April 12, 1932. M. W. KENNEY 1,853,904

REFRIGERATING APPARATUS

Filed July 14, 1930

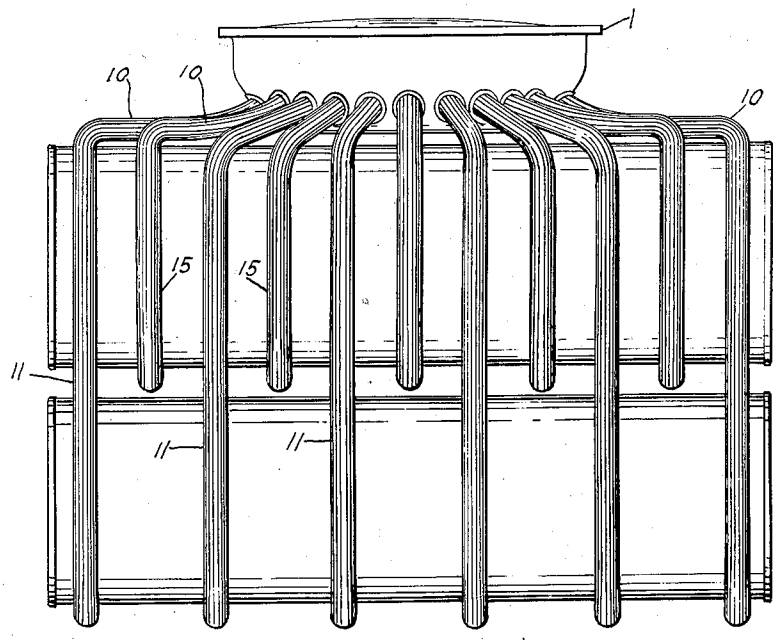

Fig. 1

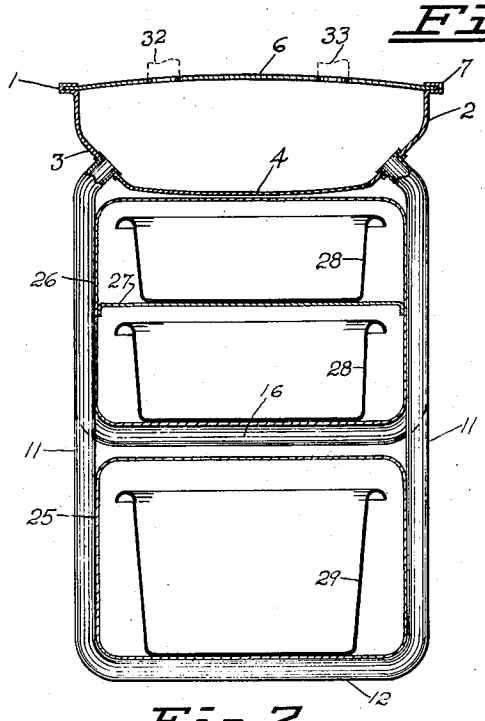

Fig. 2

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Patented Apr. 12, 1932 1,853,904

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REFRIGERATING APPARATUS

Application filed July 14, 1930. Serial No. 467,808.

This invention relates to refrigerating apparatus and more particularly to evaporators. In refrigerating installations such as are used for household purposes the evaporator must withstand pressures of the order of 200 pounds to the square inch, while at the same time be cheap to manufacture. Because of these requirements it is desirable that the evaporator consist of as few elements as possible in order to reduce joints to a minimum. Furthermore, in order to utilize metal most efficiently, it is desirable that as many parts of the evaporator as possible be of circular configuration to withstand the pressure.

An object of this invention is to devise an evaporator which may be made of a plurality of pipes and sheet metal stampings, and comprising a minimum of such elements. A further object is to devise an evaporator in which thin sheet metal may be used and which, because of its circular configuration, will withstand the pressure.

Referring to the drawings:

Figure 1 is a side view of the evaporator; and

Figure 2 is a sectional front view.

The evaporator comprises a dome 1, in which is adapted to be maintained a predetermined quantity of liquid refrigerant. Dome 1 consists of a circular, open dish-shaped pan 2, whose side slopes inwardly at 3, and an outwardly dished bottom 4. Member 2 may be made of a single piece of sheet metal stamped and drawn to the desired size and shape. The top of the dome is sealed by a dished cover plate 6, whose periphery is disposed within the folded over edge 7 of member 2.

Radially disposed from portion 3 of the dome are a plurality of pipes or ducts. The corresponding ends of every pipe are connected at points along portion 3 symmetrically disposed with respect to a vertical bisecting plane. Each pipe comprises a generally horizontal top portion 10 extending from the gas dome outwardly to vertical planes disposed at equal distances on opposite sides of the gas dome. The pipes are then bent downwardly to form vertical portions 11 and 15. The vertical portions 11 of certain pipes are connected by horizontal portions 12 and form loops defining a freezing area within.

Every other pipe has vertical portion 15 which extends only part way down the evaporator and is then cross-connected by a horizontal portion 16. Vertical portions 11 and 15 on each side of dome 1 are preferably in longitudinal alignment with each other. Horizontal portions 12 and 16 are also aligned. Supported within the two series of loops are metal sleeves 25 and 26 in intimate thermal contact with the vertical sides of the pipes. Sleeve 26 is divided by a shelf 27 and has ice trays 28 and 29 disposed therein. A bottom tray 29 in sleeve 25 may be used for the storage of food if desired.

Obviously, the relative positions and numbers of vertical portions 11 and 15 may be varied as desired. In fact, all the pipes may be extended down the full depth of the evaporator if desired.

It is evident that an evaporator of this type may be assembled easily and may have the pipes soldered to the head from the inside. Obviously, when cover 6 is in place the junctions of the pipe and the gas dome will be easily accessible. Cover 6 may be sealed in place by the simple expedient of running molten solder around bead 7 and sealing the head tightly. Inlet and outlet pipes for liquid and gasified refrigerant may be disposed at 32 and 33 or any other place. Suitable mechanism for controlling the liquid level in dome 1 may be incorporated if desired.

I claim:

1. An evaporator comprising a dome of two sheet metal members, said members consisting of an open circular pan and cover therefor, a plurality of duct loops depending from said dome, said loops extending radially in a generally horizontal direction from said dome, then extending vertically forming two series of aligned pipes and having horizontal portions joining said vertical portions.

2. An evaporator comprising a dome of two sheet metal members, said members consisting of an open circular pan and cover therefor, a plurality of duct loops depending from said dome, each loop being connected to

the dome at points symmetrically disposed with respect to the longitudinal axis of the evaporator, said ducts extending radially from said dome in a generally horizontal direction, then downward to form vertical portions, the vertical portions of said ducts lying in vertical planes on each side of the dome, certain of said vertical portions extending a greater distance down than others, and horizontal portions joining the various vertical portions to define a plurality of freezing compartments within said loops.

3. An evaporator comprising a dome of two sheet metal members, said members being an open circular pan and cover therefor, a plurality of duct loops depending from said dome and being so shaped as to form a freezing area within the loops, of a substantially rectangular cross section, all of said ducts extending radially from said dome in a generally horizontal direction and having aligned vertical portions, the bottoms of which are joined by horizontal portions, alternate ducts extending downwardly to the bottom of the freezing area, while remaining ducts only extend a portion of the way down the freezing area.

In testimony whereof he affixes his signature.

MAHLON W. KENNEY.