

Sept. 6, 1960

R. A. NICHOLSON

2,951,352

COOLING DEVICES

Filed Oct. 8, 1956

2 Sheets-Sheet 1

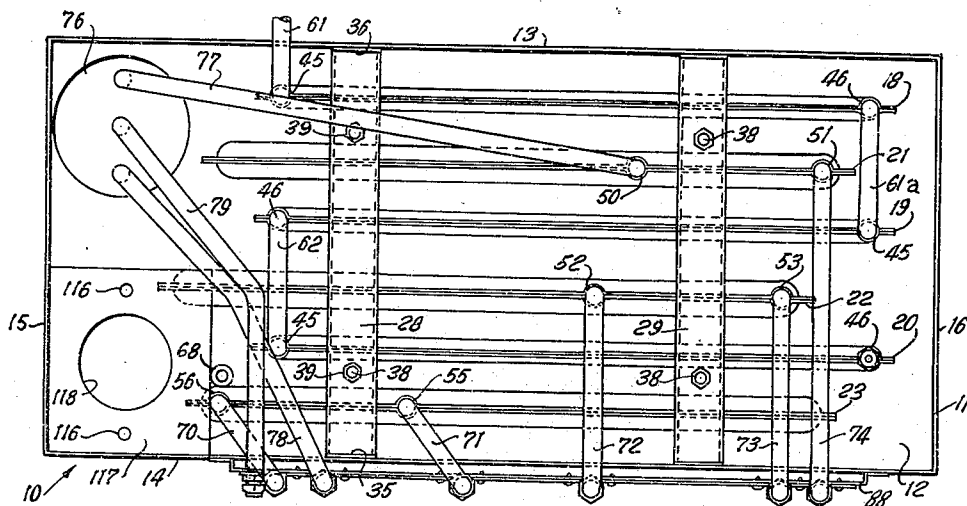


Fig. 1

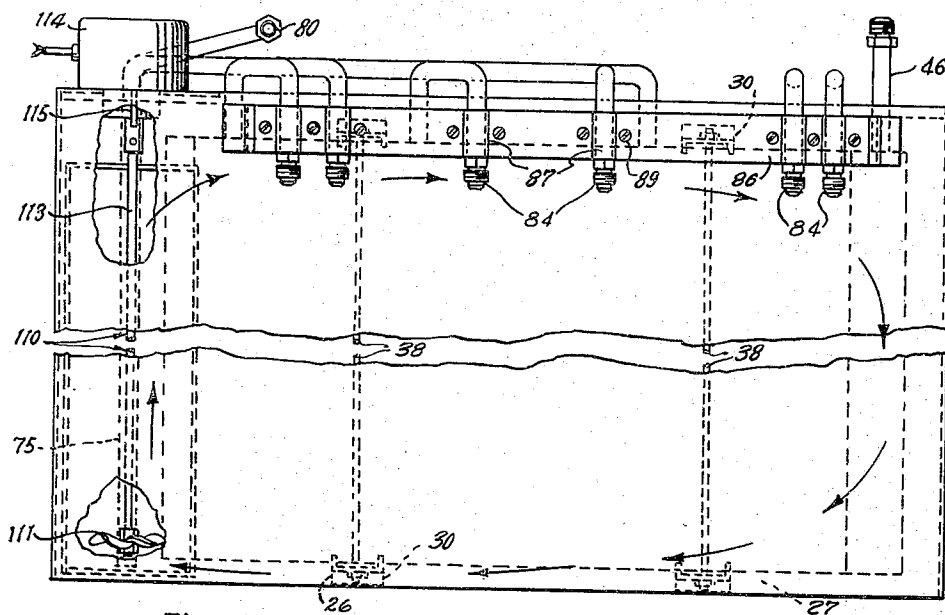


Fig. 2

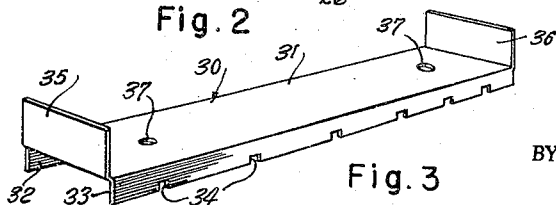


Fig. 3

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2 Sheets-Sheet 2

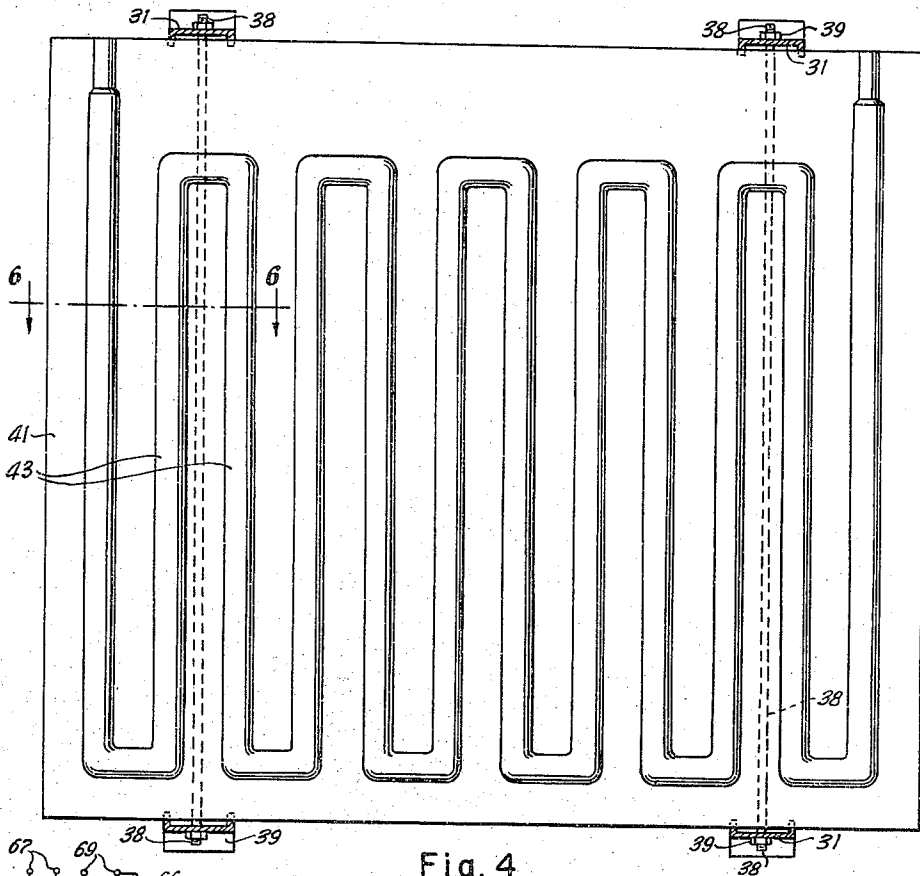


Fig. 4

