Aug. 19, 1930. W. S. FISHER 1,773,134

ENGINE OIL STRAINER

Filed Oct. 31, 1927

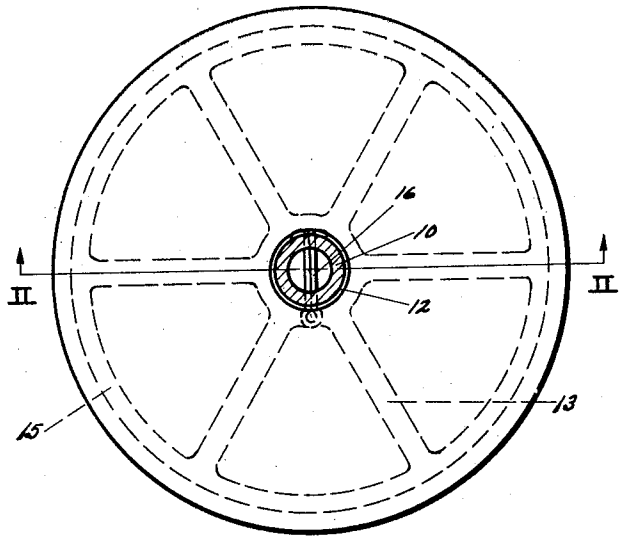


Fig. I.

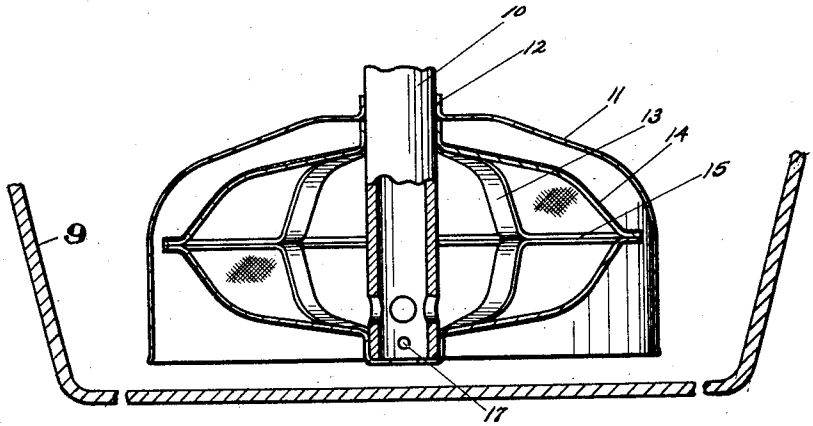


Fig. II.

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UNITED STATES PATENT OFFICE

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ENGINE-OIL STRAINER

Application filed October 31, 1927. Serial No. 229,987.

My invention relates to the lubrication system for gasoline engines and it has particular relation to the construction of the filter element employed, through which oil is drawn from the crankcase to the circulating pump.

It is common practice to interpose a filter element between the oil pan and the oil circulating pump. In order that gases are not entrapped in the line thereby incapacitating the pump and to preserve the life and efficiency of the filter there is connected to the tube a bell which extends into the base portion of the crankcase. According to the present invention there is provided a filter element which may be disposed within the bell and which has adequate surface to accommodate the oil required by the lubrication system.

In addition to the feature of its compactness, the invention contemplates the provision of a structure which is at all times free from vibration and noise.

Another object of the invention is to provide a structure in which the elements may be assembled readily and the screen replaced if worn or clogged.

These objects, together with others, will be more apparent from a consideration of the drawings and description specifically related thereto, in which

Figure I is a plan view of a screen and bell of an embodiment of the invention, which may be preferred, and

Fig. II is a sectional view taken along the lines II—II of Fig. I.

An oil pan, or base 9 (shown partly broken) is provided, wherein a tube represented by numeral 10 is connected to the oil pump of the engine (not shown) and is normally disposed in a vertical position within the crankcase. The lower end of the tube is perforated and extends into the lower portion of the oil pan. A cup shaped member or bell 11 is soldered to the end of the tube at 12, its open end being flush with the extremity of the tube. Within the bell is a spring member 13 which is completely enclosed by a filter element 14 such as a metallic screen, and which itself encloses about the perforated or open portion of the tube.

The spring consists of a pair of complementary stampings which when united, result in a plurality of U-shaped members that are disposed radially of the tube and are joined to each other by a circumferential member 15. The upper end of the spring abuts against the bell 11 and is slidable along the tube 10. The lower end, on the other hand, is locked to the extremity of the tube by a cotter pin 16 which passes through a small opening 17 in the tube. In positioning the spring, the elements are so arranged as to lock the individual U-shaped members under compression. This results in maintaining the screen that is supported by the U-shaped spring members in an expanded, taut position and resists any tendency by the pump to collapse the same.

Since the open end of the bell is very close to the base of the pan, the movement of the oil within the pan, produced when the vehicle passes over irregularities in the road, has no effect on the operation of the pump. Oil is drawn upwardly into the bell thence through the screen and perforations in the lower extremity of the tube and thereafter through the pump. The screen may be replaced or removed for inspection simply by withdrawing the cotter pin and sliding the spring and screen off the end of the tube.

Since in its fixed position the screen is maintained taut by the spring which is then under a slight strain there is no tendency for the elements to vibrate or rattle. Furthermore, the assembly of the elements is simple and the replacement does not involve the disconnection of the oil line. By experiment it has been found that the screen is of ample area to accommodate the lubrication system of any automobile engine.

Although there is illustrated and described but one embodiment of the invention, it will be apparent to those skilled in the art that other embodiments may be constructed without departing from the principles of the invention, and I desire therefore that it be limited only as indicated in the appended claims.

I claim:

1. The combination with an oil pan for an engine of an oil withdrawal tube extending into the pan; a bell secured to the lower end of the tube; a hollow screen disposed within the bell and about the inlet portion of the tube; and leaf spring members enclosed by the screen, each leaf disposed radially within the screen and having its ends abutted against the tube firmly, one of the spring members being fixed thereto, and the other being slidable along the tube, said members having their outer extremities joined to the adjacent leaf members.

2. The combination with an oil pan for an engine of an oil withdrawal tube extending into the pan; a bell secured to the tube above the inlet portion; a screen enclosed about the inlet portion of the tube; and a reinforcing spring disposed within the screen including a plurality of leaf spring members each having its ends adjacent the tube, one of said ends being secured to the tube, the other end being free to expand and contract thereby maintaining the screen taut.

In testimony whereof, I affix my signature.

WALTER S. FISHER.