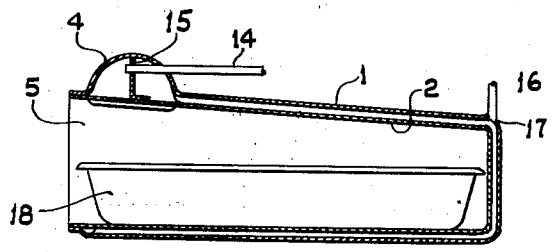
Feb. 19, 1935. G. A. LEYNER 1,991,762

REFRIGERATION APPARATUS

Filed April 5, 1934 2 Sheets-Sheet 1

FIG. 1.



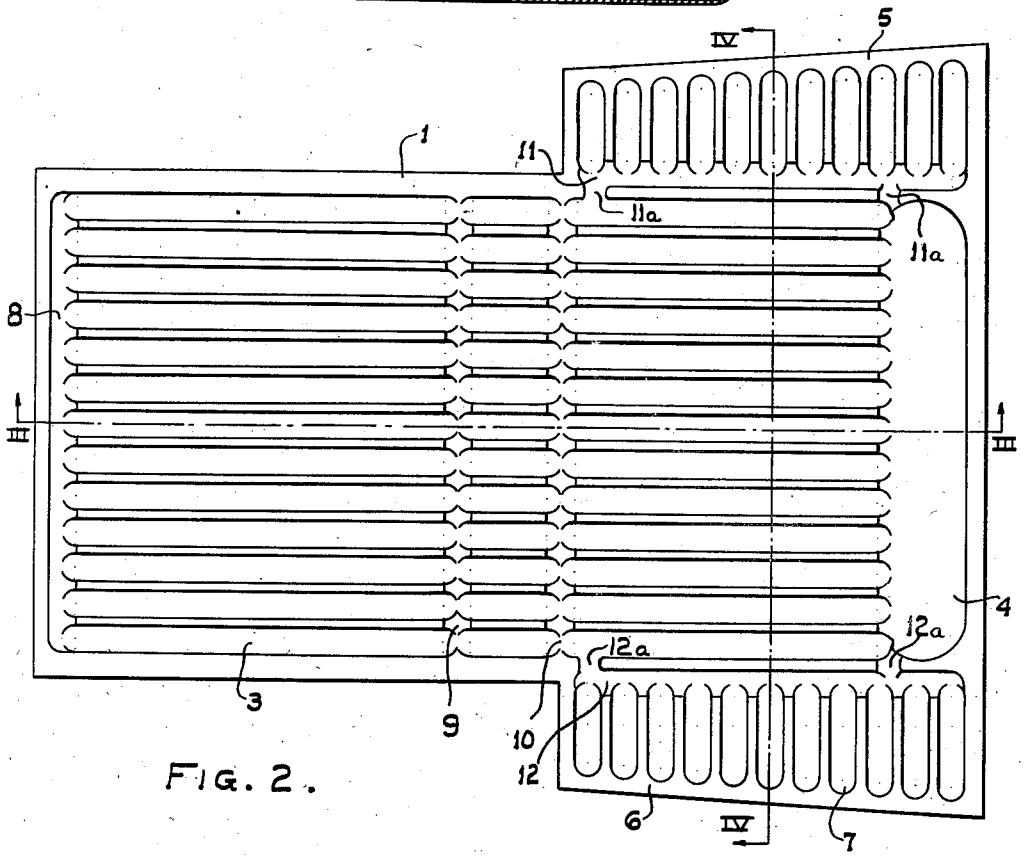


FIG. 2.

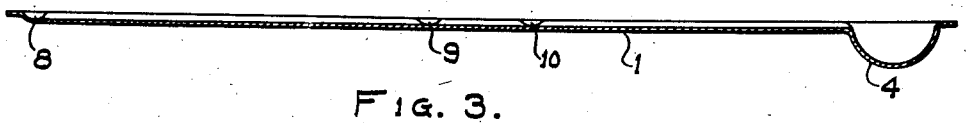


FIG. 3.

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REFRIGERATION APPARATUS

Filed April 5, 1934 2 Sheets-Sheet 2

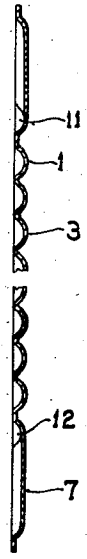


FIG. 4.

