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W. INMAN

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FUEL OIL FILTER

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*Fig. 1.*

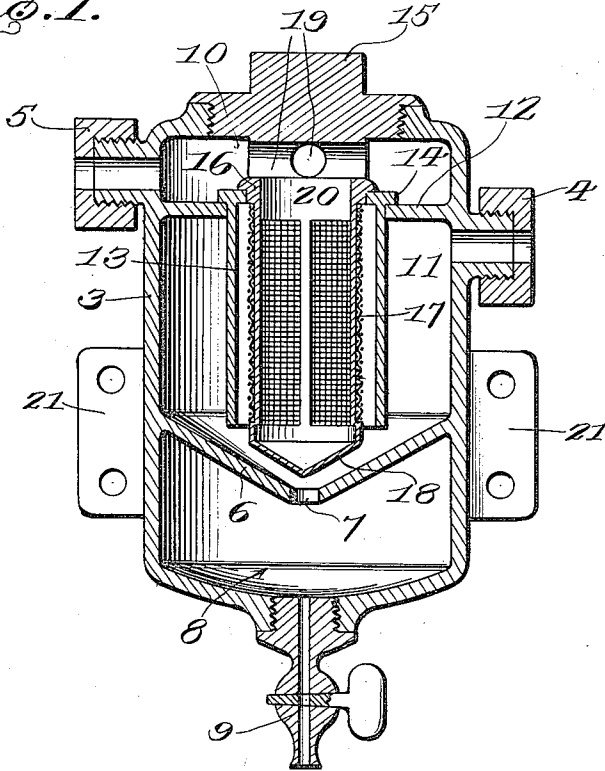
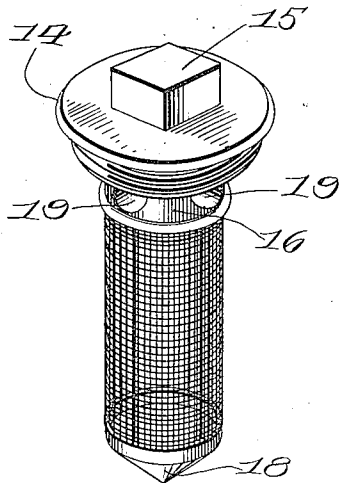


*Fig. 2.*



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## UNITED STATES PATENT OFFICE.

WILLIAM INMAN, OF LAPORTE, INDIANA.

## FUEL-OIL FILTER.

Application filed October 3, 1921. Serial No. 506,348.

*To all whom it may concern:*

Be it known that I, WILLIAM INMAN, a citizen of the United States, residing at Laporte, in the county of Laporte, State of Indiana, have invented certain new and useful Improvements in Fuel-Oil Filters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to fuel oil filters, and is adaptable particularly for use in connection with internal explosion engines for purifying the fuel oil or gasoline as it passes from the storage tank to the carburetor.

The primary object of the invention is to provide a filter for the purpose stated, wherein fuel oils carrying more or less non-volatile matters and substances may be effectively relieved of the same before reaching the carburetor, whereby only pure fuel oil relieved of all sediment will be delivered to the carburetor and ultimately to the explosion chamber of the engine.

A further object of the invention is to provide a filter which may be readily installed in the fuel oil line of the motor without difficulty, which is constructed in such manner as to enable the same to be applied or removed without the use of special skill or help, which has its separable parts so constructed and arranged as to be capable of being readily taken apart for cleaning or repair purposes, which separates the sediment and impurities from the fuel oil in such manner that such impurities will be afforded the least possible opportunity of passing into the delivery chamber, which will prove highly effective and practical in use, and which may be manufactured, installed and maintained at low cost.

With these objects in view, together with others which will appear as the description proceeds, the invention consists in the novel construction, the combination and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawing and particularly pointed out in the claim.

In the drawing:

Figure 1 is a vertical sectional view, taken

through a filter or separator, constructed in accordance with the invention, and

Figure 2 is a detailed perspective view of the closure cap and associated parts removed from the filter casing.

Referring now more particularly to the drawing, 3 indicates generally the body of the filter or separator, the same comprising a casing of suitable size and preferably of cylindrical shape, having a nipple 4 at one side thereof and below the top, to which may be attached the fuel oil line leading oil into the casing, and also being provided with a nipple 5 near the upper end of the chamber or casing for the application thereto of a pipe or line to lead filtered oil or gasoline from the casing. The nipple 5 is located preferably at a point diametrically opposite nipple 4 and above the plane of the latter. Any approved means may be employed for securing the fuel lines or pipes to the nipples. The casing is provided upon its interior end near the bottom thereof with a partition wall 6, the latter extending entirely around the interior of the casing and being depressed at its center, as shown, the central depressed portion having an opening 7 therein to permit fluid to pass below the partition into the basin indicated generally at 8. The lower extremity of the casing is provided with a pet-cock 9, by means of which the contents of the basin may be drained. The basin 8 is for the purpose of receiving and maintaining water and other liquids heavier than fuel oil and also sediment, grit and other impurities which may be gleaned from the fuel oil by the apparatus hereafter described.

