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DEGREASING APPARATUS

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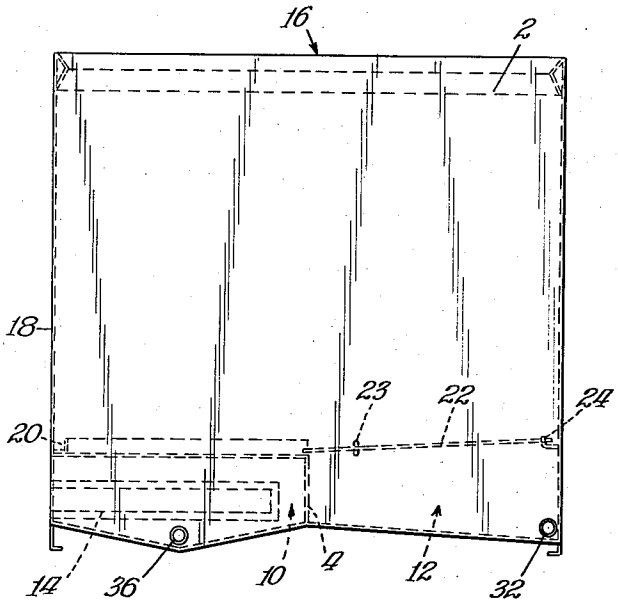


Fig. 1.

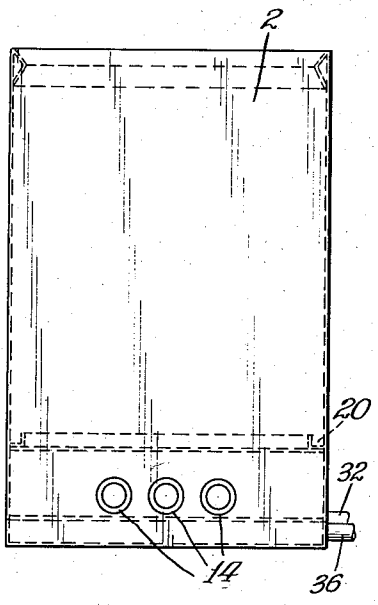


Fig. 2.

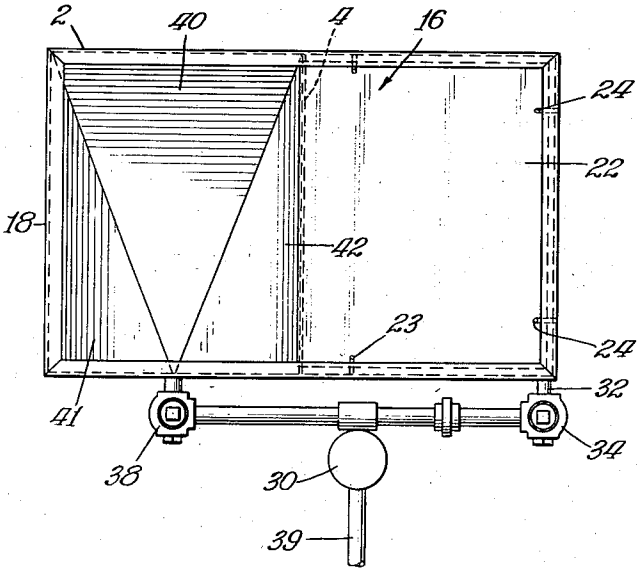


Fig. 3.

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DEGREASING APPARATUS

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2 Claims. (Cl. 202—170)

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This invention relates to a novel type of degreasing apparatus. It is known to provide various types of apparatus which are constructed and designed to vaporize a degreasing solvent, such as trichloroethylene, tetrachloroethylene, etc., and to subject work to be degreased to the exposure of the vapor. In such devices the degreasing vapor condenses upon the work and washes grease or other foreign matter therefrom.

As the degreasing operation is repeated, the degreasing solvent becomes fouled with grease and other matter and ultimately must be purified. The present invention provides a simple degreasing apparatus which, during use, cleans the solvent and localizes the foreign matter collected by the solvent so that purification of the solvent and removal of the foreign matter from the degreaser may be effected simply and rapidly, and without provision of separate purification equipment.

The degreasing apparatus here shown is of the type wherein the side walls of the tank are the sole vapor condensing means and is to be contrasted with degreasing apparatus which employ cooling coils around the upper inside perimeter around the tank to condense solvent and maintain liquid level. One of the objects of applicant's invention is to provide means for returning to the distillate sump a maximum amount of solvent condensed on the side walls so that when the apparatus is used for solvent distilling purposes only, the operation may proceed rapidly.

The invention will be more fully understood by reference to the ensuing disclosure taken with the accompanying diagrammatic drawings in which:

Figure 1 is a view in side elevation of a type of degreaser herein contemplated;

Fig. 2 is a front view of the degreaser of Fig. 1; and,

Fig. 3 is a plan view of the device shown in Fig. 1.

