June 8, 1926.

1,587,844

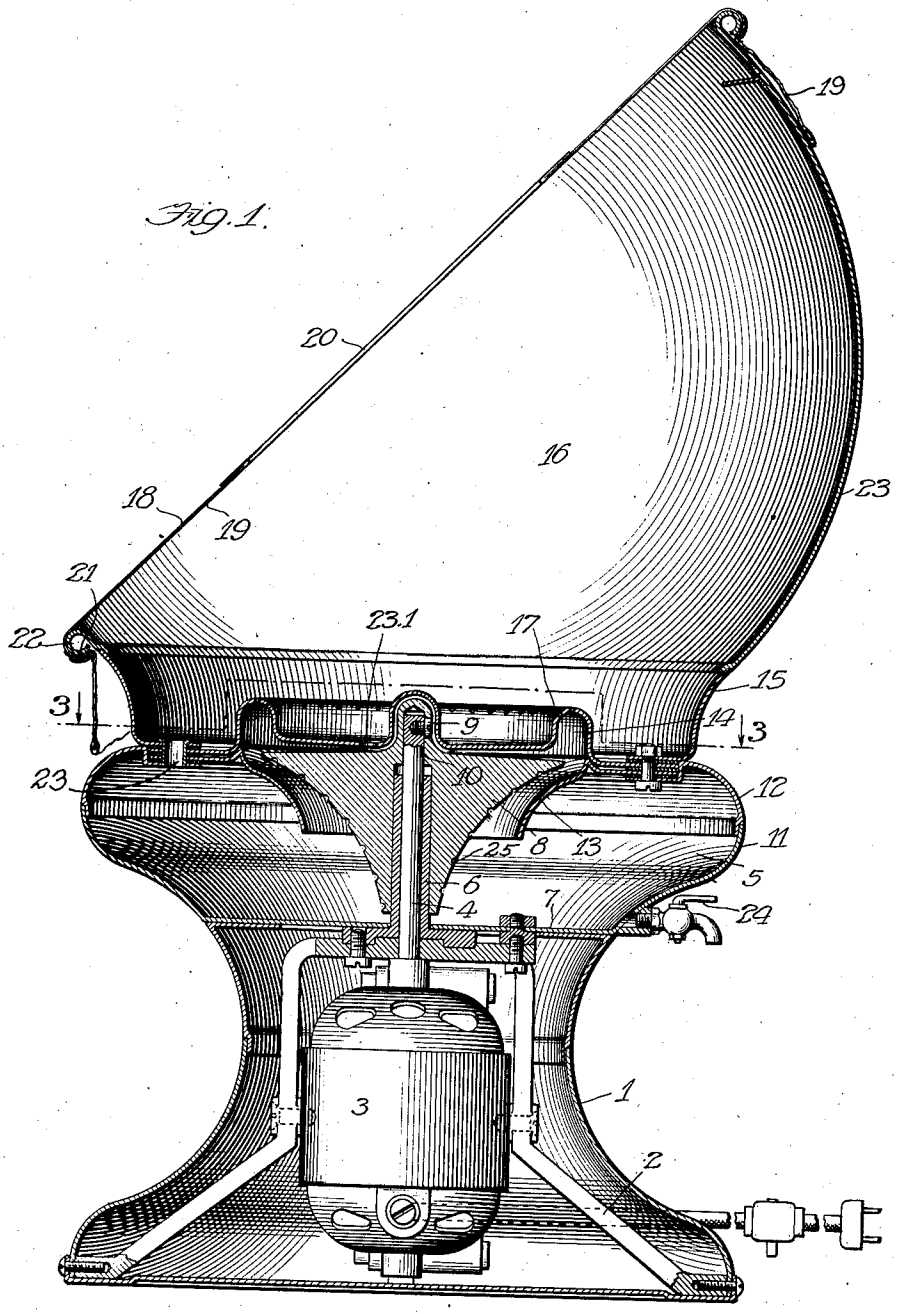
M. LANDBERG

FACE SPRAYING DEVICE

Filed Dec. 22, 1925

2 Sheets-Sheet 1

Fig. 1.



Witnesses
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June 8, 1926.

