957

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2,784,033

CENTRIFUGAL ATOMIZER FOR LIQUIDS

Filed Nov. 24, 1953

3 Sheets-Sheet 1

Fig. 1.

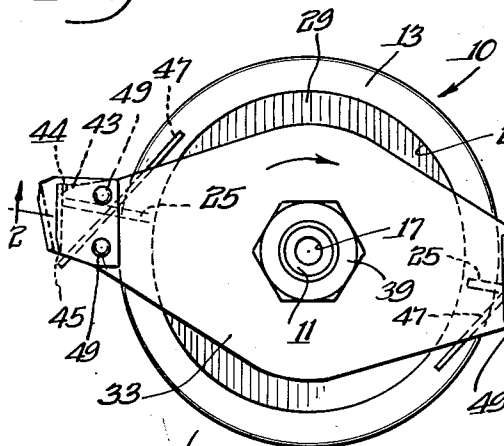


Fig. 3.

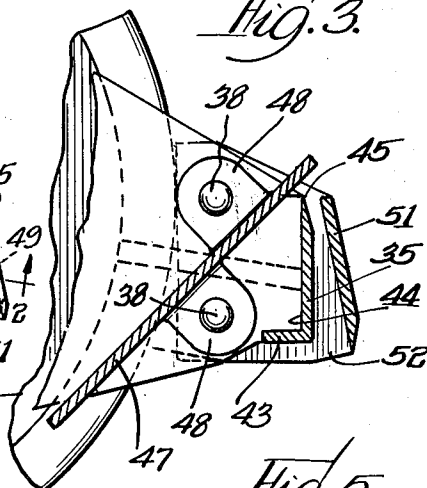


Fig. 2.

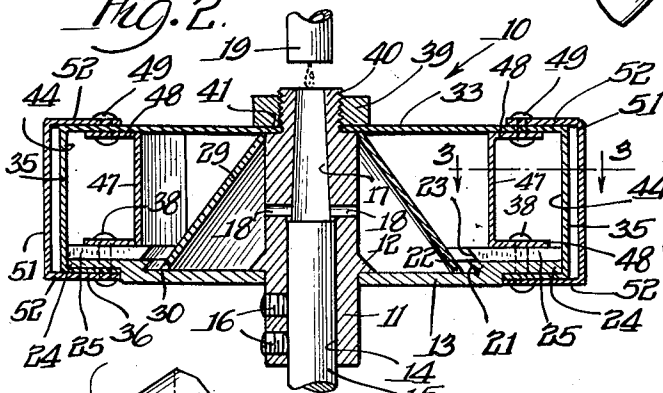


Fig. 5.

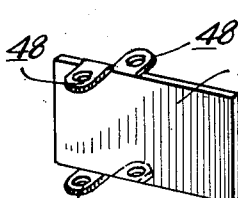
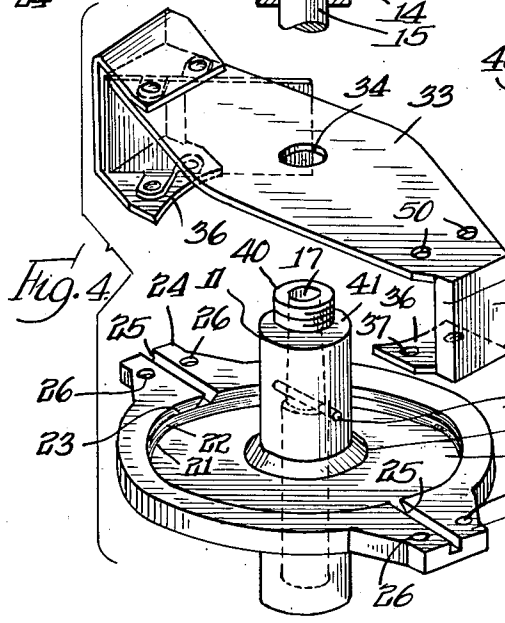
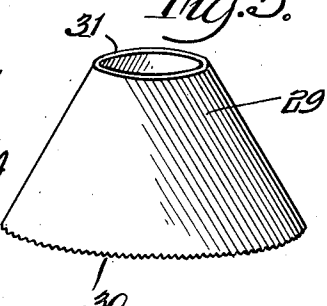


Fig. 6.

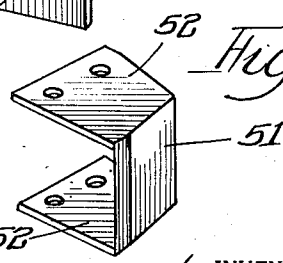


Fig. 7.

