

July 10, 1923.

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R. E. STROBEL

FUEL CLEANER

Filed June 24, 1921

Fig. 1.

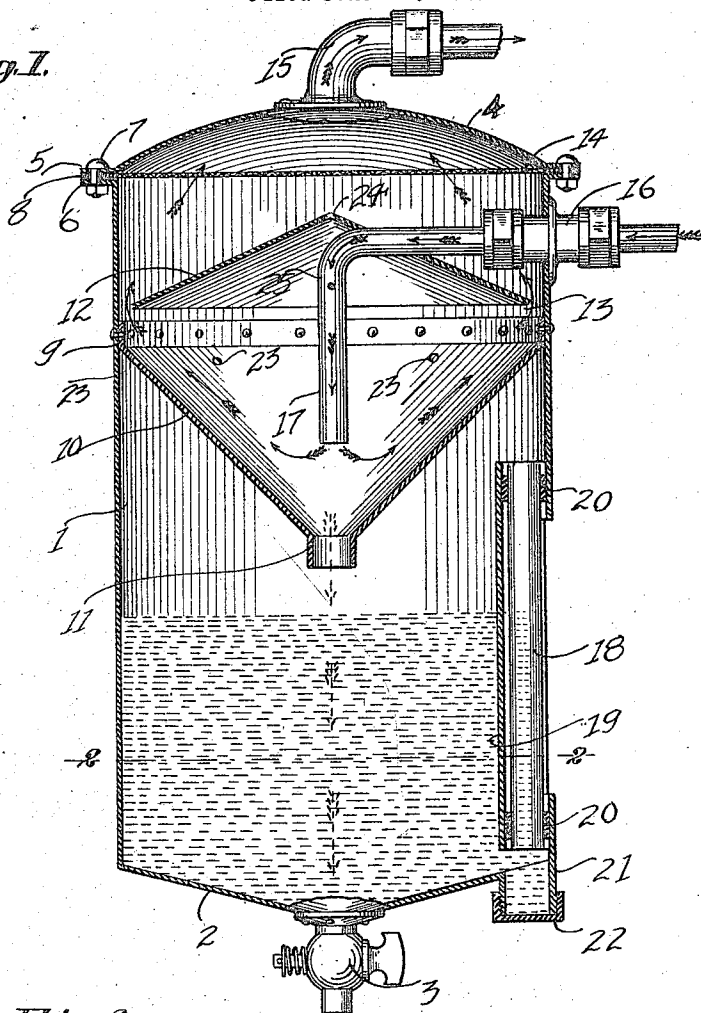
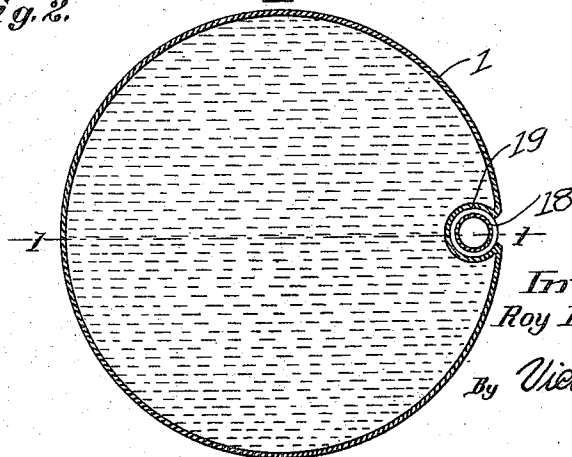


Fig. 2.



Inventor,
Roy E. Strobel.

By Victor J. Evans
attorney.

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UNITED STATES PATENT OFFICE.

ROY E. STROBEL, OF SAN LUIS OBISPO, CALIFORNIA.

FUEL CLEANER.

Application filed June 24, 1921. Serial No. 480,173.

To all whom it may concern:

Be it known that I, ROY E. STROBEL, a citizen of the United States, residing at San Luis Obispo, in the county of San Luis Obispo and State of California, have invented new and useful Improvements in Fuel Cleaners, of which the following is a specification.

My invention relates to an improved fuel cleaner and has for its primary object to provide a device which may be used in the fuel line of an engine which burns liquid fuel, such as gasoline distillate, kerosene or the like, to separate all foreign substances such as water, dirt and debris from the fuel before it is delivered to the sensitive fittings of a vacuum feed device or a charge forming device.

A further object of this invention is to provide a device of the character described which is simple in construction, compact in the arrangement of its parts, strong, durable, and economical to manufacture.

Other objects and advantages of this invention will be apparent during the course of the following description:

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a vertical section through the device, and

Fig. 2 is a cross section on the line 2—2 of Fig. 1.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention, 1 represents a receptacle or casing which I desire to construct in the form of a cylinder with a bottom 2 sloping toward its center and with a draw cock 3 connected to the lowest part of the bottom. The top 4 of the casing is removable by providing a flange 5 on the top which is joined to a similar flange 6 on the top edge of the casing by bolts 7, and to make an air tight joint suitable gaskets 8 may be used. Confined within the casing 1 and fixed to the sides thereof, by rivets 9, is a funnel shaped baffle 10 which has a discharge neck 11 disposed centrally of the casing and made to provide a discharge into the bottom half of the casing. The baffle is arranged in the casing intermediate the top and bottom but nearer the top than the bottom. Positioned above the funnel shaped baffle 10 is an in-

verted baffle 12 the edge of which being disposed adjacent the edge of the baffle 10 but of a slightly smaller diameter to leave an annular opening 13 between the two.

