Jan. 6, 1948. G. K. BENTLY 2,433,977

LIQUID COOLING APPARATUS

Filed July 11, 1945 2 Sheets-Sheet 1

FIG-1-

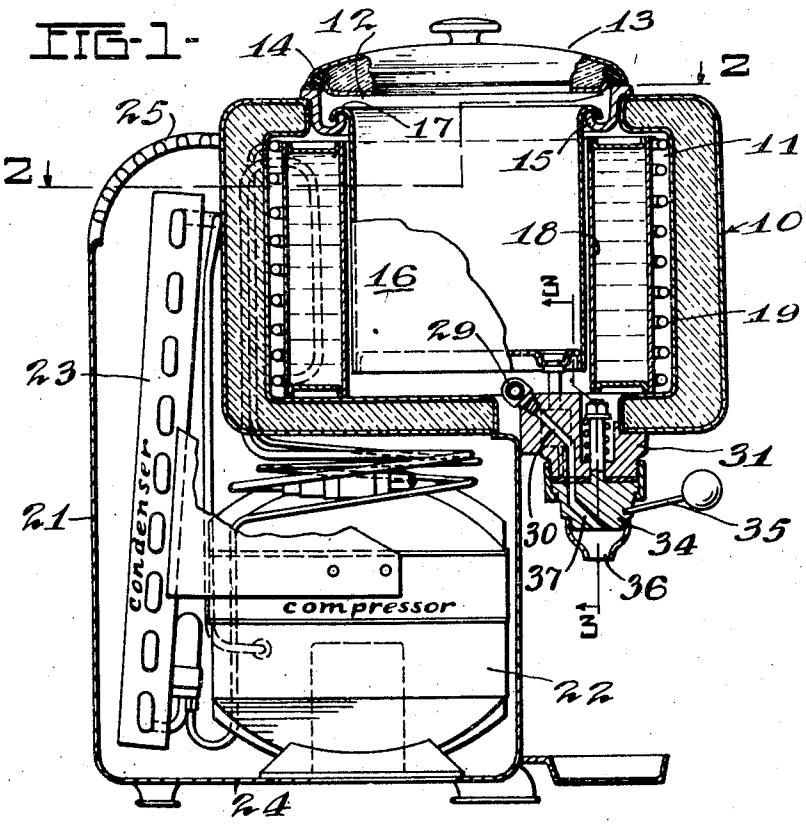
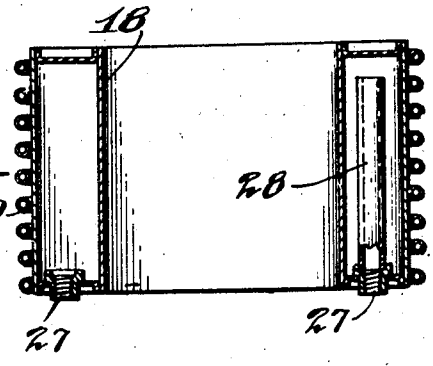


