May 2, 1961 J. R. PICHLER 2,982,113

ICE MAKING APPARATUS

Filed Aug. 26, 1959

3 Sheets-Sheet 1

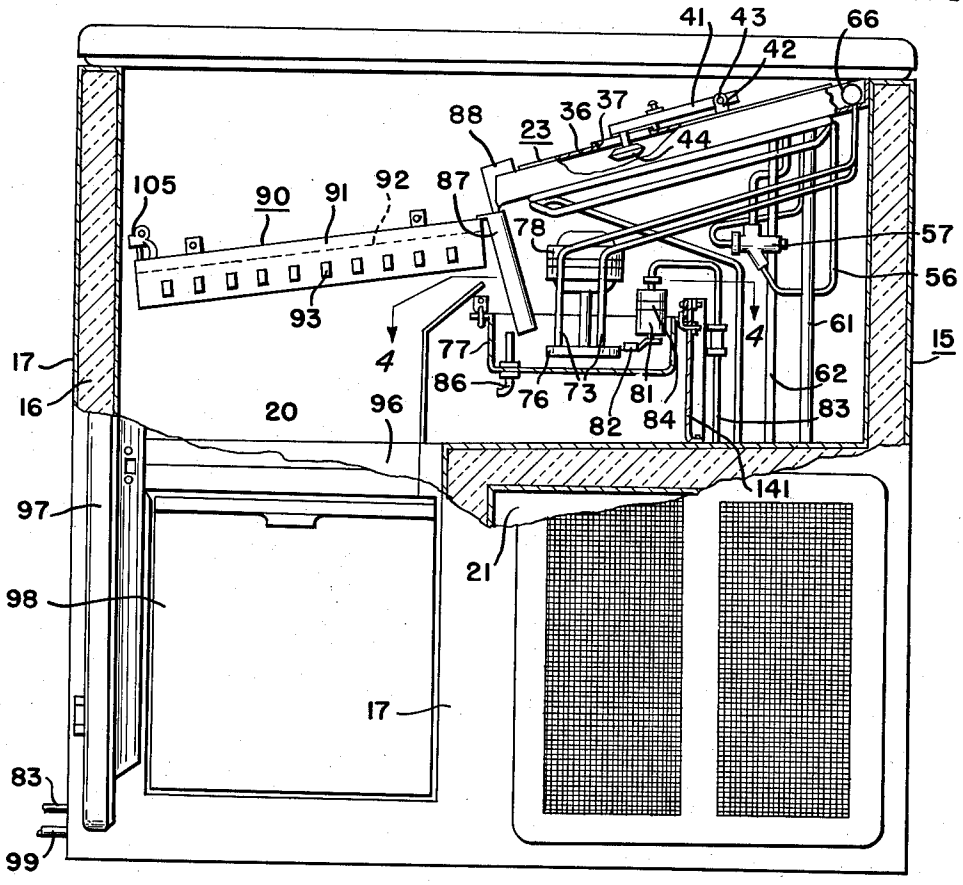


Fig. 2

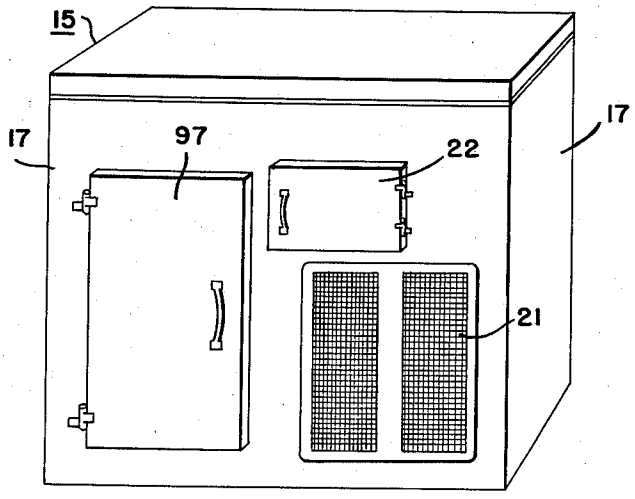


Fig. 1

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3 Sheets-Sheet 2

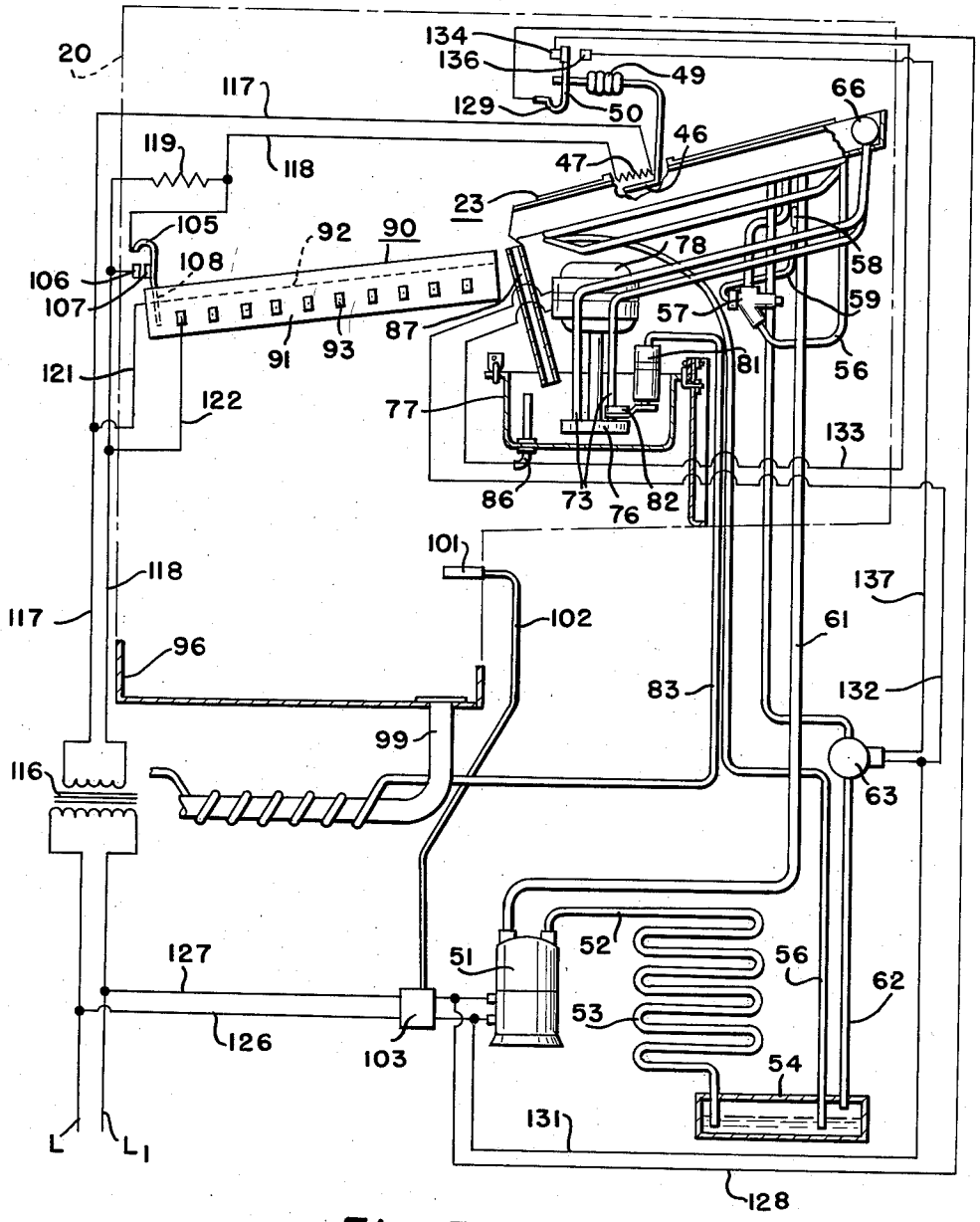


Fig. 3

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ICE MAKING APPARATUS

Filed Aug. 26, 1959 3 Sheets-Sheet 3

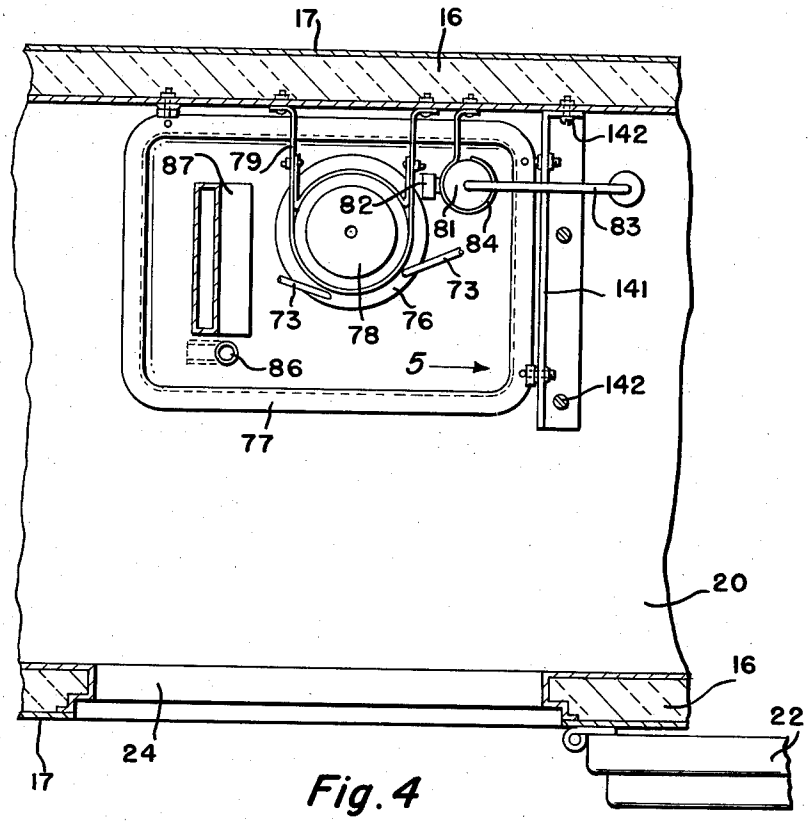


Fig. 4

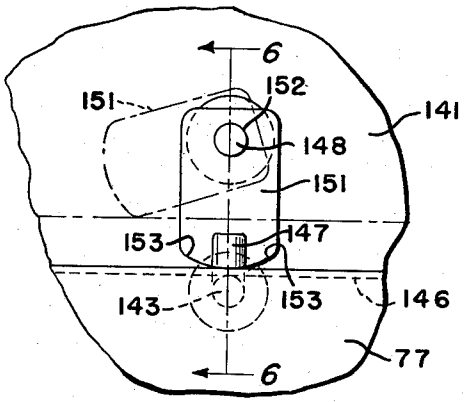


Fig. 5

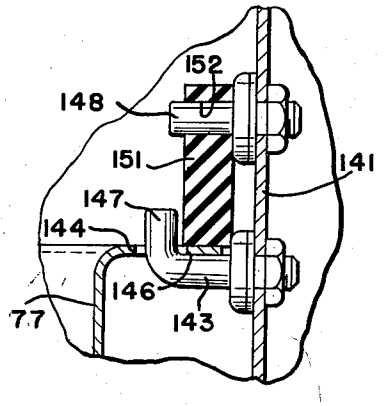


Fig. 6

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United States Patent Office 2,982,113 Patented May 2, 1961

2,982,113

ICE MAKING APPARATUS

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Filed Aug. 26, 1959, Ser. No. 836,263

2 Claims. (Cl. 62—302)

This invention relates to refrigeration and particularly to the construction of an ice block making or freezing apparatus.

More particularly my invention has to do with an improvement in an ice maker of the type disclosed in the M. W. Baker Patent No. 2,784,563, dated March 12, 1957, and other similar ice making apparatuses.

In ice block making machines of the character disclosed in the Baker patent referred to, wherein water is circulated into an open top receptacle or sump reservoir and is pumped therefrom over or into contact with an evaporator of a refrigerating system associated with the machine and located in a compartment of the cabinet thereof, a great amount of the circulating water is returned to and caught in the receptacle at which point fresh water is mixed therewith and the water then recirculated over the evaporator. Due to the receptacle being open at its top, residue of the water and other foreign residue may deposit therein. Health officials in certain communities or cities have objected to this