

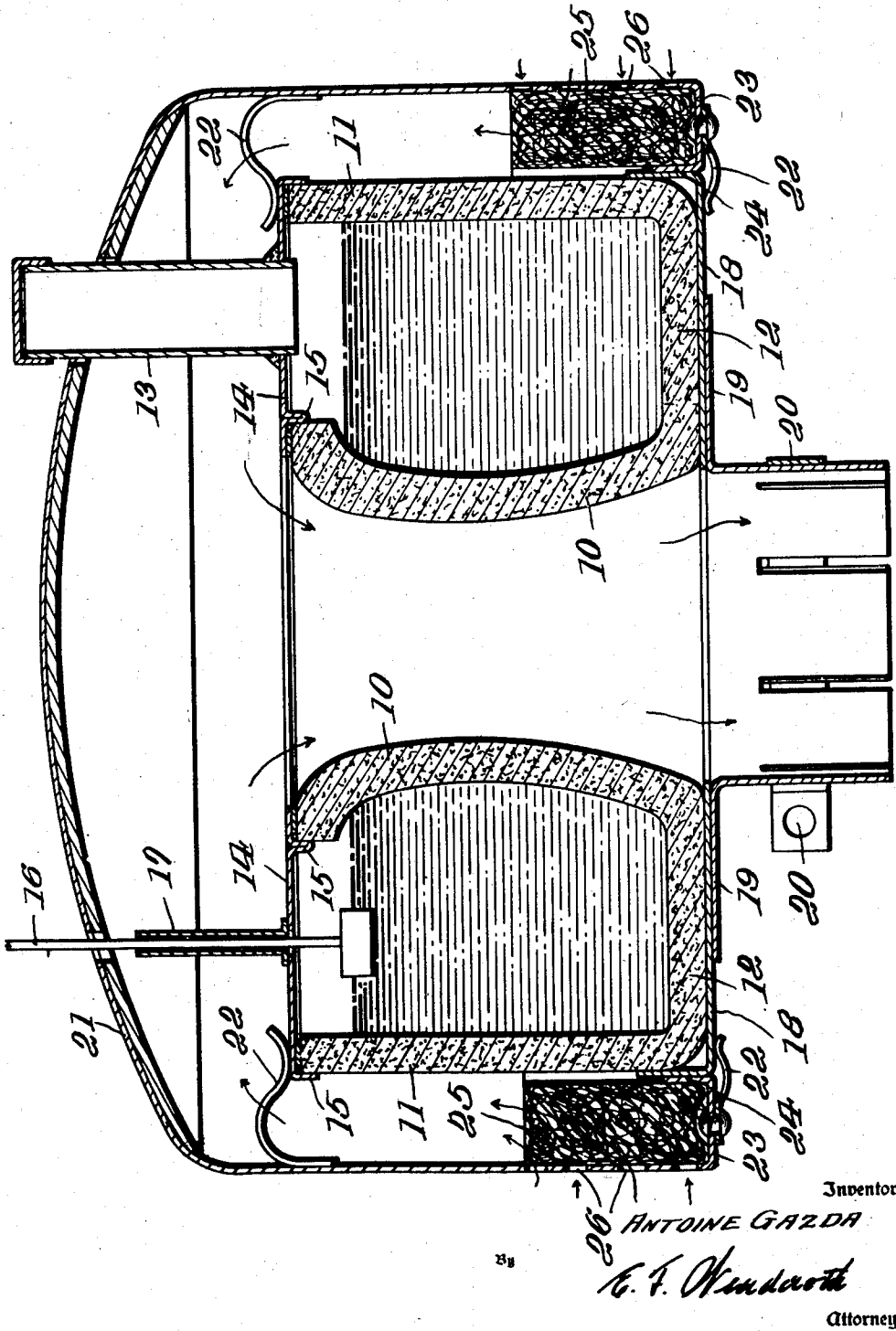
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CLEANER AND HUMIDIFIER FOR CARBURETERS

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CLEANER AND HUMIDIFIER FOR
CARBURETERS

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1 Claim. (Cl. 261-99)

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The present invention relates to the cleaning and humidifying of the suction air of an internal combustion engine, and also to the intimate admixing and atomization of the air and entrained or added moisture.

Desiderata in apparatus for effecting the aforesaid operations are (a) that the air be as thoroughly cleaned as possible prior to delivery to the carburetor of the internal combustion engine, (b) that the admixture of air and moisture resulting from the humidification be as intimate and uniform as possible and in a high degree of atomization, and (c) that the admixture be effected by the suction action whereby air is sucked into the engine during the suction strokes thereof.

A primary object of the present invention is the provision of a cleaning and humidifying construction which shall effect an efficient realization of the above-enumerated desiderata.