FIG-3-



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FIG-2-

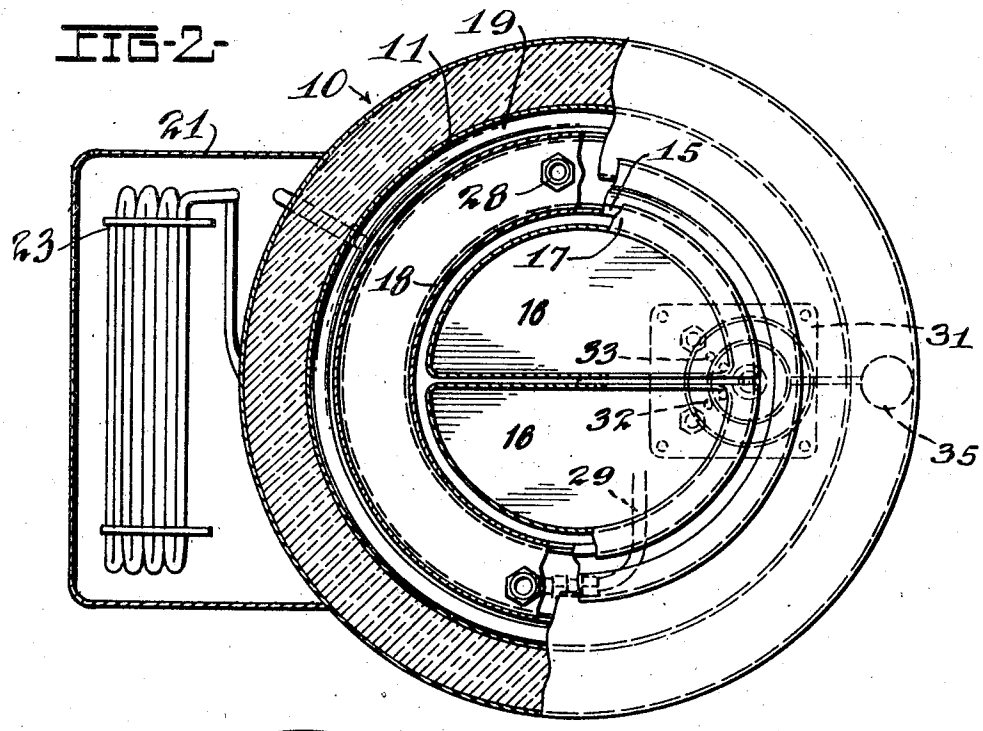


FIG-4-

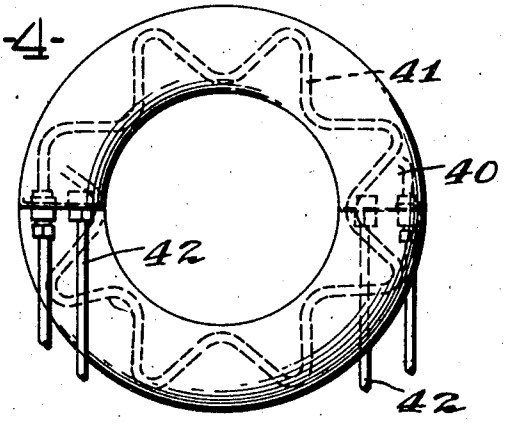
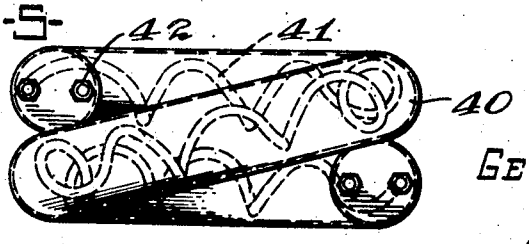


FIG-5-



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Patented Jan. 6, 1948 2,433,977

UNITED STATES PATENT OFFICE

2,433,977

LIQUID COOLING APPARATUS

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Application July 11, 1945, Serial No. 604,314

1 Claim. (Cl. 62—141)

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This invention relates to beverage cooling and dispensing apparatus, and particularly to such an apparatus wherein one or more syrups and a carbonated water have a common cooling means and are selectively dispensed.

The object of the invention is the provision of an apparatus of this character comprising a casing, a compressor, a condenser and an evaporator, and having a novel arrangement of such parts whereby space is conserved and cooling is effected in an efficient and economical manner.

Other objects and advantages of the invention will be apparent from the following detailed description, and from the accompanying drawings showing one embodiment thereof, in which—

Fig. 1 is a central vertical section of a dispensing apparatus embodying the invention with parts in full and parts broken away; Fig. 2 is a partial horizontal cross-section thereof on the line 2—2 in Fig. 1; Fig. 3 is a central vertical section of the annular carbonated water tank and associated cooling coil, and Figs. 4 and 5 are top plan and side views, respectively, of a different form of tank and cooling coil arrangement for the carbonated water.

Referring to the drawings, 10 designates a cooling shell or structure forming a cooling chamber 11 with heat insulated walls, such chamber, in the present instance, being of circular form in cross-section. The top wall of this chamber is provided with a centrally disposed opening 12 that is closed by a removable cover 13. A liner 14 of a suitable heat insulating non-hygroscopic material is provided in the wall of such opening and forms, at its top, a seat for the cover and at its lower edge an inwardly projecting annular hook or shoulder 15.