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FACE SPRAYING DEVICE

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2 Sheets-Sheet 2

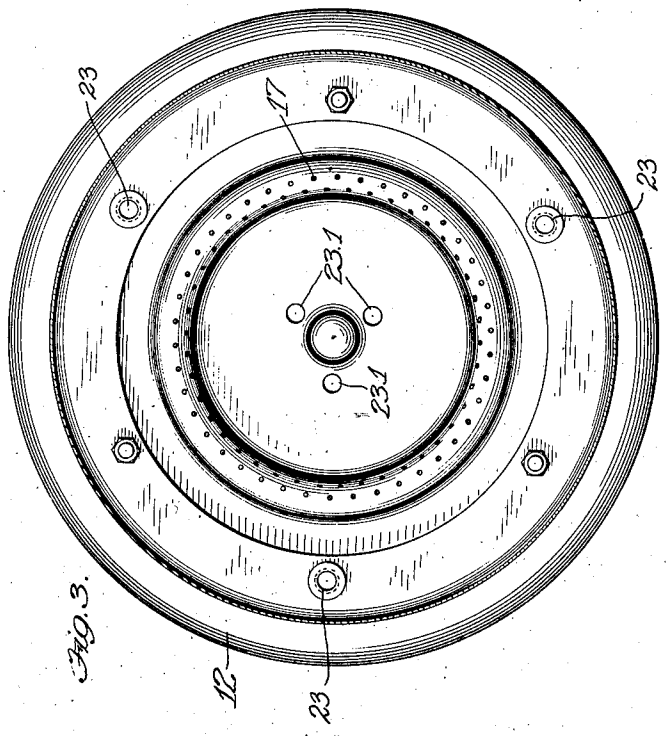

Fig. 3.

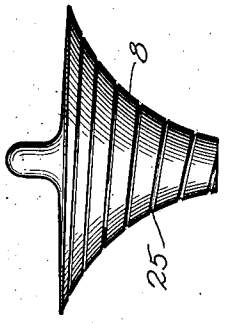

Fig. 4.

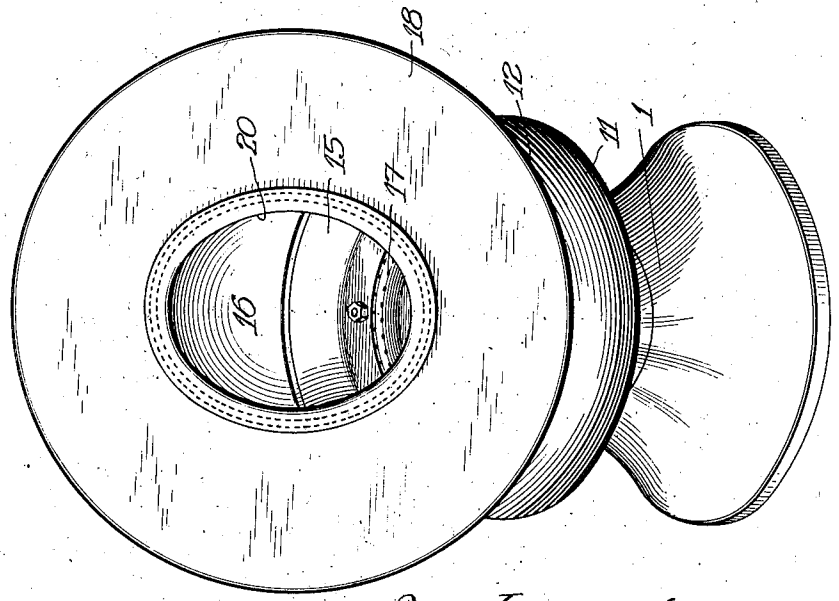

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

MARGOT LANDBERG, OF CHICAGO, ILLINOIS.

FACE-SPRAYING DEVICE.

Application filed December 22, 1925. Serial No. 76,992.

This invention relates to a mechanical device for mildly spraying or subjecting the face to the action of a mist produced by an atomizer, for tonic, sedative and cleansing effects, in imitation of the natural effect produced by rain or mist in motion. With this device, many of the beneficial effects of massaging may be brought about, while the more harsh treatment of rubbing, use of vacuum, or light mechanical blows of vibrators is avoided.

The above mentioned object of the invention may be accomplished by a device such as shown in the drawing, which in its principal elements consists of a suitable casing divided into three compartments, one of which is a motor compartment, and another of which is a receptacle for the liquid which is utilized for producing the mist and which contains an atomizer driven by the motor. The third or mist compartment receives the spray from the atomizer and one side thereof is closed by a sheet rubber diaphragm having a central opening so shaped as to receive the face of the user, and to form a seal therewith to prevent the escape of the liquid from the machine during the operation of the device.

The atomizer is preferably of the general shape of an inverted cone, the apex of which projects below the level of the liquid. During the extremely rapid rotation of the cone, the liquid travels upwardly along its surface and is projected upwardly and outwardly away from the cone by the centrifugal action thereof. The spray is then guided by a deflector into a perforated nozzle arrangement which serves to direct the spray or mist toward the opening in the diaphragm. The capacity of the cone or atomizer for picking up the liquid is increased to the desired extent by providing this cone with a shallow spiral groove. Atomizers of this class, like cup atomizers, operate by producing a very attenuated film of the liquid traveling upwardly and outwardly from the upper surface of the atomizer. The extent of attenuation of the liquid film is dependent upon the rate of rotation of the atomizer and its maximum diameter around the center of rotation. By this construction, precisely the desired quantity of mist and velocity thereof may be produced and directed against the face of the user of the device, in order to bring about the desired stimulation thereof.

