

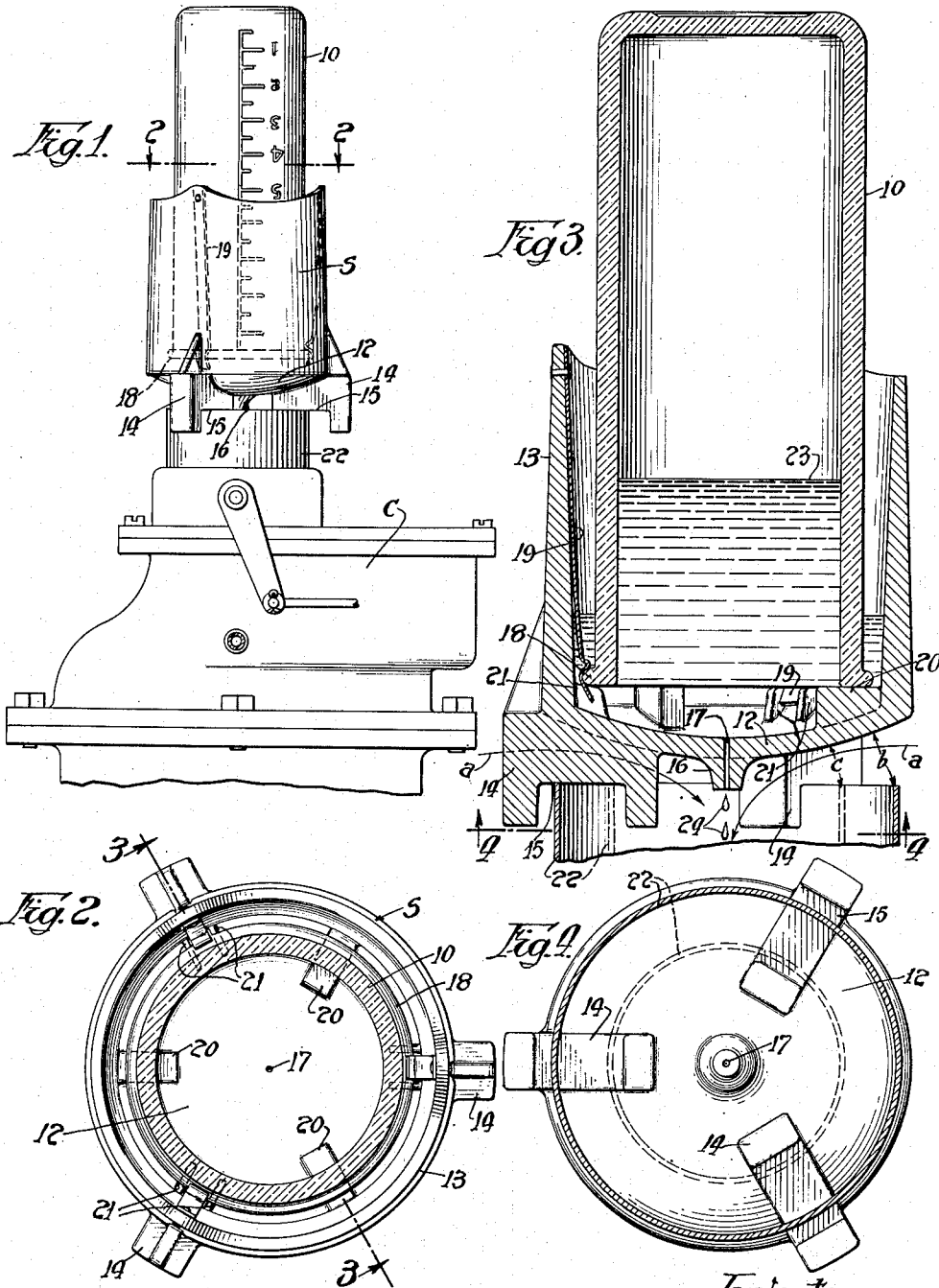
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SOLVENT SERVICER FOR ENGINES

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SOLVENT SERVICER FOR ENGINES

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My invention relates to a servicing device for introducing into an internal combustion engine, carbon attacking liquid such as kerosene or other solvent for at least the tarry portion of the carbon.

One object of the invention is to provide a servicing device which can be supplied with solvent and then readily operated to introduce the solvent into the engine by merely placing the servicer on the intake tube of the carburetor after removing the air cleaner therefrom.

