Aug. 30, 1949. S. J. LEAZER 2,480,486

REPLACEMENT SCREEN FOR OIL PANS

Filed June 14, 1948 2 Sheets-Sheet 1

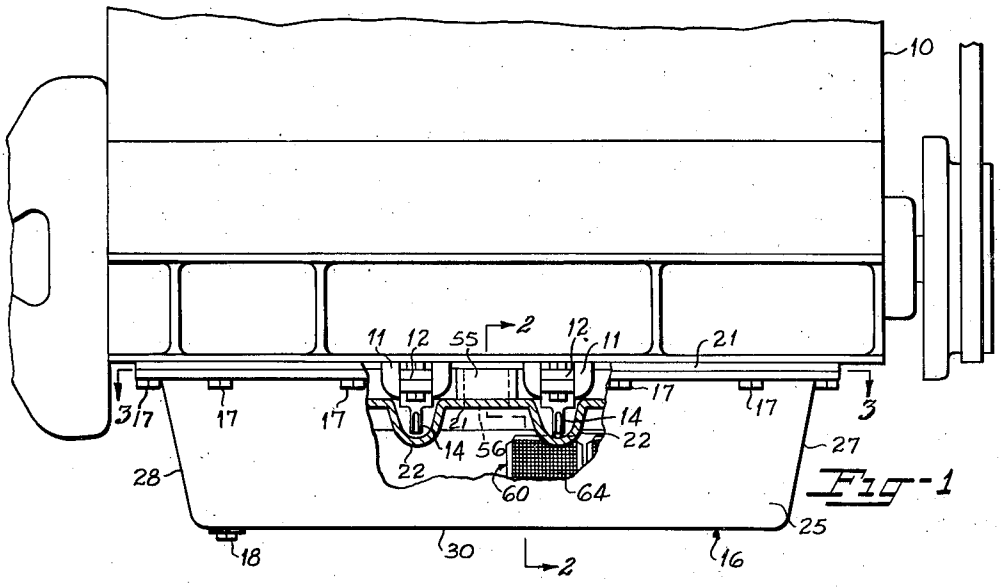


Fig-1

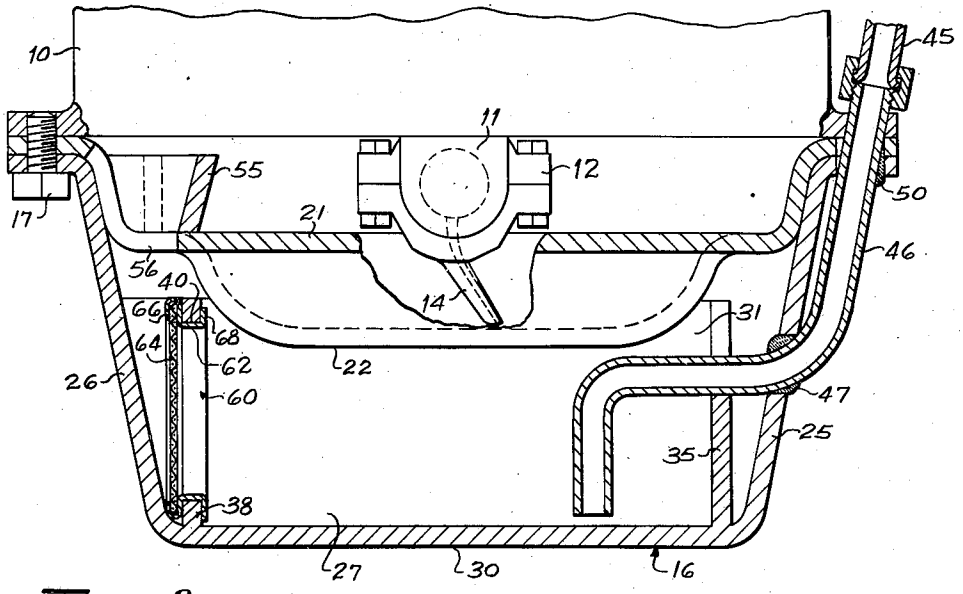


Fig-2

Inventor:
SHELLEY J. LEAZER.

