Oct. 27, 1931. G. J. HUNTLEY 1,828,970

WATER COOLER

Filed April 19, 1929 2 Sheets-Sheet 1

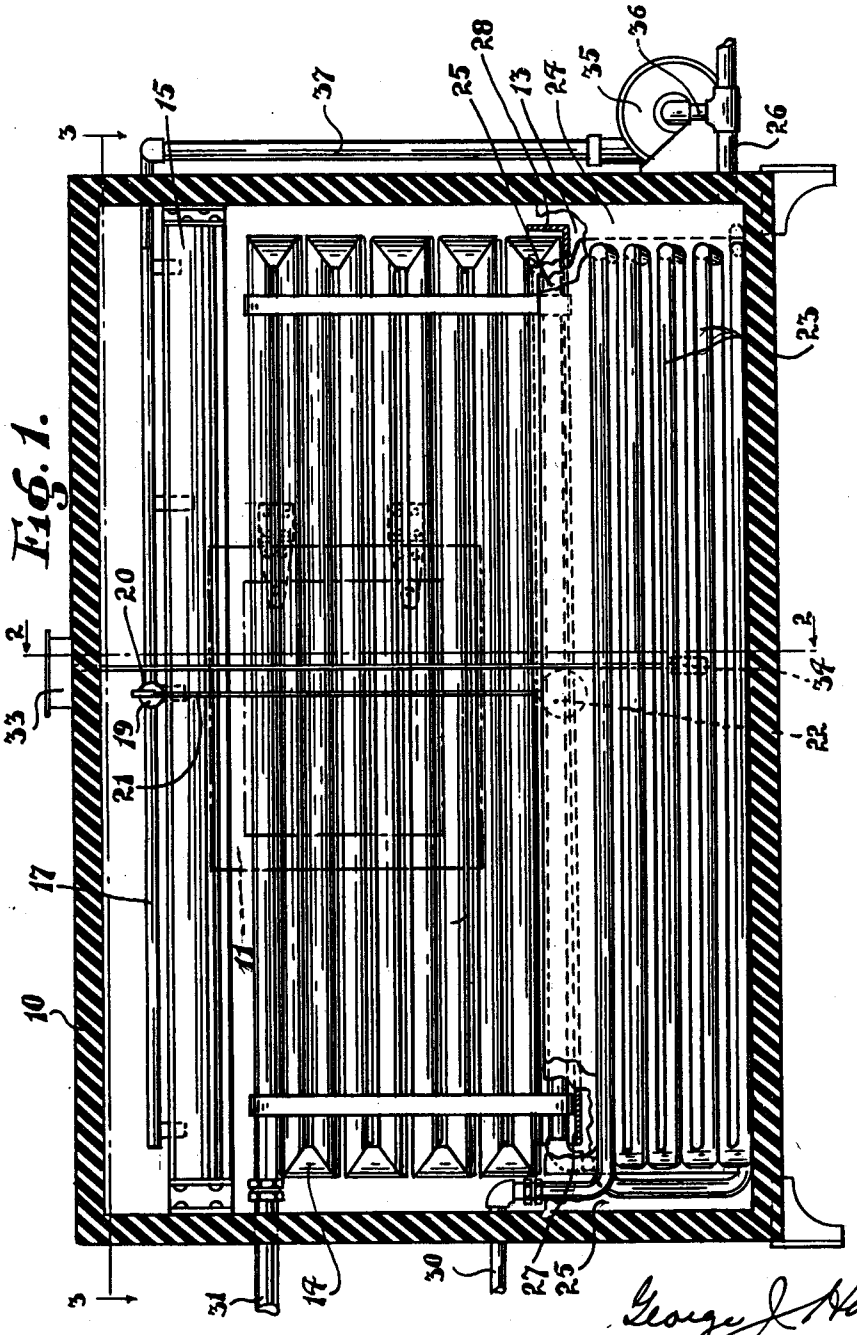


Fig. 1.

George J. Huntley
INVENTOR

BY Frank G. Wentworth
ATTORNEY.