Another object is to provide a solvent servicer which consists of a cuplike element adapted to fit different sizes of carburetor intake tubes and a container associated therewith and adapted to contain the solvent, the supporting member being designed to receive the container in an inverted position and to discharge solvent into the carburetor intake tube by gravity through a small orifice, so that the solvent is fed relatively slowly and evenly to the carburetor.

A further object is to provide the container with a plurality of radially arranged depending flanges having radially elongated notches to fit carburetor intake tubes of different sizes with an arrangement whereby more air is admitted for larger sized tubes than for smaller ones, the air being restricted in its entrance to accomplish a Venturi action for aiding the discharge of solvent from the cuplike supporting member for the container.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawing, wherein:

Figure 1 is a side elevation of a carburetor with my solvent servicer mounted thereon for operation, the air cleaner for the carburetor having been previously removed;

Figure 2 is an enlarged sectional view on the line 2—2 of Figure 1;

Figure 3 is a sectional view on the line 3—3 of Figure 2, and

Figure 4 is a sectional view on the line 4—4 of Figure 3.

On the accompanying drawing, I have used the reference character C to indicate generally a carburetor and S a supporting member. The supporting member S, together with a container 10, constitute my solvent servicer for engines.

The supporting member S may be made of cast iron or the like and includes a cuplike member

having a bottom 12 and a cylindrical wall 13 extending upwardly from the periphery thereof. Depending from the bottom 12 are a plurality of radially arranged flanges 14 having radially elongated notches 15. A nozzle 16 depends from the central portion of the bottom 12 and has bored therethrough a discharge orifice 17.

The container 10 is made of glass or other suitable transparent material and includes a bead 18 surrounding its lower open end, as shown in Figure 3. Coacting with the bead 18 is a plurality of leaf spring latches 19.

The open lower end of the container 10 rests on a plurality of supporting projections 20 extending upwardly from the bottom 12 and is held thereagainst by the spring latches 19. For the lower end of each latch 19, a pair of flanges 21 is provided to insure against undesirable dislocation or distortion of the spring latches adjacent their lower ends.

The notches 15 of the supporting member S are adapted to rest on an intake tube 22 of the carburetor C. As shown in Figures 3 and 4 by solid and dotted lines, the device is adapted to fit a large range of intake tube sizes, large ones being illustrated by solid lines and small ones by dotted lines.

Practical operation

In the operation of my solvent servicer, it may be mentioned that there are certain chemicals in liquid form which may be introduced into an internal combustion engine and will dissolve at least the tarry portion of the carbon deposited in the cylinders and on the pistons thereof and permit expulsion thereof from the exhaust pipe. Heretofore it has been customary for the service station attendant to slowly pour the solvent into the carburetor while the engine was running. It is impossible to pour the solvent evenly and slowly enough to prevent excess charges of the solvent entering the cylinders and being wasted. My apparatus has been designed to permit slow and even introduction of the solvent and to permit such introduction while the service station attendant is performing other services, such as checking the tires, etc.

The desired quantity of solvent is placed in the container 10, the container preferably being graduated as shown in Figure 1 to indicate the quantity. The supporting member S is then inverted and placed on the container 10, whereupon the entire assembly of supporting member S and container 10 is reversed so as to invert the container. The solvent, indicated at 23 in Figure 3,

then flows into the supporting member S and will attain some height therein above the bead 18. The supporting member S is immediately placed on the carburetor intake tube 22, the engine having previously been started, and the servicer commences to operate. Due to the vacuum in the container 10 above the solvent 23, the solvent will flow to only a minor level in the supporting member S, whereby there will be but slight gravity force to cause the solvent to drop, as indicated at 24, through the orifice 17 and from the nozzle 16. Air to the carburetor is drawn in as indicated by the arrow a, and in passing the nozzle 16 there will be a slight Venturi action.

As the solvent in the supporting member S recedes, air will finally be admitted to the container 10 to permit further solvent to flow from it, this operation being repeated until all the solvent has left the container 10.

Due to the dished or convex shape of the bottom 12 of the supporting member, when it is placed on a large carburetor tube 22 there will be a relatively large space between the tube and the supporting member bottom, as indicated by the dimension line B in Figure 3. When the servicer is placed on a relatively smaller intake tube, the corresponding space will be reduced, as indicated by the dimension line c. I thereby maintain a predetermined relation between the size of the carburetor tube and the intake area represented by the annular space between the upper end of the tube and the bottom 12 of the supporting member S, for the purpose of securing the most efficient proportions of air and solvent for the different sizes of carburetors.

