

Aug. 18, 1953

J. M. BRIER, JR.
COMBINATION SEDIMENT CUP AND DRAIN PLUG
FOR INTERNAL-COMBUSTION ENGINES
Filed Nov. 27, 1950

2,649,204

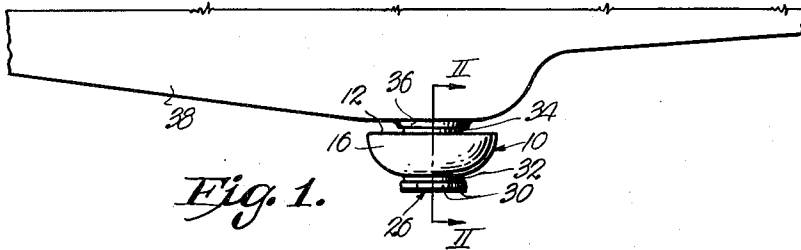


Fig. 1.

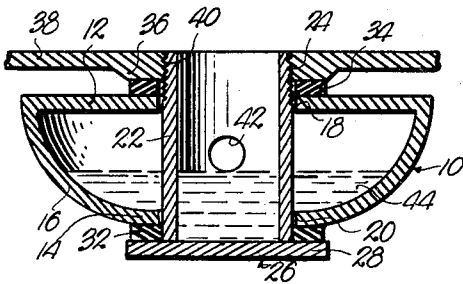


Fig. 2.

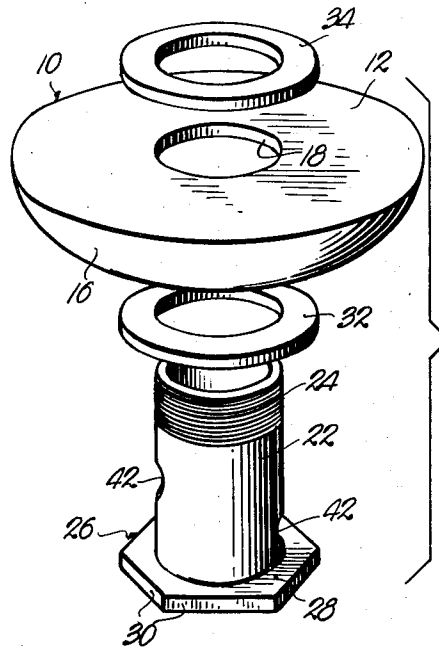


Fig. 3.

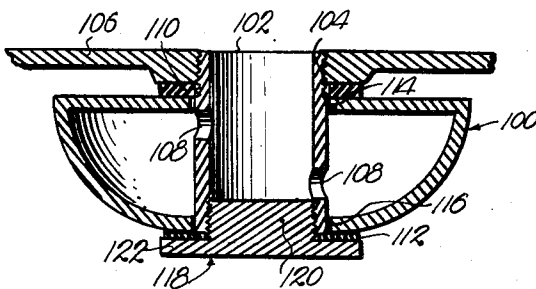


Fig. 4.

INVENTOR.
James M. Brier, Jr.
BY *[Signature]*
ATTORNEY

UNITED STATES PATENT OFFICE

2,649,204

COMBINATION SEDIMENT CUP AND DRAIN
PLUG FOR INTERNAL-COMBUSTION EN-
GINES

James M. Brier, Jr., Topeka, Kans.

Application November 27, 1950, Serial No. 197,821

4 Claims. (Cl. 210—57)

1

This invention relates to structure in the nature of a sediment bowl or sump adapted for releasable connection with a fluid receptacle in register with a drain opening forming a part thereof to receive foreign matter settling from the fluid within the receptacle to the end such matter may be removed from time to time as desired.

It is the most important object of the present invention to provide structure as above set forth that may be easily and quickly cleaned each time the fluid receptacle is drained and being capable of receiving foreign matter such as particles of metal, pieces of dirt and more particularly water within the crank case of an internal combustion engine and to retain such substances until the sediment bowl hereof is cleaned.

A further object of this invention is to provide a sediment bowl that is adapted to additionally serve as a means for closing the drain opening of a receptacle such as the crank case of an internal combustion engine or by way of further example, a gas tank of an automobile or other apparatus.

A still further object of the present invention is to provide a sediment cup in the nature of a hollow body having a tube traversing the same and adapted for connection with a fluid receptacle through the drain opening thereof, the hollow body having connection with the tube through perforations in the latter and being removably secured to the tube whereby the hollow, cup-like body may be cleaned from time to time as needed or desired.

