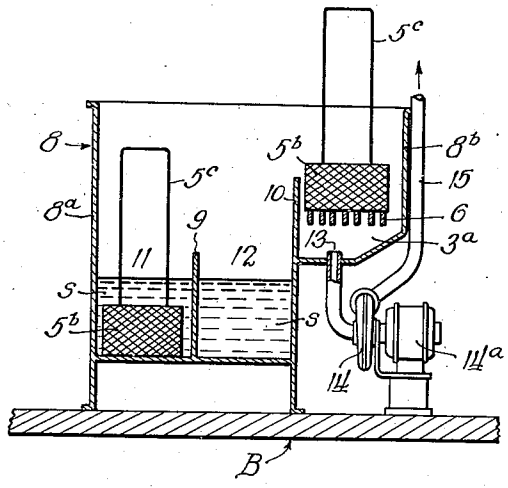
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DEGREASING APPARATUS

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Inventor:
Georg Wolff.

By Brown, Jackson, Battelle & Dinan
Attys.

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DEGREASING APPARATUS

Georg Wolff, Munich, Bavaria, Germany, assignor to Dr. Alexander Wacker Gesellschaft für Elektro-Chemische Industrie, G. m. b. H., Munich, Bavaria, Germany

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1 Claim. (Cl. 141—1)

This invention relates to the cleaning of various articles, and has to do with an apparatus for degreasing and cleaning metal articles and the like.

It is known to degrease metal articles by subjecting them to the action of volatile organic solvents, particularly chlorinated hydrocarbons such as trichlorethylene, perchlorethylene, tetrachlorethylene, etc. The vapors of these chlorinated hydrocarbons are heavier than air and, when mixed with air, are injurious if breathed. In the use of the degreasing solvents referred to the solvent is commonly heated to the boiling point of water, or higher, in suitable containers or casings which are open at their top for insertion and removal of the articles being treated, and vapors of the solvent are evolved in considerable volume. In order to prevent escape of these vapors to the atmosphere cooling means is provided about the upper portion of the casing for chilling and condensing the vapors, the condensate being deposited within the casing. Apparatuses of this character have come into extensive use and have proved to be highly efficient and economical in industrial processes, in which the use of the apparatus is continuous or substantially so. There are many places, however, such as repair shops, garages, etc., in which the use of degreasing apparatus would of necessity be intermittent and the apparatus might be out of use for considerable lengths of time. In such cases there would inevitably be loss of solvent by evaporation and the use of the apparatus becomes less economical. Also, there are many articles which would be injuriously affected by the heat of the solvent which, as above noted, is commonly heated to an appreciably high temperature in apparatuses of the type now commonly used, above referred to.

The instant invention is directed, in general, to degreasing apparatus particularly suitable for use in repair shops, garages and other places requiring but intermittent use of the apparatus. More specifically, my invention is directed to apparatus suitable for degreasing articles without necessity of heating the solvent to an appreciably high temperature, when the character of the articles renders that objectionable, the articles being then degreased by what may be termed a cold treatment process, when that is necessary or desirable. The apparatus is of such character that it may be used intermittently without objectionable loss of solvent by evaporation, and escape of solvent vapors to the atmosphere is prevented. Further objects and advantages of my invention will appear from the detail description.

This application is a division of my copending application for Degreasing apparatus, Serial No. 81,709, filed May 25, 1936.

The single figure of the drawing is a transverse vertical sectional view through a degreasing apparatus embodying my invention, certain parts being shown in elevation.

The apparatus may be housed in a suitable building B. It comprises an open top casing 8 including a main portion 8*a* and a supplemental portion 8*b*. Portion 8*b* is separated from portion 8*a* by a partition 10 defining with portion 8*b* a drying compartment 3*a*. Spaced bars 6 are mounted in compartment 3*a* for supporting a basket 5*b* within which the articles being treated are placed, this basket being provided with an elongated handle 5*c* of inverted U-shape.

Main portion 8*a* of casing 8 is divided by a partition 9 into two compartments 11 and 12. Each of these latter compartments is adapted for reception of a suitable quantity of a volatile solvent *s*, the normal level of which is approximately that shown. A centrifugal blower or suction fan 14, of known type, driven by an electric motor 14*a*, has its intake connected to drying compartment 3*a*, beneath the bars 6, by means of a conduit 13. The discharge of fan 14 is connected, by a conduit 15, to any suitable point of discharge, such as the sewer or suitable recovery apparatus for recovering the solvent vapors discharged through conduit 15.

In the use of the apparatus, the articles are first subjected to the action of the solvent in compartment 11, in which they are cleaned, and are next subjected to the action of the solvent in compartment 12, for rinsing purposes, after which basket 5*b* is removed from the latter compartment and placed upon bars 6 within compartment 3*a*, through which latter compartment air is induced downward in considerable volume and under considerable velocity, by the fan 14, so as to dry the articles quickly. It will be noted that the upper edge of partition 10 is spaced a considerable distance below the top of casing 8, somewhat greater than the height of basket 5*b*, and that the upper edge of partition 9 is spaced a considerable distance below the upper edge of partition 10. In the use of this apparatus for cleaning by the cold process, above referred to, solvent vapors rising to the upper edge of partition 10 overflow this partition into the drying compartment 3*a*, in which compartment these vapors tend to flow downward by gravity thus

assisting induction of air downward through compartment 3a. Further, the suction fan 14 creates a strong down draft through compartment 3a with the result that the air column overlying and opening into compartments 11, 12 and 3a is caused to flow above compartments 11 and 12 toward compartment 3a and downward in the latter compartment, this flow of air supplementing the main flow directly downward into compartment 3a. This assures that any solvent vapors rising from compartments 11 and 12 above the upper edge of partition 10 will be drawn into the drying compartment 3a, thus effectively eliminating possibility of escape of such vapors upward to atmosphere. The distance of the upper edge of partition 10 below the top of casing 8 is such that basket 5b may be moved from compartment 12 into compartment 3a without being raised above the top of the casing, thus eliminating possibility of the escape to atmosphere of solvent vapors in objectionable quantity incident to changing the position of the basket.

Although the new process described may before all be of a great importance for the use of cold solvents, it yet will be practicable also with hot solvents. In the latter case, however, the apparatus wherein the process is performed, will suitably be provided with cooling devices already known, in order to make condense on them the hot solvent vapours.

When the apparatus is not in use, casing 8 may be closed air-tight at its top by means of a suitable cover, thus preventing downflow of air through compartment 3a so that the loss of solvent by evaporation is reduced to an inconsiderable amount. Accordingly, this apparatus is well suited for use in repair shops, garages and other places in which, under normal conditions, the apparatus would be used but intermittently.

I claim:

In a degreasing and drying apparatus of the character described, a casing open at its top comprising a main portion and a supplemental portion, a partition between said main portion and said supplemental portion forming with the latter a drying compartment, the upper edge of said partition being below the top of said casing, article supporting means within said compartment, a partition extending from the bottom of said main portion separating the latter into two compartments for containing a volatile degreasing solvent the vapors of which are heavier than air, the upper edge of said second partition being below the upper edge of said first partition, and suction means having its intake connected to said drying compartment below said supporting means effective for inducing air and solvent vapors downward through said drying compartment in the operation of the apparatus.

GEORG WOLFF.