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L. R. LENTZ

2,492,704

FILTER

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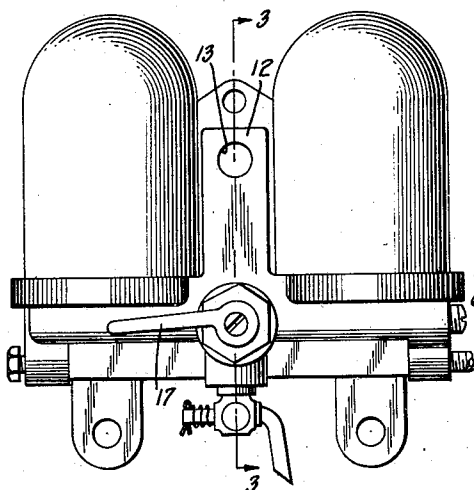


Fig. 1.

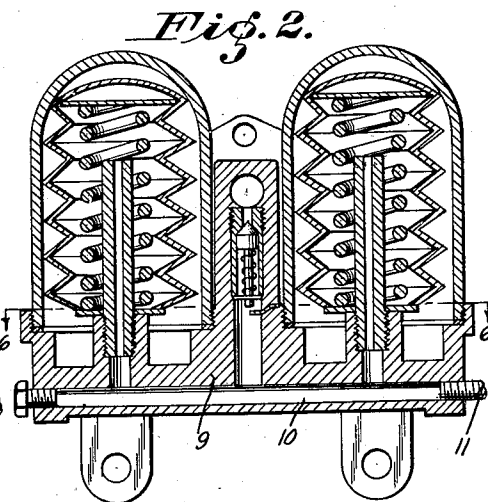


Fig. 2.

Fig. 4.

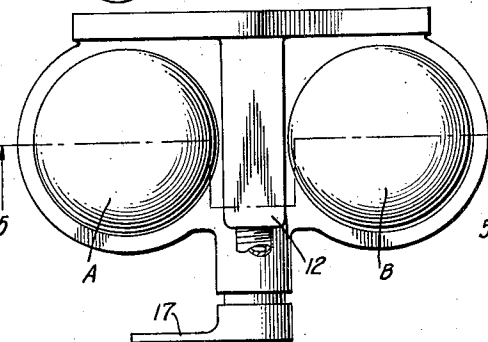


Fig. 3.

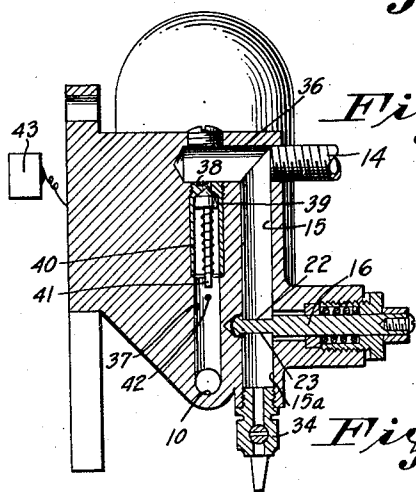


Fig. 5.

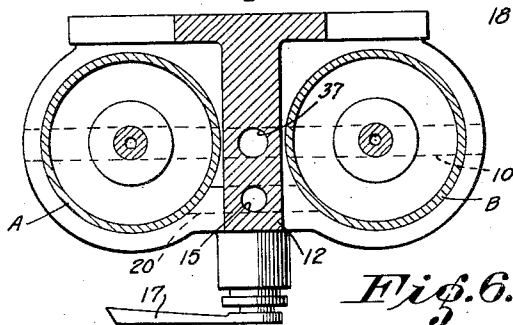
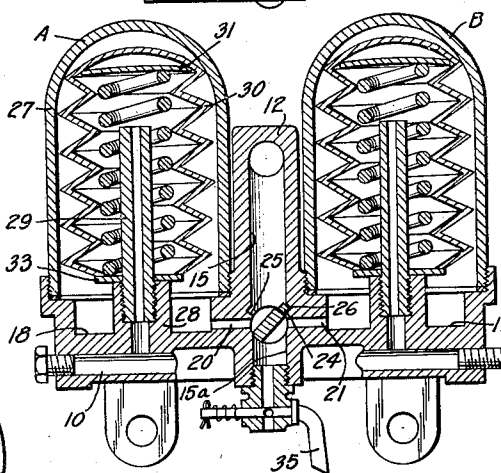


Fig. 6.

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FILTER

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3 Claims. (Cl. 210-168)

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My invention relates to a new and useful improvement in a gasoline filter adapted for use in filtering gasoline prior to its consumption. In the invention, I utilize a plurality of filters and have provided a mechanism whereby either filter may be used selectively.

It is an object of the present invention to provide a filter of this class which will be simple in structure, economical of manufacture, durable, compact and highly efficient in use.

