Dec. 18, 1923. 1,477,885

C. L. LEHMANN

GASOLINE FILTER FOR INTERNAL COMBUSTION ENGINES

Filed Mar. 25, 1922

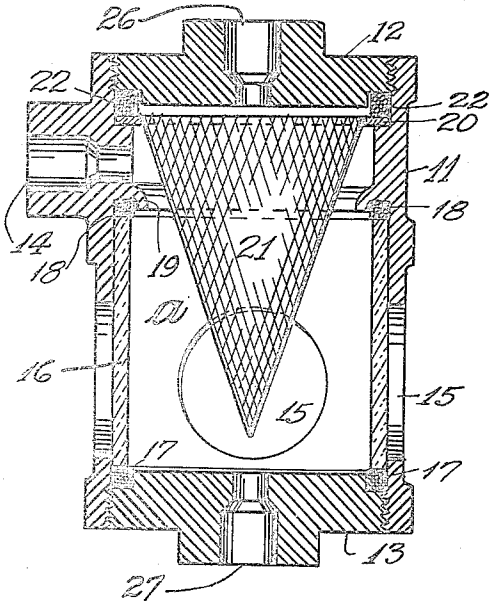


Fig. 1

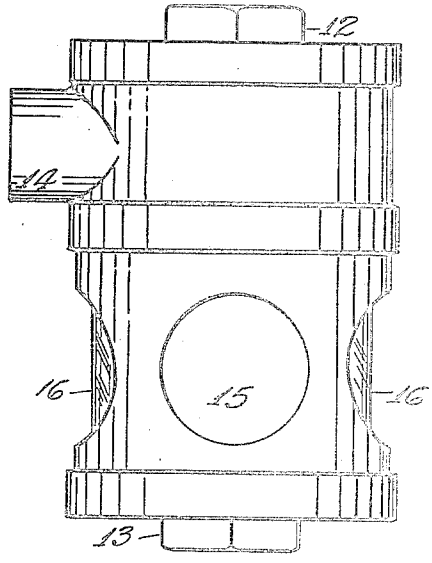


Fig 2

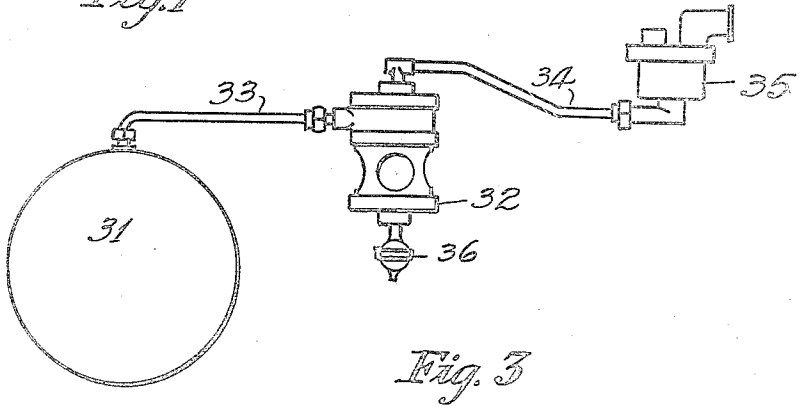


Fig. 3

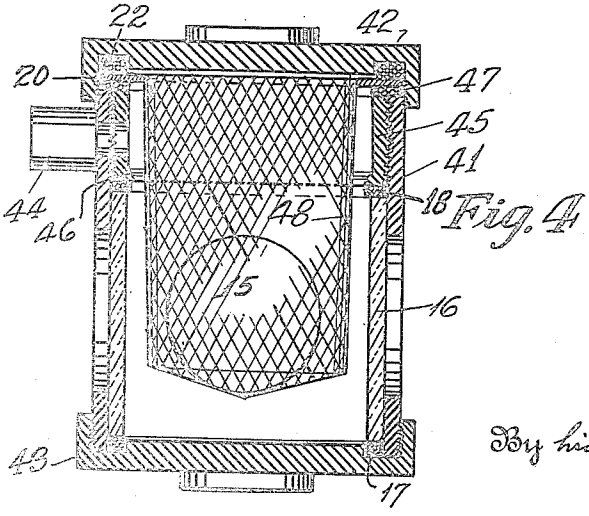


Fig. 4

Inventor
Charles L. Lehmann
By his Attorney
M. A. Laughridge

Patented Dec. 18, 1923. 1,477,885

UNITED STATES PATENT OFFICE.

CHARLES L. LEHMANN, OF NEW YORK, N. Y.

GASOLINE FILTER FOR INTERNAL-COMBUSTION ENGINES.

Application filed March 25, 1922. Serial No. 546,555.

To all whom it may concern:

Be it known that I, CHARLES L. LEHMANN, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Gasoline Filters for Internal-Combustion Engines, of which the following is a specification.

This invention relates to a filter for gasoline and is intended mainly for use on the intake pipe between the gasoline tank and the carburetor of internal combustion engines with the object of filtering solid matter from the gasoline and assisting somewhat in vaporizing the same. This invention resides more particularly in a type of filter which has a glass-enclosed chamber for the filtered material whereby the state of the filter may be inspected at any time while it is in use. A further object is to provide a ready means for cleaning out the filter without in any way disconnecting it or removing it from service. Other objects reside in the arrangement of parts and the details of construction which provide a comparatively inexpensive device, readily adaptable to varying conditions of service and constructed of parts that may be easily replaced. These and other objects of the invention will be understood from the following specification and the accompanying drawings in which Fig. 1 is a cross-sectional elevation of my filter device complete, Fig. 2 is an elevation of the device itself, Fig. 3 shows one arrangement which may be used in applying this device to the intake of an internal combustion engine and Fig. 4 shows an alternative construction to Fig. 1, made from plain iron pipe.

