July 17, 1956 A. PETERSEN 2,754,969

DEBRIS COLLECTOR FOR ENGINES

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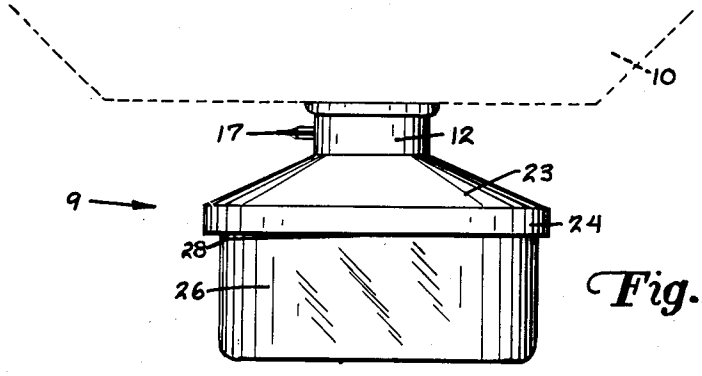


Fig. 1.

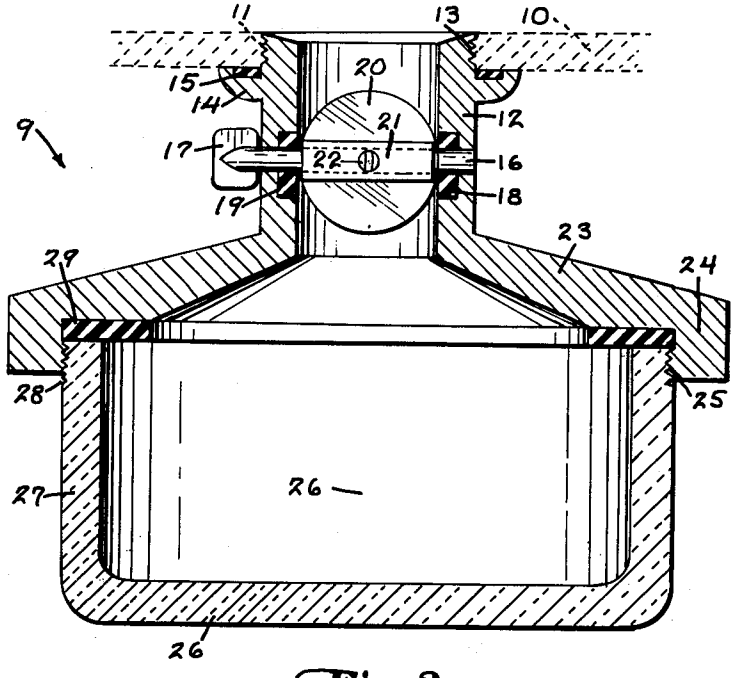


Fig. 2.

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DEBRIS COLLECTOR FOR ENGINES

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2 Claims. (Cl. 210—57)

The instant invention relates to internal combustion engines and has for an object to provide a means for collecting sediment, moisture and the like debris contained in the crankcase of the engine in a manner whereby said debris may be readily discarded.

Another object of the invention is to provide a device having a valve plate having a means for rotating the plate exteriorly of the device for decommissioning said valve at desired times.

A further object of the invention is to provide a shaft for said valve plate having resilient journal bearings arranged to grip said shaft for maintaining said plate in a pre-selected position with respect to other portions of the device and at desired times.

Other and further objects and advantages of the invention will be understood from the following detailed description thereof.

In the drawings:

Figure 1 is a side view of the new device applied in a position of use to and below the crankcase of an internal combustion engine.

Figure 2 is a transverse sectional view of the new device on an enlarged scale.

It is well known that during operation of an internal combustion engine a certain portion of the lubricating oil carried in the crankcase of the engine turns to sludge and that moisture collects in said crankcase resultant from condensation, and the instant invention aims to provide a device in which sludge, sediment, moisture and the like debris become deposited at times when the engine is not operating such as at times when the several parts of the engine are stationary over night.

While one embodiment of the invention is illustrated in the above-referred to drawings, it is to be understood that they are merely for the purpose of illustration and that various changes in construction may be resorted to in the course of manufacture in order that the invention may be utilized to the best advantage according to circumstances which may arise, without in any manner departing from the spirit and intention of the device, which is to be limited only in accordance with the appended claims. And while there is stated the primary field of utility of the invention, it remains obvious that it may be employed in any other capacity wherein it may be found applicable.

In the accompanying drawings, and in the following specification, the same reference characters are used to designate the same parts and elements throughout and in which the numeral **9** refers to the invention in its entirety and **10** indicates the crankcase of an internal combustion engine, said case being represented by means of broken lines.

A lower portion of the crankcase is provided with an aperture the wall of which is provided with a screw-thread **11** for receiving a drain plug in said aperture. In the practice of the instant invention this said drain plug is removed and discarded and the new device substituted for said plug.

The new device includes a neck or sleeve **12** having a

screw thread **13** which is complemental to the thread **11** of the crankcase whereby at times when said threads **11** and **13** are engaged together the later described device is firmly attached to the crankcase.