Oct. 27, 1931. G. J. HUNTLEY 1,828,970

WATER COOLER

Filed April 19, 1929 2 Sheets-Sheet 2

Fig. 2.

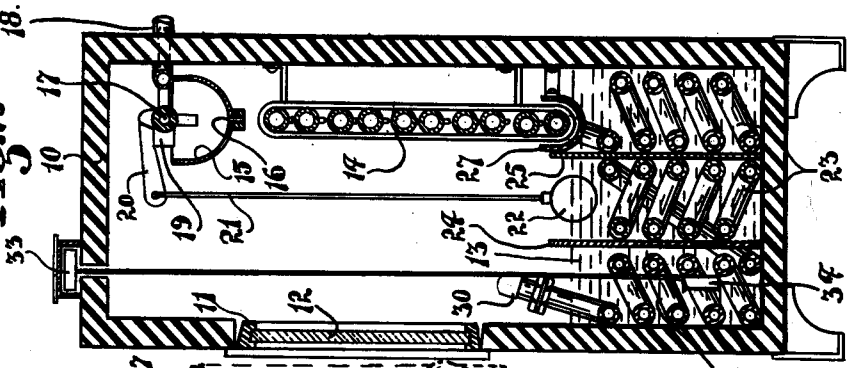
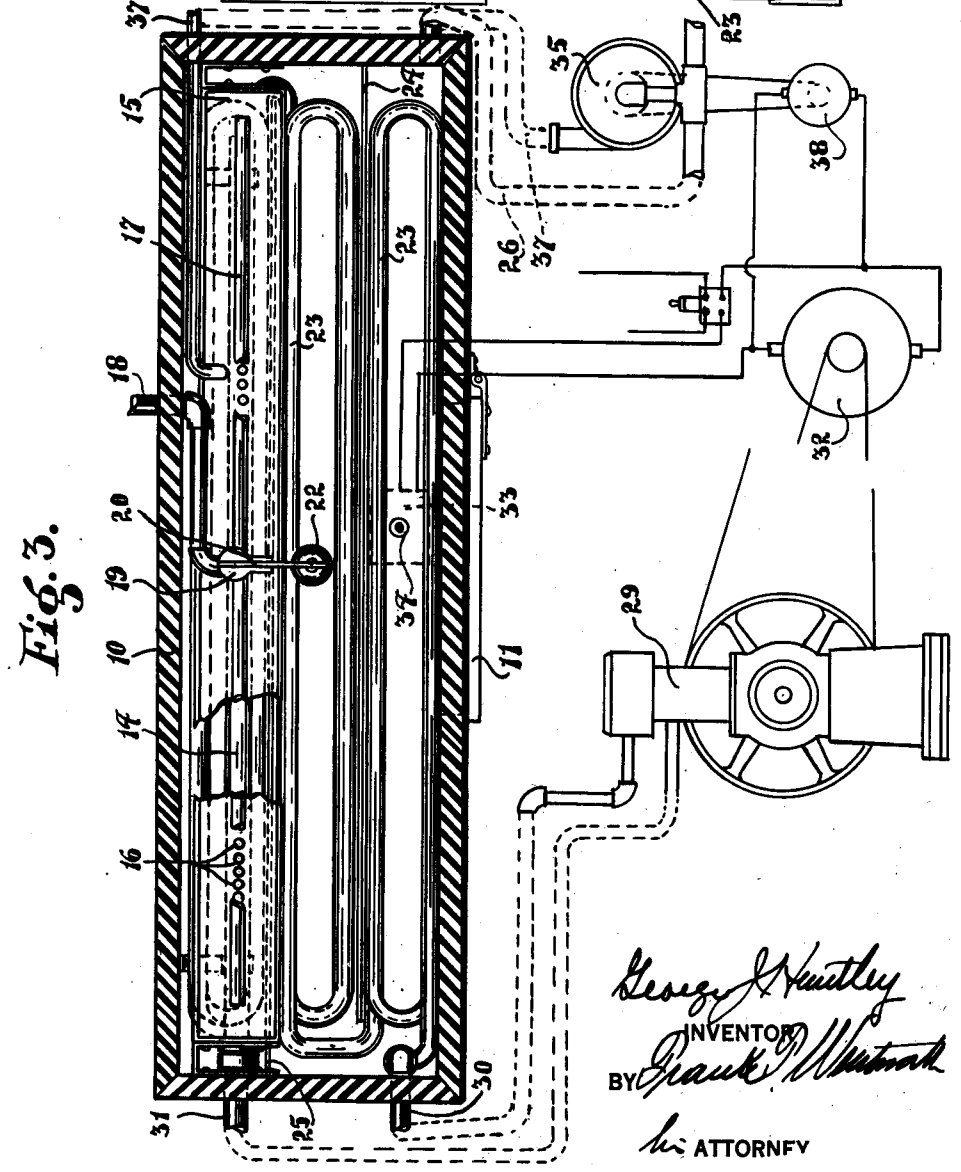


