Dec. 18, 1934. F. L. LAPORTE 1,985,043

COOLER

Filed April 24, 1933

Fig. 1.

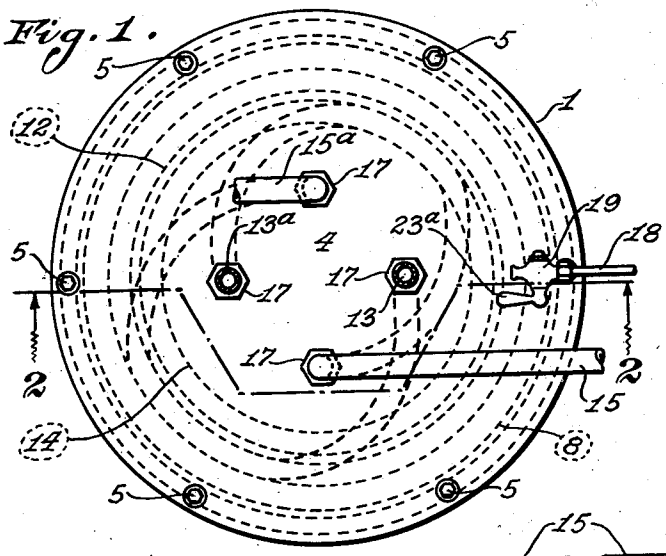


Fig. 3.

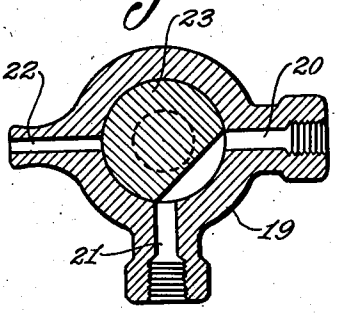
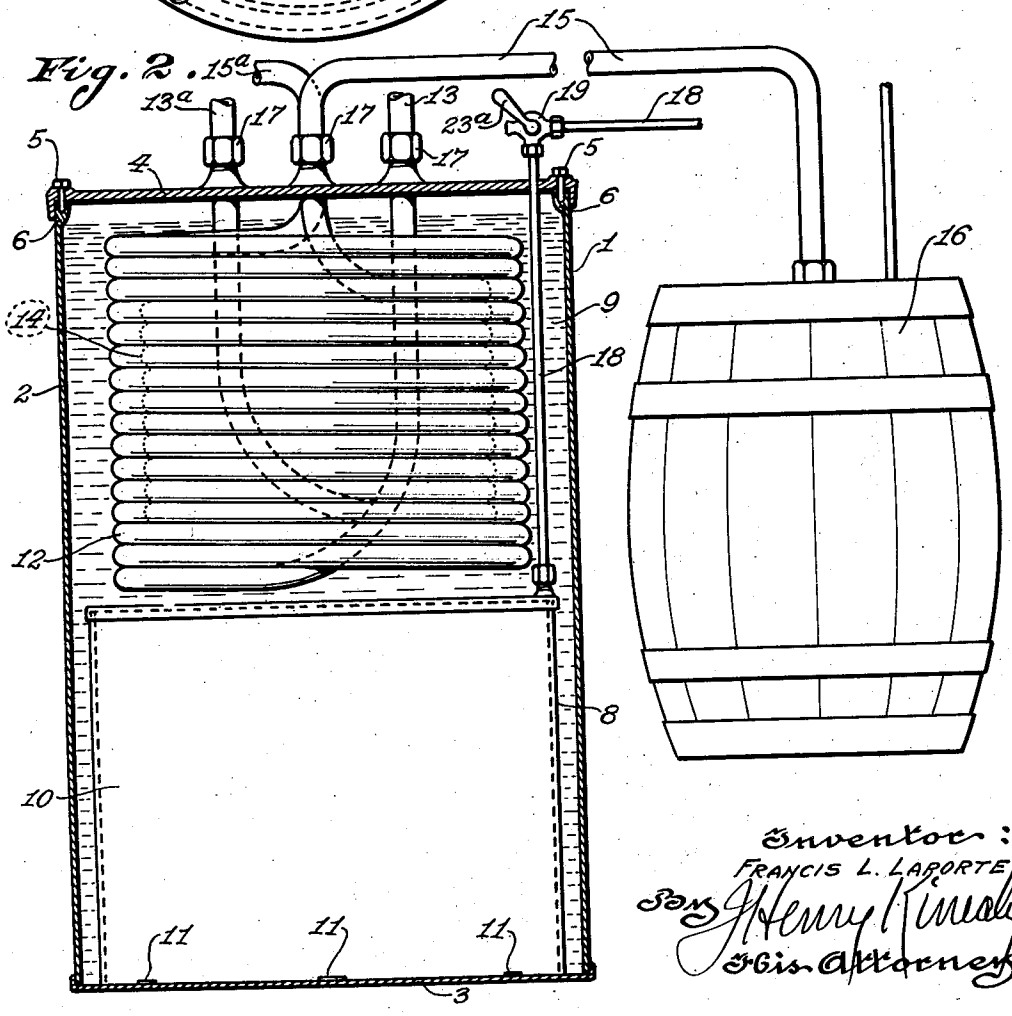


Fig. 2.



