ABSTRACT

A container and cold plate combination that keeps liquids cold includes a pitcher made from a pitcher housing material, or having outside and/or inside metallic liners that are integral to the pitcher bottom which is metallic and configured to be in direct surface contact with an underlying cold plate of a cold plate station system. The cold plate lowers the temperature of the metallic liners or pitcher housing and the cold is transferred to a liquid in the container.
BEVERAGE PITCHER COLD PLATE STATION

RELATED APPLICATION


FIELD OF THE INVENTION

[0002] The invention relates to a pitcher and cold plate station combination configured so as to maintain the contents of the pitcher in a relatively cold state.

BACKGROUND OF THE INVENTION

[0003] Beer and other beverages are commonly served in restaurants and beverages are often served at continental breakfasts, banquet halls, coffee shops, waiters stations, and similar facilities and location in pitchers. Although beverage producers typically recommend that their products be served at thirty eight degrees Fahrenheit, the product heats up quite rapidly once served. The liquid in the bottom of a large pitcher will warm up to a temperature quite in excess of the ideal serving temperature by the time it is consumed. Thus, the customer’s memory of the product is that it was quite tasty at first but somewhat disappointing later.

[0004] The invention herein solves part of this problem with a pitcher as described in U.S. Pat. No. 5,189,892 issued Mar. 2, 1993. However, some hotels are reluctant to use multiple pitchers having the features of the invention disclosed in the aforementioned patent at continental breakfasts, banquet halls, coffee shops, waiters stations, and similar facilities and location because of the need to place ice cubes or frozen plugs inside the hollow post section of the pitcher disclosed in the patent.

[0005] What is accordingly needed is a pitcher/cold beverage station that maintains the beverage contents of multiple pitchers at desired cold temperatures and is further adapted for use in multiple locations such as those mentioned above, for example, a pitcher that conducts the cold either up or outside of an insulated pitcher or both in a cold beverage station that maintains the beverage contents of multiple pitchers at desired temperatures.

SUMMARY OF THE INVENTION

[0006] The invention is a combination single or multiple pitcher cold beverage station.

[0007] In one embodiment, the pitcher or container is adapted to have an inverted hollow post extending a predetermined distance upwardly inside the pitcher from a bottom of the pitcher. The bottom of the pitcher has an opening for access to the hollow post interior. The hollow post is typically made from a metallic non-insulating material such as aluminum or stainless steel. It is sealingly engaged at the bottom of the pitcher so as to prevent the contents of the container or pitcher from leaking. A hollow insert is insertable into the hollow post and is in sufficient contact with an interior surface of the hollow post so that thermal conductivity may take place between the two members, the hoi low post and the hollow insert. The hollow insert is secured to the bottom of the container by various means known to the art, such as by threaded engagement or other interlocking means that prevent the hollow insert from falling out when the container is lifted. The hollow insert has a bottom portion that extends downwardly a desired distance and is configured to be in contact with an underlying cold plate. The hollow insert is also preferably made from a metallic non-insulating material such as aluminum or stainless steel.

[0008] The above configured pitcher is then used in combination with a one or multiple station cold plate system comprising means for cooling one or more cold plates upon which the above-described beverage containers are placed when not in use. Such a cold plate system could include typical components found in freezer or refrigeration systems, including a compressor motor, cooling coils, evaporator fans, drain pans, etc., however, in a preferred embodiment, an electronically controlled cold plate could be incorporated. For example, a cold plate similar to that disclosed in U.S. Patent No. 5,088,005 issued Feb. 11, 1992, to Ciaccio, may be incorporated. Accordingly, this reference is herein incorporated by reference, in its entirety, in the latter embodiment, a compressor, evaporator coil, fans, condensate drain pan, etc., may not be needed. The cold plates are adapted or configured to be in surface contact with the bottom surface of the hollow insert.

[0009] In another embodiment, an insulated pitcher is used which includes a non-insulated material inside liner with which the bottom of the non-insulating part of the pitcher makes contact with the cold plate thereby transferring the cold from the cold plate up the side walls of the pitcher inside liner material.

[0010] When desired, a timer can be included in the power circuitry of the cold plate system so as to control the system for desired intermittent cooling of the cold plate(s). By thermal conductivity, the colder temperature of the cold plate will transfer through the hollow insert and through the hollow post so as to maintain the beverage temperature at a desired cold temperature.

