Dec. 25, 1934. J. CARTMELL 1,985,481

AIR CLEANER

Filed March 28, 1934

Fig. 1

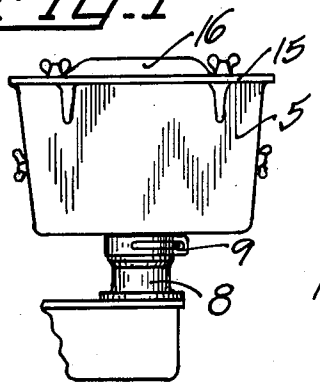
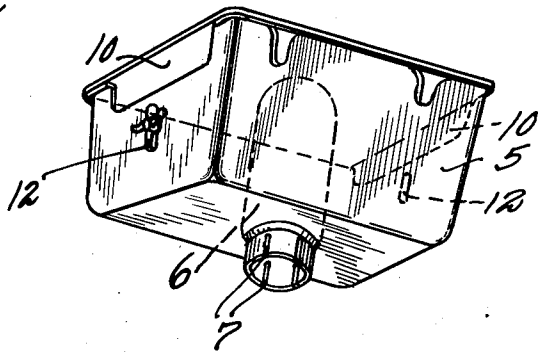


Fig. 2



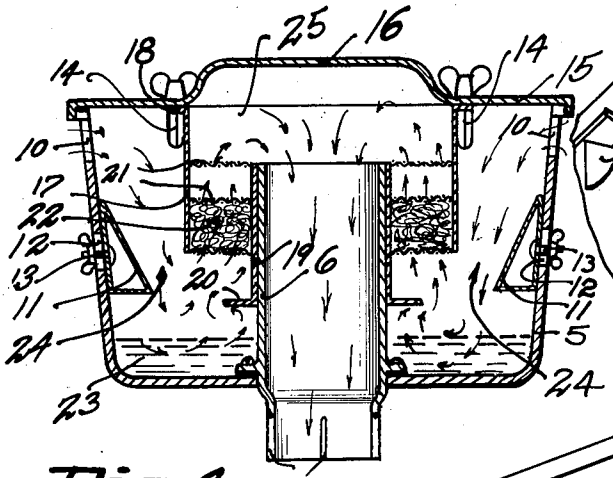
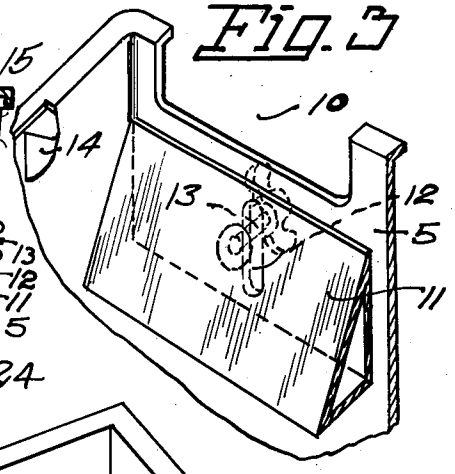


Fig. 4

Fig. 3



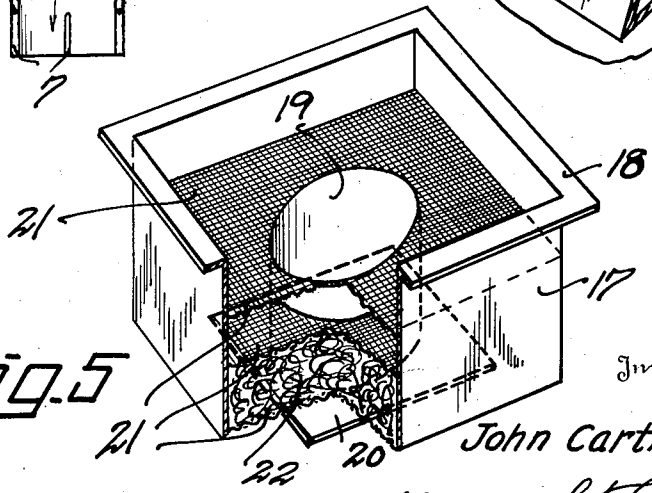


Fig. 5

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AIR CLEANER

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Application March 28, 1934, Serial No. 717,776

2 Claims. (Cl. 183—15)

My invention relates to air cleaners that are particularly adapted for use in connection with down-draft carburettors. Certain objects of the invention are to provide an air cleaner which is simple and inexpensive in construction, efficient and reliable in operation, and which may be readily installed on carburettors. Further objects are to provide adjusting and expansion means whereby the passage of air through the device is regulated. Still further objects are to provide a novel, direct acting air cleaner whereby foreign matter is completely removed from air by oil and steel wool or other shredded metal in its passage through the device prior to its entry into a carburettor.

With the above and other objects in view which will appear as the description proceeds, the invention consists of the novel construction, adaptation, combination and arrangement of parts hereinafter described and claimed. These objects are accomplished by devices illustrated in the accompanying drawing; wherein:—

Figure 1 is a general view in side elevation showing the device connected to a carburettor; Fig. 2 is a bottom perspective view of the device; Fig. 3 is a detail view in perspective showing the air control means; Fig. 4 is a view in central vertical section of the device; and Fig. 5 is a detail view in perspective of the filler cartridge.