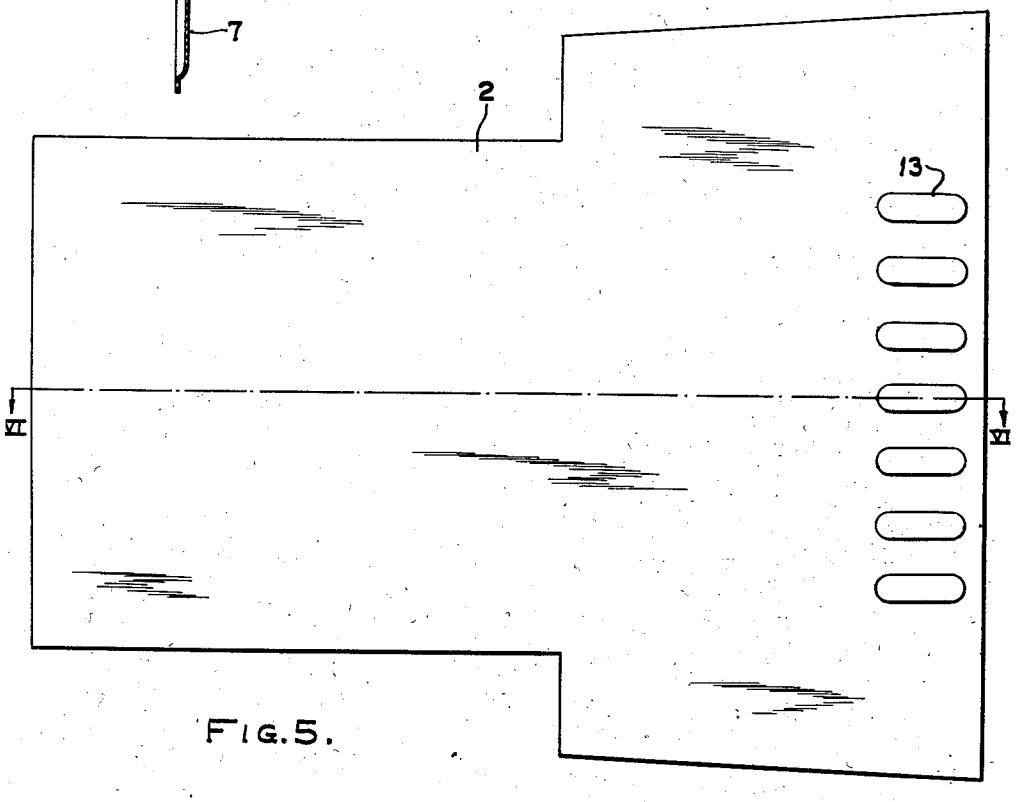


FIG. 5.

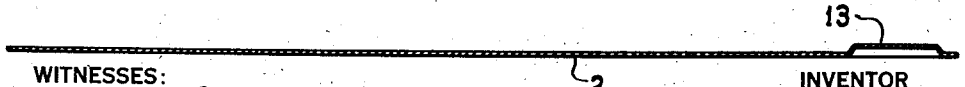


FIG. 6.

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Patented Feb. 19, 1935 1,991,762

UNITED STATES PATENT OFFICE

1,991,762

REFRIGERATION APPARATUS

George A. Leyner, Springfield, Mass., assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania

Application April 5, 1934, Serial No. 719,102

7 Claims. (Cl. 62—126)

My invention relates to refrigeration apparatus and particularly to an evaporator for refrigeration apparatus of the mechanical type.

It is an object of my invention to provide an improved evaporator of the welded sheet metal type.

It is another object of my invention to provide a welded sheet metal evaporator which is inexpensive to manufacture and which provides for rapid freezing of ice cubes and desserts.

It is still another object of the invention to provide an evaporator wherein not more than two sheets of metal need be utilized but wherein the evaporator freezing chamber is enclosed on five sides thereof, the front being left open for access thereto.

It is another object of my invention to substantially conceal the inlet and outlet conduits for the evaporator.

It is a further object of my invention to provide an improved header construction and baffle therefor.

These and other objects are effected by my invention as will be apparent from the following description and claims, taken in connection with the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a vertical section of the evaporator constructed in accordance with my invention;

Fig. 2 is a plan view of the outer flat evaporator sheet before bending;

Fig. 3 is a sectional view of the flat sheet taken on line III—III of Fig. 2;

Fig. 4 is a sectional view of the flat sheet taken on line IV—IV of Fig. 2;

Fig. 5 is a plan view of the inner flat evaporator sheet before bending; and,

Fig. 6 is a sectional view of the inner sheet taken on line VI—VI of Fig. 5.

Referring specifically to the drawings for a detailed description of my invention, numeral 1 designates the outer sheet of the evaporator and numeral 2 the inner sheet of the evaporator. The outer sheet, as shown in Fig. 2, is formed substantially flat and is provided with downwardly-stamped corrugations 3 extending longitudinally thereof. A half-circular header member 4 is stamped at one end of the sheet, the corrugations 3 communicating therewith. Trapezoidal shaped sheet metal portions 5 and 6 are provided at the edges of the flat sheet transverse to the header and at the header end. Corrugations 7 are formed in the portions 5 and 6, which corrugations extend perpendicular to the corrugations 3.

