May 18, 1926. 1,585,488

W. M. GOODE

HUMIDIFIER

Filed Jan. 20, 1925

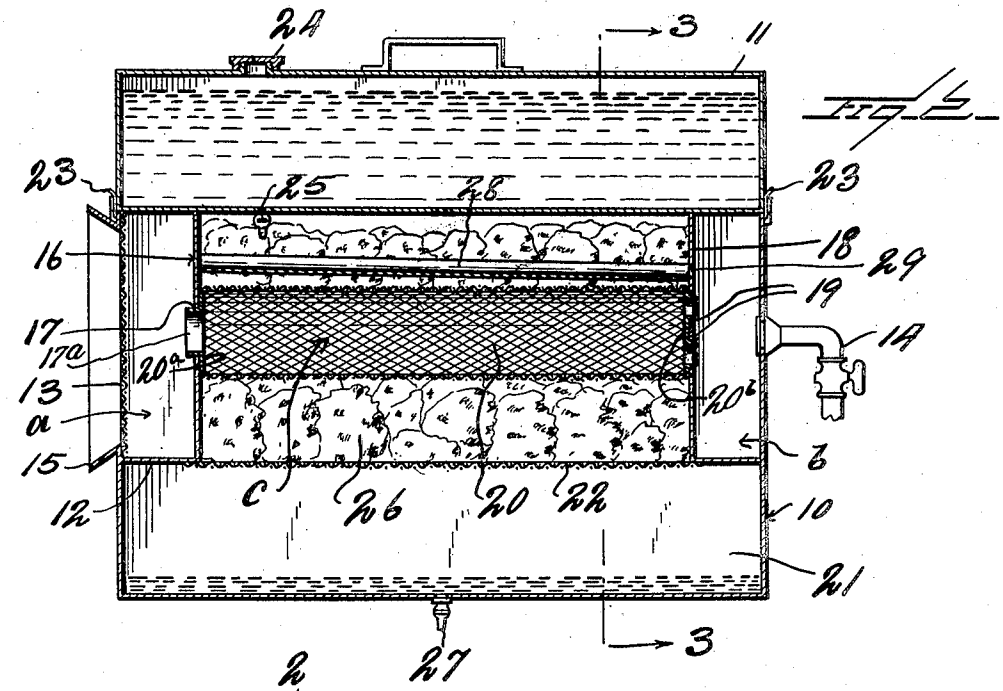


Fig. 2.

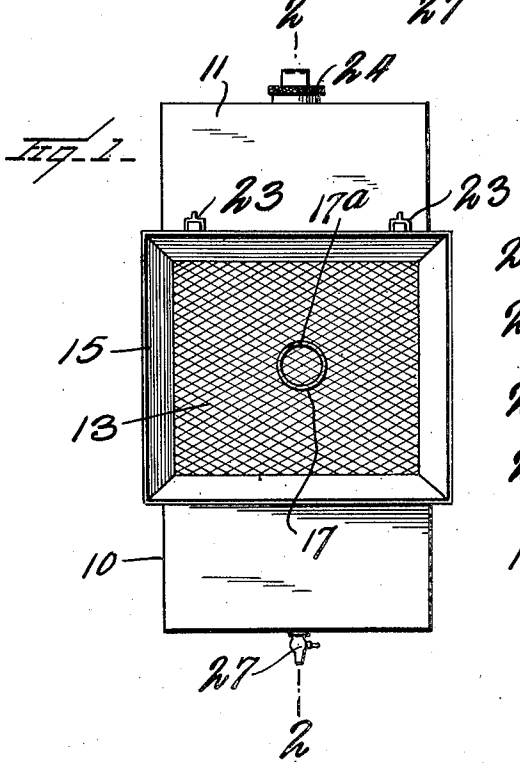


Fig. 1.

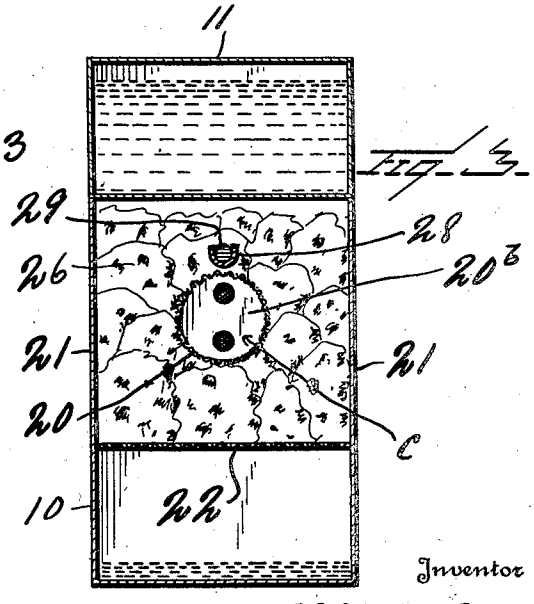


Fig. 3.

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HUMIDIFIER.

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This invention relates to humidifiers for internal combustion engines.

An important object of the invention is the provision of such a device which may be very cheaply and readily constructed and by means of which an adequate supply of properly moistened air may be had at all times.

A further object of the invention is to produce a device of this character of such construction that ready access may be had at all times to the various parts thereof to permit cleaning or renewal of such parts.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is an end elevation of a humidifier constructed in accordance with my invention;

Figure 2 is a section on the line 2—2 of Figure 1; and

Figure 3 is a section on the line 3—3 of Figure 2.