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COOLER

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7 Claims. (Cl. 225—40)

My invention relates to coolers and more particularly to coolers for beverage. Heretofore, coolers of this type usually have included therein a tank for brine or some other conductive fluid and in which was positioned a cooling coil whereby the fluid was maintained at the desired predetermined low temperature. The beverage was submitted to the action of the cooled brine in any suitable container and, in turn, was sufficiently cooled.

However, the cooling coil and the interior of the tank must be periodically cleaned and it was difficult to remove the fluid from the tank during such cleaning and then returned it to the tank after the cleaning had been completed. Also, when the cooler is used for draught beverage it is necessary that a coil be provided in the cooler through which the beverage flows to be cooled. It is mandatory that the beverage coil be cleaned internally at frequent intervals and this cleaning is usually accomplished by passing live steam therethrough. If the conductive fluid remained in the cooling tank during the cleaning operation the low temperature at which the beverage coil is held caused great condensation of the steam and a resultant collection of water in the coil and, likewise, the cooling fluid became warmed by contact with the beverage coil heated by the steam. Both of these results should be avoided.

In the case of beer coolers these deficiencies are particularly objectionable because it is necessary that beer be maintained at a constant low temperature of about forty degrees Fahrenheit. When the beer coil was cleaned by steam and the surrounding fluid became warm, it was necessary to stop passing beer through the coil after cleaning until the cooling fluid and the coil had been cooled again to the desired temperature. This in effect meant that after each cleaning the cooler was put out of use for an appreciable time.

Likewise, in coolers heretofore used no simple expedient had been found to cause a mild agitation of the cooling fluid, although, it is known that such agitation effectively increases the cooling efficiency of the device.

The objects of my invention are to provide a cooler of the type described of simple and compact construction and including means for quickly and easily removing the conductive fluid from the cooling tank during cleaning of the parts of the device and to provide a cooler including means for agitating the conductive fluid used.

In the accompanying drawing wherein one embodiment of my invention is shown and wherein similar characters are used to designate similar parts Fig. 1 is a top view of the cooler embodying my invention; Fig. 2 is a sectional view of the cooler along the lines 2—2 of Fig. 1 together with the necessary appurtenances for its use; and Fig. 3 is a detail of one of the parts.

Referring to the figures the cooler comprises a casing 1 which may be of any shape, but which, preferably is round, as shown in Fig. 1, and which consists of a side wall 2, a bottom 3 welded or otherwise suitably attached to the lower end of the side wall and a removable top 4 preferably held firmly in place by means of bolts 5 threaded in lugs 6 formed at the upper end of the side wall.

Inside of the casing 1 and, preferably in the lower part thereof, is an auxiliary casing 8 which has the side walls thereof positioned away from the side wall 2 of the casing 1 so as to form within said casing a cooling tank 9 for conductive fluid, as described above, and an auxiliary receptacle 10. The auxiliary casing 8 is fluid-tight, but is provided with openings 11 preferably at the bottom thereof whereby communication is provided between the tank 9 and the receptacle 10 for the purpose more fully hereinafter explained.

A cooling coil 12 is suspended from the top 4 on inlet and outlet pipes 13 and 13*a*, respectively, for a suitable cooling agent which circulates through the coil. Likewise, a beverage coil 14 is suspended from the top 4 on inlet and outlet pipes 15 and 15*a*, respectively, for the beverage which, in this embodiment, is supplied to the cooler from a barrel 16 or other suitable container, in the usual manner. It will be noticed that when the couplings 17 of the various coils are removed and the bolts 5 are turned out from their normal position the top 4 and the coils may be removed from the cooler as a unit.

Communicating with the interior of the auxiliary receptacle 10 is an air-line 18 through which air under suitable pressure may flow into the auxiliary receptacle 10 under the conditions outlined below. The air line 18 may be connected to an air compressor, compressed air storage tank or other suitable source of supply. At a convenient point outside of the cooler there is preferably provided a valve 19 which valve may be of any design and construction, but is preferably of the so-called three way type, as shown in detail in Fig. 3 of the drawings.

In the valve so shown the inlet duct connected to the air line leading to the source of supply is indicated at 20, the outlet duct connected to the air line leading to the auxiliary receptacle 10 is indicated at 21 and a discharge duct leading to the atmosphere is indicated at 22. It will be evident that by moving the valve member 23 by means of the handle 23*a* a passage may be formed leading through the duct 21 from the atmosphere to the discharge opening 22 or the flow

of air through the valve may be stopped by moving the valve member to close all of the ducts.

The operation of my device is as follows:—

When the device is being used to cool beverage the cooling tank 9 is filled with a suitable conductive fluid, as indicated in Fig. 2, and the fluid is prevented from entering the auxiliary receptacle 10 by compressed air entering said receptacle through the line 18 and trapped therein by closing the valve 19 so that air may not flow therethrough, as described above. The conductive fluid, and in turn, the beverage coil 14, will be cooled to the desired low temperature by a cooling agent circulating through the cooling coil 12.

