R. P. FAIRBANKS.

AIR PURIFIER.

APPLICATION FILED OCT. 31, 1917.

1,289,421. Patented Dec. 31, 1918.

Fig. 1.

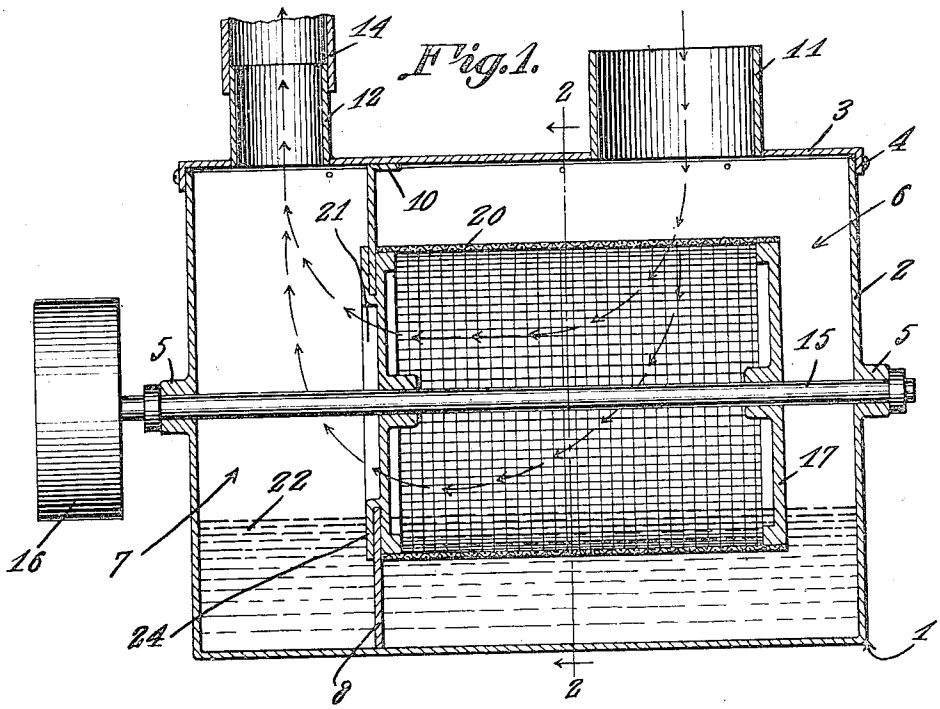
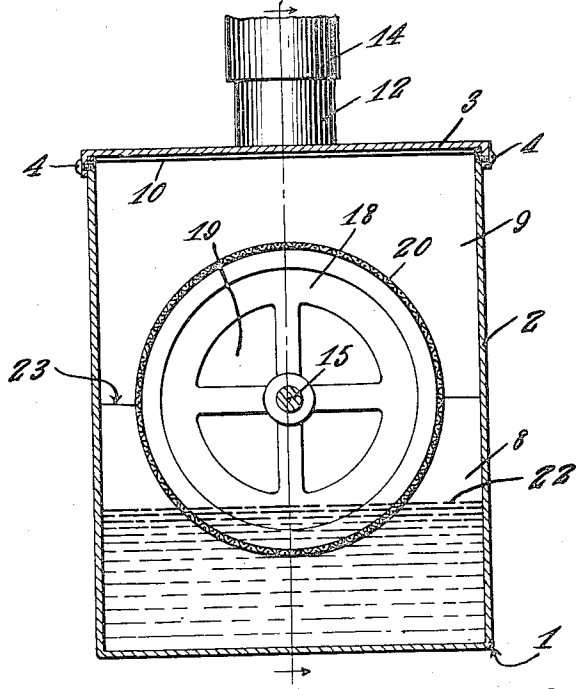


Fig. 2.



Witnesses

[signature]

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UNITED STATES PATENT OFFICE.

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AIR-PURIFIER.

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Application filed October 31, 1917. Serial No. 199,525.

To all whom it may concern:

Be it known that I, ROBERT P. FAIRBANKS, a citizen of the United States, residing at Pocatello, in the county of Bannock and State of Idaho, have invented a new and useful Air-Purifier, of which the following is a specification.

By way of explanation it may be stated that air delivered to the carbureter of an internal combustion engine generally contains impurities of various kinds, dust being most frequently present.

In view of the foregoing, it is one object of the invention, broadly speaking, to provide a means whereby air may be cleansed or purified before it is delivered to the carbureter of an internal combustion engine.

