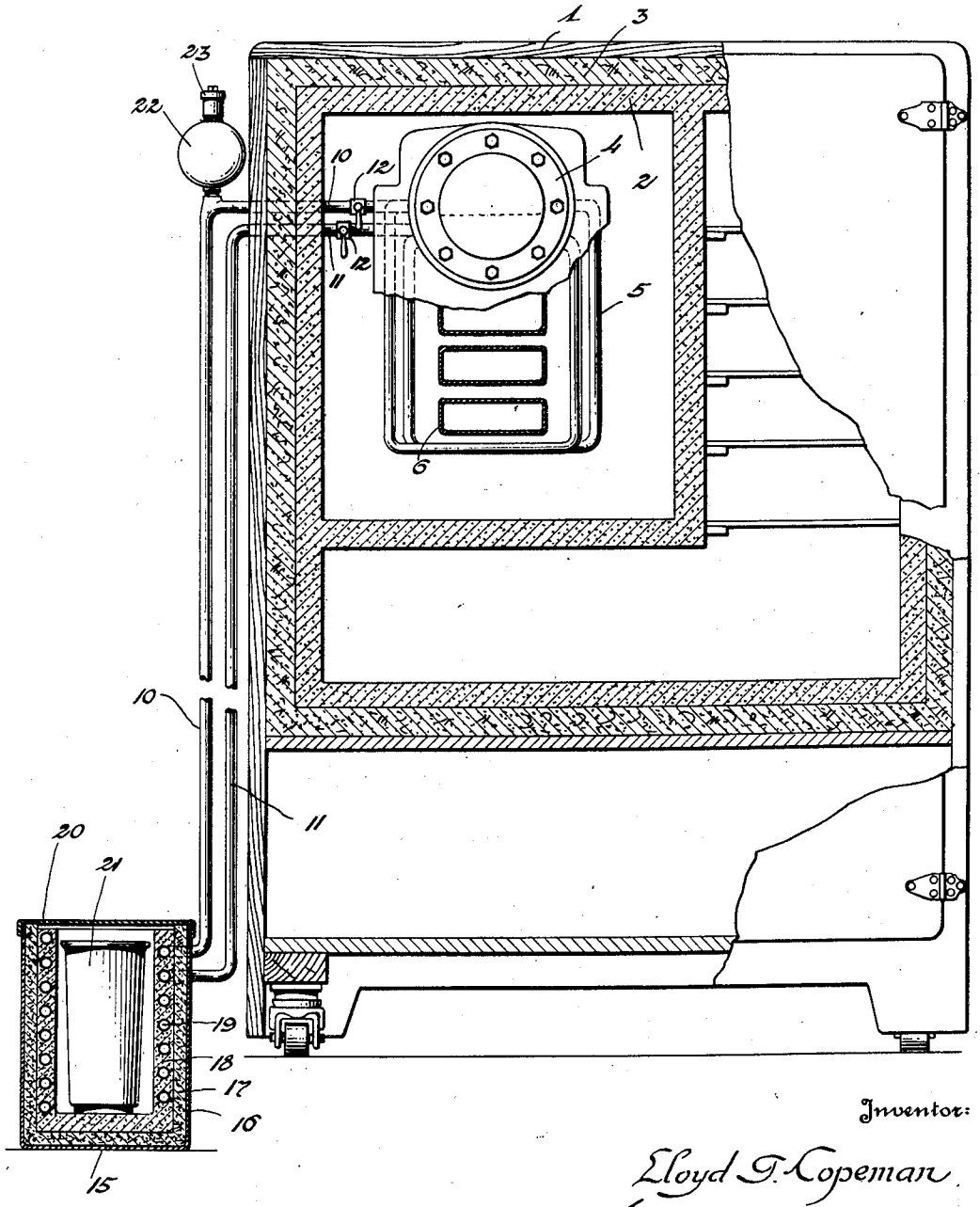
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REFRIGERATING DEVICE

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REFRIGERATING DEVICE.

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This invention relates to refrigerating devices and is concerned more especially with power or iceless refrigerators.

Refrigerators of the type mentioned are rapidly coming into use for both domestic and commercial purposes. In the home, the preparation of certain foodstuffs, such as ices or ice cream, requires means for chilling or freezing. In the past when ice was used more extensively, the amount of ice ordinarily on hand was sufficient for this purpose; however, when the user or owner of a power refrigerator desires to prepare such foodstuffs he is confronted with the lack of means for providing chilling or freezing. Many power refrigerators are constructed so as to produce ice. The capacity of domestic refrigerators is limited because it is not economical nor desirable to have comparatively large and expensive machines for domestic purposes, and the ice produced is not in sufficient quantities for the preparation of such foodstuffs.

The aim of this invention is the provision of means for the preparation of foodstuffs which require chilling or freezing. Accordingly, a power refrigerator is provided with an auxiliary pipe and valve system which may be connected to an independent or separate freezing device. This device, for example, may be in the form of a container and may be located at some point remote from the refrigerator. For instance, the refrigerator is ordinarily in the kitchen of the household, and the freezing device may be located in the basement of the house where ice cream or ices may be advantageously prepared. Conduits of adequate construction connect the refrigerator with the freezing device, and the arrangement is such that the freezing device may be operatively connected to or disconnected from the refrigerator at will.

According to the invention, the arrangement is such that when the auxiliary chilling device is not in use it is isolated from the refrigerator in such a way as to in no way effect the usual operation of the refrigerator. When, however, the chilling device is to be operated it may be readily connected to the refrigerator in such a way that the refrigerator mechanism is utilized for the purpose.

The invention is somewhat diagrammatically shown in the accompanying drawing wherein a power refrigerator is shown, parts being cut away showing a portion of the refrigerating mechanism, and showing the manner in which a refrigerator is connected to the auxiliary chilling or freezing device.