arrangement and have passed new ordinances, added to their sanitation codes, pertaining to installation and use of automatically operated ice block freezing and harvesting machines. One of these new ordinances makes it mandatory that the water receiving receptacle or reservoir in ice producing machines be not only readily accessible for inspection but also removable from the cabinet thereof, without the use of tools and specifically without the use of special implements or tools, so as to be cleansed outside the cabinet where its cleanliness can be observed under good lighting conditions. Ice making machines now on the market will not satisfy the new ordinances, and since adoption thereof, all machines henceforth installed in these communities or cities must be constructed to meet the code requirements. I, therefore, contemplate the provision of a water receptacle or sump reservoir for an ice block making machine which, in addition to complying to the new codes, is unattached to parts of the water circulating system in the cabinet of the machine so as to be quickly and easily removed from the cabinet for inspection and cleaning to thereby reduce to a minimum the interruption in operation of the machine to carry out inspection and cleaning of the water receptacle contained therein.

An object of my invention is to provide an improved ice block making apparatus or machine wherein a water receptacle or reservoir for the water circulating system thereof is unattached to elements of the system and is quickly removable from the cabinet of the machine and replaceable therein.

Another object of my invention is to detachably mount a water receptacle of a water circulating system in a cabinet of an ice producing machine in locked supported relationship in a compartment of the cabinet and to provide the mounting with means for unlocking the receptacle without use of tools whereby the hands of an inspector may be employed to detach and remove the receptacle from the cabinet of the machine.

