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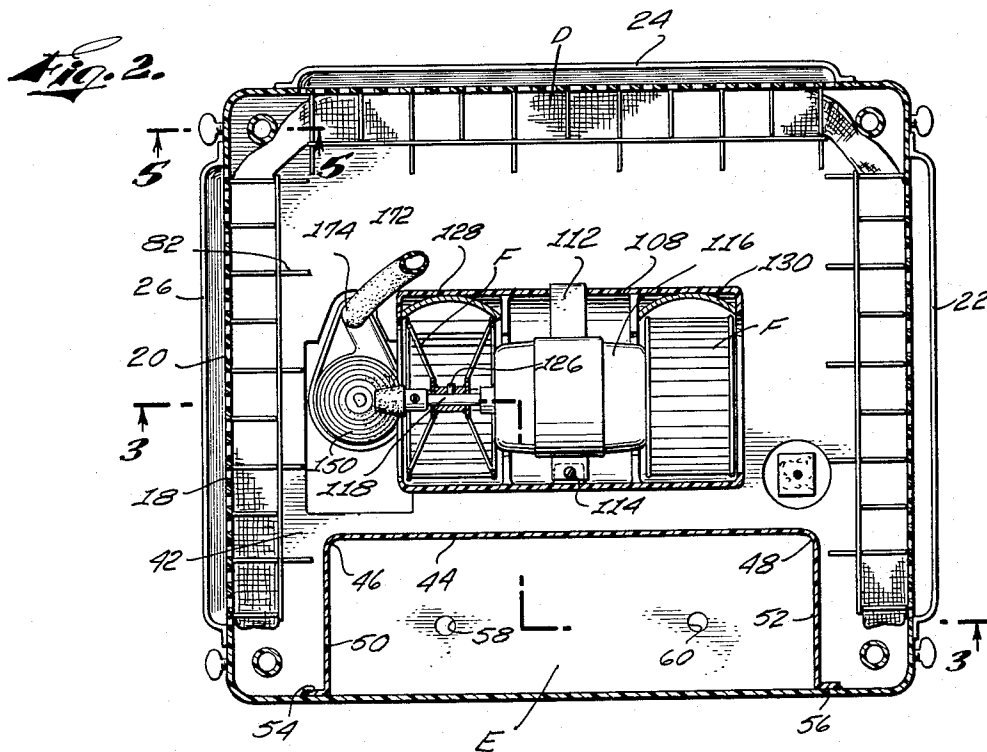
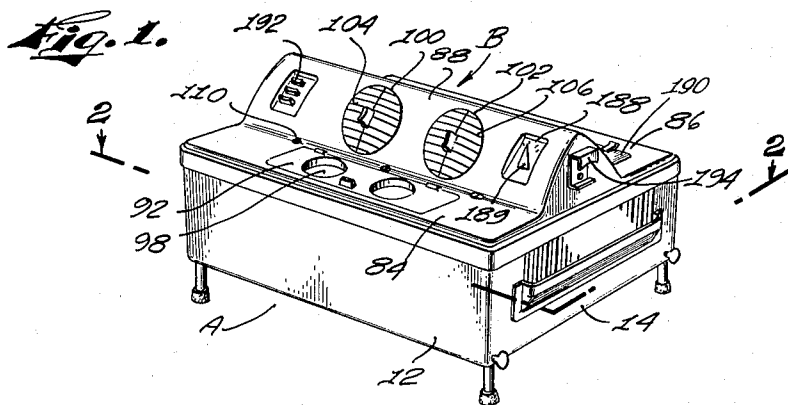
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PORTABLE CAR AND BEVERAGE COOLER

Filed Feb. 15, 1960

2 Sheets-Sheet 1



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Fig. 3.