Referring to the drawing, a refrigerator cabinet 1 may be composed of an outer casing of wood having an inner structure 2 which may be of artificial stone such as oxy-chloride cement. Interposed between the outer and inner layers may be a layer 3 of more or less insulating qualities such as a cork mixture. Within the refrigerator is shown, in part, refrigerating mechanism of the flooded type. The mechanism shown includes the boiler 4 having coils 5. The liquid refrigerant is supplied to the boiler 4 through the means of a compressor and condenser operated by suitable power means such as an electric motor, all of which are well understood and not shown. Within the loops, or coils 5, are drawers 6 which are used for the making of ice. The specific form of cabinet and refrigerator, which corresponds to the structure thus far described is not important, since the invention contemplates the use of refrigerator cabinets or refrigerating mechanism of various forms or types.

Connected into the boiler 4 are pipes 10 and 11, and each pipe is provided with a valve 12. The pipes 10 and 11 extend out through the wall of the refrigerator cabinet and then may be directed to any desirable remote point, as for instance, in the basement of the home.

The separate freezing or chilling device is indicated at 15, and it is preferably formed of an outside layer 16 which may be of wood or metal, a second layer 17 preferably of a cork mixture, and an interior layer 18 of oxy-chloride cement. This cement is preferably of a special form which I have disclosed in some of my prior applications and which contains magnesium oxide, and a suitable aggregate such as ground flint or sand, and to which is added sufficient magnesium chloride in solution at 26° Baumé to make a mix of desired consistency. Embedded in the cement is the coil 19 which is in communication with the

pipes 10 and 11. A suitable cover 20 may be provided for the device, and a container 21, suitable for holding the foodstuff to be prepared, is shown within the chilling device.

With this construction the pipes 10 and 11 and the coil 19 act, in a way, similar to any one of the coils 5. The pipe 11 receives the liquid refrigerant which travels through the pipe and the coil 19, and which rises in the pipe 10 to the level of the liquid in the boiler. The operation of the flooded type of refrigerator is, of course, well known since the liquid refrigerant boils within the boiler and coil, and in doing so, extracts the heat from surrounding territory.

In the usual operation of the refrigerator the valves 12 will be closed. These valves are opened when the cooling device 15 is to be utilized, thus connecting the pipes 10 and 11 and the coil 19 with the boiler, and as a result, the coil 19 draws heat from its surroundings. The foodstuff which is to be prepared is placed within the container 21 which is in turn placed within the cooling device, and it is chilled or frozen to the desired degree. Upon completion of the operation the valves 12 are closed.

As the refrigerant used boils at a very low temperature, regardless of the particular refrigerant, a rather high pressure may exist in the pipes 11, 12 and 19 when the valves are closed. For the purpose of compensating, in part, for this pressure an expansion globe 22 may be provided in communication with the pipe 10. This globe is positioned above the level of the liquid refrigerant within the tank 4 so that the gases only coming from the refrigerant enter the globe. Also a safety valve 23 may be provided in order to prevent breakage of the conduits or the coil 19, but ordinarily the safety valve will not be brought into play as the conduits and coil will be of sufficient strength to overcome any pressure ordinarily encountered.

In the use of the apparatus, the chilling apparatus will be positioned at some desirable remote point, and the conduits 11 and 12, and the expansion globe 22, for that matter, may be covered with suitable insulating material. While the invention has been disclosed as particularly advantageous for domestic use, it is not limited to such use, but is applicable wherever an auxiliary chilling or freezing device is desired. Moreover, the chilling device in the form shown, is advantageously used with a refrigerating system of the flooded type, although it is within the invention to provide a chilling device in connection with other types of refrigerating mechanism, as for example, the expansion coil type.

I claim:

1. The combination with a refrigerator having a power refrigerating mechanism, of a separate chilling device, a coiled conduit in the device, pipes extending through the wall of the refrigerator and connecting the refrigerating mechanism with the coiled conduit, valves in the pipes whereby the separate chilling device may be connected to or disconnected from the refrigerating mechanism, and a safety valve in one of the pipes positioned to be closed off with the separate chilling device when the valves are closed.

2. The combination with a refrigerator having a power refrigerating mechanism, of a separate chilling device, a coiled conduit in the device, pipes extending through the wall of the refrigerator and connecting the refrigerating mechanism with the coiled conduit, valves in the pipes whereby the separate chilling device may be connected to or disconnected from the refrigerating mechanism, and an expansion globe in one of the pipes which is closed off together with the separate chilling device when the valves are closed.

3. The combination with a refrigerator having a power refrigerating mechanism which includes a boiler for containing liquid refrigerant, a separate chilling device having a coiled conduit, pipes connecting the coil in the chilling device and the boiler of the refrigerating mechanism so that the refrigerant may cool the chilling device, and a valve in each pipe whereby the chilling device may be connected or disconnected from the boiler of the refrigerating mechanism independently of the operation of the refrigerating mechanism.

4. The combination with a refrigerator which includes a refrigerating cabinet equipped with a refrigerating mechanism having a container for refrigerant, of an auxiliary and independent chilling device positioned remote from the refrigerator cabinet, refrigerant coils in this auxiliary chilling device, conduits connecting the coils in the auxiliary chilling device with the refrigerant container of the refrigerating mechanism in the cabinet, and valve means in the conduits which are disposed in close proximity to the refrigerating mechanism in the cabinet, said valve means being operable to close off the conduits together with the coils in the auxiliary chilling device to permit of normal independent operation of the refrigerator and being operable to open the conduits to effect operation of the auxiliary chilling device when elected.

In testimony whereof I affix my signature.

LLOYD G. COPEMAN.