April 22, 1930. B. H. CARLISLE 1,755,912

OIL FILTER

Original Filed Oct. 1, 1928

Fig. 1.

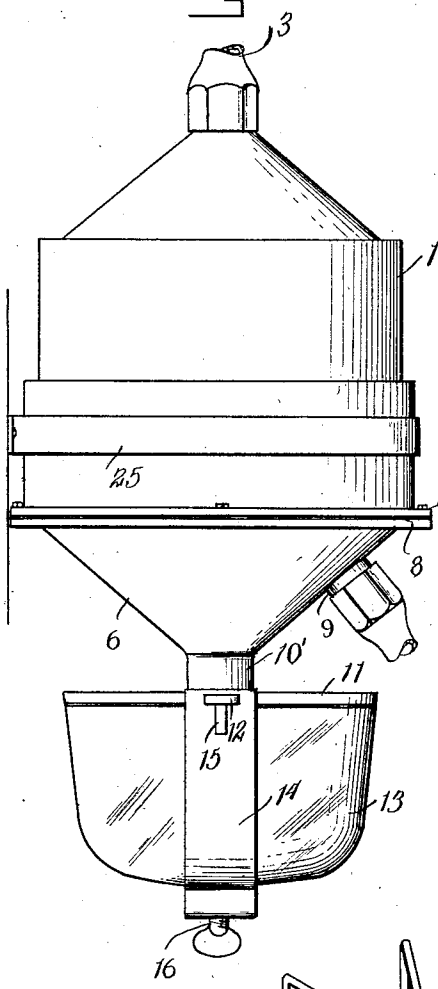


Fig. 2.

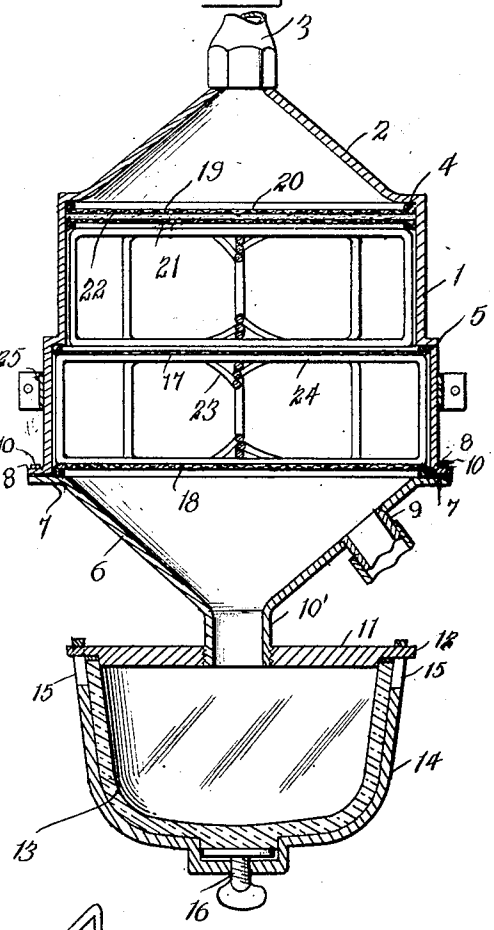
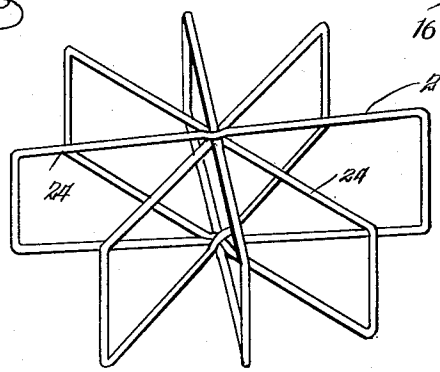


Fig. 3.



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UNITED STATES PATENT OFFICE

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OIL FILTER

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The present invention is directed to improvements in oil filters.

The primary object of the invention is to provide a device of this character constructed in such manner that it can be conveniently placed in an oil line of an automobile engine to positively separate foreign matter from the oil to prevent passage thereof into the working parts of the engine.

Another object of the invention is to provide a device of this character so constructed that it can be easily and quickly disassembled to permit removal of sediment and cleansing of the various filtering elements.

Another object of the invention is to provide a device of this kind wherein a novel form of support is employed for positively holding the filtering element in spaced relationship.

