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COVER FOR DEGREASER CABINETS

Original Filed Aug. 3, 1940

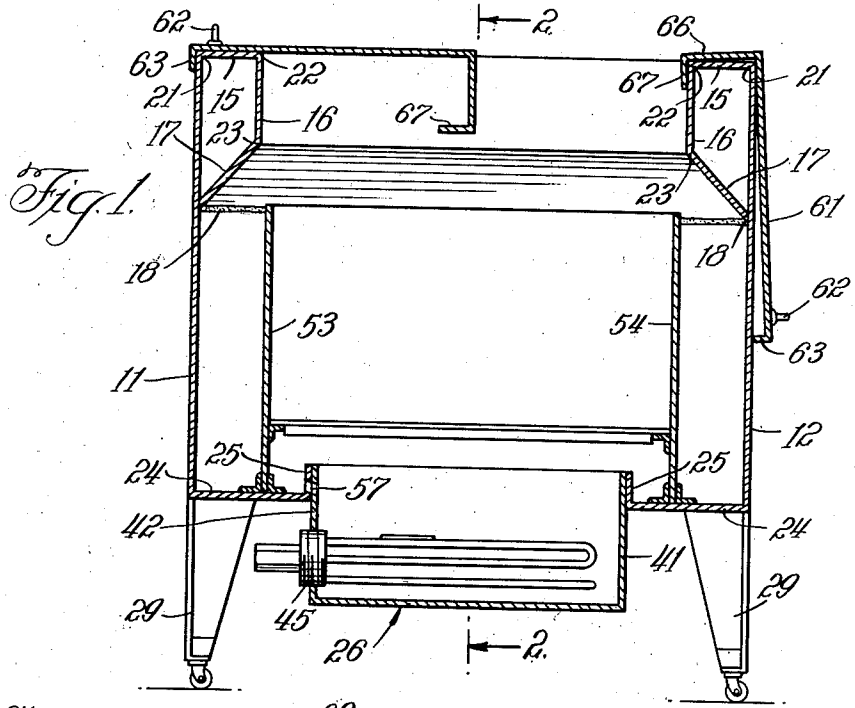


Fig. 1.

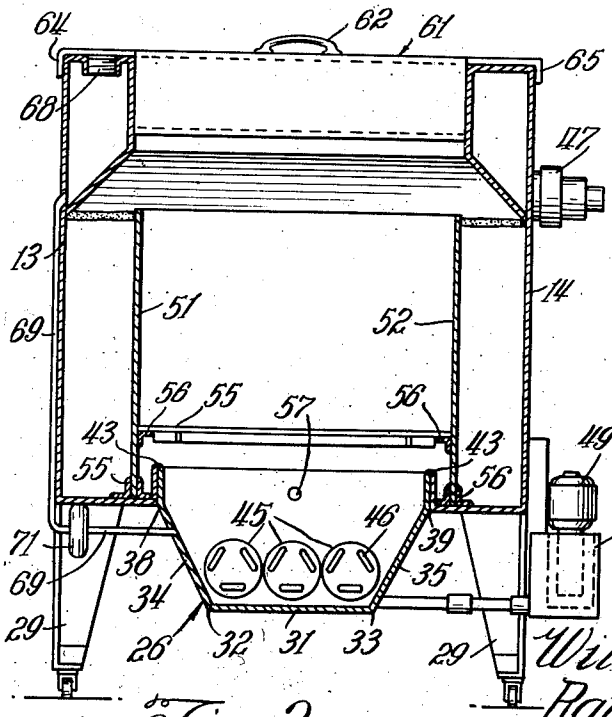


Fig. 2.