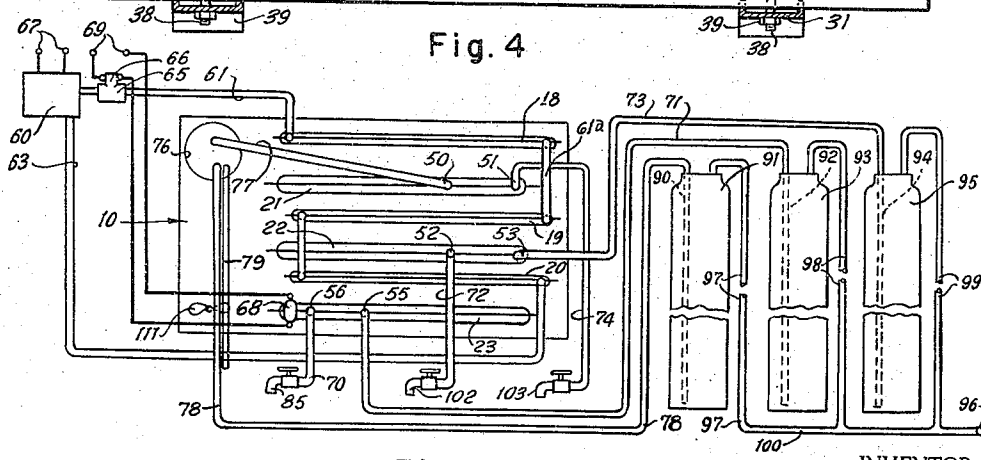


Fig. 5

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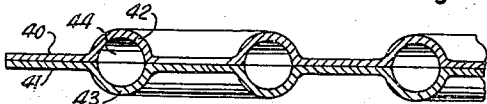


Fig. 6

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2,951,352

COOLING DEVICES

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9 Claims. (Cl. 62-223)

This invention relates to refrigerating devices and more particularly to a cooling device for liquids.