Many additional objects including details of construction will be made clear or become apparent as the following specification progresses, reference being had to the accompanying drawing, wherein:

Figure 1 is a side elevational view of a combination sediment cup and drain plug for internal combustion engines made pursuant to one form of my present invention.

Fig. 2 is an enlarged, substantially central cross-sectional view taken on line II—II of Fig. 1.

Fig. 3 is a stretched-out perspective view of the sediment cup and its related parts entirely removed from the receptacle illustrated in Figs. 1 and 2; and

Fig. 4 is a sectional view similar to Fig. 2 illustrating a modified form of the invention.

It is well recognized that tremendous wear and other deleterious effects result from the presence of water and other foreign matter such as particles of metal appearing in the oil of the crank case of an internal combustion engine. Such water particularly forms by condensation and other

2

reasons and through the provision of the structure about to be described, it is possible to collect such objectionable liquid as the engine is being used and to destroy the same each time the crank case is drained.

It will be apparent further as the following specification progresses that the device hereof is adaptable for many other uses including connection with a gas tank to remove water or other matter appearing therein and settling from the gas.

In Figs. 1 to 3 inclusive of the drawing, there is shown a hollow, substantially cup-shaped body broadly designated by the numeral 10 having a preferably flat top wall 12, a bottom wall 14 and an arcuate side wall 16 that connects with the circular periphery of top wall 12.

Walls 12 and 14 are provided with aligned holes 18 and 20 respectively adapted to loosely receive an elongated tube 22 having one end thereof extending beyond the outermost face of wall 12 to present a neck that is externally threaded as at 24. That end of the tube 22 opposite to the threaded neck thereof is provided with a flat closure 26 that extends outwardly in a continuous flange 28 exteriorly of the tube 22. The periphery of the closure 26 is polygonal to present a number of flats 30 adapted to receive a wrench or other tool.

A resilient gasket 32 is interposed between the flange 28 and the outer face of wall 14 and a second resilient gasket 34 also circumscribing the tube 22, is interposed between the outer face of wall 12 and a boss 36 forming a part of a receptacle 38. The receptacle 38 in the present instance constitutes the crank case portion of an internal combustion engine and is normally provided with an internally threaded drain opening 40 within the boss portion 36 thereof. The drain opening 40 normally receives a closure plug not shown, that is removed whenever the crank case 38 is to be drained of oil.

As noted in Fig. 2 of the drawing, the tube 22 is adapted to extend into the opening 40 and the threads 24 thereof mesh with the threads formed in the drain opening 40. When the tube 22 is moved into place by utilizing a wrench on the flats 30 of flange 28, the hollow body 10 is clamped tightly between the gaskets 32 and 34 and obviously, these gaskets are in turn clamped tightly in place whereby the body 10 is held rigidly against movement with respect to the tube 22 which it circumscribes.

The tube 22 is placed into communication with the interior of the hollow body 10 through the

3

medium of a plurality of perforations 42, there being two perforations 42 illustrated in Figs. 2 and 3 arranged one above the other and diametrically opposed. It has been found that when the perforations 42 are arranged as illustrated, water and other matter capable of settling out of the liquid within receptacle 38, will find its way into tube 22 and thence into the hollow body 10 by way of perforations 42, but will not return to the receptacle 38 during use of the automobile or other apparatus with which the structure hereof is used. Obviously, in the case of an automobile, the continuing movement of the oil within the crank case 38 would otherwise have a tendency to cause the collected water to be drawn into the crank case 38 and even natural movement of the automobile, without the provision of the tube 22 and its perforations 42, would cause the collected water (indicated by the numeral 44 in Fig. 2) to return to the crank case 38.

When it is desired to drain the crank case 38, it is but necessary to remove the tube 22 from within drain opening 40 by applying a wrench or other tool to flats 30. The body 10 can thereupon be easily and quickly removed from the tube 22, its contents 44 drained therefrom and cleaned ready for re-use.

Since the entire structure serves the additional purpose of closing the drain opening 40, such cleaning of the sediment cup 10 can take place each time that the crank case oil of the engine is changed.

In the form of my invention illustrated in Fig. 4 of the drawing there is shown a hollow body broadly designated by the numeral 100 made precisely the same as body 10 above described. An elongated tube 102 traverses the body 100 and is fitted into the drain opening 104 of a receptacle 106 as above described. Tube 102 is likewise provided with a pair of opposed perforations 108 for placing the same into communication with body 100 and a pair of gaskets 110 and 112 circumscribing the tube 102, serve as a means for sealing the tube-receiving holes 114 and 116 of body 100.