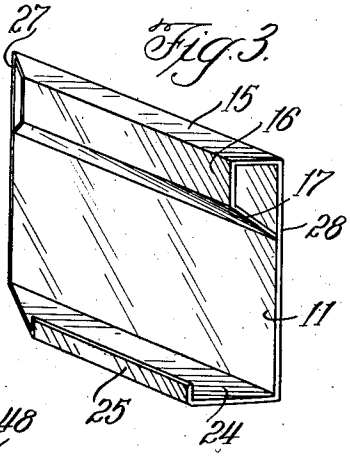


Fig. 3.

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COVER FOR DEGREASER CABINETS

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3 Claims. (Cl. 202—242)

This invention is a division of our co-pending application Serial No. 351,018 filed August 3, 1940, which has matured into Patent No. 2,329,674 granted September 14, 1943, and relates to a degreasing apparatus and particularly to a new and improved degreasing cabinet having certain inherent advantages not contemplated in the prior art. One of the objects of the invention is to provide a degreasing cabinet with a new and novel mechanical design wherein a cabinet of comparatively small size and weight is arranged to include a relatively large vapor treating chamber adapted to handle large and heavy machinery.

A further object of the invention is to provide a degreasing cabinet having a maximum strength at the upper rim of the cabinet to resist accidental damage resulting from possible impact of heavy machinery being hoisted into or from the vapor chamber of the cabinet.

A further object of the invention is to provide a degreasing cabinet of novel design arranged to include means to compensate for the natural expansion of the metal during extreme and rapid changes in temperature to prevent buckling or splitting of the cabinet walls when subjected to comparatively great or uneven changes in temperature.

The particular object of the invention is to provide an improved cabinet cover including a vapor baffle adapted to prevent vapors from escaping from the cabinet and of novel mechanical design adapted to effectively resist accidental impact of heavy machinery being hoisted into or out of the cabinet.

Referring now more particularly to the drawing:

Fig. 1 is a longitudinal sectional view through a degreasing cabinet constructed in accordance with the principles of this invention;

Fig. 2 is a transverse sectional view taken substantially on the plane of the line 2—2 of Fig. 1;

Fig. 3 is a detail perspective view of one of the four wall sections of the cabinet illustrated in Figs. 1 and 2.

The degreasing cabinet illustrated in Figs. 1, 2, and 3 comprises a unitary structure consisting of four similar vertical wall plates 11, 12, 13 and 14 preferably formed of heavy sheet metal material and welded to each other at each of the four corners of the rectangular cabinet. It is contemplated that the walls, 11, 12, 13, 14 may be formed of comparatively heavy iron or steel plates, but to provide maximum durability and strength it has been found advisable to provide a reinforced upper rim portion capable of withstanding great physical impact. In this connection it may be well to point out that the cabinets here illustrated are of a size sufficient to accommodate quite large and heavy castings, as for example, the main castings on large engines, and that these castings are usually placed in the chamber by means of a crane or other hoist because of their great mass and weight. In high speed production it is not an infrequent occurrence for such a casting to be lowered inaccurately or otherwise caused to strike the upper rim of the degreasing cabinet with a great impact. It is desired, therefore, to form the upper rim of the cabinet in a manner to effectively resist such blows and to this end we prefer to fold each of the metal wall plates 11, 12, 13 and 14 inwardly at their upper edge to provide a horizontal top portion 15, thence downwardly to provide a portion 16 and an inclined portion 17 joining the lower extremity of the portion 16 with the vertical surface of the outer wall. The lower edge of the inclined portion 17 is preferably welded to the wall along the weld 18, but it is to be particularly noted that this welded joint is remote from the upper rim of the cabinet and very well protected against accidental impact and that the exposed corners 21, 22 and 23 are bent or folded portions of the wall plates capable of withstanding great physical shock without danger of separation. When constructed in this manner the upper rims of the degreasing cabinet possess unusually great inherent strength and are well adapted to resist physical shock or impacts, and in addition the upper rim of the cabinet comprises a hollow chamber adapted to be used as a solvent reservoir or air cooled condenser, as will appear hereinafter.

