

May 24, 1932.

H. E. ALTGELT

1,859,644

AIR CLEANER

Filed May 13, 1929

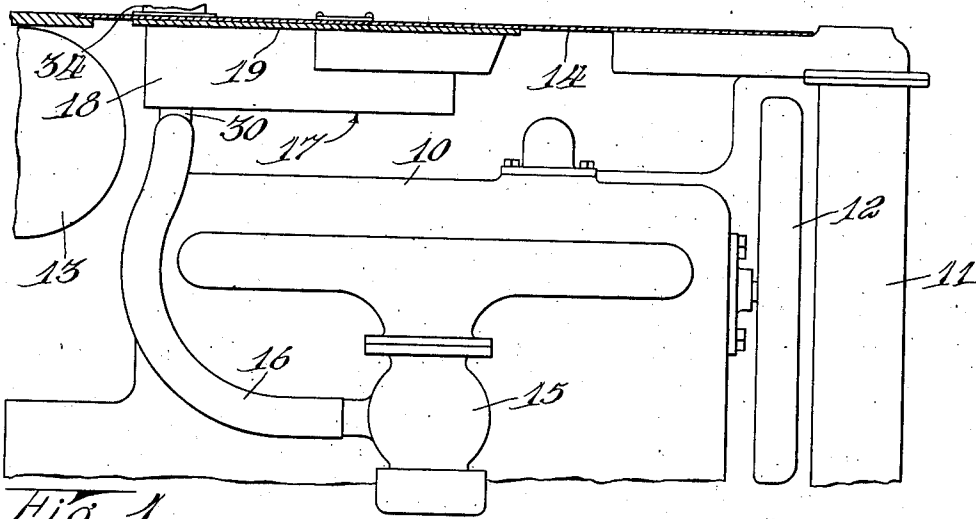


Fig. 1.

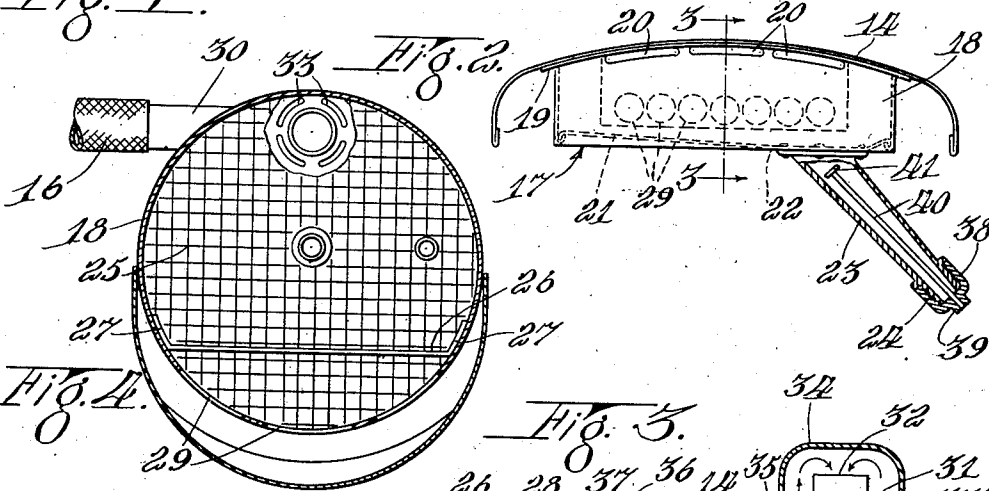
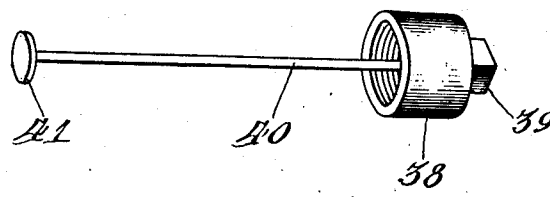


Fig. 2.

Fig. 4.

Fig. 5.

Fig. 5.



Inventor:
Herman E. Altgelt.
By John P. Smith
Att'y.

