

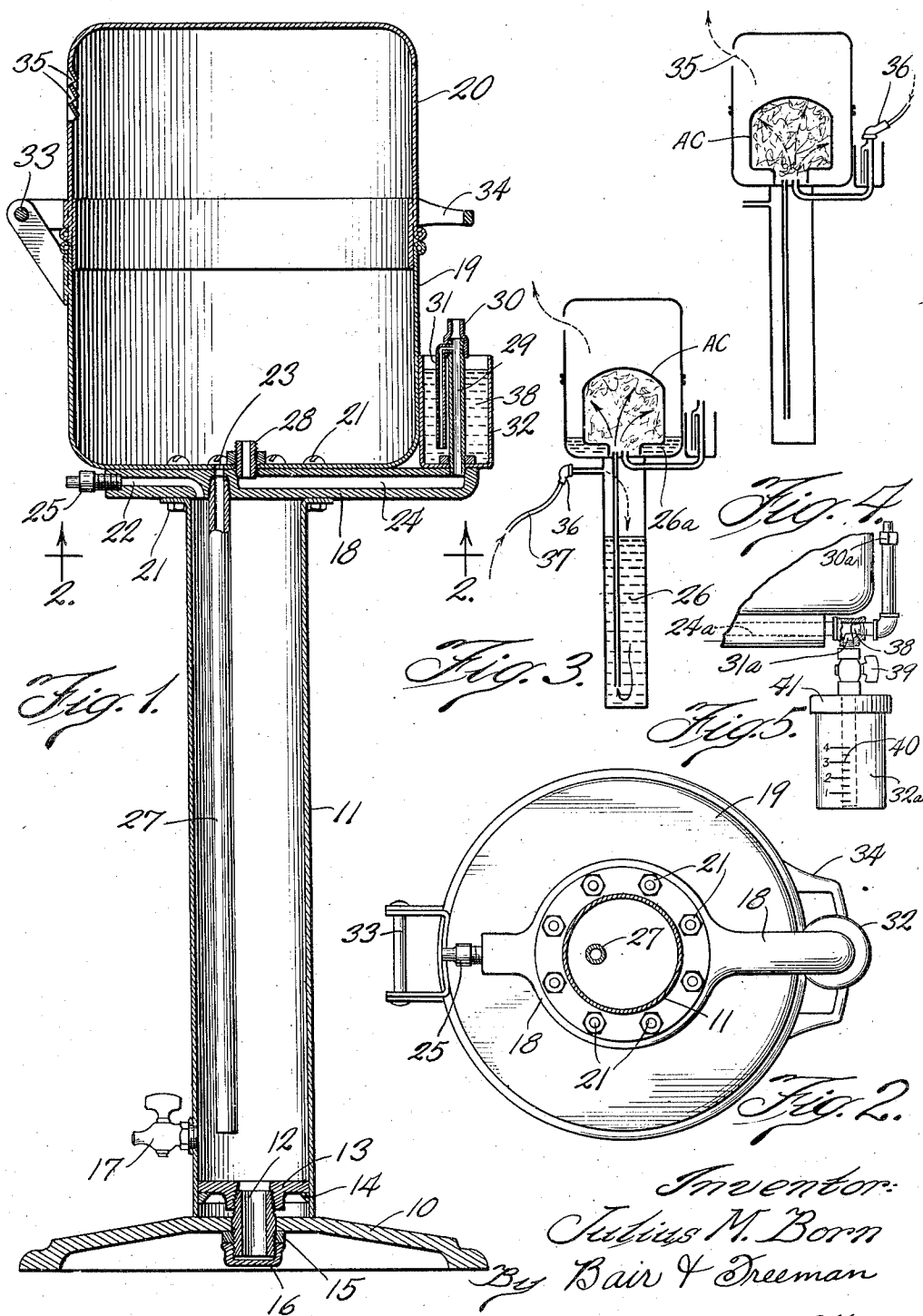
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SERVICE UNIT FOR AIR CLEANERS AND PROCESS OF USE THEREFOR

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SERVICE UNIT FOR AIR CLEANERS AND
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An object of my invention is to provide a service unit for air cleaners and to provide a process for cleaning and reoiling an air cleaner by means of such service unit.

Another object is to provide a service unit which is inexpensive to manufacture and simple to operate and maintain.

Still a further object is to provide a cleaning and reoiling unit for air cleaners having a reservoir for cleaning fluid and convenient means for withdrawing the cleaning fluid therefrom and projecting it through an air cleaner merely by applying a compressed air chuck to the unit, such as is found available at garages and service stations.