By

Attorney

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REPLACEMENT SCREEN FOR OIL PANS

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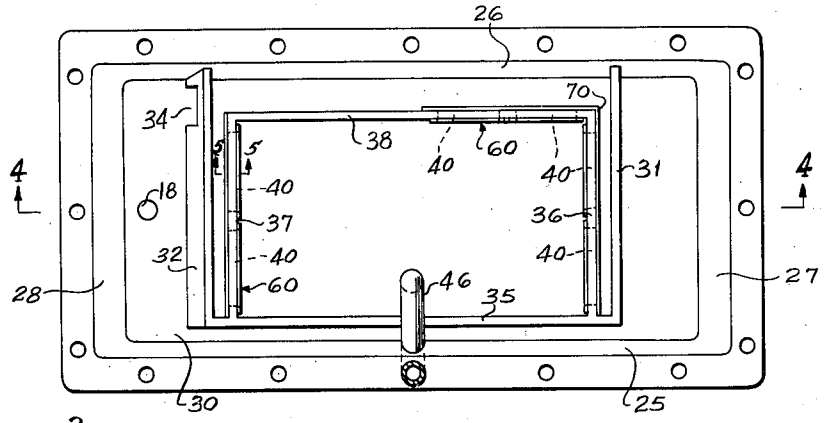


Fig-3

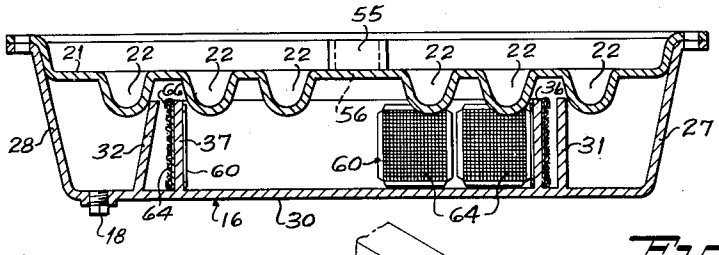


Fig-4

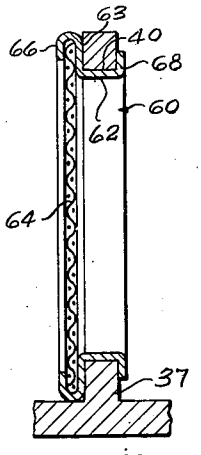


Fig-5

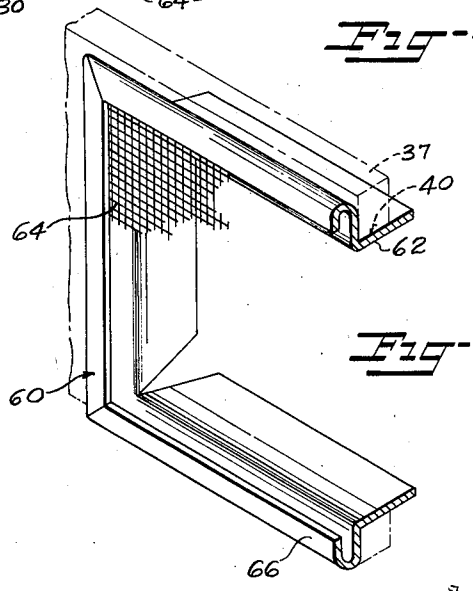


Fig-6

Inventor:
SHELLEY J. LEAZER.

By Paul A. Eaton

Attorney

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REPLACEMENT SCREEN FOR OIL PANS

Shelley J. Leazer, Charlotte, N. C.

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5 Claims. (Cl. 184—106)

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This invention relates to improvements in the oil pan of an automotive engine and more especially to a replacement screen for installing in an oil pan of an automotive engine.

Heretofore it has been necessary to discard many of the oil pans removed from an automotive engine due to the fact that the screens, which are disposed in a partition in the oil pans, have been torn or punctured, thus admitting oil or lubricant containing sludge and other foreign matter into an area in which only clean lubricant was supposed to be disposed.