Fig. 3.



George J. Huntley
INVENTOR
BY Frank P. Whitmark
ATTORNEY

Patented Oct. 27, 1931 1,828,970

UNITED STATES PATENT OFFICE

GEORGE J. HUNTLEY, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

WATER COOLER

Application filed April 19, 1929. Serial No. 356,364.

My invention relates to water coolers, and more particularly to apparatus of this type for pre-cooling water preparatory to its delivery to carbonating and bottle filling machines of various types.

In making carbonated beverages, it has been the practice to cool the water preparatory to admixing therewith CO_2, the lowering of the temperature of the water expediting the absorption of the gas thereby, and ensuring a proper charging of the water therewith. The extent to which the temperature of the water was lowered was dependent largely upon the character of the bottle filling machine, lower temperatures being required with low pressure machines than with high pressure machines.

Prior to my invention, the general practice in bottling establishments was to provide a large reservoir of the water to be carbonated, and to bring the contents of the reservoir to the desired temperature by means of an ordinary refrigerating plant, the capacity of such reservoir being such as to provide for a prolonged run of the bottling machines. Such equipment was not only expensive to install and to maintain, but since a large volume of water was required, considerable time was necessary to bring it to the desired temperature before it was suitable for use with the carbonating and bottling machines. This involved a loss of time in preparing for a run of such machines, due to the time interval required to bring a considerable volume of water to the proper temperature. Furthermore, with such equipment, there was always a possibility, with the changing volume of water in the tank or reservoir, of variation in the pressure conditions at the bottling machine due to changing temperatures of the water in the reservoir.

With the above conditions in mind, I have provided a water cooler of the type above referred to, by means of which water in small volume may have its temperature rapidly lowered while flowing to a relatively small storage compartment, as compared with the reservoirs formerly used, this compartment being provided with condensing coils which will maintain the water at the desired temperature. By utilizing a construction such as is hereinafter described, I am enabled to provide what may be termed a "continuously operating" cooler, since with the withdrawal of water from the storage compartment, water, to approximately the amount of that withdrawn, will be delivered to the storage compartment at substantially the temperature of the water within said compartment.

As will more fully appear hereinafter, the cooler of my invention contemplates the use of refrigerating coils located above the storage compartment, over which coils the supply of water, which may be termed the "replacement" supply, is flowed in a thin film or trickle so as to rapidly bring it to the desired low temperature before delivery to the storage compartment. In order to limit the supply of water to the quantity required for replacement purposes, I provide a water level control within the compartment, by means of which the delivery of water to the cooler will occur only upon the lowering of the level of the water in the storage compartment, and the supply of water will be automatically interrupted when the normal level of the water in the compartment has been restored.

The withdrawal of water from the storage compartment is not constant, and preparatory to the initial run of the carbonating and bottling machines, and at times, with the stoppage of such machines, the water supply will be interrupted, thus introducing conditions in the system which, when the water is not at the desired temperature, or is slightly above this temperature, would result in a continued operation of the compressor while no water was trickling over the coils above the storage compartment.

