

W. R. KAHLENBERG.
 FLUID FILTER.
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1,335,899.

Patented Apr. 6, 1920.

Fig. 1.

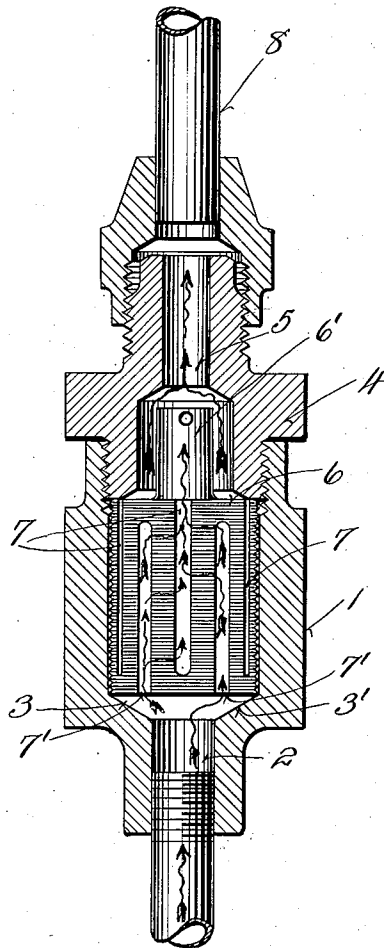
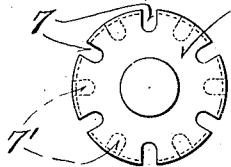


Fig. 2.



Witness:

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UNITED STATES PATENT OFFICE.

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FLUID-FILTER.

1,335,899.

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To all whom it may concern:

Be it known that I, WILLIAM R. KAHLBERG, a citizen of the United States, and resident of Two Rivers, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Fluid-Filters; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a simple economical and effective filter for fluids and is especially designed for filtering or straining oil for fuel purposes. In such instances the filter is located in the suction or discharge pipe of the oil pump to prevent the spray nozzle through which the oil is introduced into the engine from clogging.

Other objects of my invention are to provide an enlarged fluid passageway in the pipe system with annular grooves intersected by longitudinal grooves which latter grooves terminate at predetermined distances from the opposite ends of the fluid passage to thus cause the fluid to travel in zigzag form and function so as to trap foreign particles contained in the oil as it travels through the annular grooves, the said annular grooves being preferably of much finer mesh than the longitudinal grooves.

Another object of my invention is to provide a structure of the above referred to character with a removable plug having the longitudinal and annular grooves therein with the purpose in mind of utilizing plugs having different degrees of fineness of said grooves and to also render the device as a whole readily accessible for cleaning purposes.

A still further advantage of providing a removable plug of this character is to reduce the cost of manufacture.

With the above objects in view the invention consists in certain peculiarities of construction and combination of parts as set forth hereinafter with reference to the accompanying drawings and subsequently claimed.

In the accompanying drawings:

Figure 1 represents a sectional elevational view of a fluid filter embodying the features of my invention with the parts shown in full

to more clearly illustrate certain structural features, and

Fig. 2 is a detail plan view of a preferred form of filter plug employed in carrying out my invention.

Referring by characters to the drawings 1 represents a casing having an intake duct 2 and a chamber 3 the walls of which are threaded at its upper end for the reception of a cap 4 provided with a discharge duct 5 communicating with a discharge pipe 8 in couple union with the cap.

In this exemplification of my invention the walls of the chamber are preferably smooth and are adapted to receive a snugly fitting removable plug 7 which is dropped into place from the mouth of the chamber and located in a longitudinal direction, its lower end resting upon a tapered shoulder 3', formed in the bottom of the chamber and the upper end of a cap, which engages the just opposed end of said plug to firmly bind the same.

The upper end of the plug is also provided with a short shank 6' which extends into an enlarged portion of the discharge duct that is formed in the cap 4. The removable plug 7 is provided with an annular spiral thread or groove which is preferably quite fine in pitch and the apex of these threads engages the smooth walls of the chamber, in such manner that a fluid passageway is formed between the chamber walls and base of the threads. The fluid passageway, thus in effect, is a continuous spiral beginning at the lower end of the plug and ending at its upper end. The annular spiral groove is intersected longitudinally by two series of grooves 7 and 7' respectively. These grooves are preferably of larger area than the annular grooves and are arranged in alternate series, the series 7' being extended to the bottom end of the plug and in communication with the intake duct 2, but terminate at their upper ends a predetermined distance from the top of the said plug. The longitudinal grooves 7' constitute intake grooves and the other set of grooves 7 constitute discharge grooves, the same being extended to the top of the plug and terminating at a predetermined distance from the bottom thereof.

While I have shown and described a spe-

cific form of plug having a spiral thread disposed annularly thereof with sets of longitudinal intake and discharge grooves intersecting the annular thread, it is obvious that the same result may be obtained by forming a series of parallel grooves in place of the spiral grooves and it is also obvious that the annular spiral grooves may be of any relative degree of fineness depending upon the grade of fluid to be filtered. Furthermore the plug while shown circular may be polygonal in construction in some instances without departing from the spirit of my invention.

From the foregoing description it will be apparent that oil fed or forced through the duct 2 will as indicated by the arrows travel up through the intake grooves 7' from which grooves it will disperse and travel radially in fine jets traveling through the annular grooves until such time as it enters the main discharge grooves, through which main discharge grooves it will be delivered to the point of consumption. Manifestly as the oil travels from the intake to the discharge grooves, through the fine threaded channel, any foreign particles will be trapped and the clean oil will thus be delivered to the spray nozzle whereby choking of the same is avoided. Should the plug become foul in time, it can be readily cleaned by removal or by forcing through it some other fluid under pressure.

What is claimed is:

1. A fluid filter comprising a casing having a chamber therein provided with an inlet and discharge, an annular grooved plug fitted in the casing chamber having sets of longitudinal inlet and discharge grooves interrupting the annular grooves, the longitu-

dinal sets of grooves being extended a predetermined distance from the opposite ends of said plug.

2. A fluid filter comprising a casing having a chamber therein provided with an inlet and discharge, an annular spiral grooved plug fitted into the casing having sets of longitudinal inlet and discharge grooves of coarser cross sectional area than the annular grooves, the coarser sets of grooves being extended a predetermined distance from the opposite ends of said plug.

3. A fluid filter comprising a chamber having discharge and inlet ducts, a fluid passageway within the chamber, the same being interrupted by annular grooves, which annular grooves are intersected by longitudinal grooves that terminate at a predetermined distance from the opposite ends of the fluid passageway.

4. A fluid filter comprising a casing having a chamber therein provided with a cap closure, a plug or core fitted into the chamber in contact with the walls thereof, a spiral thread surrounding the circumference of the plug or core and sets of longitudinal grooves interrupting the threads one of said sets being in communication with one end of the core and terminating a predetermined distance from the other end of said core and the other of said sets interrupting the threads and in communication with the opposite end of the core but terminating at a predetermined distance from the other end of the same.

In testimony that I claim the foregoing I have hereunto set my hand at Two Rivers, in the county of Manitowoc and State of Wisconsin.

WM. R. KAHLBERG.