An object of this invention is to provide a new and improved device for cooling liquids to a predetermined temperature while they are being dispensed from storage containers or reservoirs.

Another object of the invention is to provide a new and improved refrigerating device for cooling a plurality of liquids to predetermined different temperatures while the liquids are being dispensed from separate containers or reservoirs.

Still another object of the invention is to provide a new and improved cooling device for beverages which cools the beverages as they are being conveyed from a supply source to a dispensing point.

Still another object of the invention is to provide a new and improved cooling device for cooling beverages during the passage of the beverage from the supply source to a dispensing point which includes a plurality of heat exchangers which are immersed in a eutectic.

A further object of the invention is to provide a cooling device of the type described above wherein the heat exchangers are provided with passages through which a refrigerant fluid or beverage, as the case may be, may flow.

A still further object of the invention is to provide a cooling device of the type described above wherein the passages of a plurality of non-adjacent heat exchangers are serially connected together and connected to a source of refrigerant fluid which is circulated through these passages to lower the temperature of the eutectic and create a temperature gradient therein.

A still further object of this invention is to provide a cooling device of the type described above wherein beverages to be dispensed are passed from a supply source to the dispensing point through the passages of other heat exchangers and are cooled during such movement through the passages.

Another object of the invention is to provide a cooling device of the type described above wherein the heat exchangers are in the form of flat bodies provided with elongate passages and wherein the heat exchangers are spaced laterally from each other and immersed in the eutectic.

Still another object of the invention is to provide a cooling device of the type described above wherein several different beverages may be passed through different heat exchangers which are disposed between the serially connected refrigerating heat exchangers whereby the several beverages are cooled to different temperatures during the dispensing operations.

A further object of the invention is to provide a cooling device, of the type described above wherein a circulating means is provided to circulate a portion of the eutectic past the heat exchangers which are maintained at a higher temperature whereby the beverages passed through such heat exchangers are dispensed at a higher temper-

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ature than the temperature of the beverages passed through the other heat exchangers.

A still further object of the invention is to provide a cooling device, of the type described above, wherein a portion of the eutectic freezes about the heat exchangers through which the beverages pass which must be maintained at a lower temperature.

For a better understanding of the invention, reference may be had to the following description taken in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

In the drawing,

Figure 1 is a top plan view of the cooling device with the circulating means removed;

Figure 2 is a side view of the device shown in Figure 1, but with the circulating means in position;

Figure 3 is a perspective view of a heat exchanger retainer bracket;

Figure 4 is a side view of one of the refrigerant heat exchangers;

Figure 5 is a schematic diagram illustrating the beverage dispensing system employing the cooling device shown in Figures 1 and 2; and,

Figure 6 is a sectional view taken on line 6-6 of Figure 4.

Referring now particularly to Figures 1 and 2 of the drawing the cooling device 10 includes a rectangular container 11 having a bottom 12, side walls 13 and 14, and end walls 15 and 16. A plurality of refrigerant heat exchangers 18, 19 and 20, and a plurality of beverage heat exchangers 21, 22 and 23 which are in the form of rectangular flat bodies vertically disposed in the container and spaced from one another.

The heat exchangers are held in properly spaced vertical positions by a pair of bottom brackets 26 and 27 and a corresponding pair of upper brackets 28 and 29. The upper and bottom brackets are similarly formed and include a channel section 30 having a web 31 and lateral flanges 32 and 33. The flanges 32 and 33 are provided with aligned slots 34 in which the upper or lower edges, as the case may be, of the heat exchangers are received. The retainer brackets also are provided with end tabs 35 and 36 which extend perpendicularly from the web 31 in a direction opposite from that of the flanges 32 and 33. The webs 31 of the retainer brackets are also provided with spaced apertures 37 through which connecting rods 38 may extend. The lower retainer brackets 26 and 27 face upwardly with the lower edges of the tabs 35 and 36 engaging the bottom wall 12 of the container. The upper retainer brackets 28 and 29 have the flanges 32 and 33 extending downwardly with the upper edges of the heat exchangers engaged in the slots 34 thereof. The rods 38 extend through the apertures 37 of the aligned brackets 26 and 28 and of the aligned brackets 27 and 29 and are provided with nuts 39 threaded on opposite ends thereof to rigidly hold the heat exchangers between the brackets. The tabs 35 and 36 of the brackets, of course, engage the walls 13 and 14, respectively, of the container and thus the heat exchangers are held in vertical laterally spaced positions within the container.