Another object of the invention is the provision of a filter so arranged and constructed that while one of the filter elements is being used, the other may be washed and cleaned by a portion of the filtered gasoline.

Another object of the invention is the provision of an auxiliary delivery passage closed by a valve which will open under excessive pressure so that should the filter become plugged and prevent the flow of gasoline to the object of consumption, the spring closed valve will open thus permitting unfiltered gasoline to flow to the engine or the like so as to prevent its stalling.

Another object of the invention is the provision of a filter element having a rigid top portion against which may bear a spring for retaining the filter member distended.

Other objects will appear hereinafter.

It is recognized that various changes and modifications may be made in the detail of structure illustrated without departing from the invention itself and it is intended that such variations and modifications may be encompassed within the scope of the claims forming a part hereof.

Forming a part of this specification are drawings in which:

Fig. 1 is a front elevational view of the invention;

Fig. 2 is a longitudinal, vertical, sectional, central view of the invention;

Fig. 3 is a sectional view taken on line 3-3 of Fig. 1;

Fig. 4 is a top plan view of the invention;

Fig. 5 is a sectional view taken on line 5-5 of Fig. 4;

Fig. 6 is a sectional view taken on line 6-6 of Fig. 2.

In the drawings, I have illustrated the invention embodying a base 9 formed in which is an outlet passage 10 communicating with which is a suitable delivery conduit 11. Projecting upwardly from this base 9 is a boss 12 having an opening 13 formed therein into which is connected an inlet delivery pipe 14. This opening 13 communicates with the passage 15 interposed in

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which is a valve plug 16 operable by the handle 17. Formed in the base 9 at opposite sides thereof are the wells or chambers 18 and 19. Leading into the well or chamber 18 from the passage 15 is a passage 20. A passage 21 leads into the well or chamber 19 from the passage 15. The valve plug 16 is cut away at its opposite sides as at 22 and 23. Projecting outwardly from this valve plug 16 is a lug 24. The boss 12 is cut away to provide the shoulders 25 and 26 so that when the valve plug 16 is rocked to one side to establish communication between the passages 15 and 20, the lug 24 will engage the shoulder 26 and when the valve plug is rocked until the lug 24 engages the shoulder 25, the passages 15 and 21 will be in communication with each other. Positioned over each of the wells 18 and 19 is a similar construction and a description of one will suffice for both.

An inverted cup-shaped housing 27 is threaded into the base 9 so as to cover the well or chamber 18. Projecting upwardly from the base 9 centrally of the well or chamber 18 is the tubular boss 28 which is internally threaded to receive one end of the tube 29. This tube projects upwardly into the interior of the bellows-like filter 30 which is provided at its upper end with a rigid disk 31 against which bears one end of the spring 32, the opposite end of the spring 32 bearing against a similar disk 33. Examining Fig. 5, it will be noted that gasoline delivered into the passage 15 is permitted to flow into the chamber 18 and upwardly into the housing 27. This filter member 30 is formed from a suitable filtering material, such as chamols or the like, and the gasoline will flow through the filtering element into the interior thereof, filling it and flowing outwardly through the tube 29 into the outlet passage 10. Thus, filtered gasoline will be delivered through the outlet pipe 11 to the engine which is to use the same. When the filter member 30 becomes dirty or clogged, or for any other reason it is desired to use the opposite filter member, the valve plug 16 would be rotated to the left from the position shown in Fig. 5, a distance of ninety degrees, thus closing communication between the passages 20 and 15 and opening communication between the passages 21 and 15, thus permitting the gasoline to flow into the chamber

Positioned forwardly of the passage 10 is a drain cock 34 communicating with the passage 15a, which constitutes an extension of the passage 15. As shown in Fig. 5, when the passages 15 and 20 are in communication so that the gaso-

line is flowing into the chamber 18 for filtering purposes, the passage 15a and the passage 21 are in communication. The filtered gasoline which passes downwardly of the tube 29, in the structure shown in Fig. 5, will pass into the outlet passage 10. An examination of Fig. 5 and Fig. 2 will indicate that this passage 10 is always in communication with the tubes within the filter members. Consequently, as the operator is using the filter A for filtering purposes, the filtered gasoline will also flow upwardly in the tube of the filter B and thence outwardly through the filter element into the well or chamber 19 and downwardly to the passage 15a. The operator may then, when switching from one filter element to the other, by opening the drain cock 34, which is operated by the handle 35, drain out from the filter which is in use the gasoline which has flowed into the interior of the filter and through it. Thus the filter member which is not in use is washed by filtered gasoline which enters into the interior thereof and flows therethrough. This method of operation has proven quite conclusively that the washing operation is one which will remove all foreign material from a dirty filter and restore it to proper condition for use. It is thus seen that I have provided a filter construction in which a plurality of filter members are used and which are so interrelated that while one is being used, the other may be shut off and means is provided for cleaning the filter member which is not being used.

