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AIR CLEANER FOR CARBURETORS

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Fig. 1.

Fig. 2.

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[Signature]
Our invention in or relating to carburetors for motor vehicles has particular reference to the admission of primary air.

Ordinarily, the quantity of primary air admitted is dependent upon the amount of vacuum in the induction pipe of the engine. Our aim is to provide means whereby the amount of primary air drawn into the induction pipe will be augmented in proportion to the speed of the engine.

According to the invention we propose to provide, behind the radiator, a conical or funnel-mouthed tubular member, the larger end of which will be opposed to the hot air stream induced through the radiator by the cooling fan, whilst its smaller end fits in or over or is suitably connected to the primary air inlet to the carburettor.

Thus, instead of the carburettor depending for its air supply upon the vacuum in the induction pipe, it will receive a supply of warm air under a pressure which will vary with the speed of the engine.

Incorporated in the device is a filter of such construction that a portion of the air stream is utilized to discharge any particles of dirt or grit which may be carried into the filter.

In the accompanying drawing,

Fig. 1 is a sectional elevation of one practical embodiment of the invention, suitable for use when the improved primary air supply device can be located on the same side of the engine of a motor vehicle as the carburettor.

Fig. 2 shows a form of construction which may be employed where the supply device for the primary air, cannot, to the best advantage, be located on the same side of the engine as the carburettor.

Referring to the drawing, a represents a tubular member, preferably not necessarily of circular cross-section, having a frusto-conical or funnel-shaped inlet end a' and its opposite end a" closed. At a suitable point in the length of the member a there is provided an outlet a' adapted to be fitted over, or appropriately connected to, the primary air inlet of the carburettor of a motor vehicle.

Within the member a there is provided an inner or filter member b of gauze or equivalent perforated material and of such smaller diameter than the outer member that an annular space of suitable thickness or area is provided between the two members.

The end of the perforated filter member b adjacent the inlet end of the member a is fitted with a frusto-conical inlet member c which closes the end of the annulus between the members a and b.

The end of the perforated filter member b opposite to the inlet is closed as at b' with the exception of a relatively small opening b" near its bottom. The filter member b is, as shown, preferably made slightly frusto-conical in form, with the smaller end adjacent the inlet. The result of such a construction is that the bottom of the interior surface of the said filter member slopes downwardly towards the opening b". Any particles of dirt or grit which may be drawn into the filter will thus tend to gravitate towards and be expelled through the opening b". A nozzle b' with a restricted outlet orifice b" may be provided over the opening b".

The device is suitably supported in rear of the radiator of a vehicle and preferably on that side of the engine from which the usual cooling fan is rotating downwardly, this location being found to give the best results. The distance of the inlet end a' from the rear face of the radiator will necessarily be governed to a certain extent by circumstances, that is to say by the construction and arrangement of the engine of the vehicle concerned. If convenient, it may be so located that the outlet a" can be applied directly into or over the primary air inlet to the carburettor.

If this is not convenient, a suitable pipe connection may be made between the supply device and the carburettor.

Air entering the inlet a' is concentrated and forced to flow with increased velocity through the filter b to the air intake of the carburettor, and the greater the quantity of air demanded by the engine, that is to say the greater the speed of the vehicle, the greater will be the volume of air supplied.

In cases where it is necessary or desirable to have the inlet to the improved primary air supply device on the opposite side of the engine to the carburettor, a constructional arrangement such as that shown in Fig. 2 may be adopted.

In this case the filter member b, instead of being in line with the inlet end of the device extends at right angles to it (or at any such other angle as may be convenient).

As before, a frusto-conical member c connects the inlet with the filter member b. The outlet a" for the filtered air is, in this instance, shown as being at the end of the device instead of being located at a point in the length of the member a as in Fig. 1. The connection between the outlet a" and the air intake to the carburettor will,
of course, depend upon the location of the latter on the engine. For some vehicles, it may be preferable to have the air outlet disposed at some point along the length of the member a as in Fig. 1 and the outlet for grit and dirt in an otherwise closed end of the filter member b, also as in Fig. 1.

Whilst we have shown the filter as being located in and forming part of the air collecting and concentrating member, it will be apparent that it need not necessarily be so located but may be included in the connection to the air inlet of the carburettor. For many reasons, however, the constructions shown are to be preferred.