Each of the heat exchangers may be formed of two plates 40 and 41 which are provided with embossed grooves 42 and 43 which are aligned and form a passage 44 through the heat exchanger. It will be noted that the passage 44 is tortuous or sinuous so that any liquid or fluid flowing therethrough travels a long path or distance in intimate contact with the plates 40 and 41. The heat exchanger illustrated in Figures 4 and 6 is one of the refrigerant heat exchangers 18, 19 and 20 which are identical in structure. Each of these refrigerant heat

exchangers has an inlet end 45 of the passage and an outlet end 46 thereof.

The beverage heat exchangers 21, 22 and 23 are similarly formed of two plates provided with corrugations or embossed grooves which form similar passages therein. In order, however, to prevent undue congestion of the fittings which are connected to the outlets and the inlets of the passages of these heat exchangers, the outlets and the inlets of these beverage heat exchangers are not at all disposed at the same position relative to the ends thereof. For example, the inlet 50 of the beverage heat exchanger 21 is disposed adjacent the right hand bracket 38 while the outlet 51 thereof is disposed at the right end edge thereof. The outlet 52 of the beverage heat exchanger 22 is disposed intermediate the ends thereof while the inlet 53 thereof is disposed adjacent the right hand edge thereof. The inlet 55 of the heat exchanger 23 is disposed adjacent the left hand bracket 28 while its outlet 56 is adjacent the left hand edge thereof.

The passages 44 of the refrigerant heat exchangers 18, 19 and 20 are serially connected together. Refrigerant fluid from a suitable refrigerating means 60 is conveyed to the inlet 45 of the refrigerant heat exchanger 18 through a conduit 61 and the outlet 46 thereof is connected to the inlet 45 of the refrigerant heat exchanger 19 by a conduit 61a. Similarly, the outlet 46 of the heat exchanger 19 is connected to the inlet 45 of the heat exchanger 20 by a conduit 62. The outlet 46 of the heat exchanger 20 may be connected to the suction end of a refrigerating system by a conduit 63.

The refrigerating unit 60 may be of the conventional type employing a compressor, not shown, whose inlet is connected to the outlet 46 of the refrigerant heat exchanger 20 through the conduit 63 and its outlet through a suitable refrigerant reservoir tank not shown to the inlet 45 of the refrigerant heat exchanger 18 through the conduit 61 having a valve 65 which is operated by a solenoid 66.

The valve 65 is normally closed and opens only when the solenoid 66 is energized. The refrigerating unit 60 may be electrically driven when connected to a source 67 of an electric current. The solenoid 66 is connected in series with a thermostatic switch 68 across a source of current 69 and is energized whenever the temperature of the fluid or beverage being dispensed from the outlet 56 of the heat exchanger 23 rises above a predetermined value causing the thermostatic switch to close.

The outlet 56 of the heat exchanger 23 is provided with a suitable conduit 70 and its inlet 55 is provided with a suitable inlet conduit 71. Similarly, the outlet 52 of the beverage heat exchanger 22 is provided with an outlet conduit 72 and its inlet 53 is provided with a suitable inlet conduit 73. The outlet 51 of the heat exchanger 21 is provided with an outlet conduit 74 while its inlet is connected to an outlet tube 77 of a closed reservoir tank 76 disposed in the container 10. Beverage under pressure is admitted into the top of the closed container 76 through the inlet conduit 78. The top of the reservoir tank 76 is provided with a bleeder conduit 79 whose upper end is closed by a suitable plug 80. The bleeder conduit is provided in order that any air trapped in the upper portion of the reservoir tank 76 may be allowed to escape by the opening of the plug 80.

The various inlet and outlet conduits are provided with suitable fittings 84 at their outer ends by means of which they may be connected by suitable pipes or tubes to dispensing devices such as spigots or faucets 85. The outlet and inlet conduits are rigidly secured to the side 14 of the container by means of a strap 86 provided with arcuate portions 87 which fit about the inlet and outlet conduits and which is secured to the side 14 of the container by means of a bracket 88 to

which it is secured by screws 89. The bracket 88 is in turn secured to the side 14 by any suitable means.

The inlet conduit 79 of the reservoir tank 76 is connected to the outlet tube 90 of a closed beverage tank 91, the inlet tube 71 of the beverage heat exchanger 23 is connected to the outlet tube 92 of the beverage tank 93 and the inlet tube 73 of the beverage heat exchanger 22 is connected to the outlet tube 94 of the beverage tank 95. The beverages in the beverage tanks 91, 93 and 95 are maintained under pressure since a gas under pressure, such as carbon dioxide, is supplied to the upper ends of the tanks from a source 96 through the conduits 97, 98 and 99, respectively, which branch from a main conduit 100 connected to the source 96.