A suitable sieve or small mesh screen 14 is stretched across the casing with the outer edge of the screen clamped between the flanges 5 and 6. The fuel outlet 15 from the casing is arranged near the dome of the top 4 so that it is on the opposite side of the screen 14 from the baffles. The fuel inlet is shown as consisting of a piping 16 entering the side of the casing above the baffles and with the inner end of the piping terminating in a downwardly extending discharge end 17. The discharge end is confined in the enclosure made by the baffles and the baffle 12 is supported or suspended by the horizontal part of the pipe.

The operation of my device is as follows: The device being arranged in the feed line the liquid fuel in the piping 16 will be discharged at the downwardly extended discharge 17 into the enclosure of the baffles where it will be sucked through the annular opening 13 through the screen 14 and out the pipe 15. The screen will separate a certain proportion of the water, including foreign substances, and when it falls on the top of the baffle 12 it will be directed into the funnel shaped baffle 10 through the annular opening 13 and through the neck 11 where it will be collected in the sump at the bottom of the casing. It is to be expected that some of the debris will be separated by the baffles before it reaches the screen. A suitable water gauge 18 may be provided in the side of the casing to gauge the amount of substance collected in the sump so that the sump can be drained through the cock 3. The glass water tube is preferably housed in a semicircular part 19 of the casing with glands 20 fitting the tube to prevent leakage from the casing. The tube may be inserted through the opening 21 and with a cap closure 22 for the opening.

In order to permit air to escape as the receptacle fills the first time small air vents 23 are provided in the baffles 10 and a similar vent 24 is provided in the peak of the baffle 12. 25 represents a small opening in the downwardly extending discharge 17 to break the vacuum as the fuel flows back into the fuel reservoir when the air vent valve opens in the vacuum tank of the vacuum system, so that it will not drain down below

the opening 25. This reverse flow automatically cleans the screen 14.

The receptacle should be large enough to hold about one quart of water and dirt and it therefore needs only an occasional drainage. The device has no valve or moving parts to clog or become out of order. The screen 14 being relatively large and of small mesh wire collects all foreign substance but it is hardly possible that any foreign substance except very small particles will reach the screen as the fuel in being introduced or discharged into the enclosure of the baffles will be spread out greatly and its speed is reduced to such an extent that as it flows up around the upper baffle all sediment and fine particles will be precipitated down upon the lower baffle and then into the sump.

It is to be understood that the form of my invention herewith shown and described, is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In a fuel cleaner, a receptacle having an inlet and outlet adapted to be connected in a liquid fuel line to an engine, said inlet terminating in a downwardly extending discharge end within the receptacle, a funnel shaped baffle in the receptacle and an inverted baffle supported above the first named baffle, said inverted baffle being smaller than the first named baffle and having an opening between the respective edges of both baffles, the downwardly extending end of the inlet protruding through the inverted baffle with its discharge end confined within the enclosure made by both of the baffles, and a clearing screen in the receptacle between the baffles and the outlet, a removable top for the receptacle with the said outlet arranged therein and said clearing screen being mounted transversely across the receptacle and held in place by the fastening for the said removable top (substantially as and for the purpose described).

2. In a fuel cleaner, a receptacle having an inlet and outlet adapted to be connected in a liquid fuel line to an engine, said inlet terminating in a downwardly extending dis-

charge and within the receptacle, a funnel shaped baffle in the receptacle and an inverted baffle supported above the first named baffle, said inverted baffle being smaller than the first named baffle and having an opening between the respective edges of both baffles, the downwardly extending end of the inlet protruding through the inverted baffle with its discharge end confined within the enclosure made by both of the baffles, and a clearing screen in the receptacle between the baffles and the outlet, a removable top for the receptacle with the said outlet arranged therein and said clearing screen being mounted transversely across the receptacle and held in place by the fastening for the said removable top, the bottom of the receptacle providing a sump with a drain cock in the base thereof; whereby foreign substances separated from the fuel may be collected in the sump and released by said drain cock at intervals.

3. In a fuel cleaner, a receptacle having an inlet and outlet adapted to be connected in a liquid fuel line to an engine, said inlet terminating in a downwardly extending discharge end within the receptacle, a funnel shaped baffle in the receptacle and an inverted baffle supported above the first named baffle, said inverted baffle being smaller than the first named baffle and having an opening between the respective edges of both baffles, the downwardly extending end of the inlet protruding through the inverted baffle with its discharge end confined within the enclosure made by both of the baffles, and a clearing screen in the receptacle between the baffles and the outlet, a removable top for the receptacle with the said outlet arranged therein and said clearing screen being mounted transversely across the receptacle and held in place by the fastening for the said removable top, the bottom of the receptacle providing a sump with a drain cock in the base thereof; whereby foreign substances separated from the fuel may be collected in the sump and released by said drain cock at intervals, and a sight gauge in the sump for indicating the quantity of foreign substance collected therein, substantially as and for the purpose described.

In testimony whereof I affix my signature.

ROY E. STROBEL.