The apparatus may be constructed of any convenient material such as metal, and comprises a tank 2 having a partition 4 extending across the tank and upwardly from the tank bottom and forming a pair of sumps 10 and 12. Positioned in the sump 10 are suitable heating elements 14 which may be of any convenient construction, such as electrical coils or bayonet-type steam heaters. These heating elements serve to vaporize the degreasing solvent which either condenses upon work to be degreased centrally

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disposed in the vapor chamber 16 or which condenses upon the clean wall of the chamber.

A gutter 20 runs along the walls 18 above sump 10 and drains into sump 12. A drain plate 22 is mounted upon hooks or other supports 23 and 24, and slopes toward and drains into the sump 10.

It will be understood that articles to be degreased may be supported in the vapor chamber by conventional means on trays, in baskets, or by hooks. The degreaser also is provided with a cover or closure (not shown) for the top in order to prevent escape of solvent vapors from the tank.

In orderation for cleansing work, supported in the vapor space 16, the sump 10 is filled with degreasing solvent and the heating elements turned on. Vapors condense on the work and the condensate washes the surface of the article to be cleaned and falls off. Such condensate if formed directly above sump 10 falls into this sump. Condensate collecting upon work above the sump 12 is caught by the drain plate 22 and is delivered to sump 10.

During the operation, solvent is condensed upon the walls 18 and either flows directly down the walls into the sump 12 or is caught by the gutter 20 and delivered to sump 12. Since the walls are normally clean a quantity of clean solvent accumulates in the sump 12 and as the operation is continued, the accumulated clean solvent flows over the upper edge of the partition 4 into the sump 10. By this means, solvent carrying foreign matter washed from the work is localized largely in sump 10.

The apparatus is constructed to facilitate cleaning thereof in a simple manner. The floor of sump 12 slopes toward the end of the tank and this sump is provided at the bottom with an inlet or outlet pipe 32 which is connected through a three-way valve or cock 34 to a pump 30. Consequently, clean solvent may be drained or pumped substantially completely from the sump 12.

Sump 10 is provided with a bottom having a triangular flat portion 40 which slopes from one side toward the other side of the tank, and having triangular side portions 41 and 42 sloping toward the side of the tank and from the sump sides toward centrally disposed flat section 40. This sump has an outlet 36 connected through three-way valve 38 to pump 30.

In order to clean this degreaser, the operator pumps all of the clean solvent out of sump 12 by opening the cock 34 and closing cock 38 and

pumping the liquid through outlet 39. He continues to operate the heating elements until all of the solvent has condensed in sump 12 and has been removed. Sediment, grease and other matter remaining on the floor of sump 10 may be washed out by spraying water into the sump or the matter may be removed manually by means of a shovel or trowel. In any event, the construction of the sump is such that removal of this material is quite simple. Following cleaning, the clean solvent may be returned and the apparatus used in further degreasing operations.

Although the present invention has been described with reference to the specific details of certain embodiments thereof, it is not intended that such details shall be regarded as limitations upon the scope of the invention except insofar as included in the accompanying claims.

What is claimed:

1. A degreasing apparatus comprising a tank having a bottom and side walls, an upright partition between the side walls and positioned in the lower portion of said tank and dividing said lower portion into two separate sumps called respectively a vaporizing sump and a distillate sump, a heating element in the vaporizing sump, a gutter opening into the distillate sump and fastened to the side walls at the top of the partition and extending around the inside walls over the vaporizing sump to a point over the partition at its opposite end, and a readily removable, imperforate drain plate substantially covering the distillate sump but spaced from all adjacent side walls by a distance just sufficient to permit solvent condensing on the side walls to descend into the distillate sump, said drain plate sloping toward and terminating above the vaporizing sump whereby dirty solvent dripping from the work will be carried to the vaporizing sump.

2. A degreasing apparatus comprising a rectangular tank having bottom and side walls, an upright transverse partition mounted in the lower part of the tank and dividing the lower part into a vaporizing sump and a distillate sump, an angle iron having one end mounted on top of the partition adjacent a side wall and extending along the wall above the vaporizing sump to the end wall of the tank so as to form with the side wall a gutter, a similar angle iron similarly mounted on the partition and opposite side wall, an angle iron similarly mounted on the end wall connecting the first two angle irons, said angle irons forming with the side walls a U-shaped gutter over the vaporizing sump and opening at its ends into the distillate sump, a bracket mounted on the inside of the end wall adjacent the distillate sump at a height slightly above the top of the partition, and a removable, imperforate drain plate substantially covering the top opening of the distillate sump resting at one side on said bracket and at the other side on the top of the partition so that the plate slopes toward the distillate sump whereby dirty solvent dripping from the work will be carried to the vaporizing sump, said plate having each of its sides spaced from the adjacent side wall by a distance sufficient to permit solvent condensed on the side walls to descend into the distillate sump.

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