Beverage from the outlet conduit 70 of the heat exchanger 23 is dispensed through the spigot, faucet or valve 85, the beverage from the outlet conduit 72 of the beverage heat exchanger 22 is dispensed through the spigot, faucet, or valve 102 and the beverage from the outlet conduit 74 of the heat exchanger 21 is dispensed through the spigot, faucet or valve 103.

A circulating device having blades 111 on a vertical shaft 113 is driven by a motor 114. The motor has two pins 115 which extend into apertures 116 of plate 117 on which the motor is mounted. Shaft 113 extends through the central aperture 118 of the support plate 117. The blades 111 of the circulating device are so formed that they move liquid upwardly when the shaft 113 is rotated.

In use, the container 10 is filled with a eutectic, such as water, to a level above that of the upper ends of the heat exchangers so that all heat exchangers are immersed in the eutectic. The reservoir tank 76 is then filled with a beverage which, for best flavor, must be dispensed while at a very low temperature, and which freezes at a temperature lower than the freezing temperature of the eutectic. The plug 80 of the bleeder conduit 79 is removed during such filling operation so that no air will be trapped in the upper end of the tank 76 since such trapped air may deleteriously affect the flavor of the beverage.

The compressor unit 60 is then connected to a source of current 67 to pump down the refrigerant gas or fluid in the passages 44 of the serially connected refrigerant heat exchangers 18, 19 and 20. Since the eutectic and the beverage in the heat exchanger 23 are now at a high temperature, the thermostatic switch 68 will close and the solenoid 66 will be energized to open the valve 65. The refrigerant fluid will now flow through the inlet conduit 61 into the serially connected passages 44 of the refrigerant heat exchangers 18, 19 and 20. The thermostatic switch 68 is set to open at a temperature which is above the freezing temperature of the eutectic, which may be water.

The motor 114 is also connected to a source of current and its shaft 113 now rotates causing the blades 111 to move the portion of the eutectic adjacent the heat exchangers 22, 20 and 23 in the manner indicated by the arrows in Figure 2, while the eutectic about the heat exchangers 18, 21 and 19 is not agitated or circulated in any appreciable manner by the blades 111 since the circulating device is located adjacent the wall 14 of the container and remote from the wall 13 thereof. The refrigerant fluid warms as it flows first through the heat exchanger 18, then the heat exchanger 19 and finally the heat exchanger 20 since it absorbs heat from the eutectic and from the beverages in the beverage heat exchangers 21, 22 and 23. As a result, a definite temperature gradient is established through the eutectic, the temperature thereof adjacent the refrigerant heat exchanger 18 being lowest and the temperature thereof adjacent the beverage heat exchanger 23 being the highest. The temperature of the eutectic about the heat exchangers 18, 21 and 19 falls below the freezing temperature of the

eutectic and as a result these heat exchangers become encased in a block of frozen eutectic. The beverage which is conveyed through the heat exchanger 21 has a lower freezing temperature than the freezing temperature of the eutectic and therefore does not freeze in passing through the heat exchanger 19.

The beverages which are conveyed through the heat exchangers 22 and 23 have freezing temperatures substantially equal to freezing temperature of the eutectic and it is therefore necessary to locate these heat exchangers in the warmer portion of the eutectic which is circulated to prevent lower strata thereof from cooling below the freezing temperature of the eutectic and thus creating a danger of such beverages freezing in the passages 44 of the heat exchangers 22 and 23.

