April 27, 1926.

N. N. SHEPHERD

1,582,859

FILTER TRAP

Filed Oct. 15, 1923

FIG. 1

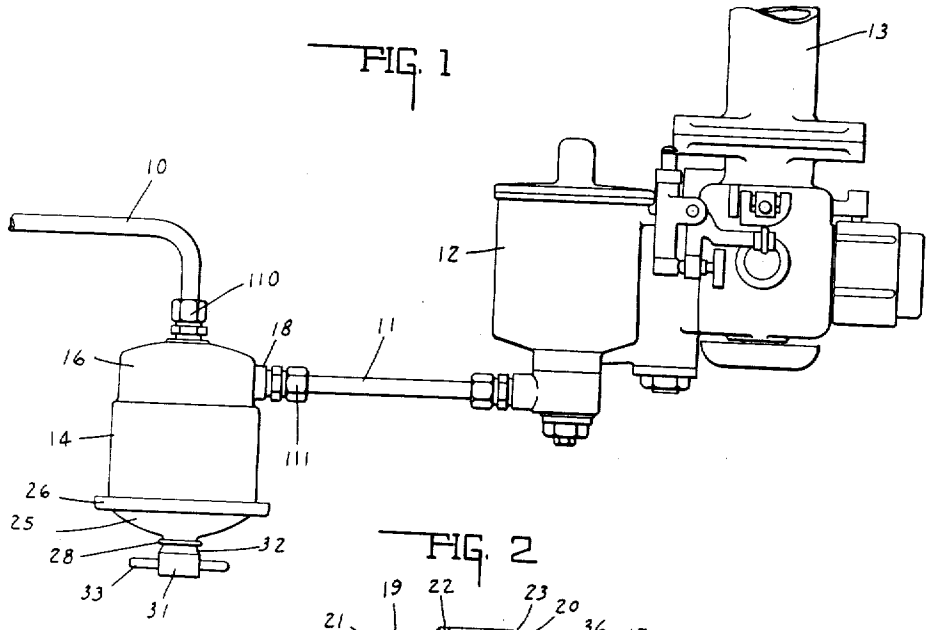
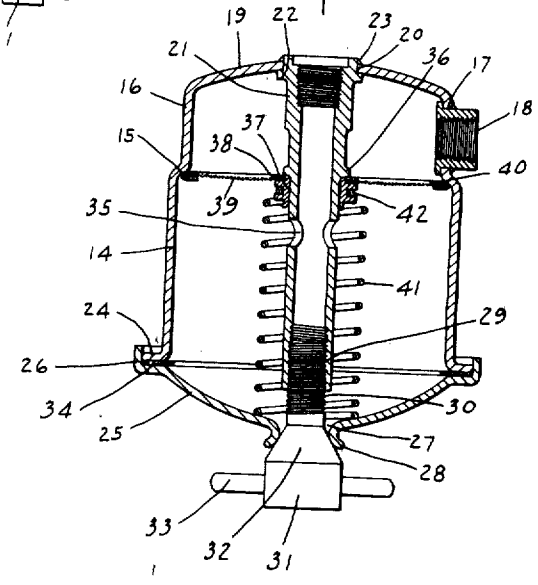


FIG. 2



INVENTOR.

NOBLE NYE SHEPHERD.

BY

ATTORNEYS.

Patented Apr. 27, 1926. 1,582,859

UNITED STATES PATENT OFFICE.

NOBLE NYE SHEPHERD, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO INDIANAPOLIS SCREW PRODUCTS COMPANY, OI INDIANAPOLIS, INDIANA, A CORPORATION.

FILTER TRAP.

Application filed October 15, 1923. Serial No. 668,589.

To all whom it may concern:

Be it known that I, NOBLE NYE SHEPHERD, a citizen of the United States, and a resident of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Filter Trap; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

This invention relates to a filter trap for the fuel supply to a carbureter.

The chief object of this invention is to provide a filter construction which is interposed in the fuel supply line ahead of the carbureter so that sediment and foreign matter, and in some instances water, will be separated from the liquid fuel before the same enters the carbureter, thereby not only insuring non-interference with the carbureter action, but also increased efficiency, due to the purity of the fuel.