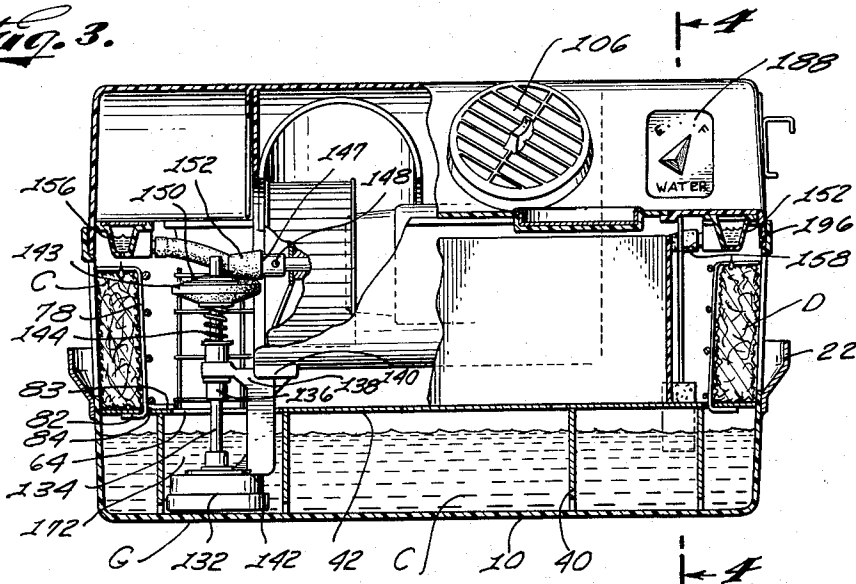
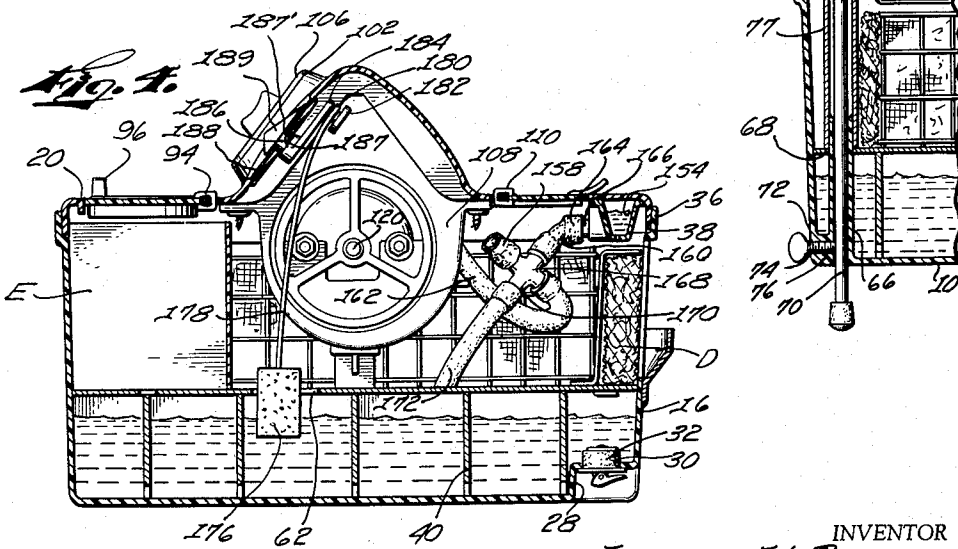


Fig. 5.



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PORTABLE CAR AND BEVERAGE COOLER

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6 Claims. (Cl. 62-312)

This invention relates generally to portable cooling devices and particularly to a combined car and beverage cooler of the evaporative type.

One of the main objects of the invention is to provide a light-weight portable car cooler that contains a cooling compartment for beverages and the like.

Conventional car coolers are complicated in structure and comparatively expensive, however, they afford great comfort under high temperature conditions. It is the purpose of the present invention to provide a light-weight, inexpensive portable car and beverage cooler that can be easily placed in a car when needed. When high temperature conditions return to normal, the cooler of the present invention may be easily taken out of a car and stored for future use. The cooler of the present invention provides an advantage over heretofore proposed devices of this type in that such cooler not only cools the car and occupants, but also provides a cold chest for bottled beverages and the like so as to provide added heat relief for hot and thirsty car occupants.

The cooler of the present invention utilizes a simple refrigerating system based upon absorption of heat by evaporation of liquid and the induction of air to maximize the rate of evaporation. The cooler improves the cooling rate and lowers temperature by disposing an ice chest within the absorption area. This ice chest communicates with the water reservoir and the melting ice continuously replenishes the reservoir.