Referring now more particularly to the drawings, the numeral 10 generally designates a casing and 11 the cover thereof. The casing proper has extending transversely thereof a partition wall 12 and one end wall of the casing above this partition wall is formed of screen, as indicated at 13. The corresponding section of the opposite end wall is provided centrally thereof with a valved outlet pipe 14 adapted for connection with the intake manifold of an internal combustion engine. About the edges of the screened opening in the first named end wall, a flaring flange is secured providing a funnel mouth directing air into such screened opening.

Opposing this screened opening is an end wall 16 of a humidifying chamber, this wall being solid with the exception of a central opening 17, the purpose of which will presently appear. At the opposite end of the casing in spaced relation to the end wall thereof, the opposite end wall 18 of the humidifying chamber is arranged, this end wall having a pair of finely screened openings 19. Extending between the end walls 16 and 18 and surrounding the openings 17 and 19 is a tube of screen mesh 20 of such size that space is provided between its sides and bottom and the opposing side walls 21 of the casing 10 and partition wall 12. The section of the partition wall 12 lying between the walls 16 and 18 is formed of screen material, as indicated at 22. The upper surface of this screened tube is likewise vertically spaced from the upper ends of the end walls 16 and 18 of the humidifying chamber, the upper ends of which are aligned with the upper ends of the end walls of the casing 10. The tube 20 has metallic ends 20^a, 20^b, one being provided with a flanged central opening, the flange 17^a of which enters the opening 17 of the partition wall 16 and the other of which has a pair of flanged openings, the flanges of which enter the openings 19. The openings 19 are in the partition 18 so as to admit the flanges to these openings. The openings 19 are arranged immediately adjacent the inner periphery of the screen tube while the opening 17 is arranged axially of this tube.

The cover 11 which is secured in position by means of snap catches 23 is in the form of a water chamber having a vented filling opening 24 and an outlet drip cock 25 which, when the cover is in position communicates with the humidifying chamber, the upper wall of which is formed by the lower wall of the cover 11. Within this space between this upper wall and between the side walls of the casing 10 and the partition 12 about the tube 20 sponges or other absorbent material are packed as indicated at 26. The casing 10 is provided in its lower wall with an outlet or drain cock 27. In the use of the device, the reservoir 11 is filled and the drip cock 25 regulated so that the flow therethrough is sufficient for the needs of the engine. This flow wets the sponges and accordingly provides moisture about the walls of the tube 20. The device could preferably be arranged immediately rearwardly of the fan of the engine so that it receives the air therefrom and have its outlet connected with the intake manifold of the engine so that both pressure from the fan and suction from the intake manifold will act to cause current through the screen 13, opening 17, tube 20 screened openings 19 and outlet pipe 14. The air during its passage through the tube collects considerable water and this water is broken into very fine particles during its passage through the fine screen in the tube. Any excess water which is not taken up in the tube 20 by the air in its passage will be either held by the sponges or will drip into

the lower end of the casing 10 from which it may be removed by the drain cock 27.

Below the drip cock and within the central or sponge compartment, a longitudinally extending trough 28 is disposed, this trough inclining toward its rear end and at its rear end communicating with an opening 29 formed through the rear partition wall 18 immediately above and in alignment with the screened openings 19. This trough is positioned to receive a portion of the water dripping from the drip cock and sponges, and when an excessive moisture is required this may be had by increasing the flow from the drip cock with the result that some of the water flows through the trough and opening 29 to the rear compartment *b* where the air during its passage will pick up a considerable quantity of this water and deliver it to the outlet 14 due to the fact that the water in passing from the end of the trough drips directly in front of the openings 19 through which the air is passing. It will be noted that the partitions 16 and 18 combine to form at opposite ends of the casing an inlet compartment *a* and an outlet compartment *b*, these compartments being placed in communication by a further tubular compartment C to which means are provided for delivering water. The openings 19, being arranged adjacent the periphery of the screen tube, will prevent the air from being drawn directly through this compartment and will provide some restriction to the passage of air, thus enabling the air to become thoroughly moisture-laden before passing from the compartment C to the compartment *b*. It will be noted that the lower opening 19 is arranged below the level of the outlet 14 which is to be connected with the manifold of the internal combustion engine so that water collecting in the compartment *b*, after reaching a predetermined level, will flow through the lower opening 19, through the screened walls of the passage and come in contact with the sponge to wet the same.

It will be obvious that the structure hereinbefore set forth is capable of a certain range of change and modfication without in any manner departing from the spirit of my invention and I accordingly do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a humidifier, a casing, a partition extending in parallel relation to the bottom of the casing, one end wall of the casing above the partition being screened and provided with a flaring mouth, a reticulated air tube extending longitudinally of the casing and in spaced relation to the partition, an absorbent material about the reticulated tube and a cover for said casing providing a water compartment and having a drip cock for delivering liquid to said absorbent material, said reticulated tube being of less length than said casing, partition walls connecting the side walls of said casing above the first named partition, said reticulated tube having its ends engaged with said partition walls, said partition walls having openings aligning with the interior of the reticulated tube.

2. In a humidifier, a casing, a partition extending in parallel relation to the bottom of the casing, one end wall of the casing above the partition being screened and provided with a flaring mouth, a reticulated air tube extending longitudinally of the casing and in spaced relation to the partition, an absorbent material about the reticulated tube and a cover for said casing providing a water compartment and having a drip cock for delivering liquid to said absorbent material, said reticulated tube being of less length than said casing, partition walls connecting the side walls of said casing above the first named partition, said reticulated tube having its ends engaged with said partition walls, said partition walls having openings aligning with the interior of the reticulated tube, the first named partition between the last named partitions being perforated, and the bottom of the first named casing having an outlet.

In testimony whereof I hereunto affix my signature.

WILLIAM MASGAN GOODE.