Another object of the invention is to provide novel means whereby a film of liquid, such as oil, may be presented to the inrushing air, novel means being provided whereby the film may be constantly renewed.

With the above and other objects in view which will appear as the description proceeds the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in vertical longitudinal section, an air purifier constructed in accordance with the present invention, parts appearing in elevation;

Fig. 2 is a transverse section on the line 2—2 of Fig. 1, the line 1—1 in Fig. 2 designating the cutting plane upon which Fig. 1 is taken.

In carrying out the present invention there is provided a casing 1 which may be variously constructed as to size, shape and material, without jeopardizing the utility of the invention. The casing 1 has been depicted as comprising a box-like body 2 carrying a removable lid 3, held in place by any suitable means indicated at 4. The ends of the body 2 of the casing are supplied with bearings 5. A partition extends transversely of the casing 1 and divides the same into compartments 6 and 7. For a purpose to be set forth hereinafter, the partition may be described as including plates 8 and 9, the edges of which abut as shown at 23 in Fig. 2. The plate 8 is secured to the body 2 of the casing 1 whereas the plate 9 is attached, as shown at 10, to the lid 3, the construction being such that when the lid 3 is placed on the body 2, the plate 9 will enter the body and coöperate at 23 with the plate 8 to form a substantially air tight partition, as above described. Located on the lid 3 or elsewhere is an air inlet tube 11 which communicates with the compartment 6. The lid 3, preferably, carries an air outlet 12, with which the compartment 7 communicates. The numeral 14 denotes the air intake of the carbureter of an internal engine, the air intake coöperating with the outlet 12 to form a conduit.

A shaft 15 is journaled for rotation in the bearings 5 on the body 2 of the casing 1, the numeral 16 denoting any suitable means whereby the shaft 15 may be rotated from a source of power. Fixed to the shaft 15 and mounted to rotate in the compartment 6 is a drum which is a composite structure. The drum comprises an imperforate end wall 17, a spider 18 having openings 19, and a foraminous wall 20 assembled with the member 17 and with the spider 18. The spider 18 carries a flange 21, a portion of which is journaled in the plates 8 and 9 of the partition, the flange including a lip 24 which extends into the compartment 7 and overlaps the partition. It will now be understood that the partition is shown as comprising the separable plates 8 and 9, in order that the flange 21 may be placed, for rotation, in the partition.

It is contemplated that a liquid of some kind, preferably oil, indicated at 22, shall be placed in the body 2 of the casing 1. The liquid being deep enough so that the drum dips into the liquid, as shown in Fig. 1.

In practical operation, air enters the casing 1 through the inlet 11 and, following the course indicated by the arrows, passes through the foraminous wall 20 of the drum or cylinder, the air passing through the openings 19 in the spider 18, into the compartment 7, and leaving the compartment 7 by way of the outlet 12, the air being delivered into the air intake 14 of the carbureter of the internal combustion engine. Since the foraminous wall 20 of the cylinder or drum dips into the oil 22, the wall carries a film of oil, through which the air passes, the air being purified in this way. The drum or cylinder may be rotated by

means of the part 16. The shaft 15, and the drum ordinarily are rotated continuously. In this way, the film of oil is renewed continuously, the dust and other impurities which are collected from the air being washed off as the wall 20 of the drum moves downwardly into the oil 22.

It is to be understood that the device forming the subject matter of this invention does not purport to supply fuel to the engine and is not to be confused with known structures in which a film of fuel is provided in order to make up the explosive mixture. The mechanism described and claimed is an air-purifier and is independent of the fuel-supplying means for the carbureter.

Having thus described the invention, what is claimed is:—

1. A device of the class described, comprising a casing having a transverse internal partition defining compartments; a shaft journaled in the ends of the casing; a drum on the shaft and located in one compartment, the drum comprising an imperforate end wall, and an end wall journaled in the partition and having an opening communicating with the other compartment; foraminous shell connecting the end walls; an air inlet for one compartment; an air outlet for the other compartment; and means on the shaft and external to the casing for imparting rotation to the shaft from a prime mover.

2. A device of the class described comprising a casing including a body and a lid; a partition comprising a part carried by the body and a part carried by the lid, the parts of the partition having notches defining an opening in the partition, the partition dividing the casing into compartments; a foraminous drum disposed in one compartment and journaled in the opening of the partition, the drum being provided with a flange overlapping the partition about the opening and located in the other compartment; means for rotating the drum; an air inlet for one compartment; and an air outlet for the other compartment.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ROBERT P. FAIRBANKS.

Witnesses:
W. E. WHITE,
R. H. ELLERS.