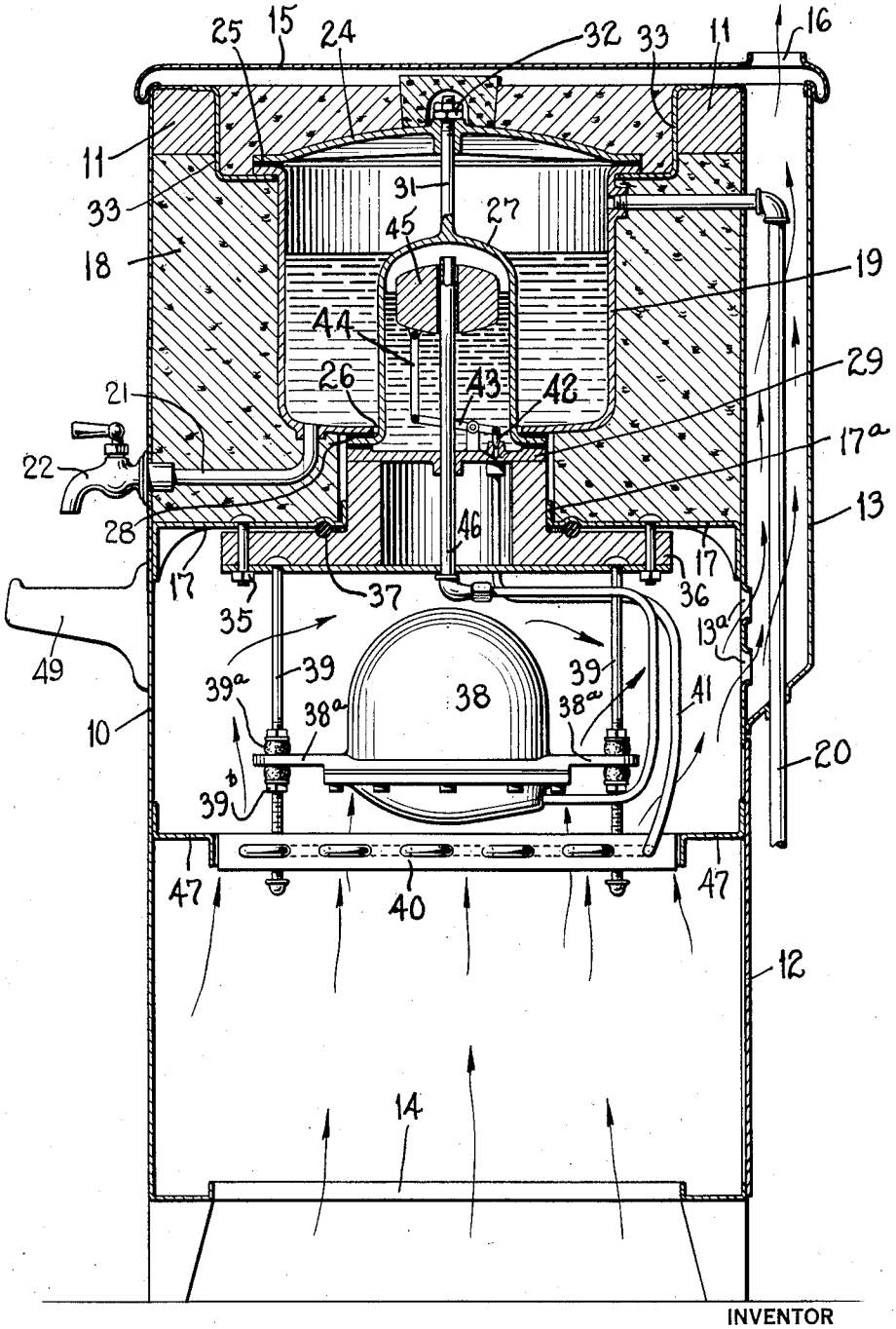
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WATER COOLER

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WATER COOLER

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This invention relates to a water cooler refrigerated by mechanical means and more particularly to a device of this character refrigerated by a hermetically sealed refrigerating unit which, together with the evaporator, condenser and connections, may be removed as a unit from the structure comprising the water cooler cabinet and tank.

The invention will be readily understood by reference to the following description taken in connection with the accompanying drawing in which the figure is a vertical section of a mechanically refrigerated water cooler constructed in accordance with this invention.

The water cooler shown in the drawing comprises a cabinet structure and a refrigerating unit detachably mounted in said cabinet. The cabinet comprises a framework 11 and metal walls 10. A flue is formed at the rear of the cabinet by a metal casing 13 welded or otherwise suitably attached to the rear wall of the cabinet. Openings 13*a* in the rear wall of the cabinet afford communication between the lower portion of the interior of the cabinet and the flue. A flanged opening 14 is provided in the bottom of the cabinet to allow air to flow upwardly into the lower part of the cabinet, through the openings 13*a*, and then up through the flue in the rear of the cabinet. A suitable top 15 is provided for the cabinet which top extends over the upper end of the flue and is provided with a suitable outlet opening 16 for air ascending the flue. A section 12 of the cabinet wall is made removable to allow the refrigerating unit to be readily inserted or removed as herein described.