To avoid this condition, I so construct the apparatus that at all times while the compressor is operating, irrespective of whether water is being withdrawn from the cooler or not, there will be maintained a flow of water through the apparatus, thus precluding any possibility of injury to the compressor as a result of the failure of the vapor in the refrigerating coils to be properly condensed. I also provide a thermostatic control for the compressor so that when the water is at the

desired temperature, the power to the compressor will be automatically interrupted, which is a further safeguard against possible injury to the compressor as a result of improper condensation of the ammonia or other refrigerating medium circulating through the expansion coils.

In order to effectually and economically cool the water, I provide the storage compartment with a system of baffles, along and about which the water must flow from the delivery point thereof to the compartment to the withdrawal point thereof, thus effectively utilizing the expansion coils submerged in the water in this compartment, for supplementing the action of the coil over which the water trickles prior to its delivery to the compartment in bringing the water to the desired low temperature, as well as maintaining this temperature of the water in the compartment.

The cooler of my invention may be compactly constructed by reason of the high efficiency of the refrigerating mechanisms and the small volume of water acted upon thereby at any one time, as well as the low capacity of the storage compartment. This small size of the apparatus permits it to be located closely adjacent the filling machines, so that by proper insulation of the outlet pipe the heat loss will be negligible.

The main results secured in the apparatus of the invention are economy of floor space, a rapid attainment of the desired low temperatures of the water, the maintenance of a substantially constant temperature thereof, accessibility to various parts for inspection and cleaning purposes, and great reliability throughout a continued operation of the cooler.

The invention consists primarily in a water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, refrigerating means within said storage compartment, means supplying a refrigerating medium to said refrigerating coil and said refrigerating means respectively and an offtake adjacent the bottom of said compartment; and in such other novel features of construction and combination of parts, as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a vertical section through a water cooler embodying the invention, partly broken away;

Fig. 2 is a section on the line 2—2 of Fig. 1; and

Fig. 3 is a section on the line 3—3 of Fig. 1 with the distributing trough and feed water header partly broken away, and the compressor equipment and local circulating pump shown diagrammatically.

Like numerals refer to like parts throughout the several views.

In the embodiment of the invention shown in the drawings, the main heat insulated casing of the water cooler is shown at 10, this casing being provided with a properly insulated door 11 having a suitable light of glass 12 therein to permit the inspection of the interior of the cooler at all times. The detailed construction of such parts is not illustrated, particularly as such construction is old and well known, and may take a variety of different forms.

The lower part of the casing 10 constitutes a storage ocmpartment 13 for water previously brought to the desired low temperature as a result of the flow or trickle of this water in small volume over a Baudelot coil 14 positioned in its entirety above the storage compartment 13. The Baudelot coil is of a well known construction and mode of operation, consisting of vertically disposed loops occupying the same or substantially the same vertical plane.

Above the coil 14 is a troughed distributing header 15 of substantially the length of the loops of the coil, this header having a plurality of small outlet openings 16 along the length of the bottom thereof immediately above the axis of the tube forming the coil 14. The trough 15 is closed at both ends, as shown more particularly in Fig. 3, and is supported in any desired manner from the casing 10.

Above the trough 15 is a distributing header pipe 17 having a plurality of discharge nozzles positioned at different points of the length of the trough 15. Communicating with the header 17 is a feed water pipe 18 which may be connected with the ordinary water service pipe of a building, or with a tank for properly filtered water. The flow of water through the feed pipe 18 is controlled by means of a float operated valve 19, the operating lever 20 of which is connected by means of the rod 21 with a float 22 positioned within the storage compartment in the lower portion of the casing 10.

By this construction, the level of the water in the storage compartment will be automatically controlled, and a water supply, commensurate with the demands upon the cooler, will be delivered upon the Baudelot coils and discharged within the storage compartment as required.

With the carbonating and bottling machines operating at full capacity, there may be a substantially continuous flow of water to the cooler, providing that the capacity of the same is properly proportioned to the carbonating and bottling equipment. Owing to the time interval required to actuate the float controlled valve, there may be slight

variation of the water level in the storage compartment 13, although the withdrawal of water and the low capacity of the storage compartment are ordinarily such as to ensure a fairly rapid change in the level of the water, causing a quick actuation of the valve. In fact, during the operation of the cooler, the valve will be constantly fluctuating, thus ensuring a substantially continuous delivery of water in small volume to the trough 15.