One or more cans 16 are suspended through the opening 12 down into the chamber 11 and for such purpose each is provided at its top edge with an outwardly turned flange 17 for engaging over the hooked edge 15 of the liner 14. If a single can is used, it is round in cross-section. It is preferable, however, to provide two or more cans of sector-shape, which together fit down through the liner opening into the chamber and combine to form a cross-sectionally round unit. In the present instance, two half round cans are used, as shown in Fig. 2.

Mounted within the chamber 11 around the can or cans 16 is an annular tank 18 for containing carbonated water, the inner wall of this tank being disposed in adjacent relation to the outer circular or arcuate walls of the cans 16 whereby one may be cooled from the other by

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conduction and convection. A narrow space is provided between the tank 18 and the wall of the chamber 11 and in this is disposed a cooling coil 19 of the refrigerating system employed.

The shell 10 is supported by a casing structure 21, with the front end of the shell projecting forward in overhanging relation to the casing. In the bottom portion of the casing beneath the shell is mounted the compressor 22 of the refrigerator system, to which one end of the coil 19 is connected, and at the rear of this and extending up at the rear side of the shell 10 is the condenser 23 to which the other end of the coil 19 is connected. This condenser is of the static type and preferably inclined to allow efficient cooling. In order to support the shell 10 and also house the compressor 22 and condenser 23, the casing 21 is of substantially L-form in vertical section with the shell seating in the angle. Air enters the casing through a bottom opening 24 and discharges through a grill 25 at its upper end.

Carbonated water is supplied to the tank 18 through one or the other of two tap holes 27 (Fig. 3) in the tank bottom and one or both of these, if desired, may have communication with the interior top portion of the tank through an extension pipe 28. The other of such holes has connection with a discharge pipe 29 leading to an outlet passage 30 (Fig. 1) in a valve body 31. This body is secured in and projects downwardly from an opening in the bottom of the shell 10, and in the present instance has two outlet passages (not shown) in connection with respective outlets in the bottoms of the two syrup cans 16. The valve is equipped with a rotatable member 34 controlled by a handle 35 and having a single discharge orifice 36 with one or more passages 37 leading thereto and adapted to be selectively placed in register with the passages 30, and other passages (not shown) in the valve body, or all may be closed thereto by predetermined movements of the member 34, as well understood in the art.

In Figs. 4 and 5 the tank or container for the carbonated water instead of being of cylindrical form is in the form of a hollow spiral coil 40, preferably of more than one convolution, and the cooling coil 41 extends in spiral form interiorly from one end to the other thereof with inlet and outlet connections at different ends. The inlet and outlet connections 42 for the carbonated water are not also at opposite ends of the coiled container 40.

I wish it understood that my invention is not limited to any specific construction, arrange-

ment or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claim.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent, is:

In a liquid cooling apparatus, a refrigerating system of the type including a compressor, a condenser and an evaporator; a hollow casing substantially L-shaped in vertical section defining a chamber and a shelf like seat, one portion of the chamber being of greater vertical dimension than the remainder of the chamber, and the cross-sectional area of the said one portion of the chamber taken on a horizontal plane being of lesser dimension than the cross-sectional area of the remainder of the chamber, said compressor and condenser being positioned in the hollow casing, the condenser being located mainly within said one portion of the chamber and the compressor being located mainly within the remainder of the chamber; an insulated shell forming a liquid cooling chamber supported upon the shelf like seat of the casing, said insulated shell

having a portion extending outwardly from and in overhanging relation to said remainder of the chamber, said insulated shell containing the evaporator of the refrigerating system.

GEORGE K. BENTLY.

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The following references are of record in the file of this patent:

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Certificate of Correction

January 6, 1948.

Patent No. 2,433,977.

GEORGE K. BENTLY

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Column 2, line 52, after the word "are" strike out "not"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 23rd day of March, A. D. 1948.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.