

May 1, 1928.

1,668,071

R. E. HART

FUEL CLEANER

Filed June 28, 1926

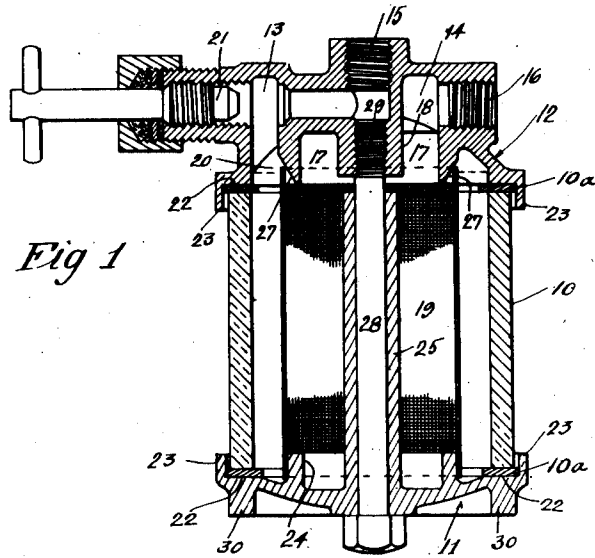


Fig. 1

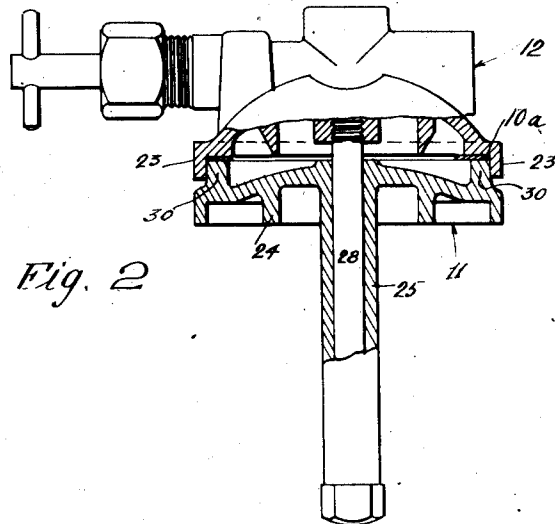


Fig. 2

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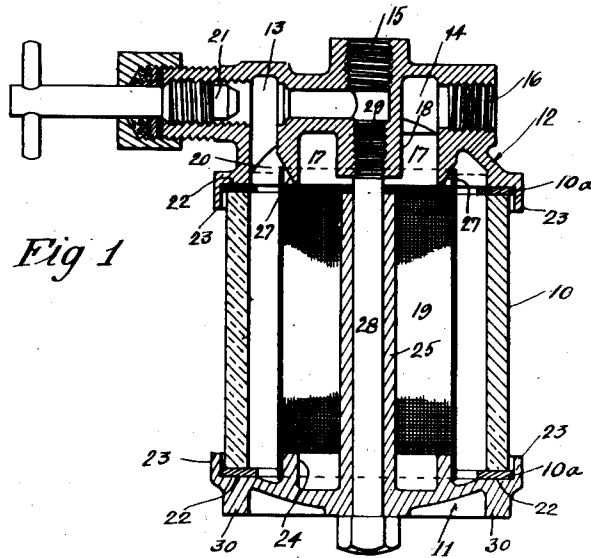


Fig. 1

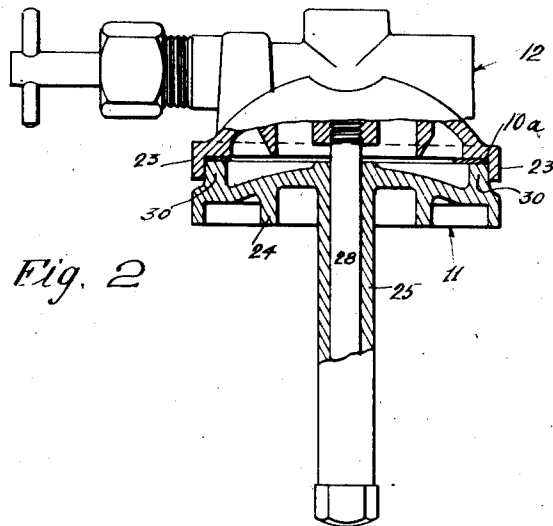


Fig. 2

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Patented May 1, 1928.

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# UNITED STATES PATENT OFFICE.

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## FUEL CLEANER.

Application filed June 28, 1926. Serial No. 118,882.

This invention has reference to liquid strainers or cleaners, its more specific object being the provision of an improved type of fuel cleaner for use in fuel lines such as on automobiles. But it will, of course be understood from what follows that the invention is not necessarily limited to the cleaning or straining of fuel, but is applicable to various other uses.

It has been found advantageous to provide in automobiles and in other places fuel strainers having a glass body so that the accumulation of dirt and other foreign matter may be observed and the cleaner taken apart and cleaned whenever necessary. One disadvantage of the glass walled cleaner has been its liability to breakage, and if the breakage occurs at a time when the automobile is any considerable distance from a service station where a new glass can be obtained great inconvenience is often the result, as there has been no easy way of providing a substitute body for the cleaner, or of temporarily by-passing the cleaner.

One of the objects of this invention is to provide such a cleaner having a glass wall, but having such other arrangements that if the glass becomes broken the parts may be easily assembled so as to still provide in an emergency a closed chamber or compartment through which the fuel may continue to flow. In the specific form of the invention hereinafter described and shown in the accompanying drawings this is accomplished by making the metal parts of the cleaner of such form, proportions and configuration that by a simple reversal of one of the parts they may be assembled without the glass and without the strainer, so that temporarily at least the device will still function to pass the liquid fuel satisfactorily. Other detailed accomplishments of the invention depend upon certain details of structure and design, all of which will be understood from what follows:

A specific form of the invention is shown in the accompanying drawings, in which:

Fig. 1 is a vertical central section of the cleaner in its normal assembly; and

Fig. 2 is a similar view showing the emergency assembly.

