

Dec. 27, 1949

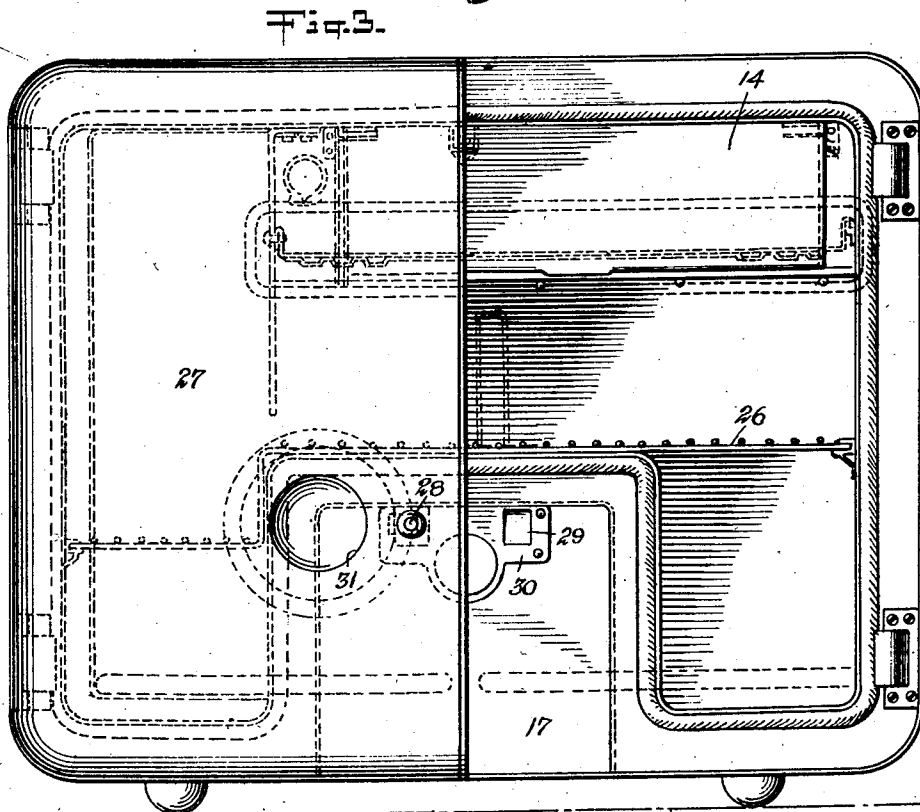
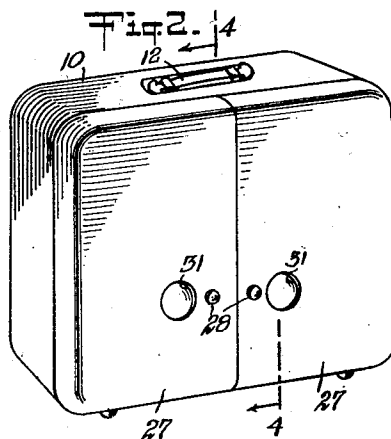
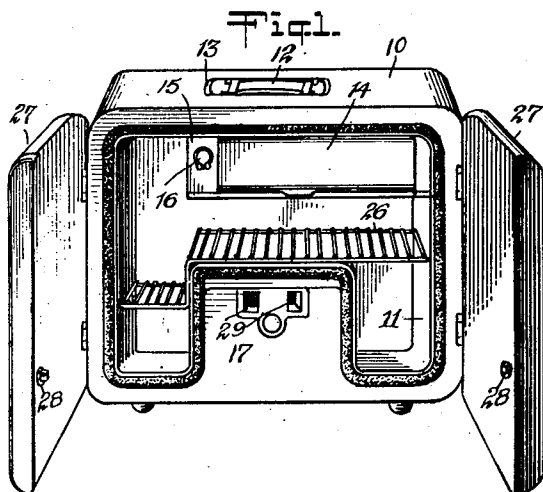
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2,492,601

