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BEVERAGE COOLER

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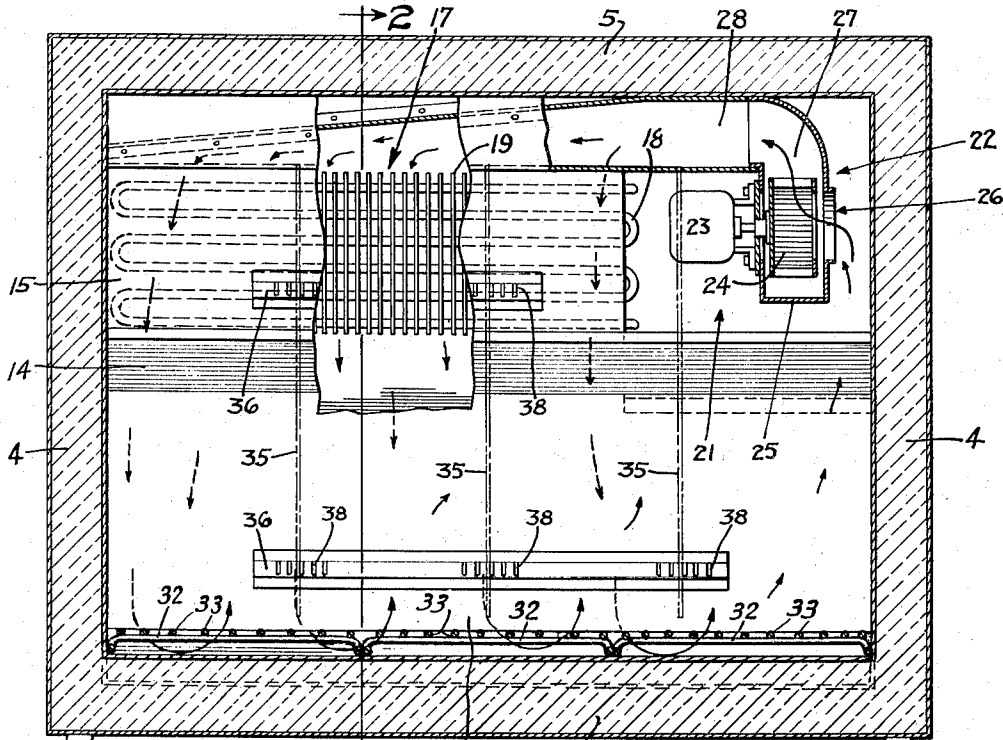


FIG. 1

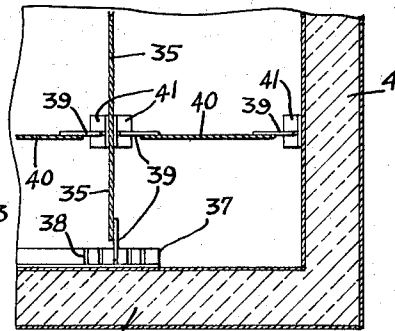
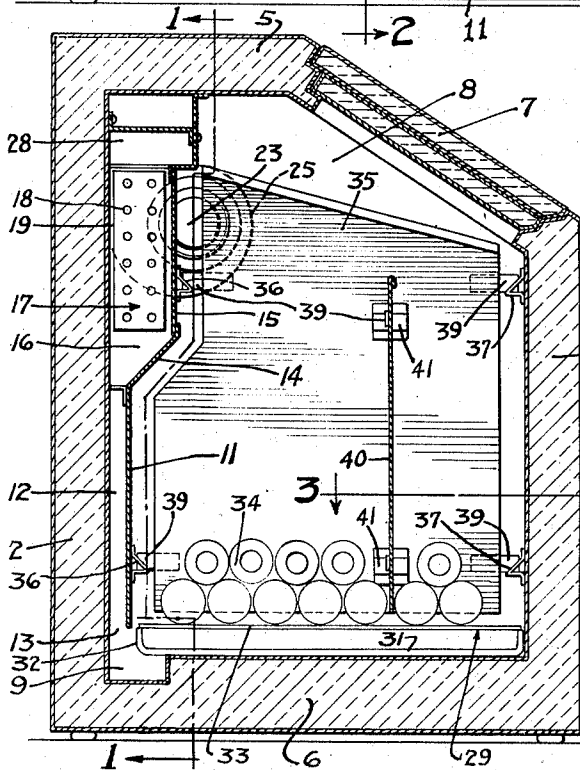


FIG. 3

FIG. 2

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BEVERAGE COOLER

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5 Claims. (Cl. 62—102)

This invention relates to new and useful improvements in beverage coolers and more particularly to such an apparatus of the "dry storage" type.

