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CLEANING APPARATUS

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2 Claims. (Cl. 134-188)

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This invention relates to a cleaning apparatus and has relation more particularly to an apparatus of this kind especially designed for cleaning parts of motor vehicles or the like, such as carburetors, fuel pumps, generators, starters, distributors, etc., which, when initially handled by a repairman, carry foreign matter which should be removed before such parts are again used.

It is an object of the invention to provide an apparatus of this kind embodying a container for a cleaning fluid in which the parts to be cleaned are submerged, together with means for agitating the fluid in the container in a manner to assure an effective cleaning operation.

It is also an object of the invention to provide an apparatus of this kind which may be employed with equal facility either to clean, rinse, or dry the desired parts.

Another object of the invention is to provide an apparatus of this kind including a container for a fluid in which the parts are to be submerged together with a basket removably received within the container and in which the parts are directly placed and wherein means are provided for agitating the fluid in the container and particularly to create an upsurge of the fluid through the basket to facilitate the action of the fluid on the parts within the basket.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved cleaning apparatus whereby certain advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a vertical sectional view taken radially through a machine constructed in accordance with an embodiment of the invention, with parts in elevation;

Figure 2 is a sectional view taken substantially on the line 2-2 of Figure 1; and

Figure 3 is a detail fragmentary view partly in elevation and partly in section illustrating a modified form of the invention.

In the embodiment of the invention as illustrated in Figs. 1 and 2 of the accompanying drawings, C denotes a container of predetermined dimensions and capacity having depending therefrom the supporting legs 1. The top of the container C is open and closely adjacent to the

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bottom closing wall 2, the side wall 3 of the container is provided with a drain opening 4 normally closed by a removable plug 5 or otherwise as may be preferred.

At a point above and in relatively close proximity to the bottom wall 2, the side wall 3 of the container C is provided with a surrounding and inwardly disposed ledge 6 upon which freely rests from above the marginal portion of a plate 7. This plate 7 extends entirely across the interior of the container C and in a plane substantially at right angles to the axis of the container C.

The plate 7 has extending upwardly therefrom a plurality of substantially semi-spherical bosses or baffles 8 herein disclosed as two in number and aligned radially of the plate 7. The base or large diameter of each of these bosses or baffles 8 is material and in the present embodiment of the invention the bosses or baffles 8 are hollow to reduce weight with the walls thereof imperforate. The area of the plate 7 surrounding the baffles or bosses 8 is provided with the openings 9 of such diameter as to allow ready passage therethrough of the fluid placed within the container C.

Freely insertible into the container C through the upper open top thereof is a basket B of an annular type which has a vertical axial passageway A of a relatively large diameter and open at both ends. The outer side or peripheral wall 10, the inner wall 11 and the bottom wall 12 of the basket B are all of a reticulated fabric of requisite gauge and strength and the two walls 10 and 11 are of the same height and have their top edges in a common horizontal plane. The bottom wall 12 has depending therefrom the suitably positioned supporting legs 14 which have direct contact from above with the plate 7 and are of such length as to hold the basket B at an effective elevation above the plate 7. The basket B is also of a height to terminate within the upper portion of the container C but at a distance pronouncedly below the open top of the container C.

Detachably mounted on the top of the container C is a cover M including a head plate 15 and a surrounding marginal flange 16 depending from the head plate 15 and the outer or free marginal portion of the flange 16 has close sealing contact with the upper portion of the side or peripheral wall 3 of the container C. Snugly fitting within and suitably adjacent to the outer or free marginal portions of the flange 16 of the

cover M, is a plate 17 provided with the openings 18. The flange 16 at desired spaced points therearound also is provided with the openings 19.

The head plate 15 and the plate 17, at substantially the axial centers thereof, are provided with the bearings 20 through which extends the shaft 21. This shaft 21 extends downwardly beyond the plate 17 and is of a length to extend into the passageway A of the basket B when the cover member M is in applied position upon the container C. Radiating from and extending lengthwise of the lower portion of the shaft 21 are the substantially flat blades 22 which extend a major distance through the length of the passageway A but are entirely housed therein when the cover member M is in applied working position with respect to the container C.