PORTABLE REFRIGERATOR

Filed July 24, 1947

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

Fig. 5-

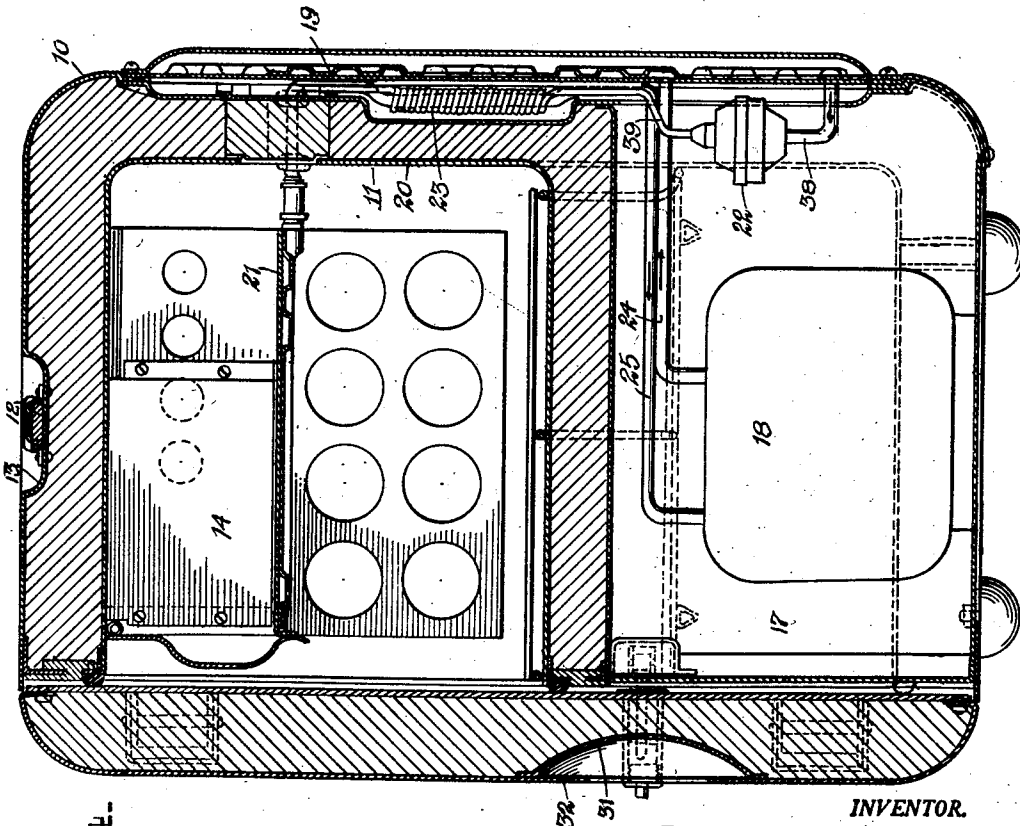
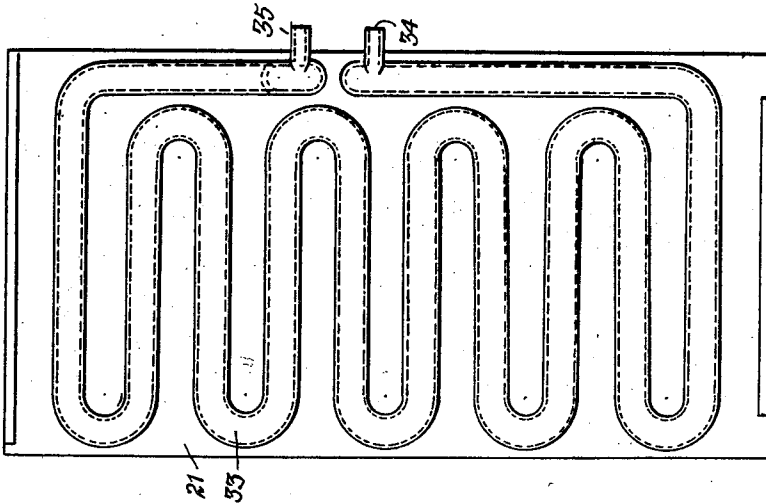