5 Beverage coolers usually fall in two general classifications, one known as the "wet type" and the other as the "dry type." In the wet type, a suitable cooling medium, such as ice, is provided for cooling the beverage. In such coolers, the
10 air circulation is usually of the natural draft type, and the air circulating through the cooling chamber is more or less saturated with moisture, because of the ice. In other wet type coolers, a storage tank is provided which contains water
15 and ice and the bottles are stored in the water for cooling purposes. Wet type coolers are objectionable from a sanitary point of view, because the bottles are always wet and may readily be contaminated by foreign matter carried to
20 the water, when fresh supplies of bottles are placed in the cooling chamber. Wet type coolers are also objectionable in that the labels on the bottles become separated therefrom, whereby the purchaser may not always be sure that
25 he is obtaining the particular beverage ordered.

Dry coolers, as now commonly constructed, comprise a suitable cooling unit which may be of any well-known mechanical type, which serves to cool the air in the storage chamber. In such
30 coolers, means is usually provided for circulating air through the cooling unit and storage chamber but, to the best of our knowledge, the construction of these coolers is not such that the air in the cooling chamber may be maintained at a substantially uniform temperature
35 throughout the entire cooling chamber. This results in the cooling chamber having "cold" spots and "warm spots," whereby some of the bottles may be cooled to the proper temperature, while others are not sufficiently cooled.

An object of the present invention, therefore, is to provide a cooler in which all of the objectionable features above mentioned, have been entirely eliminated.

45 A further object of the invention is to provide a cooler which is so constructed that the temperature of the air in the cooling or storage chamber may be maintained substantially constant throughout the entire chamber, regardless
50 of the arrangement of the bottles or other articles placed therein for cooling.

A further object is to provide a beverage cooler having a cold storage chamber provided with means for supporting the bottles or other food
55 articles therein in spaced relation to the bottom

of the chamber, and having means for constantly delivering cold air into the space below the bottles and the bottom wall of the chamber, throughout the length of the chamber, and drawing said cold air upwardly around and between the bottles, into the upper portion of the chamber, from whence it is again recirculated through the cooling unit and into the storage chamber by a suitable blower, and whereby the cooled
10 air is uniformly circulated throughout the entire storage chamber, and also whereby the temperature of the cold air circulated around and between the bottles may be maintained substantially constant.

Other objects of the invention reside in the
15 novel arrangement of the air circulating passage within the casing, whereby the warm air in the upper portion of the storage chamber is circulated through the cooling unit and delivered into the bottom of the chamber at a relatively lower temperature; in the novel manner of supporting the bottles or food articles within the storage chamber, whereby the cold air delivered into the bottom of the chamber may freely circulate between and around the bottles to rapidly
20 cool them; and, in the novel arrangement of the separators provided within the storage chamber, whereby beverages of different brands may readily be separated from one another for convenience in dispensing the goods.

Other objects of the invention will appear from the following description and accompanying drawing and will be pointed out in the annexed claims.

In the accompanying drawing there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the drawing:

Figure 1 is a sectional elevation on the line 1—1 of Figure 2, showing the arrangement of the cooling unit and blower in the upper portion of the casing;

Figure 2 is a cross-sectional view on the line 2—2 of Figure 1, showing the general shape of the air circulating passage and the manner of supporting the bottles in spaced relation from the floor of the storage chamber; and

Figure 3 is a detail sectional view on the line 3—3 of Figure 2, showing the means for removably supporting the bottle separators within the storage chamber.

The novel cooler herein disclosed, is shown comprising a casing having front and back walls 2 and 3, end walls 4, and top and bottom walls 5 and 6. The rear portion of the top wall 5 is inclined, as best shown in Figure 2, and is provided with a suitable door 7, whereby access may be had to the interior of the food storage chamber 8, defined by the walls of the casing. A longitudinally extending recess 9 is shown provided in the bottom wall 6 adjacent to the front wall 2. This recess may serve as a drain gutter, and is preferably connected to a suitable drain, not shown.

A feature of the invention resides in the novel means provided for circulating cold air throughout the storage chamber 8, whereby the air is uniformly circulated therethrough and also whereby the temperature of the air in the storage chamber may be maintained substantially constant.

To thus control the circulation of the air throughout the chamber 8, a partition 11 is shown provided adjacent to the front wall 2. This partition cooperates with the front wall 2 of the chamber to provide an air circulating passage 12, the lower end 13 of which terminates close to the bottom wall 6 of the casing and preferably directly over the gutter or recess 9. The partition 11 is shown extending the full length of the casing, as will be noted by reference to Figure 1. It will also be noted that the partition 11 is spaced but slightly from the front wall 2, whereby the air passage 12 is comparatively narrow or restricted.