It is therefore an object of this invention to provide a framework which is made of a very light sheet metal and by removing the old worn screen from the partition in the oil pan, this framework with a screen applied thereto may be inserted in the opening in which the screen was formerly mounted and is adapted to be bent around the edges of the openings to thereby securely mount the replacement screen in place in the openings, as well as preventing any openings which may be larger than the openings in the screen, at the edges of the screen.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which

Figure 1 is a side elevation of the lower portion of an internal combustion engine, with parts broken away;

Figure 2 is a vertical sectional view taken substantially along the line 2—2 in Figure 1;

Figure 3 is a top plan view taken substantially along the line 3—3 in Figure 1 and omitting the drip pan;

Figure 4 is a vertical sectional view taken substantially along the line 4—4 in Figure 3 and showing the drip pan associated with the oil pan;

Figure 5 is a vertical sectional view taken substantially along the line 5—5 in Figure 3;

Figure 6 is an isometric view with parts in section showing the structure of the screened frame.

Referring more specifically to the drawings, the numeral 10 indicates an internal combustion engine having a crank shaft 11 rotatably mounted therein on which the lower ends of connecting rods 12 are oscillatably mounted. The connecting rods 12 are provided with scoops 14 at the lower ends thereof, and the engine 10 also has a conventional oil pan 16 secured to the lower surface thereof, by any suitable means such as screws 17, and this oil pan 16 is provided with a drain plug 18, and disposed between the oil pan 16 and the bottom surface of the engine 10 is a

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conventional drip pan 21 having a plurality of formed grooves 22 therein, through which the downwardly projecting scoops 14 of the connecting rods 12 are adapted to move as the crank shaft 11 rotates for feeding lubricant from the grooves 22 to the bearings of the conventional connecting rods 12.

The oil pan 16 has side walls 25 and 26, end walls 27 and 28, and a bottom 30. Extending upwardly from the bottom 30 and extending laterally from the walls 26 are spaced partitions 31 and 32. The partition 32 is disposed at a slight angle and has an opening 34 in the bottom edge thereof. The partitions 31 and 32 are joined at their other ends by a longitudinally extending partition 35 which is spaced apart from the side wall 25 of the oil pan 16.

Extending from the partition 35 and being spaced slightly inwardly with respect to the partitions 31 and 32 are intermediate partitions 36 and 37 and these partitions 36 and 37 are connected at their other ends to a longitudinally extending partition 38 which is spaced from the side wall 26 of the oil pan 16. These partitions 36, 37 and 38 are provided with a plurality of rectangular openings 40 which normally have a screen covering the same and it is in these openings that this invention is adapted to be mounted.

The engine 10 is generally provided with a conventional oil pump, not shown, having a pipe 45 extending from its intake side and the lower end of this pipe 45 is adapted to be connected to the upper end of a pipe 46 (Figure 2) which extends through the flanges of the drip pan 21 and the oil pan 16 and downwardly parallel to the side wall 25 of the oil pan 16 and then this pipe 46 is bent inwardly and passes through the wall 25 of the oil pan 16 and through the partition 35 adjacent the wall 25 to where it is bent downwardly and terminates adjacent the top surface of the bottom 30 of the oil pan 16. This pipe 46 is welded as at 47 and 50 as it passes through the flange and the side wall 25 of the oil pan 16.

The drip pan is provided with an overflow partition 55 and there is an opening 56 cut in the drip pan adjacent the partition 26 to thereby permit any excess lubricant disposed above the drip pan 21 to pass over the partition 55, downwardly through the opening 56 and this lubricant will pass into that area defined by the wall 26 of the oil pan 16 and the partition 38, and will pass through the opening 34.

Presuming that a lubricant had originally been stored within the oil pan 16, any lubricant that is drawn into the engine through the pipe 46 must,

of course, enter that area defined by the partitions 35, 36 and 37, as well as the partition 38 and must therefore pass through the openings 40 in the partitions to thus insure that any foreign matter will be filtered out of the lubricant as it moves in to the area defined by the partitions 35, 36, 37 and 38.