At the lower extremity of the wall plates 11, 12, 13 and 14 each plate is bent inwardly to form a substantially horizontal bottom portion 24 extending partially across the floor of the cabinet and is then bent upwardly to provide a short marginal upstanding flange 25 between the horizontal portions 24 of the cabinet floor and a central vaporizing sump 26. From the foregoing description it will be seen that each of the wall plates is formed to include an upper rim of hollow configuration and a lower horizontal floor section 24. The opposite ends of the four wall plates 11, 12, 13, and 14 are then cut at an angle or mitred at each end, as illustrated in Fig. 3, so that they may be assembled by welding the entire length of the end edges 27 and 28 to the corresponding edges of the other wall plates of the

cabinet. This arrangement possesses certain inherent advantages as far as physical strength is concerned since the only welded joints are along the weld 18 and the end edges 27 and 28 and when the cabinet is assembled, these welds are postioned in the corners comparatively well protected against impact due to careless handling of castings being lowered into the chamber. The cabinet legs 29 are preferably welded to each corner of the cabinet.

The vaporizing sump 26 comprises a main bottom plate 31 folded at the points 32 and 33 to provide angular inclined side walls 34 and 35 joined to the short vertical side walls 38 and 39. End plates 41 and 42 are welded to the main bottom plate 31 and the entire vaporizing sump 26 is of proper dimensions so that the upper marginal edges formed by the vertical portions 36 and 37 and the end plates 41 and 42 are of proper size and shape to fit closely within the central orifice defined by the four vertical sections 25 on the main wall plates 11, 12, 13 and 14 of the cabinet.

The sump 26 is secured in position by welding the upper marginal edge of the sump to the upper marginal edge of the vertical portions 25 to provide a weld 43 extending entirely around the sump. It is to be particularly noted, however, that the weld 43 is at the extreme upper portion of the rim of the sump and that the vertical portion 25 lies in close relationship with the walls 36, 37, 41 and 42 of the sump but is not rigidly connected therewith. This arrangement provides a double upstanding flange extending entirely around the vaporizing sump 26 which by reason of its double walled construction is comparatively yieldable and may compensate for any inequalities in expansion and contraction of the entire degreaser cabinet and thus prevent any unnecessary strains on the metal which might otherwise tend to split the welded joints connecting the several plates forming the cabinet.

The sump 26 is provided with a plurality of electrical heating elements 45 threaded into the wall 42 of the sump, and provided with a high temperature thermostat bulb 46 and a vapor level thermostat 47 arranged to actuate an electrical switch and control the operation of the heating elements as more fully illustrated in our co-pending application, Serial No. 338,478 filed June 3, 1940, issued as Patent 2,253,579, August 26, 1941.

A sediment sump 48 and flushing pump 49 are also preferably provided, but since these structures form no pertinent part of the present invention, they will not be described in detail.

It is desirable to provide a marginal partition within the degreaser cabinet to define a vapor treating area, and for this purpose vertical walls 51, 52, 53 and 54 are mounted between suitable angle irons 55 and 56 secured to the floor portion 24 of the cabinet. The walls, 51, 52, 53 and 54 serve to separate the central area from the outer walls of the cabinet to provide a double-walled construction in which the space between the two walls acts as a thermal insulation to prevent unduly rapid condensation of the hydro-carbon vapors. In addition to this it is to be appreciated that this arrangement assists in maintaining a proper vapor level, since whenever the vapors in the central area of the cabinet rise to a point beyond the upper edge of the walls 51, 52, 53 and 54, they will overflow into the marginal chamber and condense rapidly against the relatively cool outer walls of the cabinet. A work supporting platform 55 may be provided near the lower part of the vapor treating chamber and this platform 55 is preferably supported on angle irons 56 welded or otherwise secured to the inner surfaces of the partition walls 51, 52, 53 and 54.

With this arrangement, it will be seen that all condensate formed on any work positioned within the inner partition of the chamber will fall through the platform 55 and directly into the vaporizing sump 26, or will flow downwardly outside of the upstanding partition 25 and through the solvent port 57 into the vaporizing sump 26.