Adjacent to the upper portion of the storage chamber 8, the partition 11 is inclined inwardly, as shown at 14, and has a vertically disposed section 15 spaced a relatively greater distance from the front wall 2 than the lower portion of the partition 11, thereby to provide an enlarged space 16 adapted to receive a suitable cooling unit, generally designated by the numeral 17. The cooling unit, which may be of any well-known type, is shown comprising a plurality of coils 18, having fins 19 secured thereto, which are arranged in spaced relation, as shown in Figure 1. The air within the chamber is circulated between the fins 19 and over the coils 18, whereby it is rapidly cooled, so that the air discharging from the bottom of the air circulating passage 12 will be comparatively cold.

The vertical section 15 of the partition 11 is shown terminating short of the right hand end wall of the casing, when viewed as shown in Figure 1, thereby to provide a mounting space 21 for a suitable air circulating means, generally indicated by the numeral 22.

The air circulating means is shown comprising a motor 23 having a suitable blower 24 secured to the shaft thereof and contained within a blower housing 25, which may be secured to the front wall 2 of the casing by suitable means, not shown. The housing 25 has a warm air intake 26 and a discharge 27. The discharge opening 27 is connected to one end of a conduit 28 which extends from the blower housing 25 to the opposite end wall of the storage chamber, as clearly illustrated in Figure 1. The conduit 28 gradually diminishes in cross-sectional area in a direction away from the blower, and has an opening in its bottom wall for establishing communication with the upper end of the air circulating passage 12, the full length of the cooling unit.

The blower 22, as will be noted by reference to Figures 1 and 2, is located in the upper portion

of the cabinet adjacent one end thereof, whereby the cold air delivered into the bottom of the storage chamber from the air circulating passage 12, is drawn upwardly through the chamber by the suction of the blower 22 and re-circulated through the cooling unit 17, whereby the air is uniformly circulated throughout the entire storage chamber and the temperature thereof maintained substantially constant. This results in high efficiency in that the bottles, regardless of where they may be taken from the storage chamber, will be adequately cooled provided, of course, that they have been in the storage chamber long enough to be thoroughly cooled.

Another feature of the invention resides in the unique construction of the means provided within the storage chamber 8 for supporting the beverage bottles or other food articles. As best shown in Figure 2, a suitable grid, generally designated by the numeral 29, is removably supported on the bottom wall 6 of the chamber. The grid 29 is shown comprising a suitable frame 31 having upwardly bent ends 32, to which a plurality of rods 33 are secured. The rods are arranged in spaced relation to provide free air circulation therebetween, as will readily be understood by reference to Figure 2. It will also be noted that the rods 33 of the grid are spaced upwardly from the bottom wall 6 of the chamber to provide free passage for the cold air below the bottles, indicated by the numeral 34.

In dispensing beverages, several different brands and kinds are usually handled, and it is therefore desirable that means be provided within the storage chamber 8 for separating the various brands, and kinds from one another, thereby to facilitate dispensing the beverages. To thus separate the various brands of food articles, a plurality of separators 35 are removably supported in the chamber 8, and extend between the front and back walls 2 and 3 of the casing. Suitable supporting rails 36 and 37 are secured to the front and rear walls 2 and 3, respectively. These rails have spaced notches or recesses 38 therein adapted to receive lugs or projections 39 provided on the separators 35. The notches 38 are spaced lengthwise of the rails 36 and 37, whereby the spacing between the separators may be varied to accommodate bottles of different sizes.

To further separate the bottles, a plurality of relatively smaller separators 40 may be interposed between the larger separators 35 and the adjacent end walls 4, as best shown in Figures 2 and 3. The separators 40 have lugs 39 adapted to engage suitable brackets 41, secured to the separators 35 and the end walls 4 of the casing, whereby said separators are removably supported in a manner similar to the separators 35, as clearly illustrated in Figures 2 and 3. The upright edges of the separators 35 are spaced from the adjacent walls of the storage chamber 8 to permit air circulation between said separators and the walls of the chamber. The upright edges of the relatively smaller separators 40 are likewise spaced from the separators 35 and end walls 4, as shown in Figure 3, whereby the air may freely circulate throughout the entire food storage chamber substantially without obstruction. Because of the necks of the bottles being considerably smaller than the bodies thereof, the air may also circulate freely upwardly through the compartments formed by the separators, whereby all of the bottles contained in the storage chamber 8 are subjected to the cooling effect of the cold air circulating around them.