A closure member 118 includes a plug 120 that is externally threaded and fitted within the normally lowermost end of the tube 102, the latter being internally tapped to receive the threads of plug 120. Additionally, the closure member 118 includes an out-turned continuous flange 122 integral with the plug 120 and disposed exteriorly of the tube 102. When the plug 120 is within the tube 102 and drawn up tightly, the body 100 as well as the gaskets 110 and 112 are clamped tightly between the flange 122 and the receptacle 106. Flange 122 is provided with wrench flats in the same manner as illustrated in Figs. 1 and 3 of the drawing for receiving a wrench or the like to facilitate removal of the plug 120 when it is desired to drain the receptacle 106 of its contained liquid.

When the form illustrated in Fig. 4 is used, it is not necessary to remove the tube 102 to drain the receptacle 106 or to clean the body 100. The water or other foreign matter that is collected in the body 100 may be dumped therefrom and the body may be cleaned by simply sliding the same from the tube 102 after removal of plug 120.

It is seen from the foregoing that a simple and inexpensive assembly has been provided fully capable of collecting all matter that settles out of liquid within a receptacle 38 or 106. Through the provision of tube 22 or 102 as the case may be, the settling matter is trapped within the

4

corresponding body 10 or 100 respectively and once the same is so collected, it cannot again admix with the primary liquid that is contained in receptacle 38 or 106.

Such details of construction that are capable of modification and which come within the spirit of this invention, are contemplated hereby and accordingly, it is desired to be limited only by the scope of the appended claims.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. A combination sediment cup and oil drain plug for an internal combustion engine comprising a hollow, cup-shaped body provided with a flat top wall and a bottom wall, each having a hole therein; an elongated, straight, vertical tube separable from the body, extending through said holes and having a number of perforations placing the same into communication with the interior of the body, one end of the tube extending above said top wall and having external screw threads adapting the same for attachment to said engine; and an out-turned flange secured to the tube at the opposite end thereof exteriorly of the body for holding the latter against displacement in one direction relative to the body, said flange being provided with wrench-receiving flats.

2. A combination sediment cup and oil drain plug for an internal combustion engine comprising a hollow, cup-shaped body provided with a flat top wall and a bottom wall, each having a hole therein; an elongated, straight vertical tube separable from the body, extending through said holes and having a number of perforations placing the same into communication with the interior of the body, one end of the tube extending above said top wall and having external screw threads adapting the same for attachment to said engine; an out-turned flange secured to the opposite end of the tube exteriorly of the body for holding the latter against displacement in one direction relative to the body, said flange being provided with wrench-receiving flats; a first gasket surrounding the tube and clamped between the top wall and the engine; and a second gasket surrounding the tube and clamped between the bottom wall and the flange.

3. A combination sediment cup and oil drain plug for an internal combustion engine comprising a hollow, cup-shaped body provided with a flat top wall and a bottom wall, each having a hole therein; an elongated, straight, vertical tube separable from the body, extending through said holes and having a number of perforations placing the same into communication with the interior of the body, one end of the tube extending above said top wall and having external screw threads adapting the same for attachment to said engine; and a plug removably mounted in the tube at the opposite end thereof and provided with an out-turned flange exteriorly of the body for holding the latter against displacement in one direction.

4. A combination sediment cup and oil drain plug for an internal combustion engine comprising a hollow, cup-shaped body provided with a flat top wall and a bottom wall, each having a hole therein; an elongated, straight, vertical tube separable from the body, extending through said holes and having a number of perforations placing the same into communication with the interior of the body, one end of the tube extending above said top wall and having external screw threads adapting the same for attachment to

5

said engine; a plug removably mounted in the tube at the opposite end thereof and provided with an out-turned flange exteriorly of the body for holding the latter against displacement in one direction, said flange being provided with wrench-receiving flats; a first gasket surrounding the tube and clamped between the top wall and the engine; and a second gasket surrounding the plug and clamped between the bottom wall and the flange, and between the tube and the flange.

JAMES M. BRIER, JR.

6

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
939,551	Schebler -----	Nov. 9, 1909
1,444,246	Hempel -----	Feb. 6, 1923
1,507,098	Walker -----	Sept. 2, 1924
1,518,686	Bland -----	Dec. 9, 1924
2,207,399	Gaertner -----	July 9, 1940
2,503,566	Scott -----	Apr. 11, 1950

FOREIGN PATENTS

Number	Country	Date
617,844	France -----	Nov. 29, 1926