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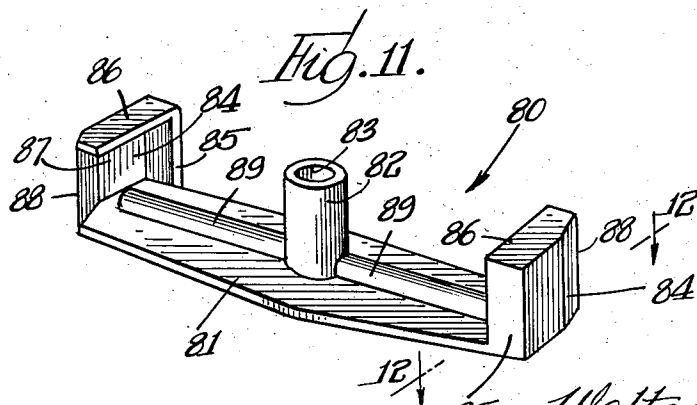
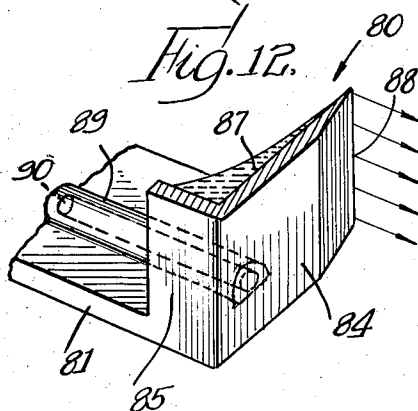
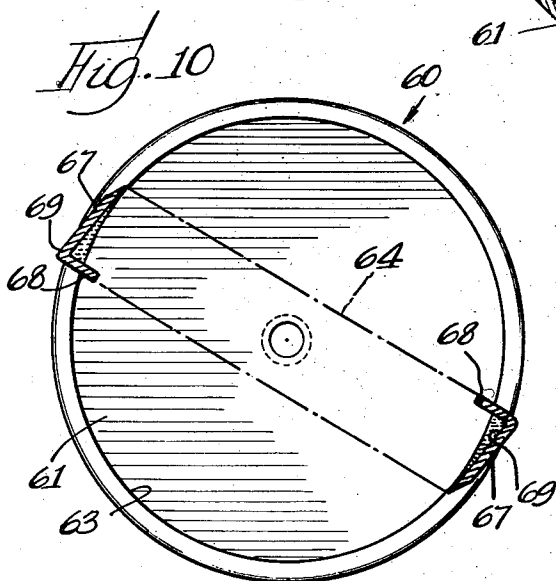
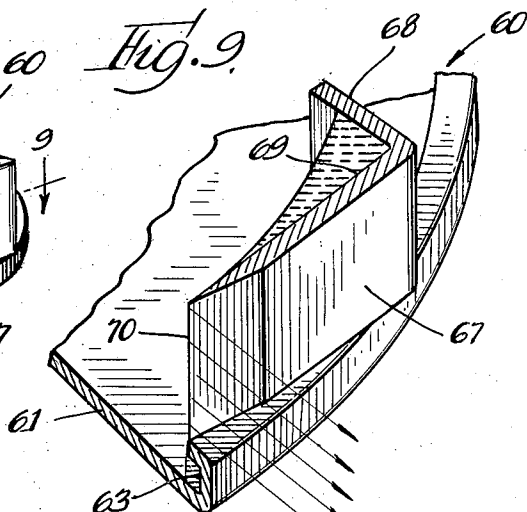
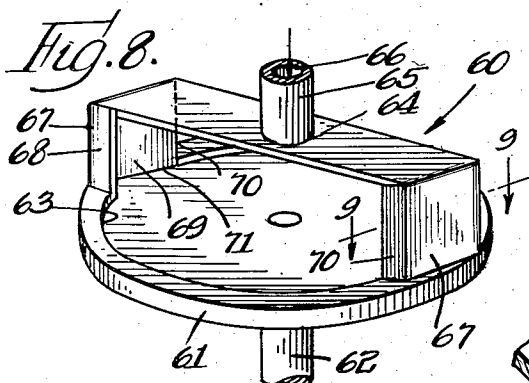
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3 Sheets-Sheet 2



