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DISPENSING AND DISPLAY DEVICE

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Fig. 1.

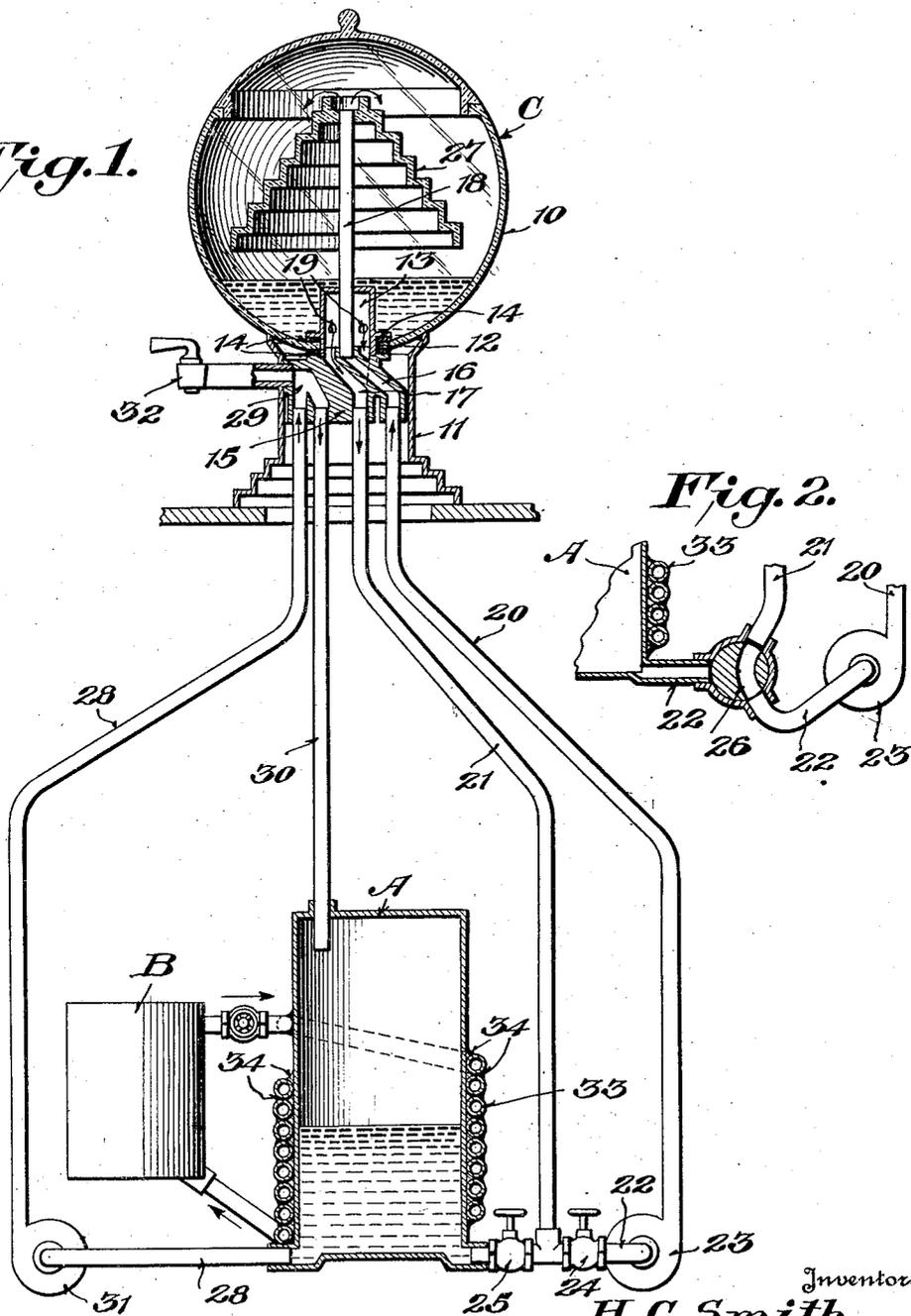


Fig. 2.

WITNESSES:-

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## UNITED STATES PATENT OFFICE

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## DISPENSING AND DISPLAY DEVICE

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This invention relates to combined liquid dispensing and display devices, and has particular reference to improvements in devices of this kind which include means to effect a constant circulation of the liquid through a transparent display container.

Devices of the foregoing type are particularly adapted to the display and dispensing of beverages, and to this end it has been the practice heretofore to provide a storage receptacle, suitably cooled, to contain the main body of beverage, and to effect a constant circulation of beverage from said storage receptacle through the display container and back to said receptacle.