It is desirable to provide covers for the vapor cabinet to conserve heat and to prevent currents of air from tending to disturb the normal vapor level of the device in such a manner as to cause hydro-carbon vapors to overflow into the atmosphere. It is essential, however, that these covers be of such mechanical design as to be easily operated and at the same time capable of withstanding considerable physical impact without damage. It is also desirable to arrange the covers in such a manner as to include vapor baffle surfaces designed to prevent discharge of hydrocarbon vapors into the atmosphere at the instant the cover is opened.

In the present invention these objections have been accomplished by providing a pair of relatively thin metal covers 61, each provided with a suitable handle 62, and having outside flanges 63, 64 and 65 arranged to extend downwardly adjacent the wall surfaces 11, 13 and 14, respectively. Inside flanges 66 are provided on one side of the rectangular covers 61 and these inside flanges extend downwardly within the walls of the cabinet and terminate in reverse hook flanges 67.

By examination of Figs. 1 and 2, it will be seen that the inside flange 66 is of a length less than the inside dimension of the cabinet rim, so that these flanges may extend downwardly in the center of the cabinet. When the operator desires to open the covers, he may grasp one of the handles 62 and slide the entire cover 61 outwardly until the hooked flange 67 engages the inner surface of the cabinet rim. At this time the operator will lower the cover 61 into the position shown on the right-hand side of Fig. 1, where it will lie in close proximity to the walls of the cabinet. It is to be noted that the width of the inside flange 66 corresponds with the width of the cabinet rim 15, so that when the cover is lowered into open position, it fits snugly over the cabinet rim, so that the two thicknesses of metal comprising the cabinet rim and cabinet cover, reinforce each other and provide additional resistance to physical impact. It will also be appreciated that as the cover is being opened, the inside flange 66 and reverse hook flange 67 act as vapor baffles tending to prevent any hydro-carbon vapors from being discharged from the machine as the cover is removed.

Having thus described and shown the invention, we claim:

1. In a degreasing cabinet employing solvent vapor and having a hollow inward rim adapted to be used as a solvent reservoir and condenser: a cover comprising a relatively thin rectangular panel including a pair of downwardly extending outside flanges having their opposite wall portions spaced apart a distance greater than the outside dimension of the cabinet; and an inside flange on one side of the rectangular panel, said inside flange being of a length less than the inside dimension of the cabinet and of a width greater than the width of the cabinet rim to provide a vapor baffle when the cover is in closed position

and a protective cover for the hollow rim when in open position.

2. In a degreasing cabinet employing solvent vapor and having a hollow inward rim adapted to be used as a solvent reservoir and condenser: a cover comprising a pair of relatively thin rectangular panels, each being of a size equivalent to one-half the area of the cabinet and each including downwardly extending outside flanges having their opposite wall portions spaced apart a distance greater than the outside dimension of the cabinet and extending along opposite sides of the panel; and an inside flange on one side of the said rectangular panel, said inside flange being of a length less than the inside dimension of the cabinet and of a width greater than the width of the cabinet rim, and including a reverse hook flange at its lower edge, to provide a vapor baffle when the cover is in closed position and a protective cover for the hollow rim when in open position, the reverse hook flange acting to hold the cover in position and to protect the inside corner of the rim.

3. In a degreasing cabinet employing solvent vapor and having a hollow inward rim adapted to be used as a solvent reservoir and condenser: a cover comprising a relatively thin rectangular panel having its opposite edge portions spaced apart a distance greater than the inside dimension of the cabinet; and an inside flange on one side of the rectangular panel, said inside flange being of a length less than the inside dimension of the cabinet and of a width greater than the width of the cabinet rim, and including a reverse hook flange at its lower edge, to provide a vapor baffle when the cover is in closed position and a protective cover for the hollow rim when in open position.

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