Distributing manifolds are formed at 8 at the opposite end of the sheet from the header 4 and at 9 and 10, intermediately of the sheet 1, the manifolds 8, 9, and 10 extending parallel to the header 4. Distributing manifolds 11 and 12 are formed in the trapezoidal portions 5 and 6 and extend transverse to the header 4. Manifolds 8, 9, and 10 connect corrugations 3 and manifolds 11 and 12 connect corrugations 7 in both trapezoidal portions 5 and 6. Passageways 11*a* and 12*a* provide for connecting manifolds 11 and 12, respectively, with the header 4 and corrugations 3.

The inner wall 2 is formed from a flat sheet of metal of the same shape as the sheet 1. Reenforcing corrugations 13 are formed on the flat sheet for a purpose hereinafter described.

After the sheets 1 and 2 are properly stamped, the sheet 1 is bent upwardly on the line of the manifold 9 and then obliquely forward on the line of the manifold 10. The sheet is thus bent in a U-shaped form. The trapezoidal portions 5 and 6 are then bent downwardly to form side walls for closing the channel of the U-shaped form. The inner sheet 2 is likewise bent and is inserted in nested relation with the already bent sheet 1. The corrugations 13 register with the open side of the header portion 4. A baffle member 15 is disposed in the header 4 and a suction tube 14 extends through the header 4 and the baffle 15 as shown in Fig. 1. The two sheets are then preferably welded at their meeting edges and between the corrugations 3 and 7.

After welding, a refrigerant inlet tube 16 is soldered or brazed as shown at 17. The manifolds 8, 9, 10, and 11 connect the corrugations 3 and 7 and ensure flow of refrigerant vapor to the header 4. The corrugations 13 on the inner sheet metal wall 2 reenforce the wall at the header.

From the foregoing, it will be apparent that I have provided a five-sided sheet metal evaporator which is formed from not more than two sheets of metal. The header conceals the refrigerant inlet and outlet conduits, and an ice tray 18 rests on a refrigerated portion of the closed evaporator, whereby quick freezing is obtained. The evaporator is inexpensive to manufacture, being well adapted for large production methods.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. A refrigerant containing evaporator for a mechanical refrigerator comprising adjacent nested sheet metal walls, one of which is provided with corrugations, said walls being welded together at their meeting edges and between the corrugations, whereby refrigerant passages are formed therein, inlet means for conveying refrigerant to the passages, outlet means for conveying vaporized refrigerant from all the passages, said walls being bent to form a five-sided freezing compartment having an open access end, all of the sides of said freezing compartment containing refrigerant.

2. A refrigerant containing evaporator for a refrigerator comprising an inner and an outer sheet metal wall, said outer wall before bending being formed in the shape of a rectangle with a header portion at one end thereof and a plurality of corrugations connecting with said header portion, outwardly-extending portions formed on one end of the rectangle adjacent the header portion and on opposite edges thereof, corrugations formed in the outwardly-extending portions and extending perpendicularly to the aforesaid corrugations, manifold means for connecting both sets of corrugations together, said outer wall being bent to substantially U-shape and the outwardly-extending portions being bent to close the channel of the U-shape thus formed, said inner sheet being symmetrical with the outer wall and being bent in the same manner, said inner and outer wall being disposed in nested relation, and means for fastening the sheets adjacent their meeting edges and between the corrugations.

3. An evaporator as claimed in claim 2 wherein the inner wall is provided with corrugations in the portion thereof adjacent the header portion of the outer wall when the walls are disposed in nested relation.

4. A refrigerant containing evaporator for a mechanical refrigerator comprising adjacent nested sheet metal walls, one of which is provided with corrugations, said walls being welded together at their meeting edges and between the corrugations, whereby refrigerant passageways are formed therein, inlet means for conveying refrigerant to the passageways, header means for connecting the refrigerant passageways at their outlets, and outlet means for conveying vaporized refrigerant from the header, said walls being bent to form a five-sided freezing compartment having an open access end, all of the sides of said freezing compartment containing refrigerant.

5. An evaporator as claimed in claim 4 wherein refrigerant outlet means is disposed in back of the header.

6. An evaporator as claimed in claim 4 wherein the refrigerant inlet and outlet means are disposed in back of the header.

7. A refrigerant containing evaporator for a mechanical refrigerator comprising adjacent nested sheet metal walls, said walls being welded together to form a refrigerant containing chamber, inlet means for conveying refrigerant to said chamber, and outlet means for conveying vaporized refrigerant from said chamber, said walls being bent to form a five-sided freezing compartment having an open access end, all of the sides of said freezing compartment containing refrigerant.

GEORGE A. LEYNER.