In the use of this gasoline filter arrangement, the operator may, when the filter becomes dirty so that the proper flow of gasoline therethrough is no longer permitted, fail to switch over to the clean filter, with the result that the proper amount of gasoline for engine operation is not being delivered. In the present invention, I have provided a means of taking care of such carelessness or indifference. Communicating with the opening 13 is a passage 36. Formed in the boss 12 is the vertically extending, elongated passage 37 having a valve seat 38 at its upper end. Engaging this valve seat is a spring pressed valve 39 normally held in closed position by the spring 40. The construction is such that when the flow of gasoline through the filter member is retarded and a pressure is built up in the filter 14 beyond normal, the valve 39 will be forced off its seat, thus permitting the gasoline to flow downwardly of the passage 37 into the outlet delivery passage 10. This permits the unfiltered gasoline to flow to the engine but is only for emergency purposes in order to prevent stalling of the engine. Attached to and movable in unison with the valve 39 is the stem 41 which, upon movement of the valve 39 to open position, will engage the electric contact 42 and close a circuit to the alarm bell or other signaling device 43 so that the operator is warned that unfiltered gasoline is being passed to the engine and his attention called to the fact that the valve plug 16 should be rotated to use the other filter member.

With a filter constructed in this manner, a compact arrangement is provided, one which is durable and which has proven most efficient in operation.

What I claim as new is:

1. In a filter of the class described a base having a pair of wells formed in its upper face each of said wells being spaced from the other; a boss projecting upwardly from said base between said wells and having an elongated longitudinally directed inlet delivery passage formed therein; a delivery pipe communicating with said delivery

passage and there being formed in said base an outlet delivery passage, and said boss having an auxiliary inlet delivery passage formed therein extending parallel to the said first mentioned inlet delivery passage and communicating with said outlet delivery passage; and a spring pressed valve positioned in said auxiliary inlet delivery passage and normally spring pressed to closed position and movable to open position upon the development of a pressure in said auxiliary inlet delivery passage at one side of said valve; and a valve positioned in the lower end of said first mentioned inlet delivery passage, said base having a pair of lateral passages formed therein each communicating with one of said wells and with said inlet delivery passage at the location of said valve, said valve being movable to positions for controlling the communication of said lateral passages with said inlet delivery passage.

2. In a filter of the class described a base having a pair of wells formed in its upper face, each of said wells being spaced from the other; a boss projecting upwardly from said base between said wells and having an elongated longitudinally directed inlet delivery passage formed therein; a delivery pipe communicating with said delivery passage and there being formed in said base an outlet delivery passage, and said boss having an auxiliary inlet delivery passage formed therein extending parallel to the said first mentioned inlet delivery passage and communicating with said outlet delivery passage; and a spring pressed valve positioned in said auxiliary inlet delivery passage and normally spring pressed to closed position and movable to open position upon the development of a pressure in said auxiliary inlet delivery passage at one side of said valve; and a valve positioned in the lower end of said first mentioned inlet delivery passage, said base having a pair of lateral passages formed therein, each communicating with one of said wells and with said inlet delivery passage at the location of said valve, said valve being movable to positions for controlling the communication of said lateral passages with said inlet delivery passage, said base having an outlet delivery passage formed therethrough, one end of said auxiliary inlet delivery passage being in communication with said outlet delivery passage; a closed housing mounted on said base over each of said wells for forming therewith a chamber; a hollow filter member positioned in each of said housings and non-communicating therewith; and means for establishing communication of the interior of the filter member with said outlet passage for conducting liquid terminating through said filter member into the interior thereof.

3. In a filter of the class described a base having a pair of wells formed in its upper face, each of said wells being spaced from the other; a boss projecting upwardly from said base between said wells and having an elongated longitudinally directed inlet delivery passage formed therein; a delivery pipe communicating with said delivery passage and there being formed in said base an outlet delivery passage, and said boss having an auxiliary inlet delivery passage formed therein extending parallel to the said first mentioned inlet delivery passage and communicating with said outlet delivery passage; and a spring pressed valve positioned in said auxiliary inlet delivery passage and normally spring pressed to closed position and movable to open position upon the development of a pressure in said auxiliary inlet delivery passage at one side of said valve; and a

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valve positioned in the lower end of said first mentioned inlet delivery passage, said base having a pair of lateral passages formed therein, each communicating with one of said wells and with said inlet delivery passage at the location of said valve, said valve being movable to positions for controlling the communication of said lateral passages with said inlet delivery passage, said base having an outlet delivery passage formed therethrough, one end of said auxiliary inlet delivery passage being in communication with said outlet delivery passage; a closed housing mounted on said base over each of said wells for forming therewith a chamber; a hollow filter member positioned in each of said housings and non-communicating therewith; and means for establishing communication of the interior of the filter member with said outlet passage for conducting liquid terminating through said filter member into the interior therefrom, said filter member being positioned above the point of com-

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munication of said lateral passages with the well.
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