May 29, 1928. 1,671,761

L. G. COPEMAN

CONTAINER FOR POWER REFRIGERATION

Filed Feb. 20, 1926 2 Sheets-Sheet 1

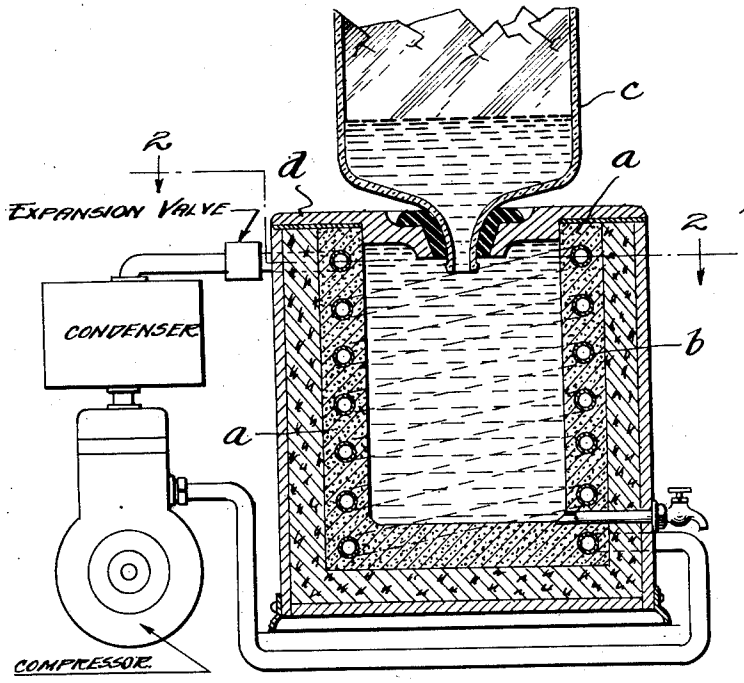


Fig. 1

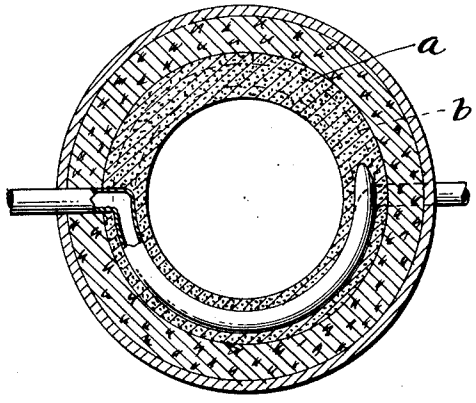


Fig. 2

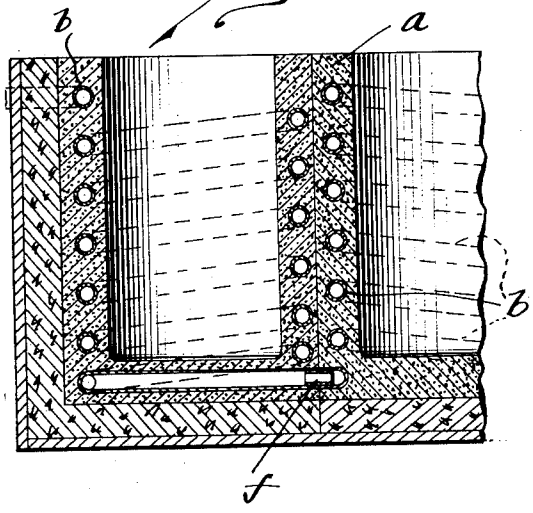


Fig. 3

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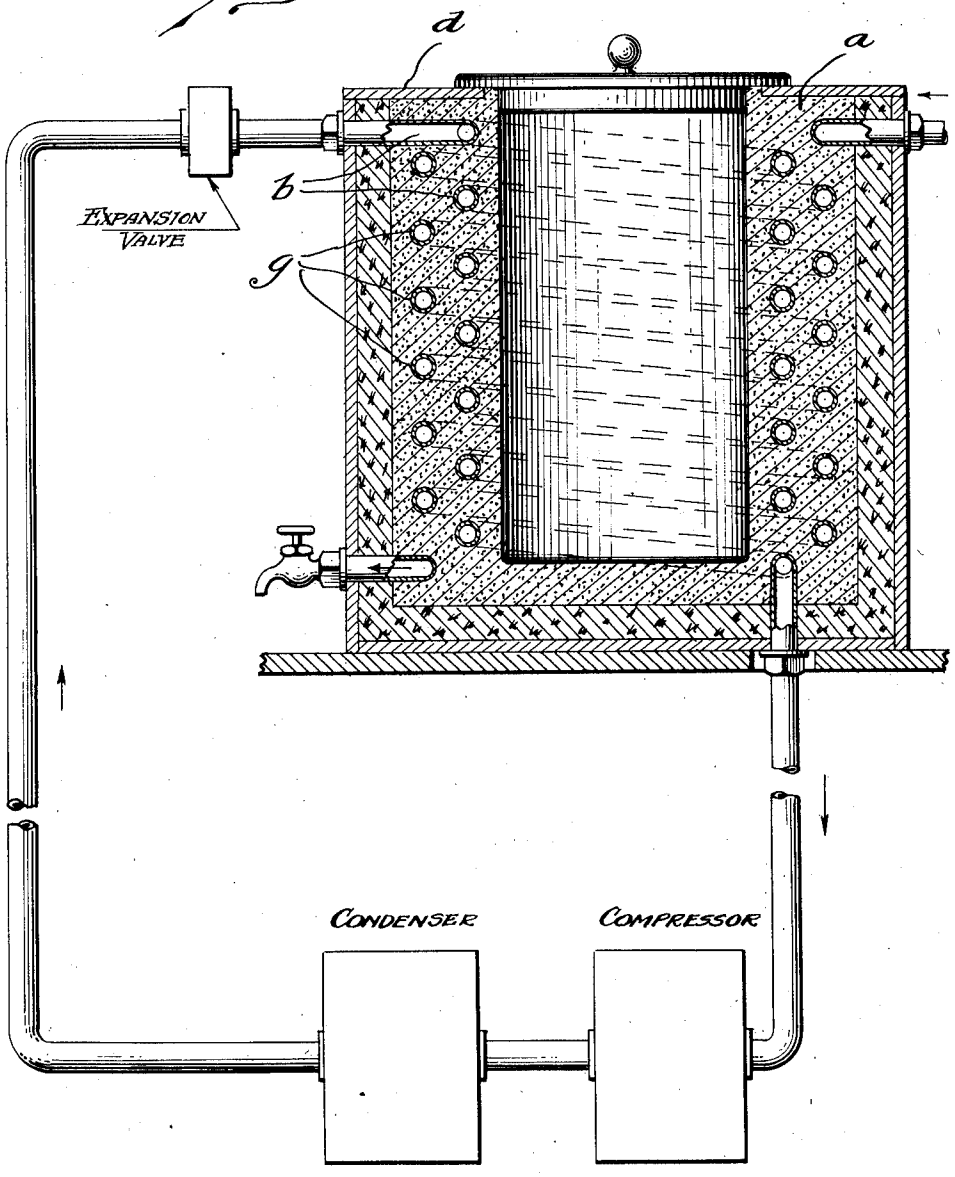
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Fig. 4



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Patented May 29, 1928. 1,671,761

UNITED STATES PATENT OFFICE.

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CONTAINER FOR POWER REFRIGERATION.

Application filed February 20, 1926. Serial No. 89,519.

This invention relates to coolers, especially water coolers and ice cream cabinets. It is the object of the invention to provide a cooler operable with a power refrigerating system for the purpose of cooling liquids, ice cream, etc.

It is customary in ice cream cabinets to distribute the heat absorbing medium by means of the so-called brine which is ordinarily simply a non-freezing solution, such as alcohol and water. This is also used in most refrigerators. This requires a special jacket for the container either in the water cooler or in an ice cream cabinet, and presents serious question of leakage and the loss of the non-freezing solution by evaporation.

I have devised a container which serves both the function of a container and a distributor in the heat exchange.

In the drawings:

Fig. 1 is a vertical sectional view of a water tank.

Fig. 2 is a cross section taken on the line 2—2 of Fig. 1.

Fig. 3 is a vertical fragmentary section through a battery of ice cream containers.

Fig. 4 is a vertical sectional view, partly diagrammatical, of a modified water tank embodying the construction of my invention.

a designates the container which is cast or moulded out of stone, preferably an oxychloride cement, although I do not limit myself to this composition. Such an oxychloride cement is ordinarily made up of magnesium oxide or fine sand or silex, or both, mixed with a solution of magnesium chloride at 26° Baumé, so as to provide a material that can be either tamped, or preferably, poured. This makes a container for holding liquids that is non-leakable and also very sanitary, as it may be kept clean like any crock. It also serves to distribute the heat exchange so that the coils *b* with expanding gases may absorb the heat units uniformly from the contents of the container. This container, of course, could be served with ordinary city water or by a bottle *c* which is up-ended through the cover *d*.