UNITED STATES PATENT OFFICE

HERMAN E. ALTGELT, OF SOUTH BEND, INDIANA, ASSIGNOR TO OLIVER FARM EQUIPMENT COMPANY, A CORPORATION OF DELAWARE

AIR CLEANER

Application filed May 13, 1929. Serial No. 362,492.

The present invention relates to an air cleaner and more particularly to the construction of a device which will maintain the liquid in the air cleaner relatively clean by collecting and separating the solid deposits from the liquid.

One of the objects of the present invention is to provide a novel and improved construction of an air cleaner for internal combustion engines which collects and separates the solid dust and dirt deposits from the liquid within the cleaner.

A still further object of the invention is to provide a novel and improved construction of an air cleaning device for internal combustion engines in which a means is provided thereon for collecting the solid particles, which are separated from the liquid in the air cleaner container, and particularly, an arrangement which permits the removal of the deposits from the drain pipe of the cleaner container with great ease and facility.

These and other objects are accomplished by providing a construction and an arrangement of the various parts in the manner hereinafter described and particularly pointed out in the appended claims.

Referring to the drawings, Fig. 1 is a fragmentary side elevational view of an internal combustion engine of a tractor showing my improved air cleaner mounted therein.

Fig. 2 is a cross-sectional view of the hood of the tractor shown in Fig. 1, showing the manner in which my improved air cleaner is mounted therein.

Fig. 3 is a longitudinal cross-sectional view taken on the lines 3—3 in Fig. 2.

Fig. 4 is a cross-sectional view taken on the lines 4—4 in Fig. 3, and

Fig. 5 is an enlarged perspective view of the cleaner rod and cap which is adapted to be mounted on the drain spout of the air cleaner proper.

The present invention is directed to an improvement on the air cleaning device described and claimed in my copending application, Serial Number 254,665, filed February 16, 1928.

In illustrating one embodiment of my invention, I have shown the same in connection

with a fragmentary portion of a tractor which comprises an internal combustion engine generally indicated by the reference character 10, a radiator 11, engine fan 12, fuel tank 13 and hood 14. The hood 14 extends from the top of the radiator rearwardly and is supported at the rear end thereof at a point adjacent and above the fuel tank 13. Associated with the engine 10 is a conventional form of carburetor 15 which has a conduit 16 which connects it with my improved air cleaner generally indicated by the reference character 17. My improved air cleaner comprises a cylindrical housing as indicated at 18, the upper portion of which is provided with a flange 19 which is welded or otherwise secured to the lower side of the hood 14 so as to form an air tight connection, the hood forming in effect, the top of the air cleaner container. Formed on the front side of the cylindrical wall 18 of the container and adjacent the flange 19 are three slotted apertures 20 through which the air enters. Secured to the cylindrical wall and adjacent the lower edge thereof, is a disc-shaped member 21 which forms the bottom of a cleaner container. This bottom is preferably constructed so that it inclines to one side thereof or has its lower portion on one side thereof, as indicated at 22 so that the liquids therein will drain to this lowermost position. Connected at this lowermost position is a drain pipe or drain tube 23 which in a sense, may be called a sediment reservoir or collector. This reservoir is preferably though not necessarily, conical in shape and has its lower end threaded, as shown at 24.

Mounted in the bottom 21 of the cleaner and slightly spaced therefrom, is a coarse wire mesh 25. Positioned transversely across forming substantially a segment of the circle with the circular wall of the cleaner is a division wall or member 26 which has its opposite ends secured to the inner side of the wall 18 of the container, as shown at 27. This wall extends from the top of the coarse wire mesh 25 to the top of the hood 14 where it is secured to the under side thereof, as shown at 28 in any well known manner. (See Fig. 3.) Extending through the wall 26 adjacent the

lower edge thereof, are a plurality of apertures 29. Extending through the bottom 21 of the cleaner and wire mesh 25 is a tube or conduit 30 which is connected to the conduit 16 forming the connection between the cleaner proper and the carburetor 15. The upper end of this tube extends through an aperture 31 formed in the hood 14 and terminates as shown at 32, at a point slightly above the top of the hood. Arranged concentrically about the upper end of the tube 30 and extending through the hood 14 are a plurality of apertures 33 through which the air passes in its course of travel into the upper end of the tube 30 in the manner indicated by the arrows in Fig. 3. Surrounding the upper end of the tube 30 and embracing the apertures 33 in the hood is a dome 34 which is secured by means of a flange 35 to the upper surface of the hood 14. Mounted on top of the wire mesh 25 and between the wall 26, as shown at 36, is an air cleaning fibrous material such as sisal, hemp, hair or steel wool. Removably mounted in the hood, as shown at 37 is a threaded cap through which the fibrous cleaning material 36 may be removed or inserted.