The chief feature of the invention consists in the construction of the filter trap.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Fig. 1 is a side elevational view of a carbureter, a fuel supplying line therefor, and the invention interposed in said fuel supplying line ahead of the carbureter. Fig. 2 is a central sectional view through the filter construction.

In the drawings 10 indicates a fuel supplying line, which may be understood comes from a fuel containing tank. A conduit 11 connects with the carbureter 12, said carbureter discharging through the intake pipe 13 to an internal combustion engine not shown. The conduits 10 and 11 are in communication with each other by means of a filter trap construction which is detachably associated with said conduits by the several coupling constructions 110 and 111 respectively.

The filter trap construction consists of a cylindrical body portion 14 which is reduced at 15 and forms an annular shoulder. Projecting upwardly therefrom is another body portion 16, and an opening 17 is adapted to receive a nipple 18 which may be spun therein, or otherwise suitably secured thereto. Herein the trap is illustrated as of cylindrical form, and axially positioned within the top 19 is an opening 20. The opening 20 is adapted to receive a hollow stem 21 having a shoulder 22 for engagement upon the walls of the opening. The projecting end of the tube 21 is upset, as at 23, to form a firm and fluid-tight joint. Other means of connection may be provided, however, as desired. The connection 110 is receivable by the tube 21; while the nipple 18 is receivable by the connection 111. The lower end of the cylindrical body portion 14 is provided with an outwardly projecting peripheral flange 24. A dish-shaped closure 25 having a flange 26 for telescopically receiving the flange 24 is adapted to close the body portion 14 by suitable means. The central portion of the dish-shaped bottom 25 is apertured at 27 and the walls thereof are spun outwardly, as at 28, to form a seat.

The tube 21 extends axially through the body portions 16 and 14 and terminates as herein shown beyond the body portion 14 and within the dish-shaped portion of the bottom 25. The lower end of the tube 21 is threaded, as at 29, and is adapted to receive the threaded end 30 of a closure plug 31 having a tapered seat 32 for engagement with the seat 28 in the closure 25. Suitable means, such as the projecting pin portions 33 upon the plug 31, are provided for turning said plug into the tube so as to seat the plug in the seat 28, and also secure a fluid-tight joint between the flanges 24 and 26. Herein a packing member in the form of an annular ring 34 also assists in securing a fluid-tight joint between said flanges.

Herein the tube 21 is suitably apertured in one or more places, as at 35. The tube 21 is provided with a shoulder 36 which lies in about the same plane as the annular shoulder 15. Detachably supported upon said tube and concentric therewith is a bushing 37, which is recessed at 38 to receive an annular screen 39, the outer peripheral edge of which is protected by a clamping ring 40. The ring 40 is engageable upon the flange or shoulder 15, and thus the body portion 16 is separated from the body portion 15 by the screen or strainer 39. The means for maintaining the sleeve 37 in the elevated position, abutting the shoulder 36 of the tube 31, comprises a coiled spring 41 which has one end secured to said sleeve by engaging in a groove 42 adjacent the groove 38 in said bushing. The lower end of the coiled spring 41 is seatable upon the closure 25.

With the foregoing construction the fuel is supplied to the tube 21 and discharges through the apertures or ports 35 into the chamber beneath the strainer 39. The fluid again changes direction and passes upwardly and outwardly through the nipple 18 to the carbureter 12 by means of the line 11. With the foregoing changes in direction, the sediment in the original fuel is not only separated by said changes in direction, but also by the screen 39; and said screen also is adapted to separate the water from the liquid fuel in the well known manner. When it is desired to clean the filter trap construction, the plug 31 is removed from the tube 21 and the bottom 25 may thereupon be removed, thus permitting the water and the sediment collected in the bottom 25 to be removed therefrom. Likewise the screen 39 may be removed and cleansed. Furthermore, with the removal of the threaded portion 30 from the end of the tube 29, said tube also may be cleansed.

The invention claimed is:

1. In a filter trap construction, the combination of a tubular body having a closed and an open end, said body having a laterally directed flange defining the open end, the closed end forming a head integral with the body and including a central opening, said body having another opening adjacent the first mentioned opening, a screen within the body, a readily removable cap for closing said open end of the body, said cap being provided with a peripherally flanged edge for receiving the flanged end of the body, and tubular means seated in the central opening and forming part of a channel from the same to the other opening said means extending thru the body for securing said body and cap together and supporting said screen.