The storage compartment 13 is provided with a plurality of sets of connected refrigerating coils 23, the different sets being separated by baffle plates such as 24 and 25 so as to form a tortuous channel, the beginning of which is adjacent the coil 14, and the end of which is adjacent the offtake pipe 26, located adjacent the bottom of the compartment at one end of the casing 10. The baffles 24 and 25 abut against opposite ends of the casing, and each extends to closely adjacent the end thereof against which the other baffle abuts, so as to form said continuous tortuous channel and cause a circulation of water from adjacent the point of its delivery to the storage compartment along the entire length of the coils 23 (which for convenience of expression will be referred to as "submerged" coils) to the point of offtake 26. This arrangement ensures ample space for submerged coils of the desired capacity with a short length of the cooler as a whole.

In order to ensure the maximum length of flow of the water from end to end of the channel formed by the baffles 24 and 25 within the storage compartment 13, I position below the Baudelot coil 14, a troughed member 27 slightly pitched away from its closed end 28, so that the water trickling from the coils to within this trough will not only pass along the lowermost loop of the Baudelot coil, but will be delivered closely adjacent the closed end of the channel adjacent the baffle 24.

The construction above described causes a circulation of the feed water delivered to the cooler, first in a thin film over the Baudelot coil 14 until it flows within the trough 27, and along this trough until discharged at one end of the tortuous channel formed by the baffles 24 and 25 to the point where it may be withdrawn through the offtake pipe 26.

By this construction, the water will be rapidly brought, as a result of its contact with the Baudelot coil, to approximately the temperature required by the particular form or construction of carbonating and bottling machine with which the cooler is used. If the reduction of temperature should not be sufficiently great, the flow of the water about the submerged coils 23 will serve to supplement the action of the Baudelot coil in getting the desired temperature reduction, although in practice the main function of such coils is to maintain the temperature of the bulk of water within the storage compartment 13.

In conjunction with a water cooler embodying the invention, I employ a refrigerating unit of any desired or well known construction, embodying therein a compressor for maintaining a desired circulation of ammonia or other refrigerating medium through the coils 23 and 14, the latter being coupled directly to the former so as to secure a continuous circulation of the ammonia vapors through the coils 23 and 14.

The compressor is illustrated conventionally in Fig. 3 at 29, the ammonia intake pipe at 30 and the ammonia offtake pipe at 31. The detailed construction of the refrigerating unit forms no part of the present invention and is therefore not illustrated. The compressor is driven, however, from an electric motor 32, the circuit to which is controlled by a thermostatic switch 33, the thermostat 34 of which switch is located in the storage compartment toward the end thereof adjacent the offtake pipe 26.

It will thus be observed that the operation of the refrigerating unit is controlled by the temperature of the water in the storage compartment, closely adjacent the point where it will be withdrawn therefrom, and that the continuity of the supply of water to the cooler is controlled by the level of the water in said compartment. As a consequence, the flow of water over the Baudelot coil may be interrupted before the water has attained the desired low temperature, so that under some conditions the Baudelot coil might be fully inoperative, even though there were a continued circulation of the ammonia or other vapor therethrough. This condition would injuriously affect the compressor, and I therefore so construct the cooler of my invention as to ensure an adequate circulation of water over the Baudelot coil at all times when the compressor is operating, which will be so long as the water in the storage compartment has not attained the desired low temperature. This result I secure entirely independently of the flow of water from the source through the pipe 18.

To maintain such a continuous circulation of water over the Baudelot coil, I provide a pump 35 having its intake connected with the storage compartment 13, preferably by means of an intake pipe 36 connected with the tank offtake pipe 26, and its offtake pipe 37 discharging into the trough 15. The pump 35 is motor driven, as by means of the electric motor 38, the leads to which motor may be connected with the leads to the motor 32, so that the power to this motor 38 will be placed under the control of the thermostatic switch 33. This, however, is a mere matter of choice, and if desired the pump 35 may be continuously driven.