[0011] In another embodiment of the invention, the container does not include the hollow post but rather the hollow insert is mounted and interlocked directly to the pitcher bottom so as to extend a predetermined distance upwardly into the interior of the pitcher and its bottom is in contact with the cold plate.

[0012] Of course, a non-insulated pitcher made from a metallic material is also contemplated as within the scope of the invention to be used with the cold plate station described above.

[0013] The container is preferably made from a plastic material but may be made from metallic material as desired.

[0014] Although not needed, the hollow post or hollow insert described in the above two embodiments for the containers may optionally include a gel type of material in the interior similar to those materials used in gel-packs for cold compresses on swollen joints.

[0015] The cold plate system further comprises one or more designated locations on a housing of the cold plate system for providing indicia for identifying a content of each container disposed on an adjacent cold plate. This can be in the form of an indentured smooth area on housings made from composite materials for sticking a decal or a marked rectangular area for inserting a decal or a slotted clear covered area for displaying a printed text or logo of the product in the container. For example, text such as “ORANGE”, “ORANGE JUICE”, “WATER”, or “MILK” may be displayed or a symbol such as a picture or graphic depiction of an actual orange may be included.
The container disclosure of U.S. Pat. No. 5,189,892 is herein incorporated by reference in its totality in this disclosure to the extent its features are incorporated into the elements of the invention described herein or is helpful in understand the features of the claimed invention herein.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings:

FIG. 1 is a perspective conceptual depiction of one example of the present invention;
FIG. 2 is a perspective conceptual depiction of another example of the present invention;
FIG. 3a is a perspective conceptual depiction of a three station unit cold plate system;
FIG. 3b is a conceptual depiction of the cooling system for cooling each cold plate;
FIG. 4a is a conceptual depiction of an example of a non-insulated cold conducting bottom and side beverage/milk pitcher; and
FIG. 4b is a conceptual depiction of an example of a non-insulated bottom and base combination with an insulated side beverage/milk pitcher where the pitcher has an internal cold conducting liner that is integral to the cold conducting material of the bottom of the pitcher.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, FIGS. 1-2 and 3a-3b disclose various conceptual examples of embodiments of the present invention, which is a combination single or multiple container cold beverage station, depicted generally as 10 in FIG. 1 and as 100 in FIG. 2.

In the invention depicted in FIG. 1, the invention is a combination single or multiple pitcher cold beverage station 10 comprising a one or multiple station cold plate system 12 comprising means 12a for cooling and maintaining one or more spaced-apart cold plates 12b at a desired temperature. Such means 12a includes a compactly built system where the cold plates 12b are electronically configured and operated, for example, a cold plate similar technically to that described in U.S. Pat. No. 5,088,005 issued Feb. 11, 1992, to Ciachto. Of course, other cold plate design are contemplated such as those used in refrigeration/freezer systems that may include a compressor motor, cooling coils, fans and a drain pan typically associated with such refrigeration/freezer units. The individual components are well understood in the art and accordingly need not be shown in the drawings.

The invention 10 also includes a beverage container 14 adapted to have an inverted hollow post 14a extending a predetermined distance upwardly inside the container 14 from a bottom 14b of said container 14. The bottom 14b of the container 14 has an opening 14c for an interior 14d of said hollow post 14a. A hollow insert 16 is configured to be insertable into the hollow post 14a and is in sufficient contact with an interior surface 14e of said hollow post 14a so that thermal conductivity may take place between the hollow post 14a and the hollow insert 16.

Means 18 for securing the hollow insert 16 to the bottom 14b of the container 14 to prevent the hollow insert 16 from falling out when the container 14 is lifted is also included. This can be done in a number of ways including, but not limited to a threaded type of engagement or a twist lock interlocking mechanism, among others. For liquid tightness purposes, several means are known in the art, including the use of an o-ring (not shown) or a gasket (shown as 14f).

The hollow insert 16 has a bottom portion 16a that extends downwardly a desired distance and is configured to be in surface contact with an underlying cold plate 12b of the cold plate system 12, wherein through thermal conductivity, a colder temperature of each cold plate 12b transfers the colder temperature through the hollow insert 16 and through the hollow post 14a so as to maintain a beverage temperature at a desired cold temperature.