To this end, briefly stated, the present invention provides a novel relationship of parts wherein the suction air is first passed through a filter which eliminates dust and other undesired foreign matter therefrom, and is then passed over the moist surface of the outer wall of a porous water reservoir before being passed through a porous cylindrical passageway extending through said reservoir, whereby the desired cleaning and atomization are effected. The said passageway preferably assumes the form of a Venturi nozzle whereby enhanced humidification, admixture of air and moisture, and atomization of the mixture are realized.

A presently-preferred mode of carrying out the invention is shown diagrammatically, by way of example, on the accompanying sheet of drawing, the single figure of which represents a sectional view through the center of the device.

As shown on the said figure of drawing, the cleaner and humidifier according to this invention may comprise a water-reservoir which is generally U-shaped in cross section and which comprises an inner essentially cylindrical wall 10, an outer essentially cylindrical wall 11 and a bottom 12. These parts, which are preferably integral, as shown, may be made wholly or partly of a porous or water-permeable material, such as a ceramic which permits seepage and evaporation of the liquid content of the reservoir.

The reservoir may be filled by way of a filler tube 13 provided on the metallic disk-like cover 14. The latter is provided with a central opening in substantial alignment with the central passageway defined by the inner wall 10. Flanges 15 are provided on cover 14 to assist in retaining the

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same in proper position on the walls 10, 11. The stem of the level-indicating float 16 passes through tube 17 affixed to the top of the cover 14, as shown.

5 The reservoir is preferably seated in an upwardly peripherally flanged metallic base 18 which is also provided with a central opening in substantial alignment with the aforesaid central passageway. Means in the form of a flange member 10 19, suitably secured to the bottom of base 18, and a clamp and clamp-bolt assembly 20, are provided for associating the cleaner and humidifier assembly with a conduit leading to the intake side of the carburetor.

15 Surmounted on the reservoir and in spaced relation thereto, as shown, is the encasing jacket 21, made of metal or the like. Jacket 21 preferably snaps onto the reservoir with the aid of a plurality of spring tabs 22 or the like, some of which bear resiliently against the cover 14 and 20 others of which bear resiliently against the base 18, as shown. A suitable number of spring tabs 22 arranged in spaced relationship peripherally of the jacket 21 is provided.

25 The jacket 21 terminates in a peripherally extending bottom 23 provided with an upstanding flange 24 defining a space for the reception of a filter element. This may comprise a metallic cylindrical wall 25 of inverted L-shape in cross section, encasing filter-forming material such as copper filings, glass wool or the like. The wall of jacket 21 is foraminous adjacent the filter element, as shown at 26.

The level indicator 16 and filter tube 13 extend 35 through corresponding openings in the jacket 21.

The reservoir may be arranged anteriorly or posteriorly of the carburetor or in front of the suction opening of the engine. Air sucked in during the suction stroke of the internal combustion engine with which the device is associated, passes through the filter element and is cleaned of its foreign ingredients. The air then passes along passageway 27 defined between wall 11 and jacket 21 whereby an initial humidification of the air, combined with a further cleaning action, takes place with the aid of water seeping through to the exterior of the said wall. The air then passes over to and downwardly through the central passage defined by the nozzle-shaped inner wall 10 and entrains from the surface of the latter the requisite quantity of moisture. The greater the suction action on the air passing through the said central passage, the greater the velocity thereof and the greater the amount of 55 water entrained from the surface of the wall 10.

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By constructing the member 17 with a restricted throat, i. e. by making it nozzle-shaped or by imparting a Venturi configuration thereto as shown, a jet effect is produced. The result is that, during the suction stroke of the engine, not only is an increased quantity of moisture entrained by the air per unit of area of porous nozzle material, as compared with a truly cylindrical central passage, but the increased velocity due to the jet effect also results in a better mixing of the sucked-in air and entrained water particles and also a better atomization of the resultant mixture.

It is evident from the foregoing that the relationship of parts according to the present invention realizes the objects of the invention as above set forth.

It is to be understood that the specific embodiment above described in detail is purely exemplary in character and that the invention is not to be limited except as required by the terms of the claim hereunto appended.

Having thus disclosed the invention, what is claimed is:

A humidifier for the carburetor of an internal combustion engine comprising a support, an annular water reservoir on said support having an inner wall and an outer wall of porous material so that water in said reservoir may seep there-through, said inner wall defining a substantially central unobstructed passageway through said reservoir and being of Venturi configuration whereby an enhanced suction action may be

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exerted on the air passing therethrough to secure improved admixture with the moisture coming through said inner wall, a jacket encompassing said reservoir and support, a fixed clamp structure on said jacket to support the jacket on the upper end of said reservoir and a movable clamp structure to contact the under side of said support at the lower end of said reservoir, said jacket being spaced from said outer wall to define a peripheral passageway having communication with said central passageway and said jacket being provided with air inlet means leading into the bottom of said peripheral passageway whereby air drawn into the latter is subjected to the humidifying action of moisture seeping through said outer wall before being drawn into said central passageway.

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