It is well-known that impurities and foreign matters accumulate in gasoline tanks from time to time and the suction or forced feed by which the gasoline is delivered to the carburetor carries over a certain amount of this foreign matter which, if not removed, tends to carbonize the cylinder and otherwise reduce the efficiency of the engine. The present invention is intended for application on the pipe leading from the gasoline tank to the carburetor and acts as an efficient filter for the gasoline, at the same time providing a means of inspection which not only shows the sediment filtered from the gasoline itself but serves as an indicator of the suction that is being applied to force the gasoline to the carburetor.

Certain novel features have been adopted in constructing this device, including an arrangement which only slightly changes the elevation of the gasoline feed pipe as the intake and discharge are both connected at the top of the device. The base of the device is arranged with a metallic casing having a number of windows behind which a glass ring is placed, forming a chamber into which the filtered sediment deposits, thereby providing a ready means of inspection when the apparatus is in use. A pet cock is provided in the base of this chamber which may be used to drain off the sediment and which can readily be washed out with the gasoline itself.

Referring to the drawings, 11 represents the cylindrical casting forming the main frame of the device; 12 is the top plate and 13 is the bottom plate; 14 is an orifice secured at the side to which the intake pipe is attached. 15 represents windows in the lower part of the casting 11 and behind these windows the cylindrical glass tube 16 is placed, resting on the gasket 17 on the bottom plate 13 and on the gasket 18, engaging an annular internal ridge on the casting 11. By tightening up the bottom plate 13 it is possible to tighten up the gaskets and thereby render the glass-enclosed chamber air-tight. It should here be noted that the gasket 18 fits into a hollow, annular groove as indicated by 19, also the gasket 17 fits into a groove formed in the plate 13. This prevents the gaskets from spreading inwardly and holds them in position against the pressure applied on the ends of the glass tube 16.

A filter consisting of a gauze cone 21, is supported by the ring 20, resting on the top of an internal projection on the casting. On top of the ring 20 the gasket 22 is placed and the top plate 12 is screwed down on top of gasket 22, thereby providing a seal for the entire casing and it will be noted that the passage through the device is from the orifice 14 into chamber "a", through the walls of cone-shaped filter 21, into the interior and through the discharge connected at 26.

The solid matter will naturally be forced against the walls of the cone and by gravity will gradually settle in the bottom of the de-

vice where it may be drawn off through the orifice 27. When the walls of the cone become coated or caked as sometimes happens in filters of various classes and which can readily be seen through the windows 15, the top cap is removed when the filter cone can easily be taken out for inspection and cleaned. However, under ordinary conditions it will be possible to discharge most of the caking on the filter cone by forcing gasoline through the device in the opposite direction.

One application of this invention as shown in Fig. 3 consists of a gasoline tank 31 connected by pipe 33 with the filter 32 and from the filter 32 by pipe 34 to the carburetor 35. Pet-cock 36, as shown at the bottom, may be used for cleaning out the filter chamber as previously mentioned.

The construction shown in Fig. 4 is intended for a purpose similar to Fig. 1, with the exception that in this construction a piece of seamless tubing 41 is substituted for the casting 11. In this case the end caps 42 and 43 are screwed down by exterior threads on the tube 41 and the interior ledge in the tube is provided by the ring 45 screwed into position as shown and against which the gasket bearing on the end of the glass tube 16, rests. The intake in this case is attached to an orifice 44 which may be spot-welded or brazed to the side of the tube. The filter in this case is somewhat cylindrical in shape as indicated at 48 and is supported by the ring 20 between the gaskets 22 and 47 and sealed by screwing down the cap 42. This makes a light construction and for large production enables most of the parts to be produced on a screwing machine. It will be noted that the bottom flange of the ring 45 is expanded at 46 to form a better seating for the gasket 18.

Other types of construction may be used; for instance, the top and bottom parts may be independent castings with a screw joint just below the intake orifice, the top part being screwed down on the gasket 18 on top of the glass ring 16.

Having thus described my invention, I claim:

1. In a filter of the class described, the combination of a filter chamber consisting of a piece of perforated pipe, a ring threaded into said pipe to form a ledge, a glass cylinder abutting on said ledge and forming a portion of said chamber, a cap screwed on the end of said pipe for holding said cylinder in place, a conical filter member extending into said chamber, a flange on the base of said member resting on said ring, and a cap for said chamber holding said member in place.

2. In a filter of the class described, the combination of a filter chamber consisting of a piece of perforated pipe, a ring threaded into said pipe, the edge of said ring flanged to form a ledge, a glass cylinder abutting on said ledge and forming a portion of said chamber, an end cap for holding said cylinder in place, a conical filter member extending into said chamber and a cap for clamping said member against said ring.

3. In a filter of the class described, the combination of a filter chamber consisting of a piece of perforated pipe, a ring threaded into said pipe to form a ledge, a glass cylinder abutting on said ledge and forming a portion of said chamber, an end cap for holding said cylinder in place, a conical filter member extending into said chamber and having a base flange, a cap for clamping said flange against said ring, an inlet for said chamber opposite said ring and an outlet connecting with the interior of said filter member.

Signed at New York, in the county of New York and State of New York, this fourteenth day of March, A. D. 1922.

CHARLES L. LEHMANN.