The hollow post 14a and the hollow insert 16 are preferably made from a metallic non-insulating material. The hollow post 14a may also be removably attached for easy cleaning of the hollow post 14a and container 14. Post 14a may be removably attached such as by a threaded engagement or a twist interlocking mechanism or similar means that also seal or prevent the contents of the container 14 from leaking out the bottom.

A timer 20 may optionally be included in the power circuitry 22 to intermittently power the cold plate system over desired time intervals.

The invention 10 further optionally includes one or more designated locations 12c on a housing 12d of the cold plate system for providing indicia for identifying a content of each container 14 disposed on an adjacent cold plate 12b.

The housing 12d may be made from a variety of materials including composite materials and metallic materials such as stainless steel. The designated locations 12c can be in the form of an indented smooth area on housings 12d made from composite materials for sticking a decal or a marked rectangular area for inserting a decal or a slotted clear covered area for displaying a printed text or logo of the product in the container. For example, text such as “ORANGE” or “ORANGE JUICE” or “CRANBERRY CHOICE” or “MILK” or “WATER” may be displayed or a symbol such as a picture or graphic depiction of an actual orange may be included.

In another embodiment depicted in FIG. 2 by way of example, the invention 100 includes a one or multiple station cold plate system 112 comprising means 112a for cooling and maintaining one or more spaced-apart cold plates 112b as described above for the embodiment of FIG. 1.

The invention 100 further includes a beverage container 114 adapted to have an opening 114a at its bottom 114b for access to an interior 114c of said container, and a hollow insert 116 configured to be insertable through said opening 114a and to extend a predetermined distance upwardly into said interior 114c of said container. This insert may be integrally attached to the container 114 or preferably removably attached for ease of cleaning. If removably attached, it should be sealingly attached when in use so as to prevent leakage of the contents in the container 114. This can be done in a number of ways known in the art such as by a threaded engagement or a twist lock type of mechanism or other similar mechanical engagements using o-ring or gasket (114f) seals, if necessary. This applies to the engagement methods of the post 114a and insert 16 described above as well.

The hollow insert 116 is configured to have a bottom portion 116a that extends downwardly a desired distance when engaged with said access opening 114a of said bottom 114b of said container 114 and is configured to be in surface contact with an underlying cold plate 112b of said cold plate system 112. The invention 100 accordingly through thermal conductivity, conducts a colder temperature of each cold plate
through the hollow insert 116 so as to maintain a beverage temperature at a desired cold temperature.

[0036] The hollow insert 116 is preferably made from a metallic non-insulating material, such as aluminum or stainless steel.

[0037] As with the embodiment of FIG. 1, the invention 100 further comprises means for intermittently powering the cold plate system 112 for desired time intervals, such as a timer 120 connected in the power circuitry 122.

[0038] As with the embodiment of FIG. 1, the housing 112d may be made from a variety of materials including composite materials and metallic materials such as stainless steel. The designated locations 112c can be in the form of an indented smooth area on housings 112d made from composite materials for sticking a decal or a marked rectangular area for inserting a decal or a slotted clear covered area for displaying a printed text or logo of the product in the container. For example, text such as “ORANGE” or “ORANGE JUICE” may be displayed or a symbol such as a picture or graphic depiction of an actual orange may be included.

[0039] FIG. 3a is a perspective conceptual depiction of a three station unit cold plate system and FIG. 3b is a conceptual depiction of one method of providing a cooling system for cooling each cold plate using components typically associated with refrigeration/freezer systems. In this example, the means 12a, 112a for cooling each cold plate 12b, 112b comprises components typically associated with such a refrigeration system such as a power source 22, 122 to a compressor/motor 66, 166 and evaporative fans 60, 160. The compressor is charged with a freon gas that cools the cooling coils 62, 162 in the cold plate 12b, 112b. Typically, a fan 60, 160 is used to facilitate the evaporation of condensate collected in a drain pan 64, 164. As mentioned above, a timer 20, 120 may be incorporated in the cooling plate system.