The upper edges of the separators 35, it will be noted, are spaced downwardly from the top wall of the cabinet so that the air circulating upwardly between the bottles and between adjacent separators, may circulate over the tops of the separators 35 to the intake 26 of the blower 22, with the result that the air circulation through the entire food storage chamber will be substantially uniform. Also, because of the forced circulation of air throughout the entire storage chamber, the temperature of the air therein may be maintained substantially constant, and sufficiently low to rapidly cool the beverages when initially placed in the cooler. It will also be noted that the construction of the apparatus is extremely simple and inexpensive, in that it comprises no moving parts, with the exception of the blower and motor, all other parts being fixed.

The apparatus has been found very efficient in actual operation. It presents the utmost in sanitation, in that the bottles and other articles stored in the chamber 8 are always kept dry by the forced circulation of air throughout the entire storage chamber. By thus circulating dry cold air around the bottles in the storage chamber, the labels do not become separated from the bottles and the bottles are always dry, when removed from the storage chamber.

The walls of the chamber 8 may readily be cleaned, when necessary, by simply opening the door 7 and removing all of the separators 35 and 40 from the food storage chamber. The grid 29 may also be removed, whereby all of the walls of the storage chamber are exposed and readily accessible for cleaning purposes, which is desirable in that apparatus of this general type must be kept clean and sanitary at all times.

We claim as our invention:

1. In an apparatus of the class described, a casing having a storage chamber therein, a partition cooperating with a wall of the casing to form an upright air circulating passage extending substantially the length of the chamber, an air cooling unit in the upper portion of the air circulating passage, an air circulator in the chamber for circulating the air therein through said passage and into contact with the cooling unit, and vertical baffle means in the chamber for maintaining uniform distribution of the cooled air during upward flow through the chamber from the bottom to the upper portion thereof, whereby the temperature therein may be maintained substantially constant.

2. In an apparatus of the class described, a casing of a length substantially greater than its width and having a storage chamber therein, a platform overlying the floor and of substantially the same area, for supporting beverage containers and food articles, means providing an air circulating passage adjacent a sidewall along the length of the chamber, the discharge end of which communicates with the lower portion of the chamber through substantially the length thereof, a cooling coil in said passage, a blower in the chamber having its intake communicating with the upper portion of the chamber and its discharge connected to the upper end of the air

circulating passage and means cooperating with the blower and the outlet of the passage to cause the air to circulate from said passage, uniformly upwardly around the beverages and food articles stored in the chamber, whereby the temperature in the storage chamber may be maintained cool and substantially constant.

3. In an apparatus of the class described, a casing having a chamber therein, means providing an upright air circulating passage along one wall of the chamber, said passage terminating in an air delivery opening of substantially the same length as the chamber, a grid of substantially the area of the chamber in the lower portion of the chamber for supporting articles in spaced relation to the bottom of the chamber and formed to provide an air space below the articles and communicating with said passage, a finned cooling coil in said passage, a blower for circulating the air in said chamber through the cooling unit and said air passage, and means whereby the cooled air delivered into said air space is caused to pass upwardly through the openings in the grid and be uniformly distributed throughout the entire chamber.

4. In a beverage cooler, a casing having a storage chamber therein, means providing an air circulating passage along one wall of the chamber, an open grid of substantially the same area as the chamber spaced upwardly from the bottom of the chamber for forming with articles placed thereon and the bottom wall of the chamber a horizontal air space, a cooling unit in the air passage extending substantially the length thereof, a blower having an intake communicating with the upper portion of the storage chamber and provided with an air discharge conduit, said conduit being connected to the air circulating passage throughout at least the length of the cooling unit.

5. In a beverage cooler, a casing comprising a plurality of walls defining a storage chamber, an open deck spaced upwardly from the bottom wall of the chamber and forming therewith a horizontally disposed air space of substantially the same area as the compartment, means providing a vertically disposed air circulating passage at one side of the chamber, the lower end of which connects with said air space, air cooling means in said passage, means for forcibly circulating the air in said chamber through said passage and about said cooling means, into said horizontally disposed air space, a plurality of separators removably supported in the storage chamber and having their edges spaced from the walls of the chamber, to permit air circulation around the separators, and relatively smaller separators removably supported between said first mentioned separators and cooperating therewith to divide the interior of the chamber into a plurality of smaller storage compartments, said separators cooperating with the walls of the chamber to direct the cold air upwardly throughout the entire interior of the chamber.

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