Under the foregoing conditions, if the display container is in any way subjected to heat, it is manifest that the beverage in its passage through said container will absorb heat and that an added burden will be imposed on the cooling apparatus to maintain the liquid in the storage receptacle at a desired temperature. Moreover, if the beverage is dispensed after passing into or through the display container and prior to its return to the storage receptacle, it may become too warm to constitute a satisfying drink despite the fact that the beverage in the storage receptacle may be maintained at a very low temperature. Accordingly, it is an important object of the present invention to provide means whereby a part of the beverage from the storage receptacle may be circulated through the display container independently of the main body of beverage, thus to relieve the cooling apparatus of the burden of extracting heat absorbed by the beverage in its passage through the display container. In connection with such an arrangement it is also a purpose to provide for conveniently directing beverage being circulated through the display container into the storage receptacle and to enable a fresh supply of beverage to be drawn from the storage receptacle for circulation through the display container.

Another purpose of the invention is to provide means to circulate beverage from the storage receptacle to a dispensing station and back to the storage receptacle inde-

pendently of the display circulation, whereby the ingredients of the beverage will be maintained thoroughly mixed together and whereby that portion of the beverage which is dispensed from time to time will be of substantially the same temperature as the beverage in the storage receptacle.

For cooling the beverage in the storage receptacle suitable refrigeration apparatus is employed inclusive of a cooling coil or coils positioned against the outside of the storage receptacle, and it is a further purpose of the invention to provide means to assure and maintain good heat radiating contact of said coil with said receptacle.

Further, it is a purpose of this invention to provide a beverage dispensing and display device having the characteristics mentioned, which is simple in construction, relatively inexpensive to produce and operate, durable, compact and thoroughly reliable and efficient in use.

With the foregoing and other purposes in view, the invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the drawings, wherein like characters of reference denote corresponding parts in the different views:

Fig. 1 is a vertical section through a beverage dispensing and display device embodying the novel features of the invention; and

Fig. 2 is a detail sectional view illustrating an alternative arrangement from that shown in Fig. 1 for controlling flow of beverage from the cooling receptacle to the display container.

Referring now to the drawing in detail, it will be observed that the present device includes essentially a storage receptacle A for the beverage to be dispensed and displayed, refrigeration apparatus illustrated conventionally at B for cooling the beverage within receptacle A, and a display container C through which beverage from the

storage receptacle is adapted to be circulated.

Display container C consists of a hollow, transparent body 10 of any suitable or preferred design supported upon a base 11 and having an opening 12 formed in the bottom thereof through which a tube 13 extends, suitable sealing means such as gaskets 14 being provided to insure against leakage of beverage from body 10 past said tube through said opening 12.

Tube 13 is connected in any suitable manner at its lower end, outside of body 10, with a casting 15 which has a pair of separate passages 16 and 17 formed there-through, said tube being in communication with one of said passages and the other being in communication with a pipe 18 which is carried by said casting and extends upwardly through said tube into body 10, communication between said tube and said body being established in any suitable manner, as, for example, by means of apertures 19 formed in the side of the tube.

Connected with passages 16 and 17 are beverage feed and return pipes 20, 21 respectively, connected with one another and with the storage receptacle A at or near the bottom of the latter by a pipe 22.

Interposed at any suitable point in feed pipe 20 or in pipe 22, between the pipes 20, 21, is a pump 23 adapted to be driven in any suitable manner as, for example, by an electric motor (not shown) to force beverage from pipe 22 through pipe 20, while interposed in pipe 22, according to the embodiment of our invention illustrated in Fig. 1, is a pair of valves 24, 25, the first of which is located between pipes 20, 21 and the second between pipe 21 and receptacle A. Thus, upon opening of both valves 24, 25, assuming pump 23 to be in operation, it is apparent that beverage will be drawn from storage receptacle A and forced through pipe 20, passage 16 and pipe 18 into the hollow display body 10, and as is also apparent, beverage which is delivered to body 10 will gravitate therefrom through tube 13, passage 17, with which said tube is connected, and thence back through pipe 21 to pipe 22. In this manner the beverage circulating line consisting essentially of pipes 20, 21, 22, and the display container body 10 may be charged with any desired amount of beverage from receptacle A and when said line has been so charged it is manifest that upon closing of valve 25 the beverage within said line will continue to circulate in the manner stated, independently of the beverage in receptacle A, so long as pump 23 is continued in operation. It is equally manifest that upon closing valve 24 and opening valve 25, pipe 20 will be cleared of beverage and that substantially all of the beverage which was previously circulated independ-

ently of the beverage in receptacle A will gravitate back to said receptacle, so that by again opening valve 24 and subsequently closing valve 25 the aforesaid circulating line may be charged with a fresh supply of beverage for circulation independently of the beverage in receptacle A. Thus, over any desired period of time a constant circulation of beverage through the display container may be maintained without subjecting the refrigeration apparatus B to the burden of extracting heat absorbed by the beverage in its passage through the display container.