A further object is to provide the unit with means for drying the air cleaner by evaporating the cleaning fluid therefrom, this also being accomplished by applying a compressed air chuck to the unit.

Another object is to provide a container connected with the unit for containing a supply of oil to reoil the air cleaner after it is cleaned and dried, the oil being withdrawn therefrom and discharged into the air cleaner by applying an air chuck to an air nozzle provided therefor.

Still a further object is to provide a unit which, during the cleaning, drying and reoiling of an air cleaner, involves the process of first discharging cleaning fluid therethrough; second, discharging air therethrough to dry the cleaner; and third, discharging oil into the air cleaner for reoiling it for its intended service.

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

Figure 1 is a vertical sectional view through a service unit for air cleaners embodying my invention.

Figure 2 is a sectional view on the line 2—2 of Figure 1.

Figures 3 and 4 are diagrammatic views showing respectively the steps of cleaning and drying the air cleaner by means of my service unit; and

Figure 5 is a sectional view similar to a portion of Figure 1 illustrating a modified type of reoiling container for my service unit.

On the accompanying drawing I have used the reference numeral 10 to indicate a base. A tubular post-like reservoir 11 extends upwardly therefrom. The post 11 is secured to the base 10 by

means of a clean out nipple 12. The upper end of the nipple 12 is threaded into a closure plate 13 formed on the bottom of the reservoir 11 and which is welded in position, as indicated at 14.

Within the base 10 a lock nut 15 is positioned on the lower end of the nipple 12 and a clean out cap 16 closes the lower end of the nipple. A drain cock 17 projects into the side of the reservoir 11 and is located slightly above the bottom plate 13.

At the top of the post or reservoir 11 I provide a head plate 18, above which is mounted a container comprising a bottom part 19 and a cover 20. The bottom part 19, the plate 18 and the upper end of the reservoir 11 are secured together by means of a series of bolts 21. The head plate 18 has an air inlet passageway 22, a cleaning fluid passageway or orifice 23 and an oil and air passageway 24. An air nipple or nozzle 25 communicates with the passageway 22 and is adapted for connection of the usual air or tire chuck therewith for discharging air into the reservoir 11 to displace its contents.

The contents of the reservoir 11 may comprise any suitable cleaning fluid, such as gasoline, indicated at 26 in Figure 3, and this fluid is displaced through an intake pipe 27 leading to the discharge orifice 23.

An air and oil nozzle 28 communicates with one end of the passageway 24 while the other end thereof communicates with an upright pipe 29. The pipe 29 has an air nozzle 30 at its upper end and a Venturi tube 31 extending into its side. The pipe 29 and the tube 31 are located in an oil container 32 carried by the base plate 18.

The cover 20 is hinged to the container bottom 19 as indicated at 33. A handle 34 is provided for the convenience of the operator in opening the container. Louvered perforations 35 are provided in the cover 20 to permit the escape of air without permitting the escape of any droplets of cleaning fluid or oil which might be projected into the cover 20.

AIR CLEANER SERVICING PROCESS

1. Cleaning the air cleaner

Initially a quantity of gasoline or other cleaning fluid is poured into the container bottom 19 and flows down the pipe 27 to fill the reservoir 11. When it starts running out of the air chuck 25, the operator knows that the reservoir is full.

The first step of the process involves projecting the cleaning fluid 26 through the air cleaner as illustrated in Figure 3. After the air cleaner, indicated at AC, is placed in the container 19—20

(these cleaners being usually a perforated sheet metal container filled with copper wool or other air filtering material which is oiled to catch dust from the air passing through the air cleaner) an air or tire chuck 36 of a compressed air hose 37 is applied to the air nozzle 25 for discharging air into the reservoir 11, as indicated by the dash line arrows. The cleaning fluid 26 is thereby displaced through the pipe 27 and discharge orifice 23, the nozzle spraying the air cleaner AC as indicated by the solid line arrows. The cleaning fluid will collect in the container bottom 19, as indicated at 26a, during this step of the process, the excess air escaping through the louvered openings 35.

2. Drying the air cleaner

After the cleaning fluid 26 has been displaced to the level of the lower end of the pipe 27, the air chuck 36 is applied to the air nozzle 30, which at first continues the cleaning process as any of the cleaning fluid 26a remaining in the container bottom 19 will be projected through the air cleaner AC.

As soon as all of this fluid has drained back into the reservoir 11, through the discharge orifice 23, however, then air only will pass through the air cleaner and be discharged through the louvered openings 35, this step of the process being continued until the cleaner has been thoroughly dried.