A further object of my invention is to provide a receptacle in a water circulating system associated with a refrigerating apparatus employed in an ice maker cabinet which receptacle is separable from elements of the water system disposed in the receptacle and employed to maintain a predetermined level of a body of water therein and to pump or circulate water therefrom over the evaporator of a refrigerating apparatus so that the receptacle can be removed from the ice maker cabinet without disturbing or dismantling other elements of the water system associated with the receptacle.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of the present invention is clearly shown.

In the drawings:

Figure 1 is a front perspective view of a cabinet containing an ice making apparatus having my invention embodied therein;

Figure 2 is a front view of the ice making apparatus disclosed in Figure 1 with the cabinet thereof shown partly in section and partly in elevation;

Figure 3 is a diagrammatical view of various elements of the ice making apparatus disclosed in Figures 1 and 2 showing a water circulating arrangement or system having a water reservoir receptacle therein removably mounted in the cabinet thereof in accordance with my invention;

Figure 4 is an enlarged horizontal sectional view taken on the line 4—4 of Figure 2 showing the water reservoir receptacle detachably supported or mounted in the cabinet of the apparatus for removal therefrom;

Figure 5 is an enlarged view taken in the direction of the arrow 5 in Figure 4 showing one of the means for detachably locking the water receptacle in place; and

Figure 6 is a sectional view taken on the line 6—6 of Figure 5 through one of the receptacle supports and detachable locking means.