Another object of the invention is to provide a portable car cooler of the evaporative type that has an ice chest for beverages and the like within the absorption area.

Still another object of the invention is to provide a portable evaporative type car cooler with an ice chest for beverages and the like within the absorption area and in communication with the water reservoir for gradually replenishing the water supply as the ice melts.

Yet another object of the invention is to provide a light-weight evaporative type car cooler with a decked absorption area or evaporator tank adapted to receive water ice or dry ice to further increase the cooling rate.

A further object of the invention is to provide a light-weight portable evaporative type car cooler of the afore-described nature having special leg mounts that permits adjustment to fit any car body style.

A still further object of the invention is to provide a beverage ice chest in association with an evaporative type car cooler, the cover for the chest providing bottle holder or ash tray accessories.

With the foregoing object in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as the specification proceeds, the invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings in which:

FIGURE 1 is a perspective view of a preferred form of combined car and beverage cooler embodying the present invention;

FIGURE 2 is a horizontal sectional view taken on the line 2-2 of FIGURE 1;

FIGURE 3 is a vertical sectional view taken on the line 3-3 of FIGURE 2;

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FIGURE 4 is a vertical sectional view taken on the line 4-4 of FIGURE 3; and

FIGURE 5 is a partial vertical sectional view taken on the line 5-5 of FIGURE 2.

Referring to the drawings, a preferred embodiment of a combined car cooler and beverage cooler embodying the present invention is shown in perspective in FIGURE 1. Generally, the cooler comprises a leg-supported bottom section A and a separable top section B. The bottom section A includes a deck-covered water reservoir C and a continuous layer of absorbent material D supported on the deck adjacent three slitted sides thereof. An ice chest E is mounted on the deck inside the fourth or closed side of the bottom A.

The separable top section B supports the motor-driven squirrel cage blowers F and the water pumping unit G that supplies a saturating flow of water to the absorbent material D. The top and bottom sections are preferably molded from synthetic plastic material.

The bottom section generally referred to as A has a bottom 10 and four sides or walls 12, 14, 16 and 18. The front wall 12 is solid and the sides are solid at the base, but vertically slitted at 20 to permit air flow through the absorbent material D. Gutters 22, 24 and 26 supported on the outside of the walls 14, 16 and 18, respectively, and below the slitted section 20 protect against expulsion of any water and act as return means. The bottom 10 and side 14 are recessed at 28 to provide an accessible drain opening 30 that is normally closed by a conventional expansible collapsible drain plug 32. The continuous upper edge 34 of the bottom section A is offset at 36 to form a continuous seat 38 for the depending edge of the separable top section B. A series of baffles 40 are connected to the bottom 10 and sides 12, 14, 16 and 18 in a manner to prevent sloshing of water in the reservoir C while the car is in motion.

A deck 42 overlies the baffles 40 and the outer edges thereof lie flush with the side walls. The ice chest generally referred to as E is formed by affixing a vertical partition 44 to the front wall 12 and to the deck 42. The partition 44 is bent at 46 and 48 to form sides 50 and 52, respectively. The forward edges of the sides 50 and 52 are flanged at 54 and 56, respectively, for connection with the front side 12. Openings 58 and 60 in the deck 42 permit direct communication between the ice chest E and the water reservoir C. The deck 42 is also apertured at 62 and 64, respectively, for reception of a float and centrifugal pump, later to be described.

The bottom section A has four adjustable legs which permit the cooler to be positioned in any style of car body. The cooler is usually placed on the floor over the transmission housing in the front seating compartment. The shape of the transmission housing varies in different makes and models of cars and therefore applicant provides a novel mounting for the adjustable legs in a manner to prevent any leaking of water. In FIGURE 5, a vertical leg-supporting cylinder 66 is either molded with or secured to each corner of the bottom 10 in a water-tight manner. The cylinder 66 extends upwardly through an opening 68 in the deck 42 and slightly thereabove. A leg 70 is adjustably supported in the cylinder 66 by means of a winged set screw 72 threaded at 74 in a reinforced portion 76 of the bottom 10. A vertical tube 77 has its lower end engaging the upper end of the cylinder 66 and surrounding the cylinder 66. The above-described assembly permits vertical leg adjustment and absolutely prevents any sloshing water from leaking through the cylinder 66. Only one of the four legs 70 and mounting therefor has been described because each of the four are substantially similar.