If the spigot 103 is now opened beverage will be forced from the beverage tank 91 into the reservoir tank 76 due to the pressure introduced into the tank 91 from the source of gas under pressure 96. Beverage from the bottom of the reservoir tank will now flow through the outlet tube 77 thereof and to the inlet 50 of the beverage heat exchanger 21. The beverage will then flow through the winding or tortuous passage 44 of the heat exchanger 21 through the outlet 51 thereof, and through the outlet conduit 74 to the spigot 103 and thence into the cup or other receptacle into which the dispensed beverage is received. The beverage which is thus dispensed will obviously have been cooled in its passage from its supply tank 91 to its dispensing point 103 to the temperature of the frozen eutectic which encases the heat exchanger 21. Similarly, if the spigot 102 is opened beverage from the beverage tank 95 will flow through its outlet tube 94 and the inlet conduit 73 of the heat exchanger into its inlet 53 and thence through the passage 44 in the beverage heat exchanger 22 through the outlet 52 thereof and thence through the outlet conduit 73 to the dispensing point or spigot 102. In its passage through the heat exchanger 22 the beverage will be cooled since the plates of the heat exchanger are obviously at a low temperature but above the freezing temperature of the eutectic being in intimate contact over a very wide area with the circulating eutectic. In the same manner, when the spigot 85 is opened, beverage from the beverage tank 93 will be forced through the outlet tube 92 thereof, to the inlet conduit 71 of the heat exchanger 23 to the inlet 55 thereof and through the passage 44 of the beverage heat exchanger 23 to the outlet 56 thereof and thence through the outlet conduit 70 to the dispensing point or spigot 85. In such movement through the heat exchanger 23, the beverage will be cooled to a temperature above the freezing temperature of the eutectic.

It will now be apparent that the refrigerant is at its lowest temperature when it flows from the conduit 61 to the inlet 45 of the heat exchanger 18 and that it will gradually warm as it passes through the passage of the heat exchanger 18 since in such passage it will absorb heat from the beverage passing through the beverage heat exchanger 21. The refrigerant fluid will be further warmed as it flows through the heat exchangers 19 and 20 since it will absorb additional heat from the beverages flowing through the heat exchangers 22 and 23. As a result a temperature gradient will be obtained, the coldest temperatures being found adjacent the refrigerant heat exchanger 18, and the warmest being found adjacent the outlet 56 of the beverage heat exchanger 23. Accordingly, the beverage which passes through the heat exchanger 21 will always be maintained at a very low temperature which is lower than the freezing temperature of the frozen eutectic in which the heat exchanger is encased. The temperature of the beverages passing through the passages of the heat exchangers 22 and 23 will have temperatures higher than the freezing temperature of the eutectic being disposed in the circulated portion of the eutectic and in the warmer portion of the temperature gradient thereof, the thermostatic switch 68

shutting off flow of refrigerant fluid to the refrigerant heat exchangers when the temperature of the circulated portion of the eutectic approaches the freezing temperature thereof. The thermostatic switch 68 is located on the heat exchanger 23 in intimate heat exchange contact with the portion of the heat exchanger 23 adjacent the outlet 56 thereof so that it is responsive to the temperature of the fluid being dispensed through the spigot 85.

It will now be apparent that several different beverages may be cooled by the cooling device since a plurality of beverage heat exchangers have been provided and that since such heat exchangers lie in planes perpendicular to the temperature gradient in the container, that the temperatures of the dispensed beverages will vary in a predetermined manner, the beverage flowing through the heat exchanger 21 being at all times colder than the beverages flowing through the other heat exchangers.

It will also be apparent that a portion of the eutectic surrounding at least one beverage heat exchanger is frozen so that the beverage passing through such heat exchanger is cooled to at least the freezing temperature of the eutectic and that at least one other heat exchanger is surrounded by liquid eutectic which is circulated thereabout so that the temperature of the beverage passing through such other heat exchanger is never lowered to the freezing temperature of the eutectic. It will also be apparent that a cooling device has been illustrated and described which by means of a single body of eutectic and a plurality of serially connected refrigerant heat exchangers enables a plurality of beverages to be cooled to different predetermined temperatures. It will also be seen that a portion of the body of eutectic is frozen while another portion is maintained in a liquid state whereby beverages conveyed through different portions of the eutectic are cooled to different predetermined temperatures. It will also be apparent that the provision of a plurality of flat heat exchangers in a body of eutectic, a portion of which is allowed to freeze, permits great quantities of beverages to be cooled in a short period of time since large amounts of the heat absorbed from the beverages are absorbed by the eutectic in melting from its solid state without raising the temperature thereof.

It will also be apparent that, if desired, the reservoir tank 76 may be omitted, the beverage from the tank 91 then flowing directly to the inlet 50 of the heat exchanger 21.

