Feb. 21, 1950 H. L. THOMPSON 2,498,019

OIL RETAINER FOR CRANKCASE OIL DIPPERS

Filed Aug. 27, 1948

FIG 1

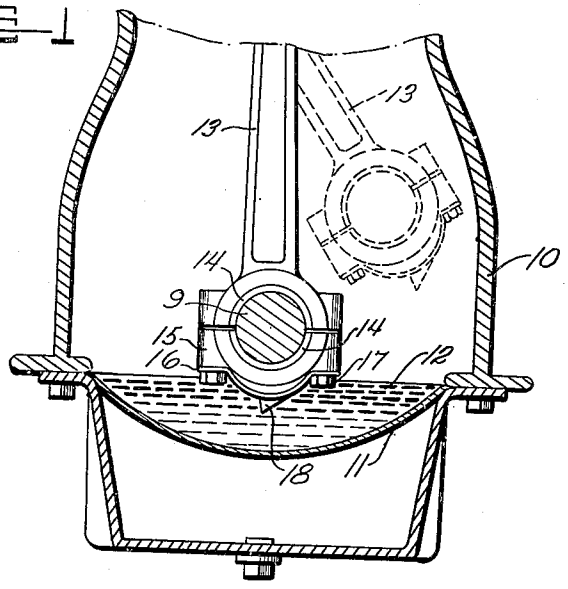


FIG 2

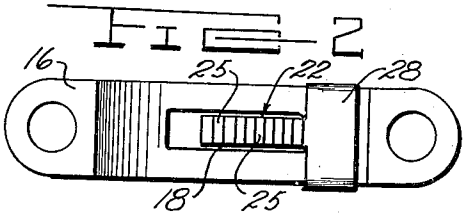


FIG 3

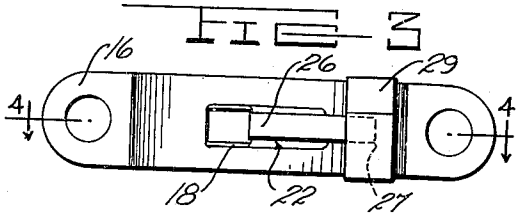
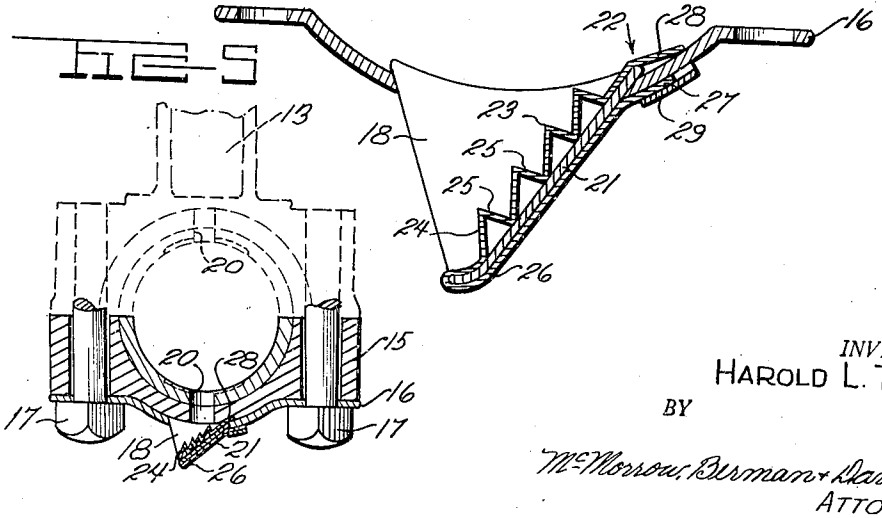


FIG 4



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OIL RETAINER FOR CRANKCASE OIL DIPPERS

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4 Claims. (Cl. 184—13)

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As is well known, the connecting rod bearings for internal combustion engines are lubricated by means of an oil scoop secured to the under side of such bearings and adapted to supply oil to the bearings upon each revolution of the crankshaft. Such scoops are not entirely effective, as standard forms of scoops fail to provide any means for retaining the scooped oil therein while the bearing is not in contact with the body of oil contained in the crankcase. In view of the fact that during the major portion of its revolution, the bearing is out of contact with the oil in the crankcase, it is obviously important that the scooped oil be retained in the scoop for as long as possible.

With the foregoing in view, it is an object of my invention to provide an improved oil retainer for scoops of the class described.

A further object is to provide an improved oil retainer for scoops of the class described which includes a retainer insertable in a scoop for retaining oil therein and means for detachably securing the retainer to the scoop.

A further object is to provide an improved oil retainer for scoops of the class described which comprises a strip insertable in the scoop, means for detachably connecting the strip to the scoop, and said strip being formed with means for retaining oil in said scoop.

Other objects and advantages reside in the particular structure of the invention, combination and arrangement of the several parts thereof, and will be readily understood by those skilled in the art upon reference to the atttached drawing in connection with the following specification, wherein the invention is shown, described and claimed.

In the drawing:

Figure 1 is a fragmentary vertical cross-sectional view through a crankcase of an internal combustion engine showing a conventional oil scoop applied thereto:

Figure 2 is a plan view of a conventional oil scoop showing the retainer according to the invention applied thereto;

Figure 3 is a bottom plan view of the structure shown in Figure 2;

Figure 4 is a vertical sectional view taken substantially on the plane of the line 4—4 of Figure 3;

Figure 5 is a view like Figure 4, but on a reduced scale and showing the invention applied to a connecting rod bearing.