It is thus seen that in the event that the screens that cover the openings 40 are torn or the openings in the screens are unduly large, a considerable amount of sludge and the like would be permitted to enter through the openings 40 into the area in which the lower end of the pipe 46 is disposed and thus the pan 16 would have to be discarded.

In order that these oil pans 16 may be reused, I have provided a framework which may have as many openings therein as desired, to cooperate with the openings 40 in the partitions 35, 36, 37 and 38, and this framework is broadly designated by the numeral 60. This framework 60 comprises a flat portion 62 which has extending upwardly therefrom in Figure 5, a vertically disposed portion 63 and this portion 63 has mounted thereagainst a screen wire 64, the outer edges of which are spaced a substantial distance from the outer edges of the upwardly extending portion 63 and then this upwardly extending portion 63 is bent over upon itself as at 66 in Figure 5, and inasmuch as the material of which this framework 60 is preferably made is of a very light metal, this portion 66 is then hammered or fastened tightly against the outer edges of the screen 64 to thus confine the screen 64 on the framework 60.

The framework 60 is then inserted in the openings 40 in the manner shown in Figure 6 and the innermost edges of the horizontal portion 62 of the framework 60 are bent inwardly as at 68 around the adjacent portions of the partitions 36, 37 or 38, as the case may be, to thus secure the framework 60 in the openings 40 of the partitions.

By referring to Figure 3 it may be observed that the framework 60 may be bent at right angles as at 70 so that the framework 60 may be applied over the openings 40 in both of the partitions 36 and 38 and may be made of one piece, if desired.

It is thus seen that I have provided means for covering the openings 40 in the partitions 36, 37 and 38 with screen in such a manner that a discarded oil pan 16 may be reused.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. An internal combustion engine having an oil pan and a plurality of partitions in the oil pan and each partition having an opening therein, a framework having a wire screen applied thereto inserted in each of the openings in said partitions, each of said frameworks having a portion intergral therewith which engages the edges of the partition defined by said opening and which is bent around the edges of the partition in such a manner as to secure the framework in the partition and to cover the opening.

2. In an oil pan of an internal combustion engine, having a plurality of partitions therein each provided with an opening, a framework adapted to fit in each of said openings, said framework comprising a flat portion and an out-turned portion, a screen disposed in engagement with the surface of the out-turned portion, and said out-turned portion being bent around the outer edges of the screen to thus secure the screen to the framework, said flat portion being turned outwardly around the edges of the openings in the partitions, to thereby hold said screen covered framework in position to cover said opening.

3. In an internal combustion engine having a crank shaft provided with connecting rods, and having an oil pan secured to the lower portion thereof and having also a drip pan secured to the lower portion of the engine and in spaced relation to the bottom of the oil pan, said oil pan having a plurality of partitions forming a rectangular enclosure and said partitions having openings therein through which the oil may flow, a framework disposed in each of said openings and having a screen covering the same on one side and having the other side thereof projecting substantially beyond the side walls of the partitions, and bent away from the walls of the said openings, to thereby secure the screen frames in position in said openings.

4. In an oil pan for an internal combustion engine having a plurality of walls rising up from the bottom thereof and forming a substantially rectangular enclosure, said walls having openings therein, a screen frame having wire screen material secured over one side thereof and inserted in each of said openings, each of said screen frames having projecting portions extending beyond the side walls of said uprising walls and bent away from the edges of its associated openings to thus secure the screen frame in the opening.

5. In an internal combustion engine having an oil pan provided with a plurality of uprising partitions forming a substantially rectangular enclosure, said partitions having openings therein through which oil may flow from the exterior to the interior of the space defined by the partitions, a screen frame disposed in each of said openings, and having bendable portions bent away from the edges of the openings and into frictional engagement with said partitions, to secure the screen frames in position.

SHELLEY J. LEAZER.

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