The operation of the herein described water cooler is substantially as follows:—

In describing this operation it will be as-

sumed that the storage compartment 13 is entirely empty; the valve controlling the flow of water to the feed pipe 18 is open, and the circuit to the motor 32, driving the compressor 29 of the refrigerating unit is closed. With the electrical hookup shown, the circuit to the motor 38 will also be thus closed.

The water delivered to different portions of the trough 15 by means of the header 17 will trickle through the various small openings 16 upon the Baudelot coil, over which they will be diffused and flow in a thin stream until they drip from this coil to within the trough 27. The water will flow along this trough toward the intake end of the submerged coils 23 from which it will discharge into the storage compartment 13 and flow about the baffles 24 and 25. Since, when starting with an empty storage compartment, the valve 19 will be open to the full extent, there will be a rapid accumulation of water within the compartment 13. The rapid delivery of the water will not permit the Baudelot coil to extract heat as rapidly from this water as though the quantity of water flowing thereover were smaller.

During this period, the submerged coils will supplement the action of the Baudelot coil in extracting heat from the water.

Since the pump 35 will be placed in operation with the closing of the circuit to the motor 32, the water, as it flows into the compartment 13, will be withdrawn therefrom through the pipes 26 and 36 by the pump 35, and will be discharged by said pump into the trough 15, thus re-circulating the partially cooled water through the cooler, and rapidly bringing the water to the desired low temperature.

When water to approximately the maximum depth desired in the storage compartment 13 has accumulated, the float controlled valve 19 will be actuated to interrupt the flow of water through the feed pipe 18 and the header 17, irrespective of the temperature of the water at this moment. If this temperature be above that required, the refrigerating unit and the pump 35 will continue to operate, the only water thus passing through the cooler being that re-circulated by means of the pump 35. This water will have had a very high percentage of the heat units extracted therefrom, but will nevertheless flow over the Baudelot coil and condense the ammonia vapors therein. This re-circulating of the water will not only ensure a rapid reduction in the temperature of the water at all times until the desired low temperature is attained, but will ensure at all times when the compressor 29 is operating an adequate supply of water to ensure condensation of the vapor within the coils 14. The submerged coils 23 act to reduce the temperature of the water within the storage compartment until the desired temperature reduction is secured.

When the water in the compartment 13 has been brought to the desired low temperature, the thermostat 34 will actuate the switch 33 to interrupt the power to the motor 32 and the motor 38, thus stopping the circulation of ammonia through the coils 23 and 14 and the re-circulation of the water by the pump 35.

As the water is withdrawn from the compartment 13 through the offtake pipe 26 for use in the carbonating and bottling machines, the level of the water in the compartment 13 will be lowered so that the float 22 will descend and at least partially open the valve 19 and permit the delivery of water in small volume through the intake pipe 18 and header 17 to the trough 15.

When the volume of incoming water becomes sufficient to raise the temeprature of the volume of water within the compartment 13, the thermostat 34 will be actua ed to cause the closing of the circuit to the motors 32 and 38, thus re-starting the circulation of ammonia through the coils 23 and 14, and the circulation of the water from the compartment 13 through the cooler by the pump 35, until the volume of water in the compartment 13 has been restored and is at the desired low temperature.

It will be readily understood that with the gradual withdrawal of water, the valve 19 will be in a constant state of fluctuation, but that while the carbonating and bottling machines are in operation, this valve will be open substantially all of the time, at least to an extent to permit the flow of water in volume in proportion to that being withdrawn from the compartment 13.

The capacity of the storage compartment 13 and of the refrigerating unit may be proportioned to the number of gallons per minute required by the carbonating and bottling machines.

With the rapid cooling of the water and the automatic control of the inflow thereof determined by the volume of accumulated water in the compartment, the reserve of water within the cooler may be very much reduced, thus permitting the cooling unit to be brought within small compass. This condition also permits the effective utilization of a low capacity refrigerating unit, since this capacity may be proportioned to the output capacity of the ank without regard to the volume of water within the compartment 13.