My invention is particularly applicable to modifying ice making apparatuses of the character fully illustrated and described in the M. W. Baker patent hereinbefore identified, assigned to the assignee of the present application, and reference to this patent is made for a clear understanding of the ice producing machine herein more or less concisely shown and described. Referring to the drawings, I show in Figure 1 thereof an ice making apparatus of the type capable of continuously producing small blocks or cubelets of ice including a cabinet 15 comprising a plurality of walls 17 having any suitable or conventional insulating material 16 therein (see Figure 2) forming an insulated compartment 20. Compartment 20 is horizontally elongated at its upper portion with respect to its lower portion and extends over a noninsulated machine compartment 21 provided in the cabinet. A door 22 is hingedly or otherwise suitably mounted on the front wall of cabinet 15 and closes an opening 24 in this wall providing access to a portion of compartment 20 beneath a freezing member 23 therein. The opening 24 closed by door 22 is for a purpose to be hereinafter described. The unitary freezing member 23 is stationarily mounted at an angle or in an inclined fashion within the upper portion of compartment 20 above machine compartment 21. Freezing member 23 is a sheet metal plate-like refrigerant evaporator forming a part of a refrigerator system associated with cabinet 15 and to be hereinafter described. Member or plate-like evaporator 23 has a flat upper surface and is formed by superimposing a flat metal plate upon an embossed metal plate and bonding the plates together in a manner which is now well known. The embossations in the one plate form refrigerant evaporating or expansion passages with-

in the freezing member 23. A metal cover 36 is spaced from the flat upper surface of member 23 and is provided with an opening 37 which receives a part of a thermostatic means. This thermostatic means comprises an adjustable arm 41 having its one end pivotally mounted to a bracket 42, welded upon cover 36, by a pin 43. The other end of arm 41 carries a feeler receptacle 44 containing a coiled tube 46 and a coiled electrical heating element 47 disposed thereabove (see Figure 3). Heating element 47 is a one-half to five watt capacity electric heater. The feeler receptacle 44 is preferably made adjustable in any suitable manner relative to the flat upper surface of freezing member 23 so as to vary the thickness of a slab of ice formed on the top surface of evaporator member 23. Tube 46 has its end at the coiled portion thereof sealed and has its other end connected to an expansible and contractable element 49 located in a suitable or conventional electric snap switch 50 (see Figure 3). A volatile fluid is sealed in tube 46 and element 49 so as to render switch 50 thermally responsive. The coiled heating element 47 has wire connections with a low voltage electric circuit to be hereinafter described. As before stated the freezing member 23 forms the refrigerant evaporating portion of a closed refrigerating system and has a plurality of conduit connections with a refrigerant translating device. The refrigerant translating device of the refrigerating system is mounted within machine compartment 21 and comprises a motor-compressor unit 51 (see Figure 3) connected by conduit 52 with a condenser 53, which may be cooled in any suitable or conventional manner. Condenser 53 is connected to a receiver 54 and a conduit 56 connects this receiver with the refrigerant evaporating passages within the member 23. A thermostatic expansion valve 57 is interposed in conduit 56 and has a thermal bulb 58 connected thereto by a tube 59 for operating valve 57 as is conventional in the art. The bulb 58 is secured and responsive to the temperature of the gaseous refrigerant return conduit 61 leading to unit 51. The outlet of evaporator 23 is connected by a conduit 61 to the intake side of the compressor of the motor-compressor unit 51 while a conduit 62 extending from the top of receiver 54 is connected to a solenoid valve 63 having a conduit connecting the same directly to the refrigerant expansion passages in evaporator member 23. Valve 63 normally closes conduit 62 to prevent its communication with the passages in member 23 during a refrigerating cycle of operation of the refrigerating system.