A reticulated wire cage 78 surrounds a continuous layer of excelsior or other absorbent material D. The

wire cage 78 has spaced engaging ends 82 that pass through holes 84 in the deck 42 and are bent against the underside of the deck to fixedly secure the cage 78 and absorbent layer D thereto. Other inwardly-projecting wire feet 83 abut the upper surface of the deck 42 immediately adjacent the slitted walls of the sides 12, 14 and 16 and serve to sustain the absorbent material in rigid vertical position.

The top section B has flat, horizontal front and back upper wall portions 84 and 86 connected by raised generally convex surfaces 88. The front wall portion 84 has a generally rectangular opening therein coinciding with the upper edge of the ice chest E. A lid 92 is hinged at 94 to the front wall 84 and a lid actuating handle 96 is secured to the forward edge of the lid. The lid 92 has dual circular indents 98 that provide either bottle holders or ash trays as desired. On the forward side of the convex surface 88, dual raised circular openings 100 and 102 are formed. Rotatably disposed in openings 100 and 102 in pressed engaging fit are dual manually movable louvers 104 and 106, respectively. These louvers 104 and 106 permit rotation and varied direction of the cooled air through 360 degrees.

A motor and blower housing 108 of synthetic plastic is secured to the underside of the walls 84 and 86 by screws 110 within the convex section 88. A yoke 112 secured to the housing 108 at 114 surrounds and secures a small electric motor 116. Dual laterally projecting motor shafts 118 and 120 have twin squirrel cage blowers F secured thereto by means of set screws 126 threaded through the hubs of the blowers. The blowers F are provided with conventional shrouds 128 and 130 that direct the cooled air through the louvers 104 and 106. A conventional small centrifugal pump and apertured housing 132 has a vertically disposed drive shaft 134 supported in a bearing 136 which in turn is attached to a pump bracket 138 that is attached to the housing 108 at 140. The lower end 142 of the bracket 138 surrounds the drive shaft 134 and is secured to the pump housing 132. A rubber disk 143 is slidable on but secured to the drive shaft 134. A coil spring 144 between the bearing 136 and a washer 146 on the underside of the disk 143 urges the disk against a driving element 147 keyed at 148 to the motor drive shaft 118. The disk 143 is ridged and tapered in a circular manner at 150 to conform to the taper 152 on the driving element 147.

To supply water to saturate the absorbent material D there are provided three perforated, horizontal troughs 152, 154 and 156 secured beneath the sides and rear edge of the top section B. Water communication to these troughs is provided by tubes 158, 160 and 162, respectively, which are attached in the manner shown in FIGURE 4 at 164 to tubular projections 166 on the sides of the troughs 152, 154 and 156. A tube-connecting member 168 has a nipple 170 secured to the main water tube or hose 172 which in turn is attached to the discharge side of the centrifugal pump at 174.

A gauge for indicating the water level in the reservoir C is provided and includes a float 176 and an upwardly extending connecting wire 178. The wire 178 has an eye 180 engaging a projection 182 on a toggle 184 that is connected to a short shaft 186 projecting upwardly through and rotatable in aligned openings 187 and 187' formed in the forward side of the convex section 88, and a water level indicating plate 188 as shown in FIGURE 4. A water level indicating pointer 189 is attached to the short shaft 186 outwardly of and cooperates with the plate 188 to provide visual indication of the amount of water in the reservoir C.

A generally rectangular opening in the rear walls 86 of section B is provided a hinged lid 190 that permits water, water ice or Dry Ice to be disposed on the deck 42 when it is desired to further enhance the cooling rate.

Conventional electrical connections (not shown) are provided between the electric motor 116, control switch

192 and a suitable source of electric current on the car, as for example, the cigarette lighter socket on the car's dash. These connections are entirely standard in all respects and form no part of the present invention. A conventional bottle opener 194 is attached to an end wall 195 of the convex section 88, as shown in FIGURES 1 and 3. The depending continuous lower edge 196 of section B rests on the seat 38 of section A.