Another object of the invention is to provide a device of this kind which is simple in construction, efficient in operation, durable, and one which can be manufactured at a very small cost.

With these and other objects in view, this invention resides in the novel features of construction, formation, combination and arrangement of parts to be hereinafter more fully described, claimed and illustrated in the accompanying drawing, in which:—

Figure 1 is a side elevation of the device.

Figure 2 is a vertical central sectional view therethrough.

Figure 3 is a perspective view of one of the supports.

Referring to the drawing, 1 designates a casing, preferably circular in cross section, the upper end of which is formed with a conical dome 2 which communicates with the discharge pipe 3, said pipe serving to convey the filtered oil to the working parts of the engine. The casing is provided with upper and lower annular shoulders 4 and 5, respectively, the purpose of which will be later explained.

A conical hollow bottom 6 is provided and has its upper edge formed with an annular flange 7 for securement to the flange 8 of the casing, said bottom having a pipe 9 connected therewith which leads from the oil pump, not shown, screws 10 are carried by the flange 8 in order that the same can be securely connected to the flange 7, as shown in Figure 2 of the drawing.

The bottom 6 is provided with a nipple 10′ which is threaded in the head 11, said head having diametrically opposed horizontally disposed lugs 12 carried thereby, the purpose of which will appear later.

The sediment receiving bowl 13 is formed from glass or other transparent material, and has its rim engaged with the head and is retained tightly engaged therewith by the yoke 14, said yoke having its arms provided with vertical slots 15. The yoke carries in its bight portion a clamping screw 16 which is adapted to impinge against the bottom of the bowl to hold the same firmly in place.

To attach the bowl to the head it is only necessary to hold yoke horizontally in order that the slots 15 will pass over the lugs 12, whereupon the yoke is swung to a vertical position and the bowl placed therein. The screw 16 is then manipulated to secure the bowl in position.

Filtering screens 17 and 18 of suitable mesh are employed, the former being engaged with the shoulder 5 while the latter engages the shoulder 7. A filtering element 19 is provided and engages the shoulder 4, said element consisting of screens 20 and 21 having confined therebetween a fabric sheet 22, preferably of flannel.

In order to hold the element 19 engaged upon the shoulder 4 and the screen 17 upon the shoulder 5, upper and lower supports 23 are employed and consist of rectangular frames 24 formed from suitable wire, said frames being disposed in criss-cross relation and are secured in any approved manner at their points of intersection in order that the frames will be rigid. The upper support rests upon the screen 17 and serves to hold the element 19 engaged with the shoulder 4, while the lower support rests upon the screen 18 supported by the shoulder 7 and maintains the screen 17 engaged with the shoulder 5. In this manner the element 19, screens 17 and 18 will be maintained in proper spaced rela-

tionship and against movement as the oil is pumped through the filter.

A band 25 is engaged upon the casing and serves to hold the filter in place upon the automobile, this band being spot welded to the casing.

It will be obvious that the oil entering the bottom 6 will be forced upwardly and through the filtering mediums in order that dirt, grit or other foreign matter will be extracted therefrom. Further, it will be apparent that particles, such as metal cuttings and grit will gravitate from the bottom 6 into the bowl 13 through the nipple 10'. Since the bowl and various filtering elements are readily removable the device can be readily disassembled to permit cleansing thereof. Obviously any water which may be contained in the oil will also enter the bowl 13.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, and proportion and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What is claimed is:—

A filter comprising a casing having walls and a top, marginal portions of the top forming a shoulder, the upper portions of the walls being set inwardly to form a shoulder intermediate the height of the casing, a bottom having an annular flange about its upper end removably secured to said casing and projecting inwardly from walls of the casing, upper and lower filtering elements and an intermediate filtering element, the upper and intermediate filtering element being engaged with the upper and lower shoulders of the casing and the lower filtering element resting upon the flange of said bottom, a supporting frame engaged between the upper and intermediate filtering elements, and a similar frame engaged between the intermediate filtering element and lower filtering element, said frames serving to maintain the filtering elements vertically spaced and engaged with the respective shoulders and said flange, said filtering elements and frames being removable through the lower end of the casing when the bottom is detached.

In testimony whereof I affix my signature.

BENJIMAN HARRISON CARLISLE. [L. S.]