Means is provided for flowing a film of water over, across and into contact with the freezing evaporator 23 from a pipe of a water circulating system for the ice making apparatus. This means comprises a manifold in the form of a header 66 having a plurality of horizontally aligned and spaced apart small distributing holes or orifices therein along its length. Header 66 has conduits 73 connected thereto and communicating with a centrifugal or the like water pump or pumping means 76 located in a body of water contained in a water sump or reservoir formed by an open top rectangular-shaped sheet metal pan or receptacle 77. The present invention is directed to the arrangement and mounting of receptacle 77 with respect to pump 76 and other elements of the water circulating system for the ice making apparatus as will be described more in detail hereinafter. An electric motor 78 is, in the present disclosure, stationarily mounted in spaced relation to the inner surface of back wall 17 of compartment 20 by a suitable bracket or the like 79 so as to dispose and support pump 76 within receptacle 77 for operating the pump therein (see Figure 4). A valve 81, actuated by a float 82, controls the flow of water through supply pipe 83, containing water under pressure from a source of supply thereof, into the reservoir or receptacle 77. Valve 81 is also stationarily mounted in spaced relation to the inner surface of back cabinet wall 17 so as to depend into receptacle 77 in an unattached manner. A mounting bracket 84 clamps valve 81 and float 82 associated therewith to wall 17. Receptacle 77 has a drain pipe 86 formed or fixed thereon extending downwardly from an upper portion thereof for a purpose to be hereinafter described. A relatively long flat funnel member 87, of substantially rectangular shape in cross sectional contour, is secured to opposed walls of compartment 20 and is adapted to receive some of the water directed over and flowing from the evaporator 23 to convey or return this water to the reservoir or receptacle 77. A baffle 88 is hingedly supported on the lower end of evaporator member 23 to prevent excessive water splash and to permit the baffle to be moved or swung out of the way when a slab of ice is released from the plate-like evaporator.

In the upper left hand portion of compartment 20 there is mounted an ice cutter, grid or dissector 90 which comprises a frame 91 having sets of spaced apart wires 92 and 93 extending thereacross in opposite directions to one another. There is a storage bin 96 (see Figure 3) provided in cabinet 15 below the ice cutter 90 for receiving ice blocks or cubelets therefrom. The bin 96 is normally closed by an insulated door structure 97 and an inner tiltable metal retainer or door 98 (see Figure 2). A drain pipe 99 leads from the bottom of bin 96 (see Figure 3) to convey water, entering the bin from receptacle 77 and water from melting ice in the bin 96, out of the cabinet. A thermal bulb 101 (see Figure 3) extends through an insulated wall 17 of bin 96 and is located within bin 96 at a position therein to be contacted by and responsive to a predetermined accumulation of ice blocks received in the bin. A tube 102 has its one end connected to bulb 101 and has its other end connected or sealed to an expansible and contractable bellows mounted in a bin thermostatic electric switch 103 of any desired or conventional construction. Bulb 101, tube 102 and the bellows in electric switch 103 are charged with a volatile fluid and then sealed to form a temperature responsive unit for actuating switch 103. A switch 105, having contacts 106 and 107 one of which is mounted on a movable arm 108, is associated with the left side of ice cutter 90. Arm 108 is disposed in the path of and is adapted to be struck and moved by a cake or slab of ice released from member 23 and slidable therefrom onto cutter 90 for a purpose to be hereinafter described.

Electrical circuit

The 115 volt power mains indicated at L and L_1 lead to a low voltage, say, for example, an 11 volt transformer 116. A wire 117 leads from transformer 116 to the heater 47 of thermostatic switch 50. A wire 118 leads from transformer 116 to contact 106 of switch 105. When contacts 106 and 107 are closed, wire 118 leads to the other side of heater 47 of switch 50. A resistance jumper wire 119 by-passes switch 105 in wire 118 and continuously energizes heater 47 with approximately one-half watt current. This is an auxiliary feature and provides the feeler receptacle 44 of the ice thickness thermostat with a small amount of heat to at all times insure that the interior thereof will remain dry. A branch wire 121 leads from wire 117 to wires 92 of the ice cutter 90 and a branch wire 122 leads from wire 118 to wires 93, which are connected in series with wires 92, to continuously energize the dissector or ice severing grid 90. The wires and connections just described complete the low voltage circuit incorporated in the present ice cube maker. The 115 volt circuit includes a wire 126 branched from power main L and leading into the bin thermostat switch 103. Another wire 127 branches from power main L_1 and also leads into the bin thermostat switch 103. The wires 126 and 127 extend from switch 103 to the electric motor of the motor-compressor unit 51 to cause continuous operation of this unit, which is interrupted only by actuation of switch 103 in response to a predetermined accumulation of ice cubes within the storage bin 96. A branch wire 128 leads

from wire 127, between switch 103 and unit 51, and is connected to a movable arm 129 of the ice thickness thermostat switch 50. A second branch wire 131 leads from wire 126, between switch 103 and unit 51, and is connected to a wire 132 which enters one side of a solenoid in valve 63. Wire 132 extends to the water pump motor 78. A wire 133 extends from pump motor 78 and is connected to a contact 134 of the ice thickness thermostat switch 50. The other contact 136 of switch 50 is connected by a wire 137 with the solenoid in valve 63. The contact on arm 129 of switch 50 is adapted to alternately engage or disengage the contacts 134 and 136 in response to temperature conditions in the feeler receptacle 44 associated with the freezing member 23.