Fig. 4-

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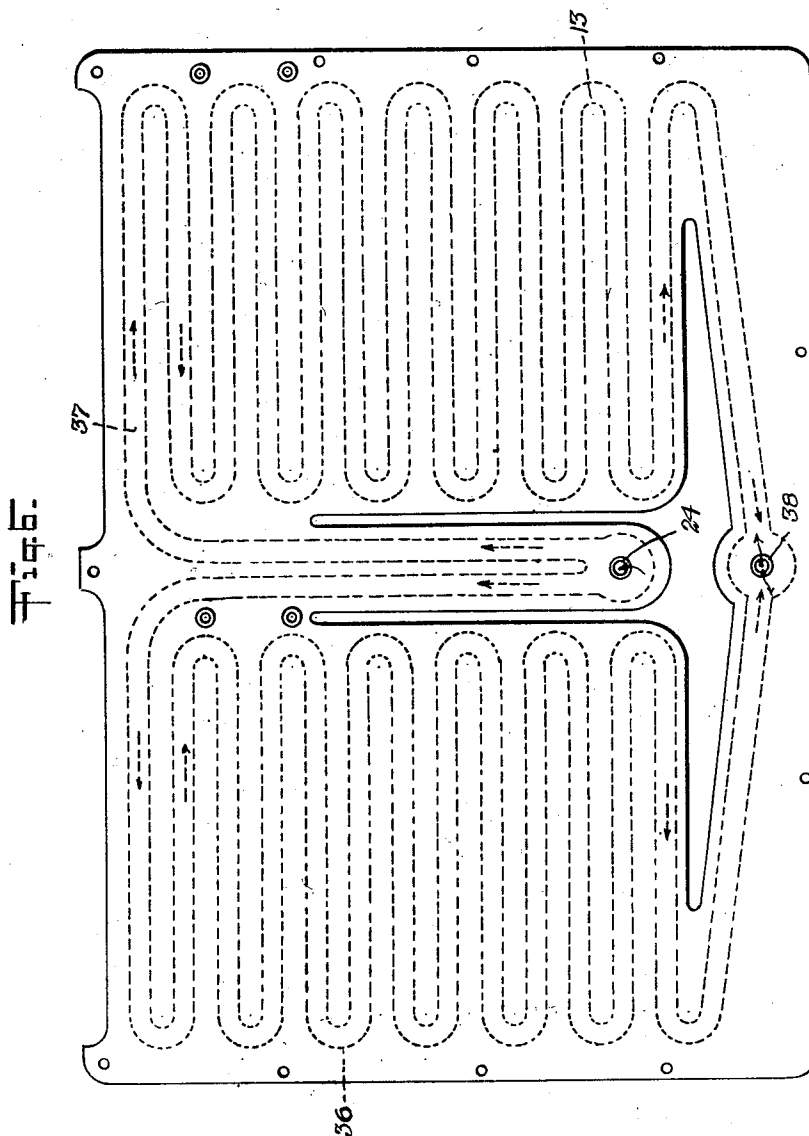
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PORTABLE REFRIGERATOR

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4 Sheets-Sheet 3



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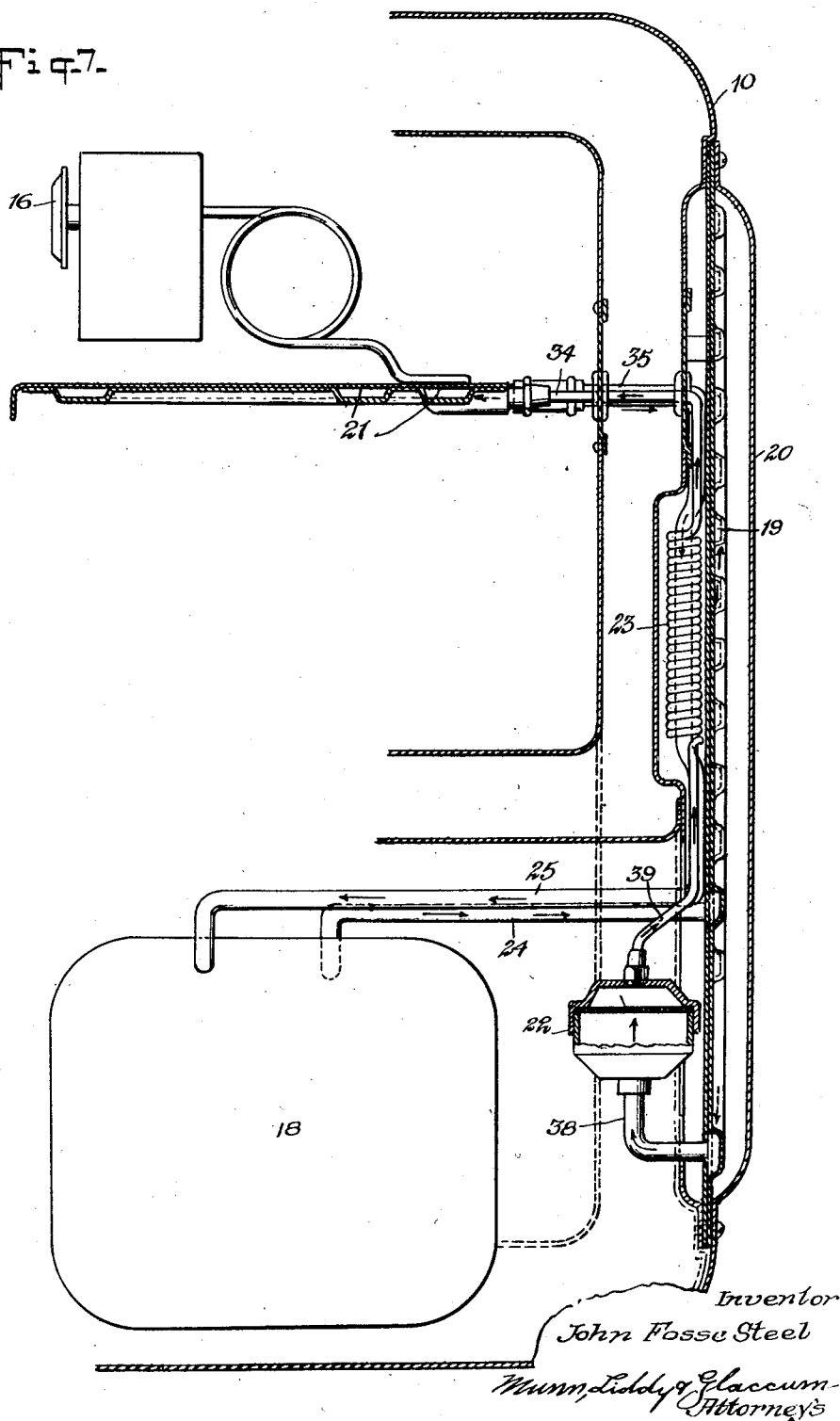
2,492,601