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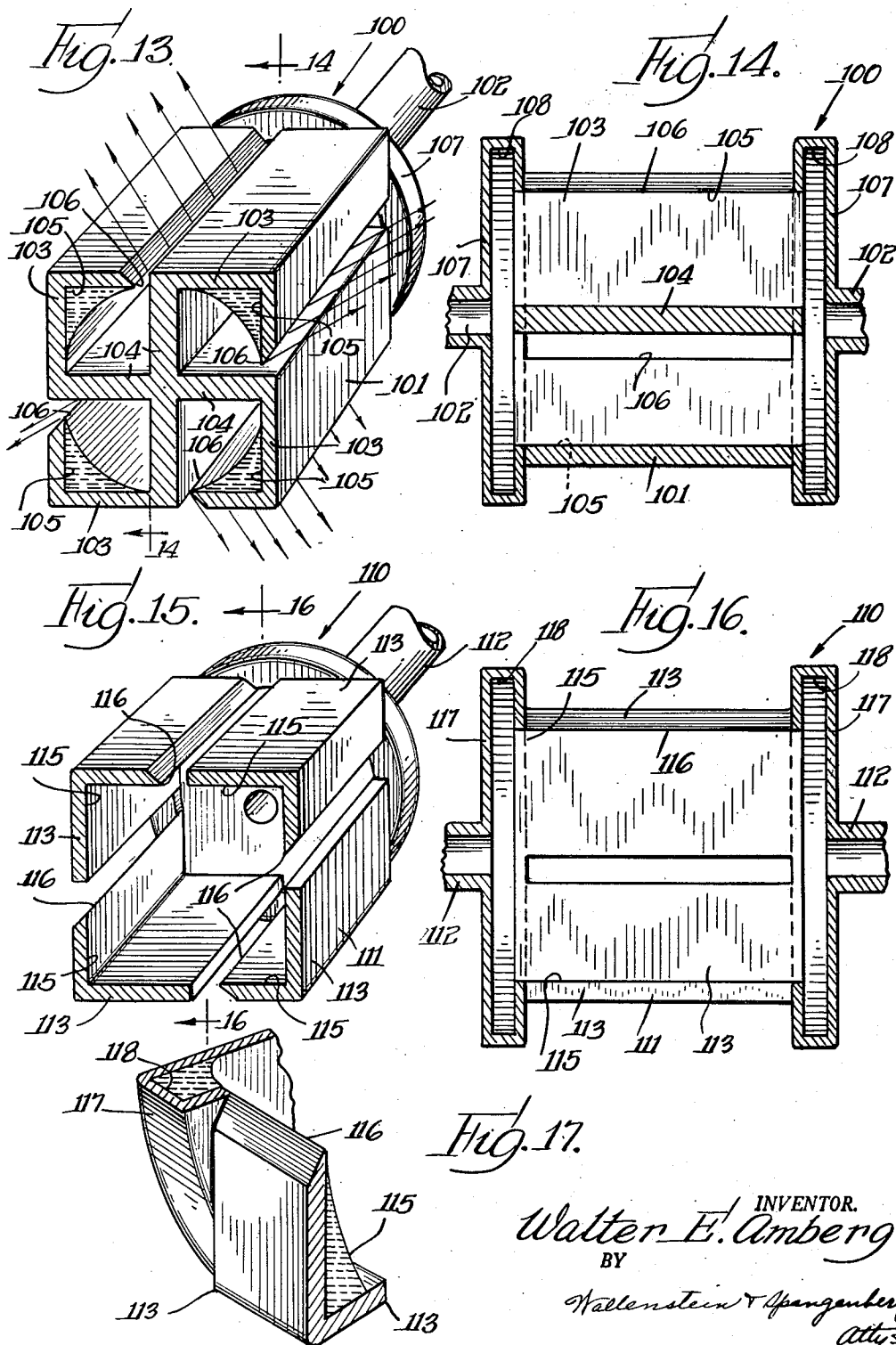
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CENTRIFUGAL ATOMIZER FOR LIQUIDS

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3 Sheets-Sheet 3



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CENTRIFUGAL ATOMIZER FOR LIQUIDS

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Application November 24, 1953, Serial No. 394,155

18 Claims. (Cl. 299—63)

This invention relates to a centrifugal atomizer for liquids.

The principal object of this invention is to provide an atomizer for finely atomizing liquids by centrifugal force which provides a high degree of uniform atomization or vaporization, which is simple in construction, which is foolproof in operation and which may be inexpensively manufactured.

Briefly, the atomizer of this invention includes a rapidly rotating member rotatable about an axis of rotation and having one or more, preferably the latter, reservoirs displaced radially from said axis of rotation for centrifugally trapping liquid therein. Means are provided for supplying liquid to said reservoirs at a desired rate to be trapped therein by centrifugal force. The reservoirs each have a linear spillage edge which are radially spaced equally from the axis of rotation and also parallel thereto. These linear spillage edges provide a cylindrical path for outward escapement of the trapped liquid from the reservoirs thereover by centrifugal force to finely atomize the liquid. The rate of outward escapement and atomization of the liquid by centrifugal force is dependent upon the rate of delivery of liquid to said reservoirs.

The atomizer of this invention spreads out, at the linear spillage edge, the amount of feed per revolution over an area equal to pi times the diameter times the length of the spillage edge. For example, in a device 4" in diameter and with a spillage edge of 1" long, using one drop of liquid per revolution, this drop would be spread over at the spillage edge per revolution, pi times 4" times 1" in area, or approximately an area of 12.5 square inches. Two reservoirs would double the area of the spread of this drop of liquid. This drop of liquid per revolution, employing commercial 1750 R. P. M. speeds, produces an atomizing capacity of better than a gallon of liquid per hour. Limitation of the number of reservoirs employed is based upon specific uses, speeds and diameters and the atomizer may be specifically engineered for various purposes.