The other usual elements of electric refrigerating system compression expansion valve and condenser are indicated by the legends. Fig. 3 shows the same idea carried out in connection with ice cream containers. However, here each container is separately cast and the coils in each container connected together as at *f*.

In the container unit illustrated in Fig. 4 the expansion coils *b* are cast embedded in the cast or moulded stone unit similar to the casting of the coils *b* in the unit illustrated in Fig. 1. However, in this modification of the coils the water is not cooled as a central body of water, but is circulated through coils *g* which are also cast embedded in the moulded stone unit similarly to the coils *b*. Such coils *g* are preferably alternately spaced between the coils *b*, as clearly shown in Fig. 4, and are of preferably slightly larger diameter. In this construction the refrigerant, or expansion gases, pass through the coils *b* and absorb the heat units in the cast stone wall, which stone wall, in turn, assists the refrigerant in absorbing the heat units from the coils *g* as well as assisting in maintaining the temperature. This stone wall in which the pipes are embedded thus serves as a "hold over" medium in place of the brine which has heretofore been used. It will be understood that the cast stone unit as shown in Fig. 4 may be of any desired shape, but it is preferably hollow, or of annular cross section as shown. This permits the use of the hollow portion as a cooling unit for cooling and maintaining the temperatures of other articles.

While my cast stone container unit is particularly adaptable to refrigerating systems of the compression and expansion type, it will be understood that it is clearly adaptable to refrigerating systems of the absorption type, and in so expressing the use of this device in the claims, it will be understood that the terms "compression" and "expansion" are equally adaptable to refrigerating systems of the absorption type.

What I claim is:

1. In a refrigerating system, the combination of a container of moulded stone, an expansion coil embedded in the stone forming a unit of a refrigerating system of the compression and expansion type and additional coils embedded in the stone adjacent the expansion coils for conducting and circulating the medium to be cooled.

2. In a refrigerating system, a container of heat conducting material, an expansion coil forming a unit of a refrigerating sys-

tem of the compression and expansion type and positioned in proximity with said container to effect heat exchange through the substance of the container by heat conduction and additional coils in proximity with said expansion coil and container whereby said expansion coil and container will effect heat conduction from the substance in said additional coils.

3. In a refrigerating system, the combination of a hollow container unit of moulded stone, forming a unit of a refrigerating system of the compression and expansion type a series of coils concentrically arranged adjacent walls of said container for conducting a refrigerant thereto, and a second series of coils concentrically arranged with reference to said first series of coils and embedded in the container for conducting and circulating the medium to be cooled.

4. A refrigerating apparatus for receiving and dispensing drinking water and the like, comprising a stone container adapted to receive and hold a body of drinking water, a cooling unit located in heat conducting relation with respect to said container and separated in part from said body of water by said stone, said stone being of such mass as to act as a hold-over, and refrigerating mechanism connected in series with and circulating a volatile refrigerant through said unit for abstracting heat from the water by heat conduction through the stone.

5. A refrigerating apparatus for receiving and dispensing drinking water and the like, comprising a moulded stone container unit adapted to receive and hold the substance to be cooled, a refrigerant receiving and circulating member embedded in the molded stone container and being partly separated from the substance within the container by said stone, and refrigerating mechanism connected in series with said expansion coils for supplying a volatile refrigerant to said member for abstracting heat from the substance within the container by heat conduction through the stone, said stone being of such mass as to serve as a "hold-over" medium and assisting in maintaining uniform temperature.

6. In a refrigerating system, the combination of a cooling unit formed of molded stone, adapted to receive a substance to be cooled in direct contact therewith, a refrigerant receiving and circulating member located in heat conducting relation with respect to said stone cooling unit, and separated in part from the substance to be cooled by said stone, and refrigerating mechanism connected in series with and circulating a volatile refrigerant through said member for abstracting heat from the substance in contact with the stone by heat conduction through the stone, said stone being of such mass as to serve as a "hold-over" for the refrigerating system.

In testimony whereof I have affixed my signature.

LLOYD G. COPEMAN.