Fixed to the shaft 21 for rotation therewith and radiating therefrom are the fan blades 23 of desired pitch. These blades 23 are carried by the shaft 21 just below the plate 17 and lie between the latter and the top of the applied basket B when the cover member M is in place on the container C.

While various means may be employed for rotating the shaft 21 in desired direction and at a preferred speed, in the first embodiment of the invention the portion of the shaft 21 between the head plate 15 and the internal plate 17 has fixed thereto and radiating therefrom, the flat blades 24 which are adapted to be impacted by a stream of air or the like under pressure selectively discharged from either of the substantially opposed nozzles 25 carried by and extending through the side flange or wall 16 of the cover member M. The nozzles have leading from the outer portions the hose lines 26 for connections with a suitable source of air or the like under pressure. A valve 27 is interposed in each of the lines for shutting off the flow of the air or the like therethrough when it is desired to cut off the stream of air or the like from the associated nozzle 25.

In the embodiment of the invention illustrated in Figure 3 of the drawings the centrally arranged shaft 28 carried by the cover or lid member L extends outwardly beyond the head plate 29 of the cover or lid L and is operatively engaged with an electric motor E mounted on the head plate 29 exteriorly of the cover or lid member L and adapted for electrical connection with a suitable source E. M. F.

In practice, the parts to be cleaned are placed in the basket B, preferably before being placed in the container C. The container C is substantially filled with a desired cleansing fluid.

After the basket B with the parts therein has been placed in the container C, the cover member M is applied and the shaft 21 caused to rotate in the desired direction. The air stream after striking the blades 24 will exhaust out through the openings 19. As the shaft 21 rotates, the blades 22 within the passageway A of the basket B will impart a whirling movement to the fluid within the container and during this action the baffles or bosses will cause the fluid to have an upsurge whereby is materially increased the cleaning action of the fluid on the parts within the basket B.

The blades 23 rotating with the shaft 21 facilitate the passage of the fumes from the fluid within the container C passing up through the openings 18 in the plate 17 and out through the openings 19.

It has also been found in practice that the

fluid in the container as a result of the upsurge of the fluid will strike the blades 23 and thereby provide additional means for rotating the shaft 21.

After the cleansing operation is completed, the basket B is removed and placed in a second container in the same manner as in the container C. This second container is properly filled with clear water so that the parts in the basket B may be thoroughly rinsed. The cover member M may be readily transferred to the second container.

After the rinsing operation the basket B is removed from the second container and placed within a third container to which the cover member M may also be readily transferred. This third container is free of fluid so that as the shaft 21 is rotated, the blades 23 will effect a circulation of air through the basket B to dry the parts therein.

To facilitate the desired handling of the basket B, the same is herein disclosed as having operatively engaged therewith a bail 30 although any other desired means may be employed.

From the foregoing description it is thought to be obvious that a cleaning apparatus constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. In a cleaning apparatus, a cylindrical liquid receptacle having an open top, a flat perforated closure for the open top, an annular reticulated container supported in centered relation within said receptacle, a cylindrical cover secured in spaced overlying relation on said closure, bearings mounted in the centers of the top walls of the closure and said cover, a shaft depending through said bearings and extending downwardly within the open center of said container, blades mounted on that portion of said shaft within the said open center for circulating the liquid radially within said container, other blades mounted on said shaft immediately below said closure for exhausting fumes from above the level of the liquid out through the perforations in the closure, still other blades mounted on said shaft between the closure and said cover, openings in the side wall of said cover, and means for imparting rotary motion to said shaft, said fumes being exhausted outwardly of the said last named openings to atmosphere by the action of the last named blades.

2. The cleaning apparatus as defined in claim 1, with the said means comprising nozzles projecting tangentially to circles concentrically inward of the said last named openings of said cover for discharging a fluid pressure against the last named blades, the spent fluid pressure exhausting, along with the said fumes, outwardly of said last named openings by the action of the latter blades.

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