The manner of feeding liquid to the reservoirs may be accomplished in various ways. The feeding of the liquid may be made directly from the rotating axis of the atomizer and here, in the case of multiple reservoirs, extreme care is required to obtain equalization of feeds to the respective reservoirs to obtain optimum results. Preferably, the liquid fed to the reservoirs is stepped through an auxiliary annular chamber in the rotating member which is concentric with the axis of rotation. In this instance, the liquid is fed to the annular chamber where it is trapped by centrifugal force and where rotative movement is imparted to the liquid. Passages then convey the liquid from the annular chamber to the reservoirs and equalization of the feed to the reservoirs is more readily brought about. The annular chamber may be spaced about the same distance from the axis of rotation as the reservoirs and here the concentricity of the chamber and reservoirs must be quite accurate to obtain equalized feed

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to the reservoirs. On the other hand, the annular chamber may be spaced from the axis of rotation a lesser amount than the reservoirs and here the concentricity of the annular chamber and reservoirs is not so critical to obtain equalized feed to the reservoirs.

Preferably, a fan blade is located adjacent each linear spillage edge and spaced inwardly therefrom for creating air currents for aiding in scattering and directing outwardly the atomized liquid escaping by centrifugal force from the linear spillage edges. Also, preferably, a fan blade is located adjacent each linear spillage edge and spaced outwardly therefrom for creating air currents for minimizing the tendency for capillarity attraction on the external sides of the linear spillage edges.

Further objects of this invention reside in the details of construction of the atomizer and in the cooperative relationships between the component parts thereof.

Other objects and advantages of this invention will become apparent to those skilled in the art upon reference to the accompanying specification, claims and drawings, in which:

Fig. 1 is a top plan view of the preferred form of the atomizer of this invention;

Fig. 2 is a vertical sectional view taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is an enlarged sectional view of a portion of the atomizer taken substantially along the line 3—3 of Fig. 2;

Fig. 4 is an exploded perspective view of some of the parts forming the atomizer of Figs. 1 to 3;

Fig. 5 is a perspective view of a cone shaped member utilized in the atomizer;

Fig. 6 is a perspective view of the inner fan blades used in the atomizer;

Fig. 7 is a perspective view of the outer fan blades used in the atomizer;

Fig. 8 is a perspective view of another form of the atomizer of this invention;

Fig. 9 is an enlarged perspective view, in section, of a portion of the atomizer illustrated in Fig. 8 and taken substantially along the line 9—9 of Fig. 8;

Fig. 10 is a top plan view, partly in section, of the atomizer of Fig. 8;

Fig. 11 is a perspective view of another form of the atomizer of this invention;

Fig. 12 is a perspective view, partly in section, of a portion of the atomizer of Fig. 11 and taken substantially along the line 12—12 of Fig. 11;

Fig. 13 is a perspective view, partly in section, of still another form of the atomizer of this invention;

Fig. 14 is a vertical sectional view taken substantially along the line 14—14 of Fig. 13;

Fig. 15 is a perspective view, partly in section, of a further form of the atomizer of this invention;

Fig. 16 is a vertical sectional view taken substantially along the line 16—16 of Fig. 15;

Fig. 17 is a perspective view, partly in section, of a portion of the atomizer illustrated in Figs. 15 and 16.

Referring first to Figs. 1 to 7, the preferred form of the atomizer of this invention is generally designated at 10. It includes a hub 11 having an annular shoulder 12 which is engaged by a member 13 which in turn is suitably secured to the hub 11 as by brazing or the like. The hub 11 is provided with a central bore 14 for receiving a shaft 15, the hub being secured to the shaft by means of set screws 16 or the like. The shaft 15 is rotated at a rapid rate, such as for example, by a standard electric motor (not shown) operating at a speed of 1750 R. P. M. Thus, the member 13 carried by the hub 11 is a rotating member which is rotated rapidly about its central axis of rotation. The upper end of the hub 11 is also provided with a bore 17 and with communicating radial passages

18. Thus, when liquid is fed by a suitable liquid feeder 19 into the bore 17, the liquid moves radially outwardly through the passages 18. The rate of feed of liquid from the feeder 19 into the bore 17 may be regulated as desired in any suitable manner.