The re-circulation of water from the compartmentt 13 through the trough 15 has the advantages of lowering the temperature of the water flowing through the header 17. and of increasing the efficiency of the Baudelot coil in rapidly securing the desired temperature reduction.

Actual experience has demonstrated that

with a properly insulated casing 10, the heat losses, even though the cooling unit is not operative, are not appreciable, so that even after a plant has been shut down over night, the required reduction of temperature of this water, to bring it to the desired low temperature, may be as low as 2° F.

It will be obvious that in the normal operation of a cooler, the water level in the compartment 13 will remain substantially constant at all times whether water is being withdrawn from said compartment or not. While there may be a fluctuation in this level it will not be appreciable since the instant that the float 22 descends, or the pump 35 starts, the valve 19 will be at least partially opened, and replacement water will immediately begin to flow toward the compartment 13. With the re-circulation of water by the pump 35 there is a tendency to cause a slight raising of the level of the water in the tank as a result of the actuation of the valve 19 during the interval that the water thus withdrawn by the pump 35 is in circulation. This, however, is merely a temporary condition and the level will be restored to its normal high point as soon as the water is being withdrawn for the carbonating and bottling machines.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, refrigerating means within said storage compartment, means supplying a refrigerating medium to said refrigerating coil and said refrigerating means, and an offtake adjacent the bottom of said compartment.

2. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, a valve controlling the flow of water from said source into said compartment, actuating means for said valve controllable by a change of head of the water in said compartment, means distributing water from said feed water source and delivering it in small volume upon said coil, refrigerating means within said storage compartment, means delivering a refrigerating medium to said refrigerating coil and said refrigerating means and an offtake adjacent the bottom of said compartment.

3. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, refrigerating means within said storage compartment, means delivering a refrigerating medium to said refrigerating coil and said refrigerating means thermostatically controlled means whereby the operative interval of the actuation of said means delivering a refrigerating medium to said refrigerating coil and said refrigerating means is determined by the temperature variations in the water in said compartment, and an offtake adjacent the bottom of said compartment.

4. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, refrigerating means within said storage compartment, means delivering a refrigerating medium to said refrigerating coil and said refrigerating means, an offtake adjacent the bottom of said compartment, and means withdrawing water from said compartment and delivering it to said distributing means.

5. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a baffle forming a continuous tortuous channel through said compartment, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, refrigerating means within said storage compartment, means delivering a refrigerating medium to said refrigerating coil and said refrigerating means, and an offtake adjacent the bottom of said compartment at one end of said tortuous channel.

6. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a trough within said casing directly above said refrigerating coil having a plurality of openings through the bottom thereof through which water in small volume is delivered upon said coil, means delivering water within said trough, refrigerating means within said storage compartment, means delivering a refrigerating medium to said refrigerating coil

and said refrigerating means and an offtake adjacent the bottom of said compartment.

7. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a trough within said casing directly above said refrigerating coil having a plurality of openings through the bottom thereof through which water in small volume is delivered upon said coil, means delivering water within said trough, refrigerating means within said storage compartment, means delivering a refrigerating medium to said refrigerating coil and said refrigerating means, an offtake adjacent the bottom of said compartment, and means withdrawing water from said compartment and delivering it to said trough.

8. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a baffle forming a continuous tortuous channel through said compartment, a refrigerating coil above said compartment, a trough below said refrigerating coil having an open end adjacent one end of the channel formed by said baffle, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, refrigerating means within said storage compartment, means delivering a refrigerating medium to said refrigerating coil and said refrigerating means, and an offtake adjacent the bottom of said compartment at the end of said tortuous channel opposite to where said trough empties.

9. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, a refrigerating coil entirely within said storage compartment, a refrigerating unit embodying therein a compressor, and means delivering a refrigerating medium to the coils within said compartment and withdrawing same from the coil above said compartment, said coils being connected with each other, and an offtake adjacent the bottom of said compartment.

10. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a baffle forming a continuous tortuous channel through said compartment, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, a refrigerating coil extending throughout the entire length of the channel formed by said baffle, and positioned entirely within said storage compartment, a refrigerating unit embodying therein a compressor, and means delivering a refrigerating medium to the coils within said compartment and withdrawing same from the coil above said compartment, said coils being connected with each other, and an offtake adjacent the bottom of said compartment, at one end of said tortuous channel.

11. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a baffle forming a continuous tortuous channel through said compartment, a refrigerating coil above said compartment, a trough within said casing directly above said refrigerating coil having a plurality of openings through the bottom thereof through which water in small volume is delivered upon said coil, means delivering water within said trough, a trough below said refrigerating coil having an open end adjacent one end of the channel formed by said baffle, a refrigerating coil extending throughout the entire length of the channel formed by said baffle, and positioned entirely within said storage compartment, a refrigerating unit embodying therein a compressor, and means delivering a refrigerating medium to the coils within said compartment and withdrawing same from the coil above said compartment, said coils being connected with each other, and an offtake adjacent the bottom of said compartment, at one end of said tortuous channel.

12. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, a refrigerating coil entirely within said storage compartment, a refrigerating unit embodying therein a compressor, an electric motor actuating said compressor, and means delivering a refrigerating medium to the coils within said compartment and withdrawing same from the coil above said compartment, said coils being connected with each other, an offtake adjacent the bottom of said compartment, a thermostat submerged in the water in said compartment, an electric motor driven pump withdrawing water from said compartment and delivering it to said means distributing water from said feed water source, and an electric switch simultaneously controlling the circuit to said motors operatively connected with said thermostat, whereby the operative interval of said compressor and said pump will be determined by the temperature of the water in said compartment.

13. A water cooler embodying therein a

heat insulated casing, having a storage compartment toward the bottom thereof, a refrigerating coil above said compartment, a feed water source communicating with said casing above said coil, means distributing water from said feed water source and delivering it in small volume upon said coil, a valve controlling said feed water source, a float within said storage compartment, connections between said float and said valve, whereby the feed of water will be controlled by the water level in said compartment, a refrigerating coil entirely within said storage compartment, a refrigerating unit embodying therein a compressor, an electric motor actuating said compressor, and means delivering a refrigerating medium to the coils within said compartment and withdrawing same from the coil above said compartment, said coils being connected with each other, an offtake adjacent the bottom of said compartment, a thermostat submerged in the water in said compartment, an electric motor driven pump withdrawing water from said compartment and delivering it to said means distributing water from said feed water source, and an electric switch simultaneously controlling the circuit to said motors operatively connected with said thermostat, whereby the operative interval of said compressor and said pump will be determined by the temperature of the water in said compartment.

14. A water cooler embodying therein a heat insulated casing, having a storage compartment toward the bottom thereof, a baffle forming a continuous tortuous channel through said compartment, a refrigerating coil above said compartment, a trough within said casing directly above said refrigerating coil having a plurality of openings through the bottom thereof through which water in small volume is delivered upon said coil, means delivering water within said trough, a valve controlling said feed water source, a float within said storage compartment, connections between said float and said valve, whereby the feed of water will be controlled by the water level in said compartment, a trough below said refrigerating coil having an open end adjacent one end of the channel formed by said baffle, a refrigerating coil extending throughout the entire length of the channel formed by said baffle, and positioned entirely within said storage compartment, a refrigerating unit embodying therein a compressor, an electric motor actuating said compressor, and means delivering a refrigerating medium to the coils within said compartment and withdrawing same from the coil above said compartment, said coils being connected with each other, an offtake adjacent the bottom of said compartment at the end of said tortuous channel opposite to where said trough empties, a thermostat submerged in the water in said compartment, an electric motor driven pump withdrawing water from said compartment and delivering it to said means distributing water from said feed water source, and an electric switch simultaneously controlling the circuit to said motors operatively connected with said thermostat, whereby the operative interval of said compressor and said pump will be determined by the temperature of the water in said compartment.

In witness whereof I have hereunto affixed my signature this 5th day of April, 1929.

GEORGE J. HUNTLEY.