2. A device of the character defined by claim 1 characterized by the addition of gasket means interposed between the lateral flange and the peripheral edge and receivable by the latter for securing fluid tight joint therebetween.

3. In a filter trap construction, the combination of a tubular body having a closed and an open end, said body having a laterally directed flange defining the open end, the closed end forming a head integral with the body and including an opening, said body having another opening adjacent the first mentioned opening, a peripheral flange formed intermediate the ends of said body, a transversely positioned screen engageable upon the intermediate flange for seating purposes, and a cap for closing said open end including an annular peripheral seat defined by a peripherally extending flange for telescopically receiving and seating the flanged open end.

4. In a filter trap construction, the combination of a tubular body having a closed and an open end, said body having a laterally directed flange defining the open end, a head integral with the body and including an opening, said body having another opening adjacent the first mentioned opening and a peripheral flange formed intermediate the ends of said body, a transversely positioned screen engageable upon said intermediate flange for seating purposes, said screen being provided with an aperture therein, operative means extending through the body and through the screen aperture, said operative means including a stop, said screen aperture receiving said operative means, said stop thereof limiting the movement of the screen thereon, and a cap for closing said open end including a peripheral seat defined by a peripherally extending flange for telescopically receiving and seating the flanged open end and secured by said operative means to said body.

5. In a filter trap construction, the combination of a tubular body having a closed and an open end, a peripheral flange intermediate the ends of the body, a transversely positioned screen engageable upon said intermediate flange for seating purposes and being provided with an aperture, peripheral means defining said aperture, a cap closing said open end and secured to said body, spring means having one end bearable upon the cap and the other end secured to said aperture defining peripheral means, and tubular channel forming means extending through the body and having a lateral opening intermediate the ends and for securing said body and cap together, said screen aperture defining means being slidably associated with said tubular channel forming means.

6. In a filter trap construction, the combination of a tubular body having a closed and an open end, a peripheral flange intermediate the ends of the body, a transversely positioned screen engageable upon said intermediate flange for seating purposes and being provided with an aperture, peripheral means defining said aperture, a cap closing said open end and secured to said body, spring means having one end bearable upon the cap and the other end secured to said aperture defining peripheral means, tubular channel forming means extending through the body and having a lateral opening intermediate the ends and for securing said body and cap together, said screen aperture defining means being slidably associated with said tubular channel forming means, and stop means on the channel forming means for limiting the sliding movement of said screen.

7. In a filter trap construction, the combination of a tubular body having a head integral therewith, a peripheral flange

formed intermediate the ends of said body, a transversely positioned screen engageable upon said intermediate flange for seating purposes, said screen being provided with a central aperture therein, tubular channel forming means extending centrally through the body and slidable through the screen aperture, a stop on said channel means limiting the sliding movement of said screen, and a cap for closing the open end including a peripheral seat for seating the body open end and secured by said tubular channel forming means to said body.

8. In a filter trap construction, the combination of a tubular body having a closed and an open end and having inlet and outlet openings therefor, a peripheral flange formed intermediate the ends of said body, a transversely positioned screen engageable upon said intermediate flange for seating purposes and being provided with an aperture, said body having a laterally directed flange defining the open end, a cap for closing said open end and secured to said body and including a peripheral seat defined by a peripherally extending flange for telescopically receiving and for seating the flanged open end of said body, spring means having an end bearable upon the cap and the other end secured to said transversely positioned screen and operative means extending through the body for securing said body and cap together and receivable by the screen aperture.

9. In a filter trap construction, the combination of a tubular body having a closed and an open end, a head integral with the body and including an opening, said body having another opening adjacent the first mentioned opening, a screen, a centrally apertured cap for closing said open end of the body, a hollow member open at both ends and provided with a lateral opening communicating with the interior of the tubular body positioned in said head opening and extending toward the open end of the body, and a plug seatable in said cap aperture and extending toward the head for end to end engagement with the hollow member, said member and plug extending entirely through the body and cap for securing them together.