The essential feature of the present invention consists in the novel construction of a sediment reservoir which is of sufficient size to hold a considerable amount of residue collected from the operation of cleaning the air prior to its passage into the carburetor. The constant motion of the tractor causes the liquid or oil in the air cleaner (which is at a height in the bottom of the cleaner level with the upper surface of the wire mesh) to splash and constantly wash the dust and dirt particles out of the fiber. This residue of dust and dirt particles collects and settles in the residue reservoir or drain tube 23. This reservoir or tube as previously described, is provided with a threaded portion 24 which has mounted in threaded engagement therewith, a threaded cap 38, having a tool engaging portion 39 formed integrally therewith. Secured to the inner portion of the cap and preferably in the axial center thereof, is a rod 40, to the inner end of which is connected a cleaner disc 41 in any well known manner. From the above it will be noted that by the action or motion of the moving tractor, the dirt and dust particles which, being heavier than the liquid in the container, settle in the lowermost part of the air cleaner and eventually, find their way in the reservoir or drain tube 23. The sediment thus collected in this reservoir becomes thick and in many instances cakes or hardens and under ordinary conditions is difficult to remove. By the provision of the rod 40 and scraper 41 located on the inner end of the rod, the cap 38 may be unscrewed and removed during which operation the sediment may be completely scraped from within the reservoir by the disc 41, permitting the liquid to be quickly drained with-

out any loss of time on the part of the operator.

While in the above specification I have described one embodiment which my invention may assume in practice, it will of course, be understood that the same is capable of modification and that modification may be made without departing from the spirit and scope of my invention as expressed in the following claims.

What I claim as my invention and desire to secure by Letters Patent is:

1. The combination with an air cleaner having a liquid therein, of a sediment reservoir positioned below for draining and collecting deposits from said cleaner, the reservoir having means therein for scraping deposits from said reservoir.

2. The combination with an air cleaner comprising a container having a liquid therein, of a sediment reservoir positioned below and connected to said container, a drain cap connected with said reservoir having means thereon for cleaning said reservoir.

3. An air cleaner having liquid therein comprising a container having an inclined bottom, a sediment reservoir connected with the lowermost portion of said bottom, a removable cap connected to said reservoir for draining the liquid therethrough and means connected with said cap extending into said reservoir for cleaning the sediment from said reservoir.

4. An air cleaner having liquid therein comprising a casing, having an inclined bottom, a sediment reservoir connected with the lowermost part of said inclined bottom, a removable drain cap connected to the lower end of said reservoir, a rod connected in said cap and means connected with the upper end of said rod whereby the sediment may be scraped from said reservoir in the operation of removing said cap.

5. An air cleaner having liquid therein comprising a casing, an inclined bottom secured to said casing, a drain tube secured to the lowermost portion of said inclined casing in which the sediment from the air cleaner may be collected therein and removable means connected to the lower end of said tube whereby the sediment may be scraped from within said tube and the liquid drained from said cleaner.

6. An air cleaner having liquid therein comprising a casing, a bottom having a depressed portion therein, a sediment reservoir connected with the depressed portion of said bottom and scraping means connected to the bottom of said reservoir whereby the sediment in said reservoir and liquid in said casing may be taken therefrom.

7. An air cleaner having liquid therein comprising a casing, a bottom secured to said casing having a depressed portion therein, an inclined drain tube connected to said de-

pressed portion, a removable cap secured to the lower end of said tube, a rod connected to said cap and extending into said tube and a scraper member connected adjacent the upper end of said rod for scraping the sediment from said tube.

In testimony whereof I have signed my name to this specification, on this 9th day of May, A. D. 1929.

HERMAN E. ALTGELT.