Whilst being extremely simple and easy to apply, the air-collecting, concentrating, filtering and delivering device according to the invention has been found to improve markedly the fuel-consumption figures of a variety of different makes of motor vehicles.

Have thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A primary air admission device for a motor carburettor comprising in combination a closed casing; an inlet opening in said casing for the air to be admitted to said motor carburettor; a first outlet opening in said casing adapted to be connected to said motor carburettor; a filter member within said casing through which the air is forced to pass on its way from said inlet opening to said first outlet opening; a second outlet opening in said casing leading into the space surrounding said casing; and an unobstructed outlet opening in said filter member through which a portion of the air passing through said casing might reach without obstruction said second outlet opening in said casing, carrying any grit or dirt contained in the air admitted through said inlet opening directly into the space surrounding said casing.

2. A primary air admission device for a motor carburettor comprising in combination a tubular casing; an inlet opening at one end of said tubular casing for the fresh air to be admitted to said motor carburettor; a first outlet opening in said tubular casing adapted to be connected to said motor carburettor; a tubular filter member within said tubular casing through which the fresh air is forced to pass on its way from said inlet opening to said first outlet opening; a second outlet opening in said tubular casing leading into the space surrounding said tubular casing; and an unobstructed outlet opening in said tubular casing through which a portion of the air passing through said tubular casing might reach without obstruction said second outlet opening in said casing, carrying any grit or dirt contained in the air admitted through said inlet opening directly into the space surrounding said casing.

3. A primary air admission device for a motor carburettor comprising in combination a tubular casing having a substantially cylindrical wall; an inlet opening at one end of said tubular casing for the fresh air to be admitted to said motor carburettor; a first outlet opening in said cylindrical wall of said tubular casing adapted to be connected to said motor carburettor; a tubular filter member arranged within said tubular casing; and having a substantially cylindrical filter wall through which the fresh air is forced to pass on its way from said inlet opening to said first outlet opening; a second outlet opening at the other end of said tubular casing leading into the space surrounding said tubular casing; and an unobstructed outlet opening at the corresponding end of the tubular filter member connected with said second outlet opening at the other end of said tubular casing through which a portion of the air passing through said tubular casing and said tubular filter within the same might be expelled into the space surrounding said tubular casing without the necessity of passing through said cylindrical filter wall of said tubular filter member within the same, carrying any grit or dirt contained in the air admitted through said inlet opening directly into the space surrounding said casing.

4. A primary air admission device for a motor carburettor comprising in combination a tubular casing; an inlet opening at one end of said tubular casing for the fresh air to be admitted to said motor carburettor; a first outlet opening in said tubular casing admitting to said motor carburettor; a tubular filter member within said tubular casing through which the fresh air is forced to pass on its way from said inlet opening to said first outlet opening; an unobstructed inlet opening in said tubular casing leading into the space surrounding said tubular casing; and an unobstructed outlet opening in said tubular casing through which a portion of the air passing through said tubular casing might be expelled into the space surrounding said tubular casing without the necessity of passing through said tubular filter within the same.

5. A primary air admission device for a motor carburettor comprising in combination a tubular casing having a substantially cylindrical wall; an inlet opening at one end of said tubular casing for the fresh air to be admitted to said motor carburettor; a first outlet opening in said cylindrical wall of said tubular casing adapted to be connected to said motor carburettor; a tubular filter member arranged within said tubular casing and having a substantially cylindrical filter wall through which the fresh air is forced to pass on its way from said inlet opening to said first outlet opening; an unobstructed inlet opening at one end of said tubular casing enabling fresh air admitted through said inlet opening at one end of said tubular casing to enter said tubular filter member; a second outlet opening at the other end of said tubular casing leading into the space surrounding said tubular casing; and an unobstructed outlet opening at the other end of said tubular filter member connected with said second outlet opening at the other end of said tubular casing through which a portion of the air passing through said tubular casing might be expelled into the space surrounding said tubular casing without the necessity of passing.
through said cylindrical filter wall of said tubular filter member within the same, carrying any grit or dirt contained in the air admitted through said inlet opening directly into the space surrounding said casing.

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