The rotating member 13, which is essentially a plate, is provided with an annular feeding chamber 21, which is concentric with the axis of rotation of the member 13. Liquid which is fed to the annular chamber 21, is centrifugally trapped therein and rotation is imparted thereto. The annular feeding chamber 21 is provided with a circular spillage edge 22 over which trapped liquid escapes by centrifugal force from the annular feeding chamber. The rotating member 13 also includes a second annular chamber 23 which is concentric with the axis of rotation and it is located adjacent the annular feeding chamber 21 for receiving liquid which escapes over the circular spillage edge 22. The rotating member 13 is also provided with a pair of outwardly extending ears 24 and these ears are provided with radially extending grooves or passages 25 communicating with the second annular chamber 23. These ears are also each provided with a pair of holes 26.

An inverted cone shaped member 29 has its larger edge resting on the rotating member 13 and preferably this larger edge is serrated as indicated at 30 so as to allow liquid to pass between the rotating member 13 and the cone shaped member 29. The upper smaller edge 31 of the cone shaped member 29 engages the central hub 11. Thus, as liquid is fed to the atomizer and escapes through the radial passages 18 the liquid is deflected downwardly by the cone shaped member 29 and passes outwardly by centrifugal force through the serrated edge 30 into the annular feeding chamber 21.

The atomizer also includes a bracket member 33 having a central hole 34 for receiving the hub 11. The outer ends of the bracket 33 are formed downwardly as indicated at 35 and inwardly as indicated at 36. The inwardly extending portions 36 are provided with holes 37 in register with the holes 26 of the rotating member 13. Rivets 38 extend through the holes 26 and 37 for securing the outer ends of the bracket 33 to the rotating member 13. A nut 39 is screwed onto a screw threaded extension 40 of the hub 11 for clamping the bracket 33 against a shoulder 41 on the hub 11 and also for retaining the cone shaped member 29 in position. All of the parts thus far described are therefore locked together for rotation as an integral unit about the axis of rotation.

The leading sides of the downwardly extending portions 35 of the bracket are provided with flanges 43 for forming reservoirs 44 in which liquid is centrifugally trapped. The trailing sides of the reservoirs 44 are each provided with a linear spillage edge 45. These spillage edges 45 are radially spaced equally from the axis of rotation and are parallel to said axis of rotation. These linear spillage edges 45 provide a cylindrical path, as the atomizer is rotated, for outward escapement of trapped liquid from the reservoirs 44 by centrifugal force to finely atomize the liquid. Thus, the liquid is flung outwardly by centrifugal force from a large sized cylindrical area generated by the rotation of the spillage edges 45. This effectively operates to atomize the liquid into an extremely fine state.

A fan blade 47 is located adjacent to and inwardly from each linear spillage edge 45. The fan blades 47 are provided with apertured ears 48 for securing the fan in place. The lower ears 48 receive the rivets 38 and the upper ears 48 are held in place by rivets 49 extending through holes 50 in the bracket member 33. These fan blades 47 which are slanted outwardly create air currents as the atomizer rotates for aiding in scattering and directing outwardly the atomized liquid escaping by centrifugal force from the linear spillage edges 45. Another fan blade 51 is located adjacent each linear spill-

age edge 45, but outwardly therefrom. The fan blades 51 are provided with apertured ears 52 which receive the rivets 38 and 49 for securing the fan blades 51 in place. The fan blades 51 are slanted inwardly for creating air currents for minimizing the tendency for capillary attraction on the external sides of the linear spillage edges 45.

In operation of the atomizer, the liquid which is fed into the bore 17 and through the passages 18 is directed downwardly by the cone shaped member 29 into the annular feeding chamber 21 in which the liquid is trapped by centrifugal force. The liquid so trapped is caused to rotate with the rotating member 13. As the feed of liquid continues the trapped liquid gradually spills over the circular spillage edge 22 into the annular chamber 23 where the liquid is also trapped. The liquid then escapes from the annular chamber 23 through the radial grooves or passages 25 into the reservoirs 44 in which the liquid is centrifugally trapped. As the feed of liquid continues, the trapped liquid in the reservoirs 44 spills over the linear spillage edges 45 and is flung outwardly and atomized by centrifugal force. The outward flinging and the atomization of the liquid take place over a large cylindrical area so as to assure optimum atomization. Since the liquid being atomized is continuously replenished by the liquid feeder 19, the rate of atomization is dependent upon the rate of liquid feed. The fan blades 47 operate to assist in the atomization of the liquid and effectively prevent the formation of globules of liquid after the atomized liquid has left the linear spillage edges 45. The fan blades 51 effectively operate to prevent the building up of liquid on the outer sides of the linear spillage edges 45 which might be brought about by capillary attraction.

Referring now to Figs. 8, 9 and 10, another form of the atomizer of this invention is generally designated at 60. It includes a rotating member 61 carried by a shaft 62 which is rotated by a suitable electric motor (not shown) or the like. The rotating member 61 is substantially disc shaped and is provided at its outer edge with an annular chamber 63 for trapping liquid therein. A bracket member 64 is secured to and extends across the rotating member 61 and it is provided with a hub 65 which in turn is provided with a bore 66 through which the liquid may be fed to the rotating member 61. The liquid so fed to the rotating member, is forced outwardly by centrifugal force into the annular chamber 63 where the liquid is trapped.