[0040] Examples of typical types of beverage/milk containers that may be used in the invention are conceptually depicted in FIGS. 4a and 4b. The depiction of the combination pitcher and cold plate in each of FIGS. 1 and 2 is merely representative of pitcher(s) on a cold plate. The pitchers depicted in FIGS. 4a and 4b may be substituted for those depicted in FIG. 1 and FIG. 2. FIG. 4a is a conceptual depiction of an example of a non-insulated cold temperature conducting bottom and side beverage/milk pitcher 200. It has a handle 202, a lid 204, a side 206 made from a cold temperature conducting material and a bottom 208 made from a cold temperature conducting material. FIG. 4b is a conceptual depiction of an example of a pitcher 200 that is a variant of the FIG. 4a pitcher. Depicted is a pitcher 200 with handle 202 and lid 204, however, the side 206 is comprised of an inside liner 220 that is made from a cold temperature conducting material. Liner 220 is integral to or otherwise attached to the bottom 208 that is also made from a cold temperature conducting material. In this depiction, a base 212 is shown, which although not shown in FIG. 4a could be incorporated in the FIG. 4a pitcher shape. The pitcher 200 shown in FIG. 4b may also have an insulated or non-insulated side 210 external to the liner 220. Both pitchers depicted in the FIGS. 4a and 4b may be standard metal pitchers used with the above described cold plates. In addition, the FIGS. 4a and 4b may be representative of insulated pitchers with an outside metal liner and integral metal bottom that contacts the cold plate.

[0041] As described above, a preferred method for providing a cooling system is to provide cold plates 12b, 112b similar to that disclosed in U.S. Pat. No. 5,088,005 issued Feb. 11, 1992, to Ciaccio, which are operated electronically and which do not or may not require components, such as a compressor/motor, evaporator fans and cooling coils.

[0042] It should be understood that the preceding is merely a detailed description of one or more embodiments of this invention and that numerous changes to the disclosed embodiments can be made in accordance with the disclosure herein without departing from the spirit and scope of the invention. The preceding description, therefore, is not meant to limit the scope of the invention. Rather, the scope of the invention is to be determined only by the appended claims and their equivalents.

What is claimed is:

1. A combination single or multiple container cold beverage station comprising:
   - a one or multiple station cold plate system comprising one or more spaced-apart cold plates having means for maintaining said cold plates at a desired temperature;
   - a beverage container having an outside metallic liner that extends downwardly and is integral to a metallic bottom portion of said beverage container, said metallic bottom portion being in surface contact with said underlying cold plate of said cold plate system,
   wherein through thermal conductivity, a colder temperature of each respective cold plate transfers said colder temperature to said beverage container so as to maintain a beverage temperature at a desired beverage cold temperature.

2. The beverage station according to claim 1, further comprising means for intermittently powering the cold plate system for desired time intervals.

3. The beverage station according to claim 1, further comprising one or more designated locations on a housing of said cold plate system for providing indicia for identifying a content of each container disposed on an adjacent cold plate.

4. A combination single or multiple container cold beverage station comprising:
   - a one or multiple station cold plate system comprising one or more spaced-apart cold plates having means for maintaining said cold plates at a desired temperature;
   - a beverage container having an inside liner made of metallic material that extends downwardly and is integral to a non-insulated bottom portion of said beverage container and is configured to have a depth configured to be in surface contact with an underlying cold plate of said cold plate system,
   wherein through thermal conductivity, a colder temperature of each cold plate transfers said colder temperature to said beverage container so as to maintain a beverage temperature at a desired beverage cold temperature.

5. The beverage station according to claim 4, further comprising means for intermittently powering the cold plate system for desired time intervals.

6. The beverage station according to claim 4, further comprising one or more designated locations on a housing of said cold plate system for providing indicia for identifying a content of each container disposed on an adjacent cold plate.

7. A combination single or multiple container cold beverage station comprising:
   - a one or multiple station cold plate system comprising one or more spaced-apart cold plates having means for maintaining said cold plates at a desired temperature;
a beverage container made from a metallic housing that extends downwardly and is integral to said metallic bottom portion of said beverage container, said metallic bottom portion being in surface contact with said underlying cold plate of said cold plate system, wherein through thermal conductivity, a colder temperature of each cold plate transfers said colder temperature to said beverage container so as to maintain a beverage temperature at a desired beverage cold temperature.

8. The beverage station according to claim 7, further comprising means for intermittently powering the cold plate system for desired time intervals.

9. The beverage station according to claim 7, further comprising one or more designated locations on a housing of said cold plate system for providing indicia for identifying a content of each container disposed on an adjacent cold plate.