Preferably the sleeve is provided with an annular bushing **14** for supporting a resilient gasket **15** in a manner whereby the gasket is compressed between the bushing or flange **14** and the bottom of the crankcase for preventing the new device from becoming detached from the crankcase resultant from vibration incident to road traveling movements of the vehicle which said engine propels.

The sleeve **12** is elongated, the major axis thereof being disposed at a right angle with respect to the bottom of the crankcase.

Across the sleeve **12** a shaft **16** extends, the ends of said shaft being journaled in oppositely disposed portions of the annular wall of the sleeve.

Resilient bearings or journals **18** and **19** encircle oppositely disposed end portions of the shaft **16**, said members **18** and **19** being embedded in the wall of the sleeve **12**. These resilient bearings **18** and **19** are each provided with a medial aperture through which the shaft **16** extends and said apertures are normally of slightly lesser diameter than the diameter of the shaft **16** whereby the members **18** and **19** frictionally grip the shaft for maintaining the shaft in a pre-selected position at desired times.

One end of the shaft **16** extends beyond the side wall of the sleeve being provided with a flared portion **17** which an operator may grip between his thumb and forefinger for rotating the shaft **16** exteriorly of the sleeve.

A valve is provided in the sleeve said valve being in the form of a circular plate **20**, the perimetrical edge of which snugly engages the inner annular wall of the sleeve **12** at times when the flared end **17** is turned at an angle of 90 degrees with respect to the showing thereof in Figure 2. The plate **20** is provided with a tube **21** soldered to said plate. The shaft **16** extends through said tube, being attached to the tube and to the plate **20** by means of a set screw **22**. The employment of the set screw **22** facilitates an assemblage of the plate within the sleeve **12**. By applying the bit of a screw driver to the screw **22** at the times when the plate **20** is transversely disposed across the sleeve, the parts become operatively locked together and at the time the flared portion **17** of the shaft **16** is turned at an angle of turn of 90 degrees with respect to the showing thereof in Figure 2.

A cover **23** for a later described bowl is provided, said cover being formed integral with the sleeve. The cover is provided with an annular flange portion **24**, the inner wall of which is provided with a screw thread **25**. The new device further includes a bowl **26** having an annular side wall **27**. The wall is provided with a screw thread **28** for engagement with the thread **25** of the flange **24** for operatively locking the bowl to the flange. The bowl **26** is formed of transparent material. A resilient gasket **29** is disposed between the upper edge of the side wall **27** of the bowl and the adjacent surface of the cover **23** as shown for preventing a leakage of debris at this point.

The bowl **26** provides a trap for a collection of sediment, sludge, water and like debris therein.

Operation

Before the engine is started the operator causes the valve plate **20** to be turned so that communication between the interior of the bowl **26** and the interior of the crankcase is cut off for preventing any debris which may have collected in the bowl **26** from becoming admixed with the oil in the crankcase. At times when the operator is not causing the engine to operate, the said operator turns the valve plate **20** to the position shown in Figure 2 whereby, after an interval of time, debris moves downwardly into the bowl **26**.

By inspecting the interior of the bowl through its transparent side wall, the operator may note that a sufficient amount of debris has collected in the bowl to warrant unscrewing the latter from the cover **23**, whereupon the bowl is cleansed and replaced.

From the foregoing specification, it will become apparent that the invention disclosed will adequately accomplish the functions for which it has been designed and in an economical manner and that its simplicity, accuracy and ease of operation are such as to provide a relatively inexpensive device, considering what it will accomplish and that it will find an important place in the art to which it appertains when once placed on the market.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description is regarded as unnecessary.

Changes in shape, size and rearrangement of details and parts such as come within the purview of the invention claimed may be resorted to, in actual practice, if desired.

I claim:

1. A sediment and moisture collector for an internal combustion engine having a crankcase provided with an internally threaded drain aperture through its bottom wall; said collector including a transparent bowl having bottom wall and an annular side wall terminating in an upper externally threaded end, a cover for said bowl having a central opening and tapering downwardly and outwardly from the opening, a depending, annular, peripheral flange on said cover, said flange being internally threaded to threadingly receive the threaded upper end of the bowl, an internal downwardly facing shoulder on said cover disposed normal to the axis of the opening and to the flange, a sealing gasket seated on the shoulder and against which the upper end of the side wall of the bowl bears,

an integral cylindrical neck extending upwardly from the cover and disposed concentric to the opening therein, said neck having an upper externally threaded end adapted to be threaded in the drain aperture, a laterally outstanding, annular shoulder on the neck below the upper end and having an annular seat formed therein around the neck, a sealing ring seated in the seat and adapted to bear with the outer part of the shoulder against the underside of the bottom wall of the crankcase, said neck having diametrically opposed bores formed in its inner wall and disposed intermediate the ends of the neck, resilient ring journals seated in said bores, one of said bores having a coaxially reduced aperture opening through the neck to the exterior thereof, a shaft rotatably journaled in said resilient journals and having an end disposed exteriorly of the neck, finger grip means on said extending end and a butterfly valve fixed on the shaft within the neck and adapted to close off the neck during operation of the engine.

2. A sediment and moisture collector as claimed in claim 1, wherein said valve includes an annular disc having a diametrically disposed sleeve on one side and which is fitted over the shaft, said sleeve and shaft having radially aligned openings and a set screw threaded in the openings to locate the sleeve against relative rotation on the shaft.

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