Between the bracket 64 and the rotating member 61 are a pair of members 67 having end walls 68 for forming reservoirs 69 in which liquid is centrifugally trapped. Linear spillage edges 70 are formed on the members 67 and these linear spillage edges are parallel to and equally spaced from the axis of rotation of the rotating member 61. Here, the reservoirs 69 are located substantially the same distance from the axis of rotation as the annular chamber 63 and communication is established between the annular chamber 63 and the reservoirs 69 by cutting back the edge of the annular chamber 63 at the reservoirs 69 as indicated at 71.

As the atomizer 60 is rotated the liquid fed thereto is centrifugally forced into the annular chamber 63 and trapped therein. As the liquid feed continues the liquid passes by centrifugal force from the annular chamber 63 into the reservoirs 69 wherein the liquid is also trapped. As the liquid feed continues, the liquid trapped in the reservoirs 69 escapes over the linear spillage edges 70 and is hurled outwardly and atomized by centrifugal force. Here also, the linear spillage edges 70 generate a cylindrical spillage path to provide a large atomization area. In order to equalize the escape and atomization of the liquid from the respective linear spillage edges 70, the concentricity of the spillage edges 70 and the annular groove 63 must be quite accurately maintained and this is more important in the arrangement illustrated in

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Figs. 8 to 10 than in the other form of the invention illustrated in Figs. 1 to 7, wherein the annular chamber 21 is located inwardly from the linear spillage edges 45. If desired, the atomizer 60 of Figs. 8 to 10 may also be provided with fan blades similar to the fan blades 47 and 51 of the atomizer 10 for enhancing the atomization of the liquid.

A further form of the atomizer of this invention is illustrated in Figs. 11 and 12 wherein the atomizer is generally designated at 80. Here, a rotating member 81 is rotated about an axis of rotation by an electric motor (not shown) or the like and is provided with a central hub 82 which in turn is provided with a bore 83. The outer ends of the rotating member 81 are provided with members 84 having side walls 85 and top walls 86 which form reservoirs 87 for centrifugally trapping liquid therein. The trailing portions of these reservoirs 87 are provided with linear spillage edges 88 which are parallel to and equally spaced from the axis of rotation of the rotating member 81. The rotating member 81 is provided with radially extending bosses 89 which terminate short of the members 84. These bosses 89 are provided with bores 90 which establish communication between the bore 83 in the hub 82 and the reservoirs 87. Thus, as liquid is fed into the central bore 83, the liquid is forced outwardly by centrifugal force through the bores 90 into the reservoirs 87 wherein the liquid is centrifugally trapped. As the liquid feed continues, the trapped liquid escapes over the linear spillage edges 88 and is flung outwardly and atomized. Since no annular chamber for supplying liquid to the reservoirs 87 is provided in the atomizer 80 of Figs. 11 and 12, the bores 90 must be accurately formed and located to provide equal feed of liquid to the reservoirs 87 in order to obtain optimum atomization. Here, as in the other forms of the invention, the linear spillage edges 88 generate a cylindrical path for obtaining atomization over a large area. Here also, if desired, the atomizer 80 may be provided with fan blades similar to the fan blades 47 and 51 of the atomizer 10 to enhance the atomization of the liquid.

Still another form of the atomizer of this invention is illustrated in Figs. 13 and 14, the atomizer being generally designated at 100. It includes a rotating member or body 101 which is rotated about its central axis by one or the other of a pair of shafts 102 by means of an electric motor (not shown) or the like. The hollow shafts 102 are also utilized for feeding liquid into the atomizer. The rotating member 101 may include, as for example, four outer walls 103 connected together by webs 104, the corners of the outer walls 103 forming reservoirs 105 in which liquid is centrifugally trapped. The reservoirs 105 are provided with linear spillage edges 106 which are parallel to and equally spaced from the axis of rotation of the rotating member 101. The ends of the rotating member 101 are provided with end walls 107 which in turn are provided with annular chambers 108. The annular chambers 108 communicate with the reservoirs 105. As liquid is fed to the atomizer through the hollow shafts 102, it is impelled through centrifugal force into the annular grooves 108 wherein the liquid is trapped. Since the annular chambers 108 communicate with the reservoirs 105, liquid is also fed into and trapped in the annular reservoirs 105. As the liquid feed continues, the trapped liquid escapes over the linear spillage edges 106 and is centrifugally flung outwardly and atomized. Here also, the linear spillage edges 106 generate a cylindrical spillage path to provide atomization over a large area.