Mounted on the framework 11 are angle irons or brackets 33 which support a vessel or tank 19 for containing the fluid to be cooled. This tank has a circular opening 26 in the bottom thereof to admit the evaporator of the refrigerating unit when the latter is positioned within the cabinet. A fluid supply line 20 connects with the tank to supply liquid, for instance city water, thereto, to be cooled. Cooled fluid is discharged from the tank through pipe 21 and faucet 22. A drain 49 is positioned on the front of the cabinet under the faucet as usual.

A plate 17 is welded or otherwise suitably secured in position a slight distance below the tank to divide the interior of the cabinet into an upper compartment in which the cooling tank is located and a lower compartment for housing a mechanical refrigerating unit. Partition plate 17 is provided with a central flanged aperture 17*a* through which the evaporator is inserted when the refrigerating unit is mounted in position within the cabinet as will be described.

The chamber above partition plate 17 is filled with heat insulating material 18 which completely surrounds the fluid tank 19 except for a passage immediately below said tank extending between the aperture in the partition plate 17 and the aperture in the bottom of the tank.

The refrigerating unit comprises a mounting block 36 from which is suspended a condenser 40 by rods 39, an hermetically sealed motor-compressor unit suspended intermediate the mounting block and the condenser by lugs 38*a* clamped between resilient blocks 39*a* held in position by flanged nuts 39*b* threaded on supporting rods 39; and an evaporator mounted on the upper side of mounting block 36, which evaporator comprises a casing 27 and a base plate 29 enclosing a chamber adapted to contain a liquid refrigerant.

A conduit 41 conducts liquid refrigerant from condenser 40 to the evaporator in which the liquid level is maintained substantially constant by a refrigerant inlet valve 42 operated through levers 43 and 44 by float 45. A vapor suction line 46 extends from a point near the top of the evaporating chamber downwardly through the base 29 and the mounting block 36 to the intake of the compressor unit 38. The vapor suction line 46 also serves as a guide for the float 45 within the evaporator chamber.

When the refrigerating unit is to be assembled with the cabinet, plate 12 is removed and the unit is inserted through the opening in the rear of the cabinet thus exposed. The evaporator is inserted through the opening in partition plate 17 and the aperture in the bottom of the liquid tank 19. The unit is

secured in position by any desired means such as bolts 35 which secure the mounting block 36 to the partition plate 17 and a stud bolt 31 integral with the evaporator casing 27 performs the dual role of holding the unit in position and at the same time holding a cover 24 on the tank 19 by means of nuts 32. A gasket 25 seals the joint between the tank and its cover and there are also provided gaskets 28 and 37 to seal the joint between the base of the evaporator and the bottom of the fluid tank, and the joint between the mounting block 36 and the partition plate 17 respectively.

When the refrigerating unit is thus mounted in position the evaporator is within the tank 19 for cooling the fluid therein and the condenser is positioned in the aperture in a baffle plate 47 within the bottom portion of the cabinet so that all the air entering the bottom of the cabinet through aperture 14 will pass over the condenser coils and then through openings 13*a* and up through the flue in the rear of the cabinet. Since the motor-compressor unit is mounted above the condensers the air for cooling the condensers will not have been previously warmed by contact with the motor-compressor unit.

It will be obvious to those skilled in the art that various other changes may be made in the construction and arrangement without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawing and described in the specification but only as indicated in the appended claims.

I claim:

1. A water cooler comprising a cabinet, a container for water permanently secured within the cabinet, and a refrigerating apparatus removable as a unit from the cabinet and mounted beneath said container, said refrigerating apparatus having a cooling element associated in good thermal contact with the container in a manner to cool water within the container.

2. A water cooler comprising a cabinet, a container for water permanently supported by the framework of the cabinet, an evaporator for cooling the water within the container, a removable mounting plate supporting the evaporator, a motor compressor unit supported by the mounting plate beneath the same, a condenser also supported by the mounting plate, and means for securing the mounting plate in position.

3. The combination of a cabinet, a container permanently mounted within said cabinet, a mounting plate removably supported beneath said container, and a refrigerating apparatus associated with said container in a manner to cool the same, said apparatus being carried by said mounting plate and removable as a unit therewith.

4. A water cooler comprising a cabinet having an apparatus compartment in its lower portion, a container for water permanently mounted in its upper portion, a flue extending from the apparatus compartment to the top of the cabinet, a removable mounting plate in the upper portion of the machine compartment, and refrigerating apparatus for said container carried by said mounting plate and removable as a unit therewith.