Referring first to Fig. 1 there is shown there a cylindric glass 10 which forms the transparent wall of the fuel chamber, the bottom of the chamber being formed by a

casting 11 and the top by another casting 12, the glass being held endwise between the two castings with interposed gaskets 10<sup>a</sup>.

The upper casting 12 has fluid passages 13 and 14 within it, the first mentioned passage communicating with a screw-threaded pipe connection 15 and the second mentioned passage with a screw-threaded pipe connection 16. Passage 14 communicates with an annular passage 17 which extends around the central hub 18 of the casting and communicates with the space inside the cleaning screen 19. Passage 13 communicates with an annular passage 20, which in turn communicates with the annular space around cleaning screen 19. One of said passages, as passage 13, may be controlled by a valve 21 so that the flow of fluid may be cut off if desired.

The upper casting 12 has a flat annular downwardly facing gasket seat 22 surrounded by a downwardly extending flange 23, the upper end of glass 10 extending up inside flange 23 and bearing against gasket 10<sup>a</sup>. The lower casting has on its normally upper side a similar annular gasket seat 22 and a flange 23. Lower casting 11 has also a circular boss or flange 24 around which the lower end of screen 19 fits fairly closely, the outside of boss or flange 24 being substantially cylindric so that when the screen is placed on it the screen is then held in axial alignment with the lower casting 11. Thus in assembling the device screen 19 is first placed in proper position on lower casting 11 and then when the lower casting is moved up against the lower end of glass 10 and screen 19 is moved up inside the glass it is easy to direct the upper end of the cylindric screen onto the conical shoulder 27 which forms the seat for the upper end of the screen in the upper casting 12. In fact, this conical shoulder has such a taper that if the lower casting is moved up into proximate position and the assembly bolt 28 is then screwed into the screw-threaded opening 29, the upper end of the screen will always be guided to a proper seat on the cone-shaped shoulder 27. The device is, therefore, easily assembled even by unskilled persons.

In case glass 10 should be broken it is then only necessary to close valve 21 to cut off the flow of fluid, unscrew bolt 28, remove the broken glass if necessary and remove also the screen; then the lower casting 11

is reversed on bolt 28 and the device is immediately reassembled in the relative arrangement shown in Fig. 2. The lower casting 11 has a short flange 30 which normally  
 5 faces downwardly when the device is assembled as in Fig. 1. This flange is of the same or approximately the same diameter and radial thickness as the glass 10. Therefore when the lower casting 11 is reversed  
 10 this flange 30 will extend up inside flange 23 of the upper casting and will seat on the gasket 10\* in the upper casting, making a fluid tight joint with the upper casting when bolt 28 is tightened up. And the sleeve 25  
 15 of lower casting 11 is made of the proper length so that when it is reversed on bolt 28, the head of that bolt bearing against the then lower end of sleeve 25 will hold the lower casting up in its proper position of  
 20 emergency assembly.

Although when so assembled in an emergency the device is no longer capable of screening the fluid passing through it, it is capable of temporary use and makes it possible to go on operating an automobile for at  
 25 least a reasonable length of time or until a new glass may be procured.

I claim:

1. A fuel cleaner embodying top and bottom  
 30 castings forming the ends of a fuel chamber, a cylindric glass side wall adapted to seat at its ends on the two castings to form a chamber, and a longitudinally extending bolt whose head bears upwardly against the  
 35 bottom casting and screws into the top casting, the bottom casting having a long normally upwardly extending sleeve surrounding said bolt and also having a normally downwardly projecting circular flange on its  
 40 lower surface, said flange being of substantially the same diameter and radial thickness as the glass, so that upon removal of the glass and reversal of the lower casting on said bolt the head of the bolt will then bear  
 45 upwardly against the then lower end of said sleeve and the flange of said lower casting will seat upwardly against the upper casting to form a chamber, and means in an  
 50 end member to pass fluid into and out of either chamber.

2. In a device of the character described, comprising two end members and a side wall member normally seating at its ends on the two end members and forming an enclosed  
 55 chamber, means in an end member to pass fluid into and out of the said chamber, one of the end members having on its normally exterior face a flange adapted, upon reversal  
 60 of that member, to seat upon the other end member and form a chamber with that member, and means for holding the end members together either with the side member between them or without the side member.

3. In a device of the character described, comprising two end members and a side wall  
 65 member normally seating at its ends on the two end members and forming an enclosed chamber, means in an end member to pass fluid into and out of the said chamber, one of the end members having on its normally  
 70 exterior face a flange adapted, upon reversal of that member, to seat upon the other end member and form a chamber with that member, and means for holding the end members together either with the side member between them or without the side member, said  
 75 means comprising a bolt passing through the reversible member and screwing into the other end member.

4. In a device of the character described, comprising two end members and a side wall  
 80 member normally seating at its ends on the two end members and forming an enclosed chamber, means in an end member to pass fluid into and out of the said chamber, one of the end members having on its normally  
 85 exterior face a flange adapted, upon reversal of that member, to seat upon the other end member and form a chamber with that member, the reversible end member having a bolt passing bore and a long surrounding sleeve the major portion of which projects from the side of that member opposite the flange, and a bolt adapted to pass through the sleeve and draw the two end members together in  
 90 either position of the reversible member.

It witness that I claim the foregoing I have hereunto subscribed my name this 19th day of June, 1926.

ROBERT E. HART.