The casing is provided with filtering and delivery chambers or compartments 10 and 11, respectively. These compartments are formed by providing the casing with a partition wall 12, the said partition being located preferably adjacent to the upper end of the casing so that the filtering compartment will be somewhat larger than the delivery compartment. It will be noted that the nipple 5 communicates with the delivery compartment, while the nipple 4 is in communication with the filtering compartment. The partition wall 12 is provided with a central and comparatively large opening in

which fits a deflector sleeve 13, this sleeve being open at both ends and having an outwardly extending flange 14 at its upper end to rest upon the edges defining the opening 5 in the wall 12. The lower end of this sleeve or cylinder is spaced upwardly an appreciable distance from the wall 6 near the lower part of the casing.

The upper extremity of the casing has an opening therein somewhat larger than the opening in the partition wall 12, the said openings being axially aligned and the casing opening is covered by a screw cap 15. This screw cap has depending centrally therefrom an enlarged portion 16 which projects into the delivery compartment when the cap is in place, and an outwardly extending rib near the lower end of this portion engages with the upper part of the cylinder or deflector sleeve 13, when the cap is screwed tightly in position. The portion 16 is provided with an annular skirt or screen 17, the latter being of slightly less diameter than the sleeve 13 and normally being positioned in the said sleeve concentric therewith. This cylindrical screen is co-extensive with the sleeve 13 and may be formed of fine mesh brass wire, of sufficient size to exclude foreign matter. The lower end of the screen has secured thereto a head 18, depressed at its central portion, and normally lies just above wall 6 and over the opening 7 therein. That portion of the member 16 which is disposed normally within the delivery compartment 10 is provided with radial openings 19, with which a central opening 20 communicates, these openings affording a passage for liquid from the interior of screen 17 to the delivery chamber. It will be observed that the opening for the screw cap is of such size as to permit of sleeve 13 being readily removed when desired, and it will also be noted that the screen or filter member 17 is carried by the said cap.

In operation, the filter body is secured to a suitable support by passing screws or bolts through suitable openings in webs 21, formed upon one side of the filter body. The body may be positioned in any convenient place in the pipe line for the motor, and the pipe line is broken, one end being attached to the nipple 4, while the line leading to the carburetor for the engine is connected with nipple 5. When the screw cap 15 is screwed down properly, a liquid tight joint is made between the sleeve 13 and wall 12, as well as between the enlarged portion 16 of the screw cap and the deflector sleeve. As liquid enters the body through the pipe connected with nipple 4, it engages sleeve 13 and cannot gain access to screen 17 until it passes below the lower edge of the deflector sleeve. Any sediment, water or other particles or liquids heavier than the fuel

oil will be precipitated in the filter chamber and will pass through the opening 7 into the catch basin 8 of the body. The purer oils or liquids will pass into the space between the concentric sleeve and screen, and will enter the interior of the latter by passing through the meshes thereof. The oil thus screened or purified passes upwardly within the screen and through the central opening 20 and radial openings 19 into the delivery chamber or compartment 10, from which it passes through nipple 5 to the pipe line leading to the carburetor. It will thus be seen that only the pure unencumbered fuel oils will be admitted to the carburetor as all foreign matter is cleaned therefrom during the filtering or straining operations. The impurities which accumulate in catch basin 8 may be drained or drawn off therefrom by operating the pet-cock 9, and should the meshes of screen 17 become clogged, so that the filter does not function perfectly, the screen may be removed by unscrewing cap 15 and lifting the same from its position within the chamber. After cleaning or repairing the screen meshes, the cap is replaced, whereupon the screen assumes proper position within the filter compartment.

Due to the particular construction of the wall 6 defining the upper part of the catch basin and the arrangement of the head 18 thereover, it will be at once apparent that agitation of the liquid within the body will not impede operation of the filter device. The opening 7 in wall 6 is so small and is so arranged that any agitation of the impurities contained within the catch basin could not pass upwardly therethrough and into the space between the concentric deflector sleeve and screen.

While the above is a description of the invention in its preferred embodiment, it will be understood that the invention is not necessarily restricted thereto, as changes or variations in the minor details of construction, assemblage and proportion of parts may be resorted to, if desired, without departing from the invention as defined by the claim.

What is claimed is:

In a device of the class described, a cylindrical body, a wall near the lower part of said body and having its central part apertured and depressed, a nipple connected to and communicating through the wall of said body above said centrally apertured wall, a partition in the upper part of said body, a nipple in the wall of said body communicating with the interior of the same above said partition, the said partition having an opening arranged centrally therein, the upper part of said body having an opening therein larger than and concentric with the opening in said partition, a closure cap for said body opening, a portion extending in-

wardly from said cap, a sleeve fitted within  
said partition opening, the said portion fit-  
ting within said sleeve and spaced from the  
latter, a screen carried by said portion and  
5 confined concentrically within said sleeve,  
a head on the lower end of said screen, and  
the said portion having openings establishing  
communication between the interior of said

screen and the compartment within which  
said portion is disposed.

In testimony whereof, I affix my signa-  
ture, in the presence of two witnesses.

WILLIAM INMAN.

Witnesses:

RAYMOND DOWNS,  
M. E. LELITER.