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OIL SCREEN

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FIG.3.

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OIL SCREEN

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4 Claims. (Cl. 214-170)

The present invention relates to oil screens for the inlets of oil circulating systems, particularly those of internal combustion engines.

Among the objects of the invention is a device of this type which may be easily and effectively cleaned.

Another object is means by which heavier particles of solid material, instead of passing to the screen are separated and held segregated, being automatically flushed out during the cleaning operation.

Another object is a screening device which is simple and economical in construction and difficult to get out of order.

Still other objects and advantages will readily occur to those skilled in the art upon reference to the following description and the accompanying drawing in which

Figure 1 is a vertical central section through the device showing its installation in the crankcase of an automobile engine.

Figure 2 is an elevational view with the crankcase parts in section.

Figure 3 is a section on line 3-3 of Figure 1.

In the drawing, a portion of an engine crankcase is shown at 10, this being preferably the lowest portion and forming an oil sump. In the bottom wall is fixed a threaded ring 11 into which is screwed a suitable plug 12 of somewhat larger diameter than the screen and sealed by a gasket 13.

Surrounding the opening for plug 12 is a shield in the form of a metal ring 15, which, by means of a flange 16 is preferably fixed to the crankcase 10 as by spot welding. This ring 15, as shown in Figures 1 and 2, comprises an outer vertical wall 17 provided with a plurality of large openings 18, and spaced a short distance from the plug opening. It also is provided with a downwardly sloping upper imperforate wall 19 having at its inner periphery a short depending flange 20, preferably slightly rounded as shown. The lower edge of flange 20 should be spaced from ring 11 to provide an annular opening 15b. The ring 15 provides a shielded space 15a outside of the influence of the oil flow and adjacent the opening in the crankcase.

Fixed to plug 12 is an upstanding substantially cylindrical screen 25 having its lower edge portion 25a sealed with solder up to the level of wall 19 and having a cover plate 26 provided with an opening for a suction pipe 27 and also with an opening 28 normally closed by a valve 29. The opening in cover 26 should be of such size as to

slide readily over pipe 27 but be substantially filled thereby.

The opening 28 should be as large as is convenient and the valve 29 may, as shown, consist of a flexible metal plate fixed at one end to the cover 26 by means of suitable tongues 30 punched out from the cover 26 and bent over the end portion 29a of the valve plate.

Fixed to the pipe 27 is a bell 35 which extends down over the screen 25 to a short distance above ring 15, and is sufficiently larger than the screen to provide a space 36 to permit oil to pass freely therebetween. The pipe is, as indicated, connected to the pipe 27a leading to the suction side of an oil pump (not shown).

In the operation of the device, any heavy particles in the oil—sand, grit, metal, particles, etc. settling out of the oil will naturally travel along the sloping bottom of the crankcase and into the space 15a.

If and when the screen 25 becomes clogged, the suction in pipe 27 will, of course, cause the oil to pass up through space 36 and through the valved opening 28.

When it is desired to clean the screen it may be readily removed as is obvious, and, when this is done, the oil in the crankcase, in flowing from the opening in the crankcase through which the screen 25 is inserted, will of course flush the space 15a through the opening 15b.

Now having described the invention and the preferred embodiment thereof, what I claim is:

1. In an engine having a crankcase provided with a sump and oil circulating means drawing oil from said sump, an inlet tube extending into said sump and leading to said circulating means, a cleanout plug at the bottom of said sump, a cylindrical screen surrounding said inlet tube and mounted on said plug so as to be removable therewith, and a substantially horizontal plate surrounding said screen and spaced from the bottom of said sump whereby heavy dirt particles may pass under said plate to adjacent said cleanout plug, said plate being fixed to a wall of and within said sump.

2. In combination with the oil sump and oil inlet pipe of the oil circulating system of an engine, a cleanout plug for said sump, a substantially cylindrical screen mounted thereon and provided with a cover perforated to receive said inlet pipe, a plate fixed within said sump around the opening for said plug and spaced from the bottom of the sump whereby heavy dirt particles may pass under said plate to adjacent said cleanout plug, said plate being provided with an open-

ing of substantially the same size as said screen and an inwardly opening normally closed valve in said cover whereby when pressure within said screen drops below normal oil may flow into the space within the screen without passing through the latter.

3. In combination with the oil sump and oil inlet pipe of the oil circulating system of an engine, a cleanout plug for said sump, a substantially cylindrical screen mounted thereon and provided with a cover perforated to receive said inlet pipe, a plate supported upon the bottom of said sump around the opening for said plug and spaced from the bottom of the sump, said plate being provided with an opening of substantially the same size as said screen and through which said screen extends, and a bell fixed to said pipe and extending over said screen and spaced

therefrom and having its lower edge spaced from said plate.

4. In combination with the oil sump and oil inlet pipe of the oil circulating system of an engine, a clean-out plug for said sump, a substantially cylindrical screen mounted thereon and having a cover plate provided with a flanged opening, to receive said inlet pipe and adapted to fit closely therearound, a plate fixed within said sump around the opening for said plug and spaced from the bottom of the sump, said plate being provided with an opening of substantially the same size as said screen and fitting closely around the latter, and an inwardly opening normally closed valve in said cover whereby to bypass oil when said screen becomes clogged.

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