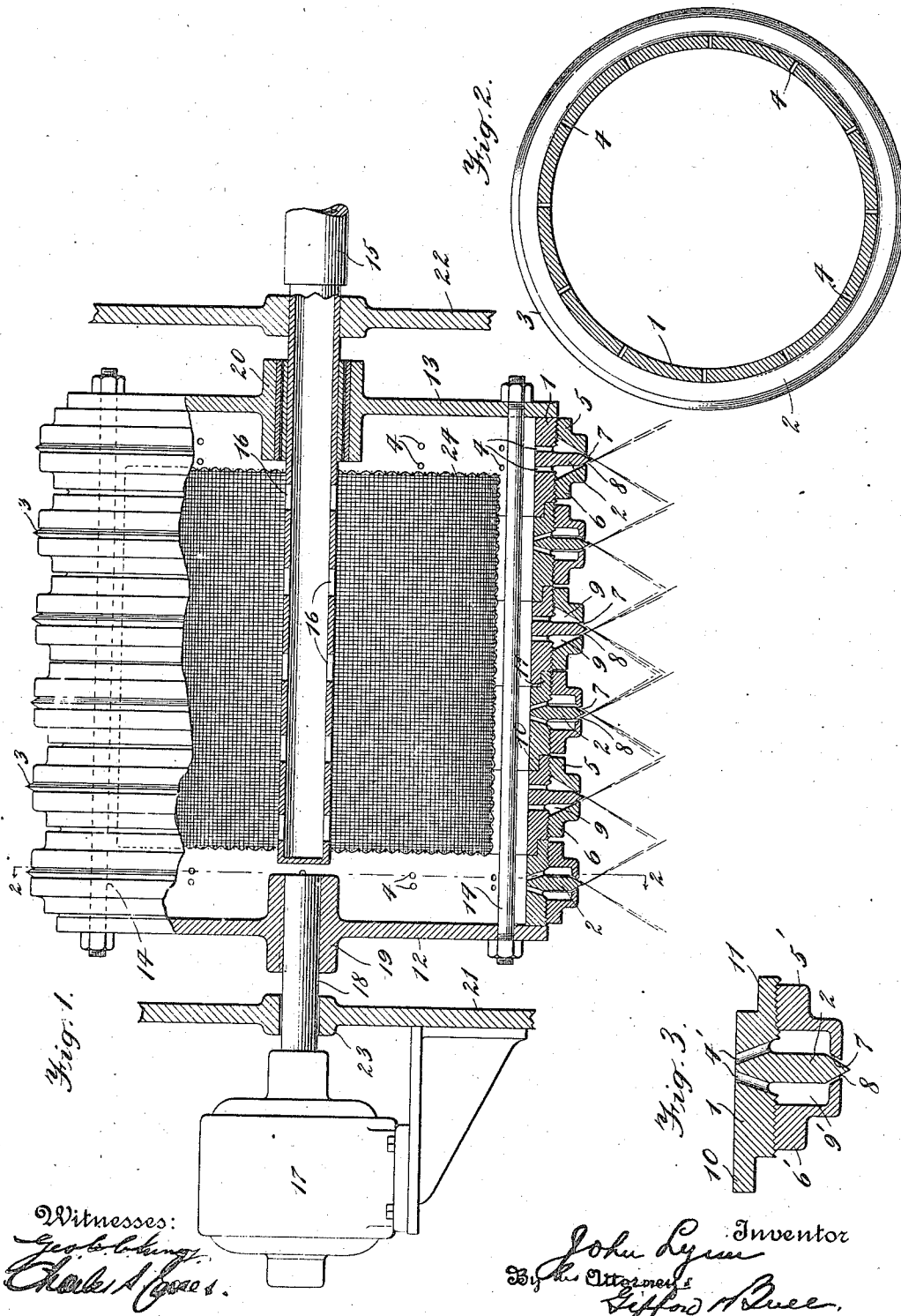


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 SPRAYING OR ATOMIZING DEVICE.  
 APPLICATION FILED OCT. 3, 1913.

1,189,593.

Patented July 4, 1916.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN LYNN, OF NEW YORK, N. Y.

SPRAYING OR ATOMIZING DEVICE.

1,189,593.

Specification of Letters Patent.

Patented July 4, 1916.

Application filed October 3, 1913. Serial No. 793,158.

*To all whom it may concern:*

Be it known that I, JOHN LYNN, a citizen of the United States, residing in New York city, borough of Bronx, in the county of New York and State of New York, have invented certain new and useful Improvements in Spraying or Atomizing Devices, of which the following is a specification.

My invention relates to a device for spraying or atomizing liquids for cooling, humidifying, disinfecting and other purposes, the object being to spray the liquid in a fine mist.

The use to which I have put the device in practice is in connection with an apparatus for moistening air.

The main feature of the invention is a nozzle, preferably in the form of an annulus, so mounted as to spray or atomize the liquid by centrifugal action, the commercial device being built up by assembling several of the nozzles to obtain the volume of spray desired. It is to be understood, however, that a single nozzle may be used if desired.

The invention will be understood by reference to the accompanying drawings in which—

Figure 1 is a side elevation, partly in section, of an atomizing device showing several nozzles assembled together; Fig. 2 a transverse section through one of the nozzles on the plane of the line 2—2 of Fig. 1; and Fig. 3 an enlarged sectional detail of one of the nozzles.