Referring in detail to the drawing throughout which like reference numerals indicate like parts, the numeral 5 designates the body casing of the device which has an open tube 6 extending from a point below its top downwardly and centrally through its bottom. Said tube is fixed to the bottom of the casing and the portion which projects below said bottom is reduced and is slotted at 7 to make it resilient so that it may be secured tightly to the neck of a carburettor 8, over which it fits, by means of a suitable clamp 9 as shown in Fig. 1. It will thus be apparent that the device is particularly adapted for use in connection with down-draft carburettors, although it will be understood that same may be made to fit any type of carburettor by supplying the proper connections.

An opening 10 is provided in each top portion of two opposite walls of the rectangular body casing 5. Below each of said openings and about midway of the walls a triangular member 11 extends across each side within the casing. These triangular members are adjustable by having central vertical slots 12 and bolts 13 extending through said slots and through holes in the casing sides whereby they may be moved up or down to various positions and secured by means of wing nuts on the outside. Inwardly projecting lugs 14 are formed on the two walls of the casing near their upper edges. A top 15 is fixed snugly to the casing 5 and has a raised central portion 16 above the lugs 14.

Referring to Figs. 4 and 5 of the drawing, a rectangular cartridge member 17 has a flange 18 around its top edge which flange rests snugly on the lugs 14 while the top 15 fits down tightly on said flange, and a gasket may be interposed between said flange and top if desired. This arrangement makes a tight connection at the top, with the sides of the cartridge disposed substantially parallel with the sides of the casing 5 when the cartridge is installed within the casing. Said cartridge is provided with a central sleeve 19 which has a bottom flange 20. The sleeve is held in place by a plurality of spaced apart horizontal screen nettings 21 soldered or otherwise fixed to the outside of the sleeve and to the inside of the cartridge. The space between the two lower nettings is filled with steel wool or other metal shreds 22. A pool of oil 23 is placed in the bottom of the casing 5.

When the cartridge 17 is installed in place with its sleeve 19 snugly fitting the tube 6 of the casing 5, two of its sides form restricted passages 24 with the two triangular members 11, and the widths of said passages may be varied for different sizes of carburettors by adjustably shifting the triangular members up or down. Upon each suction stroke of an engine to which the carburettor and device is installed, outside air is drawn through the casing openings 10 downwardly through the passages 24 into violent contact with the pool of oil 23. The surface of the oil is considerably agitated by the impact of the air as it rebounds upwardly, and most of the heavy foreign matter is removed from the air by adhering to the oil. The flange 20 on the bottom of the cartridge serves as a baffle in preventing the air on its upward passage from lifting the oil. On its upward passage through the steel wool 22 the finer particles of foreign matter are removed and the air is completely cleansed when it passes into an expansion chamber 25 formed by the sides of the cartridge 17 and the raised portion 16 of the casing top 15. From this expansion chamber the air is sucked down through the central tube 6 and into the carburettor 8. The expansion chamber 25 retards the passage of the air therethrough, and provides space for expansion of gases in case of back fire of the engine to which the device is connected.

Having thus described my invention, it being understood that minor changes in its construction may be resorted to without departing from the scope and spirit of the invention, what I claim and desire to secure by Letters Patent of the United States is:—

1. An air cleaner comprising a body casing having air entry ports therein, an open upstanding tube fixed within the casing and projecting through its bottom, a pool of oil in the bottom of said casing, a cartridge casing arranged to fit within the body casing and to form a passageway between its own sides and bottom and the sides and bottom of the body casing, an upstanding sleeve for the cartridge casing projecting through its bottom and adapted to fit onto the top portion of the open tube when the cartridge casing is installed within the body casing, a flange around the bottom of said sleeve, a plurality of spaced apart screen nettings fixed to the sides of the cartridge casing and to its sleeve, a filtering material disposed between two of said nettings, and a top closing the body and cartridge casings and forming a separate passage chamber of the cartridge casing.

2. An air cleaner comprising a body casing having air entry ports therein, an open upstanding tube fixed within the casing and projecting through its bottom, a pool of oil in the bottom of said casing, a cartridge casing arranged to fit within the body casing and to form a passageway between its own sides and bottom and the sides and bottom of the body casing, an upstanding sleeve for the cartridge casing projecting through its bottom and adapted to fit onto the top portion of the open tube when the cartridge casing is installed within the body casing, a flange around the bottom of said sleeve, a plurality of spaced apart screen nettings fixed to the sides of the cartridge casing and to its sleeve, a filtering material disposed between two of said nettings, a top closing the body and cartridge casings, a triangular member disposed below each of the air entry ports on the insides of the body casing and forming restricted passages in conjunction with the sides of the cartridge casing, and adjusting means whereby said triangular members are movable up and down to vary the widths of the restricted passages.

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