Operation

Assume that the ice cube maker is properly connected to a source of water supply under pressure, to a suitable drain and its electrical circuit is now energized. Electric current flows from the mains 111 and 112 through normally closed switch 103 to the motor of motor-compressor unit 51 to cause operation thereof. Simultaneously therewith electric current flows from transformer 116 through wires 117 and 118 and branch wires 121 and 122 to continuously energize the ice cutter 90 by directing thirty to thirty-five watts of current into the resistance wires 92 and 93 to cause these wires to be heated. A small amount of current, preferably one-half watt, flows through by-pass resistance 119 to the heating element 47 in the ice thickness feeler member or receptacle 44. At this same time electric current also flows through wire 128, arm 129, of switch 50, contact 134, then through wire 133 to water pump motor 78. The circuit is completed back to the power main 112 from motor 78 through wires 132, 131 and 126. Water fills receptacle 77 to a predetermined level under control of float valve 81. Solenoid valve 63 is closed while motor 78 operates. The pump 76 lifts water, from receptacle 77 by way of the two conduits 73, into header 66. Water is distributed in the form of a film upon the freezing plate portion of member 23 by the plurality of distributing orifices (not shown) in manifold header 66. Water leaving the evaporating means or evaporator member 23 flows downwardly in member 87 to the reservoir receptacle 77 whereupon it is recirculated by pump 76 over evaporator member 23. The compressor of unit 51 withdraws refrigerant vapor from the evaporating passages in the freezing member 23, to cause chilling of this plate-like member, compresses the same and forwards the compressed refrigerant, through conduit 52, to condenser 53 where it is cooled and liquefied in any suitable manner, such as by circulating room air over the condenser. Refrigerant liquefied in condenser 53 flows into receiever 54 where it is further cooled and collected. Liquid refrigerant enters conduit 56 and flows through expansion valve 57. Liquid refrigerant is directed to the evaporating passages of member 23, by expansion valve 57, wherein it vaporizes, in removing heat from member 23, and the evaporated refrigerant is returned through conduit 61 to the compressor of unit 51. The refrigerating effect produced by member 23 causes water from the film thereof flowing over the top surface of member 23 to freeze and accumulate thereon in the form of a layer or slab of ice. When the thickness of the layer or slab of ice on member 23 reaches the feeler receptacle 44, its temperature overcomes the small amount of heat imparted, by resistor 119, to heating element 47 and cools the coiled portion of tube 46. When the temperature of tube 46 is lowered to the desired point, in accordance with a predetermined thickness or accumulation of ice on member 23, element 49 of switch 50 will contract and move switch arm 129 away from contact 134 and into engagement with contact 136. When arm 129 disengages contact 134, of switch 50, the circuit to water pump motor 78 is broken or opened and, when this arm engages contact 136, the circuit to the solenoid valve 63 is made or closed. Energization of the solenoid in valve 63 causes this valve to open and hot gaseous refrigerant is thereupon circulated from the receiver 54 and condenser 53 through conduit 62 and through the passages in the freezing means or evaporator member 23 and thence back to the compressor of unit 51 which continues to operate. The hot refrigerant gas warms freezing member 23 by its flow therethrough. The thermostatic switch 50 therefore serves as a means responsive to a predetermined accumulation or thickness of ice on member 23 to simultaneously stop the flow of water over the freezing member 23, to render the refrigerating means or member 23 ineffective, to produce refrigeration, and to render the heating means effective by opening valve 63 in the hot refrigerant gas line 62. Heat of the gaseous refrigerant flowing through the passages in member 23 melts and breaks the bond between the slab of ice previously formed on member 23. This released slab of ice moves off the inclined freezing member 23 by sliding therefrom onto the inclined ice dissector or grid 90.

As soon as the water pump 78 stops operating, water flowing over and across member 23 and water contained in the pipes 72 drains into the reservoir or receptacle 77 to raise the level of the body of water therein over float 82, to a point above drain pipe 86, and excessive water in the reservoir then drains through pipe 86 therefrom upon the bottom wall of the upper horizontally elongated portion of compartment 20 and flows into the ice block storage bin 96 to the drain outlet pipe 99. Valve 81 insures an adequate supply of water in receptacle 77, for circulation to the water distributor header 66 under normal condition or during a freezing cycle, while pipe 86 drains excessive water from the receptacle after each freezing cycle. Water contained and remaining in receptacle 77 during noncirculation thereof may, due to the quiescence of the body of water, cause minerals and other components of the water as well as foreign substances which may enter the open top receptacle to settle out of the body and deposit as a coating on or sediment therein. This deposit in receptacle 77, while not being a serious endangerment to the health of one using ice cubes made by the machine, nevertheless, creates a suspicious appearance within the receptacle and has therefore prompted health officials to draft measures whereby such a receptacle must be mounted so as to be readily accessible for inspection and preferably detachably mounted for removal from the cabinet of an ice block maker. It is this feature to which my invention is directed.