It will be apparent that various changes in the construction of the cooling device can be made without departing from the invention and it is intended, therefore, to cover in the appended claims all such changes or modifications as fall within the true spirit and scope of the invention:

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A liquid cooling device comprising a container, a plurality of heat conductive bodies disposed in said container and spaced laterally from one another, each of said bodies having an elongate passage, at least the passages of a first body and a second body of said bodies being serially connected whereby a refrigerating fluid may be circulated through the passageway of said first body and then through the passageway of said second body, a third body of said bodies being disposed between said first body and said second body and its passage being for the circulation of first liquid to be cooled to a predetermined temperature, a fourth body of said bodies being disposed outwardly of said second body and its passage being for the circulation of a second liquid to be cooled to a temperature higher than said predetermined low temperature, said container being adapted to be filled with a eutectic, a first portion of said eutectic in the container freezing about said third body when cooled to a temperature higher than said predetermined low temperature, and means responsive to the temperature of

the second liquid for controlling flow of the refrigerant fluid through the passages of said first body and said second body to cause another portion of said eutectic disposed about said fourth body to remain in a liquid state while said first portion is caused to be frozen.

2. A liquid cooling device comprising a container, a plurality of heat conductive bodies disposed in said container and spaced laterally from one another, each of said bodies having an elongate passage, at least the passages of a first body and a second body of said bodies being serially connected whereby a refrigerating fluid may be circulated through the passageway of said first body and then through the passageway of said second body, a third body of said bodies being disposed between said first body and said second body and its passage being for the circulation of first liquid to be cooled to a predetermined temperature, a fourth body of the bodies being disposed outwardly of said second body and its passage being for the circulation of a second liquid to be cooled to a temperature higher than said predetermined low temperature, said container being adapted to be filled with a eutectic, a first portion of said eutectic in the container freezing about said third body when cooled to a temperature higher than said predetermined low temperature, means responsive to the temperature of the second liquid for controlling flow of the refrigerant fluid through the passages of said first body and said second body to cause another portion of said eutectic disposed about said fourth body to remain in a liquid state while said first portion is caused to be frozen, and circulating means disposed in said container for circulating said another portion of said eutectic about said fourth body.

3. A liquid cooling device comprising a container, a plurality of heat conductive bodies disposed in said container and spaced laterally from one another, each of said bodies having an elongate passage, at least the passages of a first body and a second body of said bodies being serially connected whereby a refrigerating fluid may be circulated through the passageway of said first body and then through the passageway of said second body, a third body of said bodies being disposed between said first body and said second body and its passage being for the circulation of a first liquid to be cooled to a predetermined temperature, a fourth body of the bodies being disposed outwardly of the said second body and its passage being for the circulation of a second liquid to be cooled to a temperature higher than said predetermined low temperature, said container being adapted to be filled with a eutectic, a first portion of said eutectic in the container freezing about said third body when cooled to a temperature higher than said predetermined low temperature, means responsive to the temperature of the second liquid for controlling flow of the refrigerant fluid through the passages of said first body and said second body to cause another portion of said eutectic disposed about said fourth body to remain in a liquid state while said first portion is caused to be frozen, and a reservoir disposed in said container, said one liquid flowing from the reservoir to the passage of said fourth body.

4. A liquid cooling device comprising a container, a plurality of heat conductive bodies disposed in said container and spaced laterally from one another, each of said bodies having an elongate passage, at least the passages of a first body and a second body of said bodies being serially connected whereby a refrigerating fluid may be circulated through the passageway of said first body and then through the passageway of said second body, a third body of said bodies being disposed between said first body and the second body and its passage being for the circulation of a first liquid to be cooled to a predetermined temperature, a fourth body of the bodies being disposed outwardly of the said second body and its passage being for the circulation of a second liquid to be cooled to a temperature higher than said predetermined low temperature,

said container being adapted to be filled with a eutectic, a first portion of said eutectic in the container freezing about said third body when cooled to a temperature higher than said predetermined low temperature, means responsive to the temperature of the second liquid for controlling flow of the refrigerant fluid through the passages of said first body and said second body to cause another portion of said eutectic disposed about said fourth body to remain in a liquid state while said first portion is caused to be frozen, circulating means disposed in said container for circulating said another portion of said eutectic about said fourth body, and a reservoir disposed in said container, said one liquid flowing from the reservoir to the passage of said fourth body.