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4 Sheets-Sheet 4

Fig. 7.



UNITED STATES PATENT OFFICE

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PORTABLE REFRIGERATOR

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Application July 24, 1947, Serial No. 763,292

2 Claims. (Cl. 62—116)

1

This invention relates to new and useful improvements in refrigerators and has especial reference to an invention of portable refrigerator.

An object of the invention is to provide a simple, efficient, durable, compact, casing in which is ample supply of ice-cubes, storage space, and well balanced as to weight for relatively easy manual handling as a portable device.

A further object is to provide a device in which there is just one control knob which, when the doors are opened, can be manipulated to set the temperature at which the device will automatically shut-off.

A still further object is to provide a simple, decorative, attractive article which simulates a travelling or suit case when being transported, and requires merely to be plugged into a light socket to be effective.

Another object is to provide a device in which defrosting is unnecessary and in which the essential parts are readily accessible for inspection, replacement and repair.

Further and more specific objects, features, and advantages will more clearly appear from a consideration of the following specification especially when taken in connection with the accompanying drawings which illustrate a present preferred form which the invention may assume and which form part of the specification.

In brief and general terms, the invention comprises a casing preferably of metal, preferably aluminum, having an inner sheet of the same metal with an interposed layer of insulation of preferably Fiberglas. The ice-cube chamber is at the top. Centrally disposed at the bottom is the compressor motor, and at the back of the case is an open-type condensing unit which can be reached by removing a rear panel. The compressor feeds directly to the condenser which is connected through a dryer and a capillary tubing coil to an evaporator disposed below the ice-cube chamber. From this chamber the circulation leads directly back to the suction side of the compressor.

Associated with the piping leading to the evaporator is a well-known capillary tube thermostatic control device which is regulated by means of knob adjacent the front of the ice chamber.

On each side of the motor chamber are ample storage spaces and resting on top of the motor chamber is a rack to support additional material which can be shifted from one side to the other so that the full height of the lateral spaces may on one side or the other be made available.

2

Further features of the invention will appear from the following description when associated with the drawings hereinafter related thereto.

The present preferred form which the invention may assume is shown in the drawings, of which:

Fig. 1 is a front perspective of the refrigerator with the doors open;

Fig. 2 is a front perspective of the refrigerator with the doors closed;

Fig. 3 is a front elevation, enlarged, of the refrigerator with the right-hand door removed;

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 2;

Fig. 5 is a plan view of the horizontal evaporator coil;

Fig. 6 is an elevation of the rear evaporator coil; and

Fig. 7 is an enlarged somewhat schematic section through the device showing the parts in related position including the evaporators, pipe connections, control devices, and compressor.