A further form of the atomizer, generally designated at 110 in Figs. 15 to 17, is very much like that illustrated in Figs. 13 and 14. It includes a rotating member or body 111 which is rotated by one or the other of a pair of hollow shafts 112. The rotating member 111 includes a plurality of outer walls 113, the corners of which provide reservoirs 115 in which liquid is centrifugally

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trapped. Each reservoir is provided with a linear spillage edge 116, the spillage edges being parallel to and equally spaced from the axis of rotation of the rotating member 111. The rotating member is provided with end walls 117 which are in turn provided with annular chambers 118 which communicate with the reservoirs 115. The manner of operation of the atomizer 110 is the same as the atomizer 100 illustrated in Figs. 13 and 14. The essential difference between the atomizers 100 and 110 is that the webs 104 of the atomizer 100 are eliminated in the atomizer 110.

While, for purposes of illustration, several forms of this invention have been disclosed, other forms thereof may become apparent to those skilled in the art upon reference of this disclosure and, therefore, this invention is to be limited only by the scope of the appended claims.

I claim as my invention:

1. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having a reservoir displaced radially from said axis of rotation for centrifugally trapping liquid therein, and means for supplying liquid to said reservoir at a desired rate to be trapped therein by centrifugal force, said reservoir itself including a linear spillage edge radially displaced from said axis of rotation and arranged parallel thereto and providing a cylindrical path for direct outward escapement of trapped liquid from said reservoir thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said reservoir.

2. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having a plurality of reservoirs displaced radially from and circumferentially arranged about said axis of rotation for centrifugally trapping liquid therein, and means for supplying liquid to said reservoirs at a desired rate to be trapped therein by centrifugal force, said reservoirs themselves each including a linear spillage edge, which edges are radially spaced equally from said axis of rotation and arranged parallel thereto and which provide a cylindrical path for direct outward escapement of trapped liquid from said reservoirs thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said reservoirs.

3. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having an annular feeding chamber concentric with said axis of rotation for centrifugally trapping liquid therein and imparting rotating movement thereto, a plurality of reservoirs displaced radially from and circumferentially arranged about said axis of rotation for centrifugally trapping liquid therein and passages for conveying liquid from said annular feeding chamber to said reservoirs, and means for supplying liquid at a desired rate to said annular feeding chamber and hence to said reservoirs, said reservoirs themselves each including a linear spillage edge, which edges are radially spaced equally from said axis of rotation and arranged parallel thereto and which provide a cylindrical path for direct outward escapement of trapped liquid from said reservoirs thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said annular feeding chamber and hence to said reservoirs.

4. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having an annular feeding chamber concentric with said axis of rotation for centrifugally trapping liquid therein and imparting rotating movement thereto, a plurality of reservoirs displaced ra-

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an axis of rotation and having a reservoir displaced radially from said axis of rotation for centrifugally trapping liquid therein, and means for supplying liquid to said reservoir at a desired rate to be trapped therein by centrifugal force, said reservoir itself including a linear spillage edge radially displaced from said axis of rotation and arranged parallel thereto and providing a cylindrical path for direct outward escapement of trapped liquid from said reservoir thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said reservoir, and a fan blade adjacent said linear spillage edge and spaced inwardly therefrom for creating an air current for aiding in scattering and directing outwardly the atomized liquid escaping from said linear spillage edge by centrifugal force.

11. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having a reservoir displaced radially from said axis of rotation for centrifugally trapping liquid therein, and means for supplying liquid to said reservoir at a desired rate to be trapped therein by centrifugal force, said reservoir itself including a linear spillage edge radially displaced from said axis of rotation and arranged parallel thereto and providing a cylindrical path for direct outward escapement of trapped liquid from said reservoir thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said reservoir, and a fan blade adjacent said linear spillage edge and spaced outwardly therefrom for creating an air current for minimizing the tendency for capillarity attraction on the external side of said linear spillage edge.

12. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having a reservoir displaced radially from said axis of rotation for centrifugally trapping liquid therein, and means for supplying liquid to said reservoir at a desired rate to be trapped therein by centrifugal force, said reservoir itself including a linear spillage edge radially displaced from said axis of rotation and arranged parallel thereto and providing a cylindrical path for direct outward escapement of trapped liquid from said reservoir thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said reservoir, and a fan blade adjacent said linear spillage edge and spaced inwardly therefrom for creating an air current for aiding in scattering and directing outwardly the atomized liquid escaping from said linear spillage edge by centrifugal force, and a fan blade adjacent said linear spillage edge and spaced outwardly therefrom for creating an air current for minimizing the tendency for capillarity attraction on the external side of said linear spillage edge.

13. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having a plurality of reservoirs displaced radially from and circumferentially arranged about said axis of rotation for centrifugally trapping liquid therein, and means for supplying liquid to said reservoirs at a desired rate to be trapped therein by centrifugal force, said reservoirs themselves each including a linear spillage edge, which edges are radially spaced equally from said axis of rotation and arranged parallel thereto and which provide a cylindrical path for direct outward escapement of trapped liquid from said reservoirs thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said reservoirs, and a fan blade adjacent each linear spillage edge and spaced inwardly therefrom for creating air currents for aiding in scattering and

directing outwardly the atomized liquid escaping from said linear spillage edges by centrifugal force.

14. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having a plurality of reservoirs displaced radially from and circumferentially arranged about said axis of rotation for centrifugally trapping liquid therein, and means for supplying liquid to said reservoirs at a desired rate to be trapped therein by centrifugal force, said reservoirs themselves each including a linear spillage edge, which edges are radially spaced equally from said axis of rotation and arranged parallel thereto and which provide a cylindrical path for direct outward escapement of trapped liquid from said reservoirs thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said reservoirs, and a fan blade adjacent each linear spillage edge and spaced outwardly therefrom for creating air currents for minimizing the tendency for capillarity attraction on the external sides of said linear spillage edges.

15. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having a plurality of reservoirs displaced radially from and circumferentially arranged about said axis of rotation for centrifugally trapping liquid therein, and means for supplying liquid to said reservoirs at a desired rate to be trapped therein by centrifugal force, said reservoirs themselves each including a linear spillage edge, which edges are radially spaced equally from said axis of rotation and arranged parallel thereto and which provide a cylindrical path for direct outward escapement of trapped liquid from said reservoirs thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said reservoirs, and a fan blade adjacent each linear spillage edge and spaced inwardly therefrom for creating air currents for aiding in scattering and directing outwardly the atomized liquid escaping from said linear spillage edges by centrifugal force, and a fan blade adjacent each linear spillage edge and spaced outwardly therefrom for creating air currents for minimizing the tendency for capillarity attraction in the external sides of said linear spillage edges.

16. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having an annular feeding chamber concentric with said axis of rotation for centrifugally trapping liquid therein and imparting rotating movement thereto, a plurality of reservoirs displaced radially from and circumferentially arranged about said axis of rotation for centrifugally trapping liquid therein and passages for conveying liquid from said annular feeding chamber to said reservoirs, and means for supplying liquid at a desired rate to said annular feeding chamber and hence to said reservoirs, said reservoirs themselves each including a linear spillage edge, which edges are radially spaced equally from said axis of rotation and arranged parallel thereto and which provide a cylindrical path for direct outward escapement of trapped liquid from said reservoirs thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said annular feeding chamber and hence to said reservoirs, and a fan blade adjacent each linear spillage edge and spaced inwardly therefrom for creating air currents for aiding in scattering and directing outwardly the atomized liquid escaping from said linear spillage edges by centrifugal force.

17. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having an annular feeding

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chamber concentric with said axis of rotation for centrifugally trapping liquid therein and imparting rotating movement thereto, a plurality of reservoirs displaced radially from and circumferentially arranged about said axis of rotation for centrifugally trapping liquid therein and passages for conveying liquid from said annular feeding chamber to said reservoirs, and means for supplying liquid at a desired rate to said annular feeding chamber and hence to said reservoirs, said reservoirs themselves each including a linear spillage edge, which edges are radially spaced equally from said axis of rotation and arranged parallel thereto and which provide a cylindrical path for direct outward escapement of trapped liquid from said reservoirs thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said annular feeding chamber and hence to said reservoirs, and a fan blade adjacent each linear spillage edge and spaced outwardly therefrom for creating air currents for minimizing the tendency for capillarity attraction on the external sides of said linear spillage edges.

18. An atomizer for finely atomizing liquids by centrifugal force comprising, a rotating member rotatable about an axis of rotation and having an annular feeding chamber concentric with said axis of rotation for centrifugally trapping liquid therein and imparting rotating movement thereto, a plurality of reservoirs displaced radially from and circumferentially arranged about said axis of rotation for centrifugally trapping liquid therein

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and passages for conveying liquid from said annular feeding chamber to said reservoirs, and means for supplying liquid at a desired rate to said annular feeding chamber and hence to said reservoirs, said reservoirs themselves each including a linear spillage edge, which edges are radially spaced equally from said axis of rotation and arranged parallel thereto and which provide a cylindrical path for direct outward escapement of trapped liquid from said reservoirs thereover by centrifugal force to finely atomize the same, the rate of outward escapement and atomization of the liquid by centrifugal force being dependent upon the rate of delivery of liquid to said annular feeding chamber and hence to said reservoirs, and a fan blade adjacent each linear spillage edge and spaced inwardly therefrom for creating air currents for aiding in scattering and directing outwardly the atomized liquid escaping from said linear spillage edges by centrifugal force, and a fan blade adjacent each linear spillage edge and spaced outwardly therefrom for creating air currents for minimizing the tendency for capillarity attraction on the external sides of said linear spillage edges.

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