

UNITED STATES PATENT OFFICE

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SAFETY OIL PUMP BASE

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3 Claims. (Cl. 210-170)

This invention relates to safety devices for oil filters and more particularly to those used on the intakes of oil pumps of internal combustion engines.

In the conventional type of oil pump intake there is usually provided a screen to prevent the oil, when too contaminated, from entering the pump and being circulated. The screen, however, has a tendency to become clogged with sediment and may, without warning, cut off entirely the circulation of oil through the engine, thereby causing extreme trouble and expense in the form of damaged crank shafts and other serious damage to motors. Various devices have been developed to prevent the cessation of the flow of oil through a pump but, so far as I am aware, no one has as yet solved this problem by a device having the unique advantages of that embodied in my invention.

The object of this invention is safety in oil pump inlets.

Another object is prevention of cessation of flow through an oil pump inlet.

A further object is prevention of the collapsing of oil screens when clogged with sediment.

A still further object is an economically manufactured and easily installed device for accomplishing the above results.

These and other objects may be accomplished by my invention which embodies among its features an oil pump inlet, a casing over said inlet having an open bottom, a screen across the bottom, an aperture in the top, a screen across this aperture and a downwardly opening flap on the aperture, spring closed but adapted to open when clogging of the bottom screen causes increased pressure on top, and catch means to retain the flap open when conditions have caused it to open.

Other objects and features may become evident from the following disclosure when taken in connection with the accompanying drawing in which:

Figure 1 is a cross-section view of my device in position in a crank case,

Figure 2 is a view similar to Figure 1, but with the flap open,

Figure 3 is a cross-section view taken on line 3-3 of Figure 1,

Figure 4 is a cross-section view taken on line 4-4 of Figure 1.

Referring to the drawing in detail, the device is positioned in the bottom of a crankcase shown partially as at 10 and consists of a shell 11 fitted onto the end of pump inlets 12. 55

Stretched across the bottom of the shell is a main screen 13 of conventional construction.

In the top of shell 11 is an aperture 14 having a screen 15 covering it and a frame 16 surrounding it on the inside of the shell. These parts are welded into place. Also welded adjacent to the aperture are brackets 17 and 18 to provide holding means for the flap.

Said flap, 19, is journaled at its rear end to brackets 17 by means of rod 20 extending through the turned-over portion 21 and is held normally closed by coil spring 22. In brackets 18, adjacent to the front end of the flap a catch member 23 is pivoted, said catch consisting of an angular strip 24 having a weight 25 on its rearwardly extending arm and having a toothed catch arm 26. Ledge 27, on the side of the shell, prevents weight 25 from dropping down too far. It will be noted that the teeth on catch arm 26 are downwardly sloped so that, when the flap 19 is forced open, this catch will engage and hold it in its opened position.

In operation, the device will operate similarly to the conventional intake until the screen 13 becomes clogged with sediment. Then, instead of cutting off the flow of oil, or collapsing the device, due to the suction, the failure of screen 13 to pass oil merely causes an increase of pressure elsewhere on the shell, specifically on the flap 19. This causes the flap to open, permitting flow through aperture 14. Since screen 15 is still uncontaminated, it will pass oil and the pump will continue to operate, and catch 23 will hold the flap open until the device is removed and cleaned. When this takes place, the flap can be closed by jarring the weight 25. It will accordingly be seen that I have produced a filter which prevents a disastrous cessation of oil flow when the screen becomes clogged. Although a preferred embodiment is described herein, I do not wish to be limited thereto but only by the scope of the appended claims.

What is claimed is:

1. In an oil filtering device, a shell open at the bottom and having an auxiliary opening in the top thereof, the said shell having a port in one side thereof, filter screens covering the open bottom portion of the shell and the auxiliary opening in the top thereof, a closure flap pivotally mounted at the inner side of the top of the shell, means disposed to normally hold the flap in elevated position to close the top auxiliary opening and allow downward movement thereof to open position when the bottom covering screen becomes clogged, and means mounted on the

shell releasably engageable with the flap to hold the same in open position.

2. In an oil filtering device, a shell having a top and side walls and open at the bottom, the said shell having an auxiliary feed opening in the top and a discharge port in a side wall thereof, open mesh filtering screens covering the bottom open portion and the top opening of the shell, a closure flap pivotally connected to the inner side of the said top, means yieldingly urging the said flap to a position for closing the top opening when the bottom screen is open for admission of oil into the shell, the said flap assuming an open position when said bottom screen becomes clogged for admission of oil through the top auxiliary opening, and means for releasably engaging the flap to hold the same in open position.

3. In an oil filtering device, a shell having a top and side walls and open at the bottom, 20

the said shell having an auxiliary feed opening in the top and a discharge port in a side wall thereof, open mesh filtering screens covering the bottom open portion and the top opening of the shell, a closure flap pivotally connected to the inner side of the said top, means yieldingly urging the said flap to a position for closing the top opening when the bottom screen is open for admission of oil into the shell, the said flap assuming an open position when said bottom screen becomes clogged for admission of oil through the top auxiliary opening, and an angular member pivotally mounted in the shell having a toothed arm engageable with the flap and a weighted arm operative to urge the toothed arm into engagement with the flap when the latter is open for releasably holding the flap in open position.

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