Referring now merely to the particular form of the invention shown in the drawings, the device comprises a casing 10 from which is inwardly spaced an inner shell 11 both preferably of aluminum. On top of the casing is disposed a handle 12 in a recess 13 for ready carrying facility. At the top within the chamber is an ice-cube compartment 14 to one side of which is space for the thermostatic control 15 operated by a knob 16.

At the bottom of the chamber is the compartment 17 in which is disposed a compressor motor 18. At the back of the chamber and occupying practically the entire rear wall is an open type condenser unit 19 which is accessible by removing a rear plate 20. Beneath the ice-cube chamber is disposed a horizontal evaporator plate 21. Disposed between the bottom of the condenser 19 and the evaporator 21 are a dryer unit 22 and a capillary tube coil 23. A pipe 24 leads from the compressor to the lower portion of the condenser 19 and a pipe 25 from the evaporator plate 21 back to the suction side of the compressor.

The motor chamber 17 is centrally disposed on the bottom of the casing and on each side are storage spaces which extend up substantially to the top of the casing giving ample storage space when desired. On top of the motor casing is disposed a loose rack 26 on which may be stored material between the top of the motor casing and the bottom of the ice-cube chamber. This rack may be disposed centrally on the casing or cham-

3

ber 17 or at one side or the other as shown in Fig. 1.

The device has front hinged doors 27 each of which has a push-button latch element 28 adapted to engage a keeper socket 29 on a plate 30 disposed on the front of the motor chamber 17. When pushed in the latch is released from the socket. Adjacent each push button is a recess 31 in which is disposed a cup-like plate having a shoulder 32 back which the fingers of the hand may be disposed to grip the door while the button is being depressed to facilitate the opening of the door.

Referring to Figs. 4 and 5, the evaporator plate comprises a tortuous passage 33 connected at one end 34 to the capillary coil 23 and at the other end 35 to the pipe 25 leading back to the suction side of the compressor.

Referring to Fig. 6, the condenser is shown as having two tortuous passages 36 and 37 to one end of each of which the pipe 24 from the discharge side of the compressor is connected and to the other end of each of which the pipe 38 is connected and leading to the dryer unit 22. This gives a long passage for a small space for condensing purposes.

Reference to Fig. 7 will indicate, on an enlarged scale, the relation of the elements and the operation of the device. When the control knob 16 is set for a desired degree of cold, a suitable switch (not shown) is operated to start the compressor which discharges through pipe 24 to the lower portion of the condenser. The fluid then passes from the bottom of the condenser through pipe 38 through the dryer unit 22 and thence through pipe 39 to the capillary coil 23 from which it then passes up through pipe 34 to the flat evaporator plate 21 disposed below the ice-cube chamber 14. From this plate the fluid then passes down through pipe 35 directly back to the suction side of the compressor.

Therefore, the invention is seen as comprising a few simple related parts which are compactly disposed for most efficient use and operation. The device needs merely to be transported any place where there is a source of suitable power to be plugged into said source for instant and convenient operation. The rear wall of the casing can be removed to get at most of the elements for inspection, replacement, and repair. It provides a maximum of storage space and plenty of ice-cubes, and is made of strong material, well insulated and capable of outward very attractive finishes.

While the invention has been described in detail with respect to a present preferred form which the invention may assume, it is not to be

4

limited to such details and form since many changes and modifications may be made in the invention without departing from the spirit and scope of the invention in its broadest aspects. Hence, it is desired to cover any and all forms and modifications of the invention which may come within the language or scope of any one or more of the appended claims.

What I claim as my invention, is:

1. A portable refrigerator comprising a casing, a condenser plate disposed across the rear of the casing, a compressor chamber disposed on the bottom of the casing, an ice-cube chamber disposed at the top of the casing, an evaporator plate disposed beneath the ice-cube chamber, said chamber having spaces for storage at the sides of the compressor chamber, and between it and the ice cube chamber.

2. A portable refrigerator which comprises a casing, a condenser plate disposed across the rear wall of the casing and having a pair of tortuous condenser passages therein with corresponding ends of said passages connected together, a compressor disposed centrally of the bottom of the casing, an ice cube chamber disposed at the top of the casing, an evaporator plate disposed beneath the ice cube chamber, the casing containing a storage chamber in which the ice cube chamber is disposed, the compressor being insulatingly separated from the storage chamber, a dryer and a capillary coil disposed between the rear wall of the storage chamber and the rear wall of the casing, the dryer connected to the bottom of the condenser plate and the capillary tube being connected to one end of the evaporator plate, and an inlet connection from the compressor to the other end of the condenser plate.

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