As the slab of ice slides onto grid 90 it strikes the movable arm 108 of switch 105 and causes the contact 107 carried thereby to engage the stationary contact 106. Closing of contacts 106 and 107 causes the flow of about five watts of electric current, through wires 117 and 118, around or by-passing resistor 119, to the heating element 47 of the ice thickness thermostat. This increased heat, generated by the electric heating element 47, rapidly warms the coiled portion of tube 46 to thereby cause expansion of element 49 of switch 50. This provides a means for reducing the time between the removal of a slab of ice from freezing member 23 and a subsequent ice slab freezing cycle since the arm 129 of switch 50 will be quickly moved to engage contact 134, after a slab of ice leaves the member 23. In other words, the interval of time between a warming cycle and a refrigerating cycle is reduced to a minimum to insure rapid production of ice cubes. Movement of arm 129 away from contact 136 of switch 50 deenergizes the solenoid valve 63 to cause closing thereof and engagement of arm 129 with switch contact 134 again energizes the water circulating pump motor 78. Heat of the one set of wires 92 in grid 90 cuts or dissects the slab of ice received thereby and resting thereon into a plurality of long narrow slabs which fall through the space between wires 92 onto the set of wires 93. The heat of wires 93 thereafter cuts or dissects the plurality of long narrow slabs of ice resting thereon into a

plurality of ice cubelets which fall through grid 90 into the storage bin 96. The size of the ice cubelets or blocks dissected by grid 90 is 1¼ inches by 1½ inches and the thickness thereof is between ⅜ inch and ¾ inch as determined by the distance between feeler receptacle 44 and the flat top surface of member 23. These ice cubes can then be harvested from the cabinet 15 by opening the insulated door 97 and by tilting the inner bin door 98 forwardly. The alternate and successive freezing and ice releasing cycles continue until such time as the storage bin becomes substantially filled with ice blocks. When the ice blocks accumulate in bin 96 to the point where they will contact the bin thermostat bulb 101, the bin thermostat switch 103 is actuated to open the electric circuit leading to motor-compressor unit 51 and the other elements in the one hundred fifteen volt circuit of the ice cube maker. The other or transformer wire circuit remains energized at this time so as not to require reheating of wires 92 and 93 of grid or cutter 90 when the circuit to unit 51 is reestablished by bin thermostat switch 103. The cyclical operation of the ice cube maker will be reestablished automatically after a sufficient number of ice cubes have been removed from the storage bin 96 or have melted so as to lower the level of the ice cubes below the thermostat bulb 101.

According to my invention and in order to detachably mount or suspendingly support the rectangularly-shaped water receptacle 77 in compartment 20 of cabinet 15 of the ice making machine, preferably in a corner of the compartment, I secure flanged portions of a rigid vertical supporting plate 141 to the back and bottom walls thereof by bolts or the like 142 (see Figure 4). Plate 141 extends inwardly of the rear wall of compartment 20 at a right angle thereto and forms a corner therein so as to provide receptacle 77 with at least a three-point mounting or support. The mounting or suspension support of receptacle 77 comprises three hooks 143, two of which are bolted onto plate 141 while the other is bolted to the inner liner of the rear wall of compartment 20. I provide spaced apart holes 144 in an outwardly directed flange 146 formed on receptacle 77 (see Figure 6) and the receptacle is suspendingly supported on hooks 143 by these holes fitting over upturned end portion 147 on the hooks and with the flange 146 resting on the horizontal shank portion thereof. Directly above and spaced from at least two of the hooks 143, I secure by bolts or the like straight studs 148 to the rear wall of compartment 20 and to plate 141. A locking means or device is associated with at least two of the support means of receptacle 77 for preventing detachment of the receptacle from its support within compartment 20 particularly during transportation or shipment of cabinet 15 containing the ice making apparatus. The two locking means or devices each include a hand operated cam-like latch in the form of a rubber-like block 151 having a hole 152 in one end thereof (see Figures 5 and 6). Hole 152 receives and fits over the straight studs 148 to mount the latches or blocks 151 thereon. These latch blocks extend downwardly from studs 148 into close proximity with hooks 143 so as to substantially fill the gap between flange 146 on receptacle 77 and studs 148. The lower end of rubber-like latches or blocks 151 are resilient and are rounded at their corners as indicated at 153 to permit their rotation about studs 148 as shown by the dot-dash line in Figure 5. Receptacle 77 is detachably supported in compartment 20 independent of the stationary supports or mountings of motor 71, valve 81 and water return member 87. It is recommended that the locking devices or blocks 151 be left in place on the mounting means of receptacle 77 when the ice maker cabinet is installed in an establishment, such as a bar or restaurant, so that, during a subsequent moving or relocating of the cabinet, displacement of receptacle 77 from its mounting will not occur. Furthermore, locking devices or blocks 151 if left in place prevent abnormal jars or vibrations occurring within the ice maker from rattling receptacle 77 upon its support.