Similar reference numerals indicate similar parts in the several views.

The individual nozzles, any number of which may be assembled in convenient manner to carry out the purposes for which the device has been designed, are substantially alike, changes being made in the direction of ports or passages, and in the form of the cap. As shown in the drawings each nozzle comprises a body portion 1 in the form of an annulus which may be of any desired internal diameter for the work for which the device is required. On the annulus is formed a circumferential rib 2 with the outer edge beveled on both sides to provide inclined surfaces 3. At suitable distances apart holes 4 are drilled through the body of the annulus on one or both sides of rib 2. These holes may extend in a radial direction, as shown in Fig. 2, or they may be inclined as shown in Fig. 3, and in some of the nozzles in Fig. 1. The outer surface of the body is

threaded on both sides of the rib thereby adapting it to receive threaded caps or tip members 5 and 6. As shown in the right hand nozzle of Fig. 1 these caps 5 and 6 have their inner walls inclined from the body of the nozzle in planes substantially parallel with the beveled sides of the rib 2, forming thereby annular channels 9, the walls of which converge toward the discharge orifices 7 and 8 formed between said caps and the central rib 2. The form of the caps may be modified as shown in some of the nozzles in Fig. 1, and in Fig. 3, wherein the caps 5' and 6' are so formed that the annular channels 9' are substantially rectangular or square in section. In this form the caps have laterally projecting flanges with beveled edges, between which, and the beveled edges of the rib 2, the discharge orifices are provided. The caps or tip members may be adjusted to close the discharge orifices or to open them any desired amount.

Any number of the described nozzles may be assembled according to the particular use or work required. In the drawings I have shown six, the individual nozzles being formed with flanges 10 and 11 enabling them to be properly fitted together to prevent the escape between them of the liquid to be atomized. When so assembled they are clamped between end plates 12 and 13 by bolts 14, thus virtually making a closed drum with outlets 4 into the annular channels surrounding the ribs 2. The water or other liquid to be sprayed or atomized is admitted through a pipe 15 extending into the drum through end plate 13, and having openings 16 therein.

The device is rotated by any suitable or convenient means such as a motor 17, the shaft 18 of which is keyed or otherwise secured to hub 19 formed on the end plate 12. The inlet pipe 15 serves as one bearing for the atomizer, the end plate 13 being formed with a journal or hub 20 which surrounds pipe 15 and bears thereon. When the device is used as a humidifier it will be supported in an open-ended box through which a blast of air is forced, such box having uprights 21 and 22, the former of which has a bearing 23 for the shaft 18.

The pipe 15 is of such diameter, and the openings 16 therein, sufficient to keep the annular tip chambers 9 filled with the liquid to be sprayed. In operation the liquid is thrown against the inner wall of the assem-

bled atomizers by centrifugal action, and flows through ports or passages 4 into chambers 9 and is discharged therefrom in cone-shaped films, the two sprays crossing each other as indicated in Fig. 1. The atomizer may be rotated at from 1000 to 1500 revolutions per minute or at any other rate, as may be desired.

As shown in Fig. 1 a wire gauze drum may be supported upon the stationary inlet pipe 15 to serve as a filter and also to break up the volume of water as it is thrown outward by centrifugal force.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A liquid spraying device comprising a cylindrical hollow body formed with a central rib and a flange at each side of the said rib, each flange being formed with one or more openings adjacent the rib, two cylindrical caps one fitted upon each flange for movement toward and from the rib to open and close a circumferential discharge orifice, removable end closure plates for the body, a hollow bearing upon which the body is rotatable, and means for conveying water through said bearing to the interior of the body.

2. A spraying device comprising a hollow cylindrical body formed with a circumferential rib and a threaded flange at each side of the said rib, each flange being formed with an outlet port adjacent the rib, an annular cap threaded on each flange for movement toward and from the rib to open and close an annular discharge orifice, a hollow bearing upon which the cylindrical body is rotatable, and means for conveying water through said bearing to the interior of the cylindrical body.

3. A rotatable liquid spraying device comprising multiple separable units, each unit

having an annular body formed with a circumferential rib, a threaded flange at each side of the rib and passages through each flange adjacent the rib, a collar threaded upon each flange for movement toward and from the rib, means for rigidly connecting the units, and means for admitting water to the interior wall of each unit.

4. A liquid spraying device comprising a plurality of nozzles, each nozzle consisting of a body having a circumferential projecting rib and passages through the body on both sides of the rib, caps supported on said body on both sides of said rib and forming with the rib annular channels into which the passages open, and providing also circumferential discharge orifices, end plates between which said nozzles are clamped, means for supplying liquid to the interior of the device, and means for rotating the device for the purpose described.

5. A liquid spraying device comprising a plurality of nozzles, each nozzle consisting of a body having a circumferential rib and passages through the body on both sides of the rib, caps supported on said body and forming with the ribs annular channels on both sides of the rib into which said passages open, and forming also circumferential discharge orifices, end plates between which said nozzles are clamped, a stationary liquid supply pipe terminating within the device, and a motor and a shaft therefor, said device being fast on the motor shaft.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN LYNN.

Witnesses:

M. E. McNinch,  
Charles A. Jones.