When it is desired to clean the beverage coil 14 the valve 19 is adjusted so that air in the auxiliary receptacle 10 is discharged to the atmosphere through the line 18 and discharge duct 22. As the air flows from the auxiliary receptacle the conductive fluid in the tank 9 will enter said receptacle through the openings 11. The receptacle 10 is preferably large enough to accommodate all of the fluid from the tank 9 and, therefore, steam may be passed through the pipes 15 and 15a and through the beverage coil without causing serious condensation of the steam or without warming the conductive fluid. When the cleaning has been completed the valve 19 is adjusted so that air under pressure from the source of supply will flow through the ducts 20 and 21 and the line 18 into the auxiliary receptacle 10. The pressure of the air so supplied is maintained at a point where it will be great enough to force the conductive fluid from the receptacle 10 through the openings 11 back to the cooling tank 9. As stated above, the valve 19 may then be moved to trap the air in the receptacle 10 and therefore maintain the conductive fluid in the tank 9, but if more efficient cooling is desired the valve may be adjusted so that a small amount of air under pressure constantly enters the receptacle 10 and this air will bubble upwardly through the fluid in the tank 9 to keep the fluid in constant agitation and thereby increase the efficiency of the cooling coil to cool the fluid and the beverage coil.

While herein I have described only one embodiment of my invention as shown in the accompanying drawing I do not intend to limit myself to any particular form or arrangement of the various parts because their size, shape and relative position to one another may be varied within wide limits without deviating from the spirit of my invention as included in the appended claims.

What I claim as new and desire to secure by Letters Patent, is:—

1. A cooler comprising a cooling tank for a conductive fluid, a cooling coil arranged in said tank to cool said fluid, an auxiliary fluid receptacle communicating with said tank and positioned and adapted whereby fluid from said tank may flow therefrom into said receptacle when said tank and said coil are to be cleaned, and means for forcing said fluid into said tank from said receptacle.

2. A cooler comprising a cooling tank for a conductive fluid, a cooling coil arranged in said tank to cool said fluid, an auxiliary receptacle communicating with said tank and positioned and adapted whereby fluid from said tank may flow therefrom into said receptacle when said tank and said coil are to be cleaned, and means for supplying air under pressure to said receptacle to force said fluid from said receptacle into said tank.

3. A cooler comprising a casing forming a cooling tank for a conductive fluid, a cooling coil arranged in said tank to cool said fluid, an auxiliary casing arranged in said cooler to form an auxiliary fluid receptacle below said cooling tank and communicating therewith whereby fluid from said tank may flow therefrom into said receptacle when said tank and said coil are to be cleaned, and means for forcing said fluid into said tank from said receptacle.

4. A cooler comprising a casing forming a cooling tank for conductive fluid, a cooling coil arranged in said tank to cool said fluid, an auxiliary casing arranged in said primary casing to form an auxiliary cooling receptacle below said cooling tank and communicating therewith whereby fluid from said tank may flow therefrom into said receptacle when said tank and said coil are to be cleaned, and means for supplying air under pressure to said receptacle at the top thereof to force said fluid from said receptacle back into said tank after said cleaning has been completed.

5. A cooler comprising a casing forming a cooling tank for conductive fluid, a cooling coil arranged in said tank to cool said fluid, an auxiliary casing arranged in said primary casing to form an auxiliary cooling receptacle below said cooling tank and communicating therewith whereby fluid from said tank may flow therefrom into said receptacle when said tank and said coil are to be cleaned, means for supplying air under pressure to said receptacle at the top thereof to force said fluid from said receptacle back into said tank after said cleaning has been completed, and means whereby the supply of said air may be continued so that air will bubble through and agitate said fluid when in said tank.

6. A cooler comprising a casing forming a cooling tank for a conductive fluid, said casing having a removable top, a cooling coil suspended from said top into said tank to cool said fluid, a beverage coil suspended from said top, an auxiliary casing arranged in said cooler to form an auxiliary fluid receptacle below said cooling tank and communicating therewith whereby fluid from said tank may flow therefrom into said receptacle, and means for supplying air under pressure to said receptacle when said tank is to be cleaned to force said fluid from said receptacle back into said tank after cleaning thereof has been completed.

7. A cooler comprising a casing forming a cooling tank for conductive fluid, said casing having a removable top, a cooling coil suspended from said top into said tank to cool said fluid, a beverage coil suspended from said top, an auxiliary casing arranged in said cooler to form an auxiliary fluid receptacle below said cooling tank and communicating therewith whereby fluid from said tank may flow therefrom into said receptacle, means for supplying air under pressure to said receptacle at the top thereof when said tank is to be cleaned to force said fluid from said receptacle back into said tank after cleaning thereof has been completed, and means whereby the supply of said air may be continued so that air will bubble through and agitate said fluid when in said tank.

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