Referring specifically to the drawing, wherein like reference characters have been used throughout the several views to designate like parts, and referring at first to Figure 1, 10 designates any suitable crankcase for an internal combustion engine which includes a pan or the like 11 for supporting a body 12 of lubricating oil therein. A connecting rod 13, which is affixed to any suitable piston, not shown, is movable through the crankcase in the usual manner. The lower end of the connecting rod is provided with the usual split bushing or bearing 14 which is secured in place about the crankpin 9 by the usual connecting rod cap 15. The cap 15 is secured to the connecting rod by the usual studs or nuts 17 which likewise serve to clamp to the under surface of the cap 15 a plate 16 having a lower portion formed to provide an oil scoop 18. The plate 16 generally conforms to the shape of the under surface of the camp 15 and in the usual practice, the cap and bearings are provided with aligned openings 20, whereby oil scooped by the scoop 18 is forced between the bearings and the crank pin 9. As so far described, the structure is conventional and forms no part of the present invention.

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As is readily seen in Figure 5, in the absence of any oil-retaining means for the scoop 18, oil scooped thereby will rapidly drain from about the crankpin 9 through the lowermost openings 20 in the bearings and bearing cap 15. This is because the floor portion 21 of the scoop 18 is substantially smooth and downwardly inclined, whereby there is no impedance to the return flow of oil once the connecting rod rises above the body of oil 12. As best seen in Figures 2, 3 and 4, I have provided an improved oil-retarding means generally indicated at 22. Such means comprises a strip of any suitable material which is preferably flexible and preferably coextensive in length and width with the floor 21 of the scoop 18. Such strip is formed with means for retaining scooped oil in the scoop whereby the return flow of scooped oil from the bearings 14 and 9 is materially retarded. In the embodiment shown, the strip includes a portion 23 which is of zig-zag configuration providing alternate riser and tread portions 24 and 25 which extend transversely of the scoop. Preferably, the tread portions 25 are downwardly and rearwardly inclined whereby to provide means for retaining oil thereon, while the riser portions 24 are rearwardly inclined relative to the direction of movement of the scoop in the body of oil, whereby to present a minimum of resistance to the inflow of oil into the scoop and to the bearings. The retainer 22 includes a lower end 26 which is rearwardly directed along the floor of the scoop and exteriorly

thereof and which terminates in a free end 27 lying along the under surface of the plate 16. The retainer 22 likewise includes an upper end 28 which extends between the plate 16 and the under surface of the bearing cap 15. The upper end 28 of the retainer is formed with at least one laterally-directed tab 29 which is adapted to be at least partially wrapped around the plate 16 so as to overlie the free end 27 of the lower end 26 of the retainer. Thus, the upper end of the retainer is securely clamped between the plate 16 and the cover cap 15, while the lower end 26 is secured to the tab 29, whereby the retainer is securely but detachably retained in place relative to the scoop 18. Obviously, the tab 29 could be omitted and the lower end 26 formed of spring material, whereby to provide a clip for securing the device in place. However, I prefer to form the device as shown of relatively thin material, whereby the upper end 28 is readily insertable between the plate 16 and the cap 15 without modifying either structure.

While I have shown and described what is now thought to be a preferred embodiment of the invention, it is to be understood that the same is susceptible of other forms and expressions. Consequently, I do not limit myself to the precise structure shown and described hereinabove except as hereinafter claimed.

I claim:

1. The combination with an oil dipper for a connecting rod bearing, said dipper including a plate detachably secured to the under side of said bearing and a scoop depending from said plate, of an oil-retaining strip extending longitudinally of said scoop interiorly thereof, said strip being formed with means for retaining oil in said scoop, said strip including an integral lower end extending longitudinally of said scoop exteriorly thereof, said strip including an upper end extending between said plate and said under side of said bearing, and said upper end including at least one laterally-directed tab extending at least partially around said plate and said lower end of said strip to secure said strip to said scoop.

2. The combination with an oil dipper for a connecting rod bearing, said dipper including a plate detachably secured to the under side of said bearing and a scoop depending from said plate, of an oil-retaining strip extending longitudinally of said scoop interiorly thereof, said strip being of zig-zag configuration whereby to provide means for retaining oil in said scoop, said strip including an integral lower end extending longitudinally of said scoop exteriorly thereof, said strip including an upper end extending between said plate and said under side of said bearing, and said upper end including at least one laterally-directed tab extending at least partially around said plate and said lower end of said strip to secure said strip to said scoop.

3. The combination with an oil dipper for a connecting rod bearing, said dipper including a plate detachably secured to the under side of said bearing and a scoop depending from said plate, of an oil-retaining strip extending longitudinally of said scoop interiorly thereof, said strip being of zig-zag configuration whereby to provide a series of alternate riser and tread formations extending transversely of said scoop, said tread formations comprising means for retaining oil in said scoop, said strip including an integral lower end extending longitudinally of said scoop exteriorly thereof, said strip including an upper end extending between said plate and said under side of said bearing, and said upper end including at least one laterally-directed tab extending at least partially around said plate and said lower end of said strip to secure said strip to said scoop.

4. The combination with an oil dipper for a connecting rod bearing, said dipper including a plate detachably secured to the under side of said bearing and a scoop depending from said plate, of an oil-retaining strip extending longitudinally of said scoop interiorly thereof, said strip being of zig-zag configuration whereby to provide a series of alternate riser and tread formations extending transversely of said scoop, said tread formations being downwardly and rearwardly inclined and comprising means for retaining oil in said scoop, said strip including an integral lower end extending longitudinally of said scoop exteriorly thereof, said strip including an upper end extending between said plate and said under side of said bearing, and said upper end including at least one laterally-directed tab extending at least partially around said plate and said lower end of said strip to secure said strip to said scoop.

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