When it is desired to inspect, detach and remove receptacle 77 from cabinet 15, a valve outside the cabinet and located in the water main leading to pipe 83 is turned off and then door 22 leading to compartment 20 is opened to afford access to the compartment and receptacle 77 therein. The inspector or user of the ice maker reaches into compartment 20 through door opening 24 and grasps the latch or block 151 nearest to this opening. The forward latch is rotated approximately 90° about stud 148, as shown by the dot-dash line in Figure 5, and the one or forward side of receptacle 77 is tilted or elevated relative to hook or peg 143 so that hole 144 in flange 146 of the receptacle is freed from the upturned end portion 147 of the hook. The other latch or block 151 at the back wall of compartment 20, diagonally opposite the one just manipulated, is grasped and rotated approximately 90° about its mounting stud 148 and the rear portion of receptacle 77 is lifted free of the other two hooks 143 and slid forwardly thereof relative to motor 78, pump 76, valve and float, 81 and 82, respectively. The now detached receptacle 77, together with drain pipe 86 secured thereto, is lowered with respect to pump 76 and float 82 so as to clear them and then receptacle 77 is moved forwardly within compartment 20, toward the opening 24 normally closed by door 22, whereupon the receptacle is withdrawn from the compartment through the door opening and removed from cabinet 15. Water trapped in detached receptacle 77 may, if desired, be emptied into compartment 20 prior to removing the receptacle therefrom. In this manner receptacle 77 is detachably suspended or supported in compartment 20 for removal from cabinet 15 without disturbing, disconnecting or loosening elements of the water circulating system, such, for example, as return funnel 87, motor 78, pump 76, and the valve 81 and float 82. Receptacle 77 may be inspected outside of cabinet 15 and replaced into its mounted position within compartment 20 thereof or it may be cleaned of the residue of water or foreign residue and then replaced. It is to be understood that the steps of replacing receptacle 77 upon its mounting or suspension in compartment 20 of cabinet 15 are the reverse of those described in carrying out the removal of the receptacle after which the valve of the water source of supply pipe is turned on.

It should, from the foregoing, be apparent that I have provided an improved ice block maker or apparatus wherein the water receptacle or reservoir of the water circulating system thereof is rendered readily removable from the cabinet for inspection and/or cleaning without disturbing other elements of the water system and without the use of tools. My arrangement, in addition to meeting requirements of sanitation codes, insures the production of ice cubes or blocks by an ice maker over an extended period of time which are crystal clear and free of contamination either by particles of mineral deposits or the like of the water and of foreign residue that may enter the water circulating system at the open top water reservoir or receptacle thereof. I, therefore, provide an ice cube or block making apparatus which is entirely satisfactory to users thereof and is not subjected to objections by health officials.

While the embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. An ice maker comprising in combination, a cabinet provided with walls defining a compartment therein, a refrigerating system associated with said cabinet and including a refrigerant evaporator within said compartment, a water receptacle in said compartment, a valve means for maintaining a predetermined level of a body of water within said receptacle, a conduit connected to said valve means and leading therefrom to a source of fresh water

supply, means for pumping water out of said receptacle into contact with said evaporator whereby water is frozen thereon by the refrigerating effect produced thereby, a conduit connected to said pumping means and leading therefrom to a water discharge outlet in the vicinity of said evaporator, at least one of said means being mounted in said compartment on a first upright wall thereof above said receptacle and having a portion depending into the receptacle below its top edge, said compartment having an opening in the upright wall thereof opposite its said first upright wall substantially aligned with said receptacle and providing access thereto from exteriorly of said cabinet, a door separate from and independent of said receptacle closing said compartment opening, said receptacle being detachably suspended from a support therefor within said compartment, said depending portion of said one means normally preventing horizontal movement of said receptacle away from its said support, and said receptacle after detaching same from said support being movable downwardly relative thereto within said compartment to shift said top edge of the receptacle below said depending portion of said one means and thence outwardly of said cabinet through said compartment opening when said door is opened without breaking the connection of said conduit to said one means and while the same remains mounted on said first compartment upright wall.

2. An ice maker comprising in combination, a cabinet provided with walls defining a compartment therein, a refrigerating system associated with said cabinet and including a refrigerant evaporator within said compartment, a water receptacle in said compartment, a valve means for maintaining a predetermined level of a body of water within said receptacle, a conduit connected to said valve means and leading therefrom to a source of fresh water supply, means for pumping water out of said receptacle into contact with said evaporator whereby

water is frozen thereon by the refrigerating effect produced thereby, a conduit connected to said pumping means and leading therefrom to a water discharge outlet in the vicinity of said evaporator, at least one of said means being mounted in said compartment on a first upright wall thereof above said receptacle and having a portion depending into the receptacle below its top edge, said compartment having an opening in the upright wall thereof opposite its said first upright wall substantially aligned with said receptacle and providing access thereto from exteriorly of said cabinet, a door separate from and independent of said receptacle closing said compartment opening, said receptacle being detachably suspended from a support therefor within said compartment, a hand actuated device for locking said detachable suspended receptacle on said support against movement with respect thereto, said depending portion of said one means normally preventing horizontal movement of said receptacle away from its said support upon operating said hand actuated device and unlocking the receptacle from the support, and said receptacle thereafter being movable downwardly relative to its support within said compartment to shift said top edge of the receptacle below said depending portion of said one means and thence outwardly of said cabinet through said compartment opening when said door is opened without breaking the connection of said conduit to said one means and while the same remains mounted on said first compartment upright wall.

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