An illustrative embodiment of this invention is shown in the accompanying drawings, wherein:

Fig. 1 shows a longitudinal vertical section of the casing and mechanism therein, except that the motor is not in section.

Fig. 2 is a perspective of the machine.

Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1.

Fig. 4 is a detail, in elevation, of the rotor.

The casing in the device is formed of pressed or spun metal, and comprises a base 1 containing a motor supporting frame 2, the motor being indicated at 3 and having a shaft 4 extending upwardly into the atomizer and liquid containing compartment 5. The motor shaft 4 is surrounded by a sleeve 6 extending upwardly from the base 7 of compartment 5 to above the normal level of the liquid therein, in order to seal this compartment along the motor shaft from the motor compartment. At its upper end above the sleeve 6, the inverted cone-shaped atomizer 8 is secured too the shaft by a set screw 9. The central bore 10 of the atomizer for receiving the shaft 4 is enlarged adjacent the sleeve 6 to receive the latter. For convenience, the compartment 5 is formed of two pressed sheet metal parts 11 and 12. The upper section 12 in the compartment 5 is shaped to provide an annular depending flange 13 for guiding and deflecting the vapor from the atomizer upwardly into the annular nozzle or channel 14 formed in the bottom wall 15 of the mist compartment 16. The vapor and air currents produced by the atomizer are redirected more inwardly by small perforations 17 passing through the upper surface of the partition or channel member 14.

The face 18 of the mist compartment 16 is provided with a sheet rubber diaphragm 19 having a central opening 20. This diaphragm is attached to the shell of compartment 16 by a rubber band 21 stitched thereto and stretched over the bead 22 formed at the outer edge of the bowl shaped sheet metal member 23 forming the mist compartment. Vapor condensing in compartment 16 is returned to compartment 5 through the openings 23 and 23.1. The device is filled with an operating liquid at the desired temperature through the opening in the diaphragm 18 and, after using, is drained through the pet cock 24.

The operation of the device, is preferably at the maximum speed possible without the use of gears between the motor and atomizer. The capacity of the atomizer is affected by the spiral groove 25 therein. The atomized liquid leaving the cone 8 has its direction controlled by the deflector 13 and the form of the channeled partition 15 and the location of the perforations 17 therein.

The advantages effected by the use of this device over massaging the face by hand or rubbing devices or the use of mechanical vibrators is that such harsh treatment is entirely avoided and the very desirable action of mist, and air in rapid motion is brought about. Air, of course, is entrained with the vapor and must travel in substantially the same circuit.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. A device of the character described, comprising a casing divided into three compartments, one compartment containing a motor, a second compartment being a liquid container and provided with an atomizer driven by said motor, and a third compartment for receiving the spray from said atomizer, one face of said third compartment being closed by a flexible diaphragm having a substantially central opening therein.

2. A device of the character described, comprising a bowl to receive the face of a person to be treated, flexible water-tight means attached to the rim of the bowl and adapted to fit around the sides of the face, said bowl having a plurality of inlet apertures and means to force liquid inwardly through said apertures in the form of separate particles whereby the particles may be driven forcibly in rain-like manner and with percussive effect against the face which is being treated.

3. A device of the character described, comprising a bowl to receive the face of a person to be treated, a motor and atomizer driven thereby, said atomizer being arranged to project the atomized liquid into said bowl and being substantially of cone form with the small end projecting into the liquid and the large end in position to project the spray into said bowl, said cone being provided with a spiral channel in its face.

4. A device of the character described, comprising a bowl to receive the face of a person to be treated, a motor and atomizer driven thereby, said atomizer being arranged to project the atomized liquid into said bowl and being substantially of cone form with the small end projecting into the liquid and the large end in position to project the spray into said bowl, said cone being provided with a spiral channel in its face, and flexible water-tight means attached to the rim of the bowl and having an opening therein.

5. A device of the character described, comprising a casing divided into three compartments, one compartment containing a motor, a second compartment being a liquid container and provided with an atomizer driven by said motor, and a third compartment for receiving the spray from said atomizer, and a partition, separating said second and third compartments, in the form of a deflector and nozzle for directing the spray from said atomizer into said third compartment.

Signed at Chicago this 15th day of Dec., 1925.

MARGOT LANDBERG.