It will also be noted that the nozzle 16 projects slightly below the plane of the upper end of the carburetor tube 22 in Figure 3. The purpose of this arrangement is to prevent the draft from the cooling fan of the engine from blowing the solvent away from the center of the intake tube and possibly to the exterior thereof and wasting it. The spring catches 19 may be readily operated by merely placing the container 10 in position or removing it from position, as desired. The entire servicing device, it will be obvious, is quite simple in construction and also in operation and permits the service station attendant to perform a solvent servicing job in a minimum of time and with a maximum of accuracy and efficiency.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope without sacrificing any of the advantages thereof.

I claim as my invention:

1. In a solvent servicer for engines, a supporting member comprising a cuplike element having a plurality of depending flanges radially arranged on the bottom thereof and provided with radially elongated downwardly opening notches to permit support of said supporting member on different sized intake tubes of carburetors, a nozzle at the center of said supporting member and depending therefrom to a position below the top of the intake tube when said supporting member is supported thereon, a transparent container inverted in said cuplike element and adapted to contain solvent liquid to enter the cuplike element and thereafter flow by gravity and by suction in the intake tube of the carbu-

retor from said nozzle, said container having a bead surrounding its open lower end, and spring catches carried by said supporting member on the interior thereof and engaging said bead to retain the container in position in said supporting member.

2. In a solvent servicer for engines, a supporting member comprising a cup-like element having a plurality of depending flanges radially arranged on the bottom thereof and provided with radially elongated downwardly opening notches to permit support of said supporting member on different sized intake tubes of carburetors, a discharge opening in the bottom of said supporting member, a container inverted in said cup-like element and adapted to contain solvent liquid to enter the cup-like element and thereafter flow by gravity and by suction in the intake tube of the carburetor from said discharge opening, and means to retain the container in position in said supporting member.

3. In a solvent servicing device for use in connection with carburetors of internal combustion engines, a supporting member comprising a cuplike element having means to support said supporting member on carburetor intake tubes of different sizes and spaced from the intake ends thereof, a discharge orifice through the bottom of said cuplike element, a container inverted in said cuplike element and adapted to contain carbon solvent to flow therefrom into the cuplike element and thereafter fall by gravity from said discharge orifice, said cuplike element being convex on its lower surface so that the face of the bottom adjacent the outer ends of the slots is further spaced from a large carburetor intake tube than is the face of the bottom adjacent the inner ends of the slots from a small carburetor intake tube.

4. In a solvent servicing device for use in connection with carburetors of internal combustion engines, a supporting member comprising a cuplike element having a plurality of depending supporting elements to support said cuplike element on carburetor intake tubes of different sizes, a nozzle extending downwardly from the bottom of said cuplike element, the space between said supporting elements permitting flow of air into said carburetor intake tube, a container positioned in said cuplike element and adapted to contain carbon solvent to flow therefrom into the cuplike element and thereafter from said nozzle into the carburetor intake tube, the lower end of said cuplike element being so shaped relative to said supporting elements that its bottom adjacent the periphery of the cuplike element is further spaced from a large carburetor intake tube than is the bottom face adjacent the center thereof from a small intake tube.

5. In a solvent servicing device for use in connection with carburetors of internal combustion engines, a supporting member comprising a cuplike element having a plurality of depending supporting elements provided with radially elongated notches to permit support of said supporting member on carburetor intake tubes of different sizes, a nozzle at the center of the bottom of said supporting member and depending therefrom to a position below the top of the intake tube when the supporting member is positioned thereon, the space between said supporting elements permitting flow of air into said carburetor intake tube, a container of transparent material arranged in an inverted position in said cuplike element and adapted to contain carbon solvent

to flow therefrom into the cuplike element and thereafter fall by gravity from said nozzle, said container having a bead surrounding its open lower end, spring catches carried by said supporting member and coacting with said bead of the container to retain it in position in said supporting member, the lower end of said cuplike element being dished downwardly so that the face of the bottom adjacent the outer ends of the slots is further spaced from a large carburetor intake tube than is the face of the bottom adjacent the inner end of the slots from a small carburetor intake tube.

6. In a solvent servicer for engines, a supporting member provided with means to support it on an upwardly opening intake tube of a carbu-

retor, said supporting member having a bottom element inclined downwardly and inwardly from its outer edge and terminating at its center in a depending perforated discharge nozzle to discharge solvent into the intake tube when said supporting member is supported thereon, a container supported on said supporting member, and adapted to contain solvent to flow from said nozzle, said nozzle having its discharge end terminating below the upper edge of the intake tube of the carburetor when said supporting member is supported thereon and said bottom element effecting a Venturi action to draw the solvent from said nozzle and into the intake tube.

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