5. In combination, a cabinet, a fluid tank permanently mounted in the upper portion of said cabinet, and a refrigerating unit detachably mounted in said cabinet beneath the fluid tank, said refrigerating unit including an evaporator associated with said tank in a manner to cool fluid therein.

6. A water cooler comprising a cabinet, a water tank permanently mounted within the upper portion of said cabinet, a refrigerating unit removably mounted within said cabinet, said refrigerating unit including a mounting block, a motor compressor unit and condenser suspended from said mounting block and an evaporator on the upper side of said mounting block associated with said tank in a manner to cool water therein.

7. A water cooler comprising a cabinet, a water tank within said cabinet and having an aperture in the bottom thereof, and a refrigerating unit including a compressor, a condenser and an evaporator, said refrigerating unit being mounted removably as a unit within said cabinet so that the evaporator extends into said water tank through said aperture, and means for effectively sealing said aperture.

8. A water cooler comprising a cabinet having an apparatus compartment in its lower portion, a compartment for a water container in its upper portion, a partition between said upper and lower compartments, a refrigerating unit including an evaporator attached to said partition, said evaporator extending through said partition and into the water container, a flue extending from the apparatus compartment to the top of the cabinet, the construction being such that the refrigerating unit may be removed from the water cooler without changing the position of the cabinet or disturbing the water supply line.

9. A water cooler comprising a cabinet having an apparatus compartment and a flue extending upwardly therefrom for creating a draft of air through the apparatus compartment, a receptacle for water to be cooled permanently mounted in said cabinet, and refrigerating mechanism for cooling said receptacle disposed in said compartment in the path of the flow of air and removable as a unit from said cabinet.

10. A water cooler comprising a cabinet having a refrigerating compartment and an apparatus compartment and a flue extending

upwardly therefrom for creating a draft of air through the apparatus compartment, a receptacle for water to be cooled permanently mounted in said refrigerating compartment, and refrigerating mechanism for cooling said receptacle disposed in the path of the flow of air in said apparatus compartment.

11. In combination, a cabinet having an apparatus compartment and a flue extending upwardly therefrom for creating an air flow therethrough, said cabinet also having a cooling compartment, a receptacle for matter to be refrigerated permanently mounted in said cooling compartment, and a removable refrigerating unit disposed in said apparatus compartment in the path of the air flow and having a portion projecting into said receptacle.

12. In a refrigerator, a cooling compartment, a receptacle for matter to be refrigerated permanently mounted in said compartment, and a refrigerating unit disposed exteriorly of said compartment and having a portion projecting upwardly through the wall of the compartment and into said receptacle for cooling the same.

13. Refrigerating apparatus including a refrigerating compartment and an apparatus compartment disposed in superposed relation and provided with an opening forming communication between the same, a receptacle for matter to be refrigerated permanently mounted in the refrigerating compartment, and refrigerating mechanism mounted in the apparatus compartment having a portion projecting upwardly into said receptacle.

14. Refrigerating apparatus including a refrigerating compartment and an apparatus compartment disposed in superposed relation and provided with an opening forming communication between the same, a receptacle for matter to be refrigerated permanently mounted in the refrigerating compartment, and refrigerating mechanism mounted in the apparatus compartment having a portion projecting upwardly into said receptacle, a closure for said opening, said refrigerating mechanism being mounted upon said closure.

15. A water cooler comprising a cabinet, a tank within said cabinet having an aperture therein, and refrigerating apparatus including an evaporator, said apparatus being removably mounted as a unit within said cabinet with the evaporator extending into said tank through said aperture.

16. A water cooler comprising a cabinet having upper and lower compartments, a heat insulated tank in the upper compartment having an opening into said lower compartment, and refrigerating apparatus including an evaporator, said apparatus being removably mounted as a unit in said lower compartment with the evaporator extending through said opening into said tank.

17. A water cooler comprising a cabinet having upper and lower communicating compartments, a tank having an aperture therein and mounted in the upper compartment, a condensing unit removably mounted in said lower compartment, and an evaporator removable as one with said condensing unit and extending into said tank through said aperture when the apparatus is assembled with said cabinet.

18. A water cooler comprising a cabinet, a receptacle for water to be cooled permanently mounted in said cabinet, and refrigerating mechanism removable as a unit from said cabinet and constructed to expose a relatively large surface to water in the receptacle for cooling the same, said refrigerating mechanism having a cooling unit forming a closure for the receptacle for water.

19. A water cooler comprising a cabinet, a receptacle for drinking water permanently mounted in said cabinet, insulating material around said receptacle hermetically sealed refrigerating mechanism removable as a unit from said cabinet, and constructed to expose a relatively large surface to water in the receptacle for cooling the same, said refrigerating mechanism having a cooling unit forming a closure for the receptacle for water.

In testimony whereof I affix my signature.

FRANK D. PELTIER.