The operation of the aforescribed cooler is simple. The evaporative cooling system permits fabrication of a lightweight cooler that can be easily placed in or taken from a car. The adjustable legs permit positioning of the cooler in any type or style of conventional car body. When the dash electrical connection has been made and the device is in operation, the centrifugal pump 132 delivers a saturating flow of water to the perforated troughs 152, 154 and 156. The continuous layer of excelsior or absorbent material D is completely saturated and maintained in this condition at all times. Water dripping from the saturated material D returns to the water reservoir C. The squirrel cage blowers F induce a flow of air through the absorbent material and thus enhance the evaporative cooling rate. The cooled air is expelled through the louvers 104 and 106 which are adjustable to suit the occupants. The chest E filled with ice provides means for cooling bottle beverages and the like during car travel. The ice chest serves another important function by further lowering the temperature of the cooled air within the absorption area or tank and thus further enhances the rate of cooling. The chest E also provides a means for gradually replenishing the reservoir C with water from the melting ice. The absorption area or evaporator tank around the housing 108 on the deck 42 may be filled with water ice or Dry Ice through the lid 190 if a greater rate of cooling is desired. The aforescribed cooler not only contributes to comfortable travel in hot temperatures by cooling the air within the car, but it also supplies the car's occupants with chilled drinks to further lower the body temperature.

Although the cooler of the present invention has been hereinbefore described in conjunction with a car, it should be noted that it readily lends itself to use for cooling other enclosed areas such as rooms, house trailers and boat cabins.

Since various modifications can be made in my invention as hereinbefore described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limited sense.

I claim:

1. In a cooler, the combination comprising: a cabinet including a lower walled section and a top section for closing the upper end of said lower section, said top section separably resting on the upper edge of the wall of said lower section; a deck mounted within said lower section in spaced relationship to a floor of said lower section and in spaced relationship to said top section, the volume of said lower section beneath said deck serving as a water tank and the space between said deck and top section serving as an ice chest; an electric motor secured to and depending from said top section to be positioned within said ice chest and drivingly mounting a blower arranged for exhausting cooled air through an outlet formed in said top section, the wall of said lower section being formed with an inlet to said ice chest for air to be cooled; absorbent material positioned at said inlet in said ice chest; a pump secured to and depending from said top section to be positioned in said water tank and drivingly connected to said motor by a means extending through an opening formed in said deck, said opening also permitting the passage of water from said ice chest to said water tank; and conduit means supported by said top section and connected to said pump for conducting

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water from said water tank to said adsorbent material to provide water for the evaporative cooling of air entering said inlet.

2. A cooler as set forth in claim 1 in which said cooler is mounted on adjustable supporting legs, each of which legs is a vertically extending member vertically slidably supported within a vertically supported cylinder positioned within said water tank, said cylinder being mounted in watertight relationship to the floor of said tank and having an open upper end protruding upwardly beyond the level of said deck through an opening in said deck, said cylinder mounting a means adjustable from the exterior of said tank for releasably securing said leg in an adjusted position.

3. A cooler as set forth in claim 1 in which the wall of said lower section has an exteriorly disposed horizontally extending gutter positioned at the lower edge of said inlet adapted for receiving excessive water from said adsorbent material and for directing such excessive water back into said ice chest.

4. A cooler as set forth in claim 1 in which the top section is formed with an integral downwardly concave surface and mounts an upwardly concave housing immediately beneath said integrally formed surface of said top section, said motor being mounted within said housing and drivingly supporting, on opposite ends of said motor, a pair of centrifugal blowers, said blowers also

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being disposed within said housing, one of said blowers having an extension of an output shaft of said motor drivingly engaged with a drive shaft of said pump.

5. A cooler as set forth in claim 4 in which said housing serves as the support for said pump and mounts a bearing for said drive shaft, said bearing abutting an end of a spring, the other end of said spring abutting a disc drivingly engaged to the end of said drive shaft for biasing said disc against said output shaft extension of said motor.

6. A cooler as set forth in claim 5 in which a trough is secured to the underside of said top section to be disposed over said adsorbent material when said top section is on said lower section, said trough being formed with a plurality of downwardly opening orifices for dropping water onto said adsorbent material, and in which a length of tubing is secured between and supported by a discharge outlet of said pump and an inlet to said trough.

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