Instead of employing two separate valves 24, 25 for the purposes aforesaid we may employ a single three-way valve 26 located at the junction of pipe 21 with pipe 22, as shown in Fig. 2 of the drawings. Also, if desired, we may employ a stepped member 27 positioned within body 10 to impart a novel cascade-like flowing effect to beverage delivered from pipe 18 into body 10, or, instead of member 27 we may employ any other suitable means to direct the flow of the beverage from pipe 18 through body 10 in a pleasing or attention attracting manner.

For maintaining the beverage in receptacle A in a thoroughly mixed condition and for dispensing beverage from said receptacle, a circulating line of piping independent of the display line is employed. This line consists of a feed pipe 28 leading from a bottom portion of receptacle A to an inverted U-shaped passage 29 formed in the casting 15, and a return pipe 30 leading from said passage 29 back to a top portion of said receptacle. Interposed in pipe 28 is a pump 31 which may be driven by the same motor or other source of power for driving 23, or which may have a source of power individual thereto, the function of this pump being to circulate beverage from receptacle A through line 28, 29, 30 back to said receptacle either constantly or over such periods of time as may be deemed necessary or desirable. By thus circulating said beverage the return flow through pipe 30 is delivered into the main body of beverage contained in receptacle A under pressure developed by the pump 31 so that the beverage is maintained agitated and in a thoroughly mixed condition so long as the pump is maintained in operation.

For dispensing beverage from the circulating line 28-30 we employ any suitable form of valve such as a spigot 32 tapped into said line at any suitable point, preferably at the point where said line makes a return bend, as at the passage 30, to assure beverage flowing from said valve under substantially the same pressure at which it is circulated through said line. By covering pipes 28, 30 with suitable heat insulat-

ing material it is clear that beverage dispensed from spigot 32 will be at substantially the same temperature as the beverage in receptacle A so long as a circulation is maintained through line 28—30.

Refrigeration apparatus B which may be of any suitable or desired type, is inclusive of a cooling coil 33 disposed against and having metal-to-metal contact with the receptacle A. In order to maintain good heat conducting contact between said coil and said receptacle we fill such spaces as may exist between the respective turns of the coil and between the coil and the receptacle A with suitable heat conducting, non-corrosive material such as ordinary commercial solder as indicated at 34, said material serving to prevent corrosion from forming a heat insulating film between the coil and receptacle or around the coil as is apparent.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

We claim:—

1. In a beverage dispensing and display device, a beverage storage receptacle, a beverage display container, and means connected with said storage receptacle operable to take a predetermined quantity of beverage therefrom and to circulate it through said display container independently of the beverage contained in said storage receptacle.

2. In a beverage dispensing and display device, a beverage storage receptacle, a beverage display container, a beverage circulating line of piping connected with said storage receptacle and inclusive of said display container, and means for placing said line of piping in and out of communication with said storage receptacle.

3. In a beverage dispensing and display device, a beverage storage receptacle, a beverage display container, a beverage circulating line of piping inclusive of a feed pipe leading to and a return pipe leading from said display container, said line of piping being connected with said storage receptacle and said feed and return pipes being connected with one another, a pump for circulating beverage through said line of piping to and from said display container, and valve means for connecting said line of piping with and disconnecting it from said storage receptacle.

4. In a beverage dispensing and display device, a beverage storage receptacle, a beverage display container, a line of piping through which beverage is adapted to be circulated to and from said display con-

tainer, and means for charging said line of piping with beverage from said storage receptacle and for thereafter cutting off communication between said line of piping and said storage receptacle.

5. In a beverage dispensing and display device, a beverage storage receptacle, a beverage display container, a line of piping having a pump therein for circulating beverage through said display container, and valve means whereby said line of piping may be charged with beverage from said storage receptacle for circulation through said display container independently of the beverage contained within said receptacle and whereby substantially all beverage contained within said circulating line may be returned to said storage receptacle to enable a substantially complete fresh charge of beverage to be introduced into said line from said storage receptacle.

6. In a beverage dispensing and display device, a beverage storage receptacle, a beverage display container, beverage feed and return pipes leading to and from said display container, respectively, and valve means operable to establish communication of said pipes with one another and cut them off from communication with said storage receptacle and to cut them off from communication with one another and to establish communication between said return pipe and said storage receptacle.

In testimony whereof we hereunto affix our signatures.

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