10. In a filter trap construction, the combination of a body having a closed and an open end, a closure for said open end, a screen therein forming two superposed chambers having communication with each other only through said screen, said body having inlet and outlet openings in the same chamber, and channeled means connected to one of said openings for discharging directly into the other chamber and extending through said screen for securing said closure and body together, a screen seat on said channeled means, and a spring between the screen and the closure and within the body for maintaining said screen on said seat.

11. In a filter trap construction, the combination of a normally rigidly united but separable body including a head portion having an intake and an outlet and an apertured closure portion, a screen member positioned in the body and forming two chambers having communication with each other only through the screen, the intake and outlet each communicating with a different chamber and with each other only through said screen, a coil spring interposed between said screen member and said closure portion, and threadedly connected means separable within the separable body, extending thru the screen and secured to the head portion and extending thru the closure portion with an exposable portion without the body for manual manipulation for securing the separable body in rigid relation and for simultaneously positioning said spring for seating said screen.

12. A device of the character as defined by claim 11 characterized by the portion of the threadedly connected means secured to the head portion, including a channel connecting the intake to one of the chambers.

13. In a filter trap construction, the combination of a normally rigidly united but separable body including a head portion having an intake and an outlet and an apertured closure portion, a screen positioned in the body and forming two chambers having communication with each other only thru the screen, the intake and outlet each communicating with a different chamber and with each other only thru said screen, an annular retainer secured to an edge of said screen for seating purposes, another annular edge retainer having a central opening and an adjacent bearing portion, yielding means interposed between the second mentioned annular retainer and said closure portion for maintaining said first mentioned annular retainer seated, and threadedly connected means extending thru the screen and said annular edge retainers and connecting said head portion to said closure portion for securing the separable body in rigid relation, said threadedly connected means having a portion exposable without the closure portion for manual manipulation.

14. A device of the character as defined by claim 13, characterized by the yielding means being a coil spring and threadedly connected means extending centrally into the same for positioning said spring and seating said screen.

15. In a filter trap construction, the combination of a normally rigidly united but separable body including a head portion having an intake and an outlet and an apertured closure portion, a screen member positionable in the body and forming two chambers therein having communication with each

other only through the screen, the intake and outlet each directly communicating with a different chamber and with each other only through said screen, a coil spring interposed between said screen member and said closure portion, said screen being annular and including a central aperture, the closure portion also being annular and including an aperture, said apertures being in alignment with each other and with the spring axis included therein, and threaded connected means passing through said closure and screen apertures and positionable within said spring and connected to the head portion and having an exposable portion extending without the body for manual manipulation, said threaded connected means securing said closure and head portion in rigid and leak proof body formation and simultaneously maintaining said screen in leak proof seated arrangement.

In witness whereof, I have hereunto affixed my signature.

NOBLE NYE SHEPHERD.

other only through the screen, the intake and outlet each directly communicating with a different chamber and with each other only through said screen, a coil spring interposed between said screen member and said closure portion, said screen being annular and including a central aperture, the closure portion also being annular and including an aperture, said apertures being in alignment with each other and with the spring axis included therein, and threaded connected means passing through said closure and screen apertures and positionable within said spring and connected to the head portion and having an exposable portion extending without the body for manual manipulation, said threaded connected means securing said closure and head portion in rigid and leak proof body formation and simultaneously maintaining said screen in leak proof seated arrangement.

In witness whereof, I have hereunto affixed my signature.

NOBLE NYE SHEPHERD.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,582,859, granted April 27, 1926, upon the application of Noble Nye Shepherd, of Indianapolis, Indiana, for an improvement in "Filter Traps," an error appears in the printed specification requiring correction as follows: Page 2, line 68, claim 4, after the comma following the word "end" insert *the closed end forming;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of June, A. D. 1926.

[SEAL.]

M. J. MOORE,
Acting Commissioner of Patents.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,582,859, granted April 27, 1926, upon the application of Noble Nye Shepherd, of Indianapolis, Indiana, for an improvement in "Filter Traps," an error appears in the printed specification requiring correction as follows: Page 2, line 68, claim 4, after the comma following the word "end" insert *the closed end forming;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of June, A. D. 1926.

[SEAL.]

M. J. MOORE,
Acting Commissioner of Patents.