5. A liquid cooling device comprising a container, a plurality of heat conductive bodies disposed in said container and spaced laterally from one another, each of said bodies having an elongate passage, at least the passages of first body and a second body of said bodies being serially connected whereby a refrigerating fluid may be circulated through the passageway of said first body and then through the passageway of said second body, a fourth body of said bodies being disposed between said first body and said second body of bodies and its passage being for the circulation of a first liquid to be cooled to a predetermined temperature, a fourth body of the bodies being disposed outwardly of the said second body and its passage being for the circulation of a second liquid to be cooled to a temperature higher than said predetermined low temperature, said container being adapted to be filled with a eutectic, said eutectic in the container freezing when cooled to a temperature higher than said predetermined low temperature, and means responsive to the temperature of the second liquid for controlling flow of the refrigerant fluid through the passages of said first body and said second body, the liquid in the container being water, said temperature responsive means preventing flow of the refrigerant fluid through the passages of said first body and said second body when the temperature of the second liquid falls to approach the freezing temperature of said eutectic.

6. A device for cooling a plurality of different beverages comprising a container; a plurality of heat conductive bodies disposed in said container and laterally spaced from one another, each of said bodies having an elongate passage, the passages of at least a pair of non-adjacent bodies being serially connected, means for circulating a refrigerant fluid through the serially connected passages; means for passing one beverage through the passage of a body disposed between said pair of bodies to a first dispensing means, means for passing another beverage through the passage of another body disposed adjacent one of said pair of bodies to a second dispensing means, refrigerant fluid flowing first through the passage of the other of said pair of bodies, said container being adapted to be filled with a liquid which freezes to a solid when its temperature is lowered below a predetermined value, means for controlling the flow of the refrigerant fluid to said passages of said pair of bodies, and means responsive to the temperature of said another beverage in the passage of said another body operatively associated with said control means for causing said control means to prevent flow of the refrigerant fluid whenever the temperature of said second beverage falls to approach said predetermined value.

7. A device for cooling a plurality of different beverages comprising a container; a plurality of heat conductive bodies disposed in said container and laterally spaced from one another, each of said bodies having an elongate passage, the passages of at least a pair of non-adjacent bodies being serially connected, means for circulating a refrigerant fluid through the serially connected passages; means for passing one beverage through the passage of a body disposed between said pair of bodies to a first dispensing means, means for passing another beverage through the

passage of another body disposed adjacent one of said pair of bodies to a second dispensing means, refrigerating fluid flowing first through the passage of the other of said pair of bodies, said container being adapted to be filled with a liquid which freezes to a solid when its temperature is lowered below a predetermined value, means for controlling the flow of the refrigerant fluid to said passages of said pair of bodies, means responsive to the temperature of said another beverage in the passage of said another body operatively associated with said control means for causing said control means to prevent flow of the refrigerant fluid whenever the temperature of said second beverage falls to approach said predetermined value, and means for circulating a portion of the liquid about said another body.

8. A device for cooling a plurality of different beverages comprising a container; a plurality of heat conductive bodies disposed in said container and laterally spaced from one another, each of said bodies having an elongate passage, the passages of at least a pair of non-adjacent bodies being serially connected, means for circulating a refrigerant fluid through the serially connected passages; means for passing one beverage through the passage of a body disposed between said pair of bodies to a first dispensing means, means for passing another beverage through the passage of another body disposed adjacent one of said pair of bodies to a second dispensing means, refrigerating fluid flowing first through the passage of the other of said pair of bodies, said container being adapted to be filled with a liquid which freezes to a solid when its temperature is lowered below a predetermined value, means for controlling the flow of the refrigerant fluid to said passages of said pair of bodies, and means responsive to the temperature of said another beverage in the passage of said another body operatively associated with said control means for causing said control means to prevent flow of the refrigerant fluid whenever the temperature of said second beverage falls to approach said predetermined value, said one beverage

freezing at a temperature below said predetermined value.

9. A device for cooling a plurality of different beverages comprising a container; a plurality of heat conductive bodies disposed in said container and laterally spaced from one another, each of said bodies having an elongate passage, the passages of at least a pair of non-adjacent bodies being serially connected, means for circulating a refrigerant fluid through the serially connected passages; means for passing one beverage through the passage of a body disposed between said pair of bodies to a first dispensing means, means for passing another beverage through the passage of another body disposed adjacent one of said pair of bodies to a second dispensing means, refrigerating fluid flowing first through the passage of the other of said pair of bodies, said container being adapted to be filled with a liquid which freezes to a solid when its temperature is lowered below a predetermined value, means for controlling the flow of the refrigerant fluid to said passages of said pair of bodies, means responsive to the temperature of said another beverage in the passage of said another body operatively associated with said control means for causing said control means to prevent flow of the refrigerant fluid whenever the temperature of said second beverage falls to approach said predetermined value, said one beverage freezing at a temperature below said predetermined value, and means for circulating a portion of the liquid about said another body.

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