3. Reoiling the air cleaner

The oil container 32 is then filled with a reoiling fluid 38, such as No. 40 S. A. E. crank case oil to about the level illustrated in Figure 1. The air chuck 36 is then reapplied to the air nozzle 30 and will draw the oil 38 from the container 32 in through the tube 31 by Venturi action and spray it from the nozzle 38 into the air cleaner.

When the supply of oil has been exhausted, the cleaner will be thoroughly oiled and ready for another period of service.

The cleaning fluid 26 may be re-used a number of times for successive air cleaner service operations. By permitting it to stand in the reservoir 11, the dirt will settle to the bottom and may be cleaned out by removing the cap 18, after draining out the fluid from which the sediment has settled through the drain cock 17. Occasionally, of course, the supply of cleaning fluid 26 must be replenished to take care of evaporation, although the fluid from the drain cock 17 can be used.

The unit is self-contained and may be operated efficiently and effectively by the mere introduction of compressed air to the nozzles 25 and 30 in the manner described.

As shown in Figure 5 the oil container may comprise a transparent receptacle 32a having a Venturi nozzle 31a. The nozzle 31a cooperates with an air nozzle 38 which in turn is connected with the air nipple 30a to spray oil by Venturi action into the air stream flowing to the passageway 24a. Air, in passing from the nozzle 38 across the upper end of the nozzle 31a, will draw oil through a valve 39 when open and as the oil recedes in the receptacle 32a the quantity thereof being used up can be observed by a scale 40 thereon.

The receptacle 32a is readily removable for instance by being screw threaded into a cap 41 connected with a valve 39. The cap 41 is provided with a vent opening. The receptacle 32a

may be filled with oil and during the process of reconditioning the air cleaner the drying process may be completed while the valve 39 is closed and after its completion it is merely necessary to open the valve for reoiling the air cleaner, while the air chuck is still maintained in engagement with the air nipple 30a.

A change of the character shown in Figure 5 and others 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.

I claim as my invention:

1. In a device of the class described, an openable container adapted to receive an air cleaner, means for projecting cleaning fluid through said air cleaner comprising a reservoir adapted to contain a supply of cleaning fluid, spray means directed into said container and communicating with said reservoir adjacent the bottom thereof, an air chuck nipple connected with said reservoir to place the cleaning fluid therein under pressure by connection of an air chuck thereto to project the cleaning fluid through said spray means into the container, a second air chuck nipple, a passageway leading therefrom, an air discharge nozzle communicating with said passageway and directed upwardly from the bottom of said container, said air discharge nozzle being independent of said spray means and effecting discharge of air through said air cleaner by coaction of an air chuck with said second air chuck nipple and said container having means adjacent the top thereof through which air may escape after passing through the air cleaner.

2. In a device for cleaning air cleaners, an enlarged base member for support on a floor surface, an elongated upright hollow post mounted thereon and constituting a cleaning fluid reservoir, an enlarged diameter container supported on the upper end of said post, said container being of substantially less height than the height of said post and raised substantially above the floor surface by said post, said container being adapted to receive an air cleaner and having spray means and a nozzle directed upwardly from the bottom and toward the interior thereof, means for discharging cleaning fluid through said spray means from said reservoir and means for discharging air through said nozzle, said container having means through which air may escape from the upper part of said container.

3. In a service unit for air cleaners and the like, an elongated upright hollow post for containing a supply of cleaning fluid, an enlarged base member for supporting said post on a floor surface, an enlarged diameter container supported on the upper end of said post, said container being raised substantially above the floor surface by the post, said container being openable and adapted to receive an air cleaner, said container having spray means and a nozzle directed toward the interior thereof, said upright hollow post constituting means communicating with said spray means for directing cleaning fluid thereto and including an air chuck nipple in communication with said hollow post, a second air chuck nipple connected with said nozzle, said spray means, when an air chuck is associated with the first mentioned one of said air chuck nipples, effecting the passage of cleaning fluid through the air cleaner in the container

under the force of pressure produced by the air supplied to said first nipple and said nozzle effecting discharge of air through the cleaner when an air chuck is associated with the second air chuck nipple, said container having means through which air may escape therefrom as cleaning fluid or air are discharged into the container.

4. In a device for cleaning air cleaners, a base member for support on a floor surface or the like, an elongated upright hollow post mounted thereon and constituting a support, a container supported on the upper end of said post, said

container being of substantially less height than the height of said post and raised substantially above the floor surface by said post, said container being adapted to receive an air cleaner and having spray means and a nozzle directed upwardly from the bottom and toward the interior thereof, said nozzle terminating higher than said spray means, means communicating with said spray means for supplying cleaning fluid thereto and through an air cleaner when received in said container and means for discharging air through said nozzle.

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