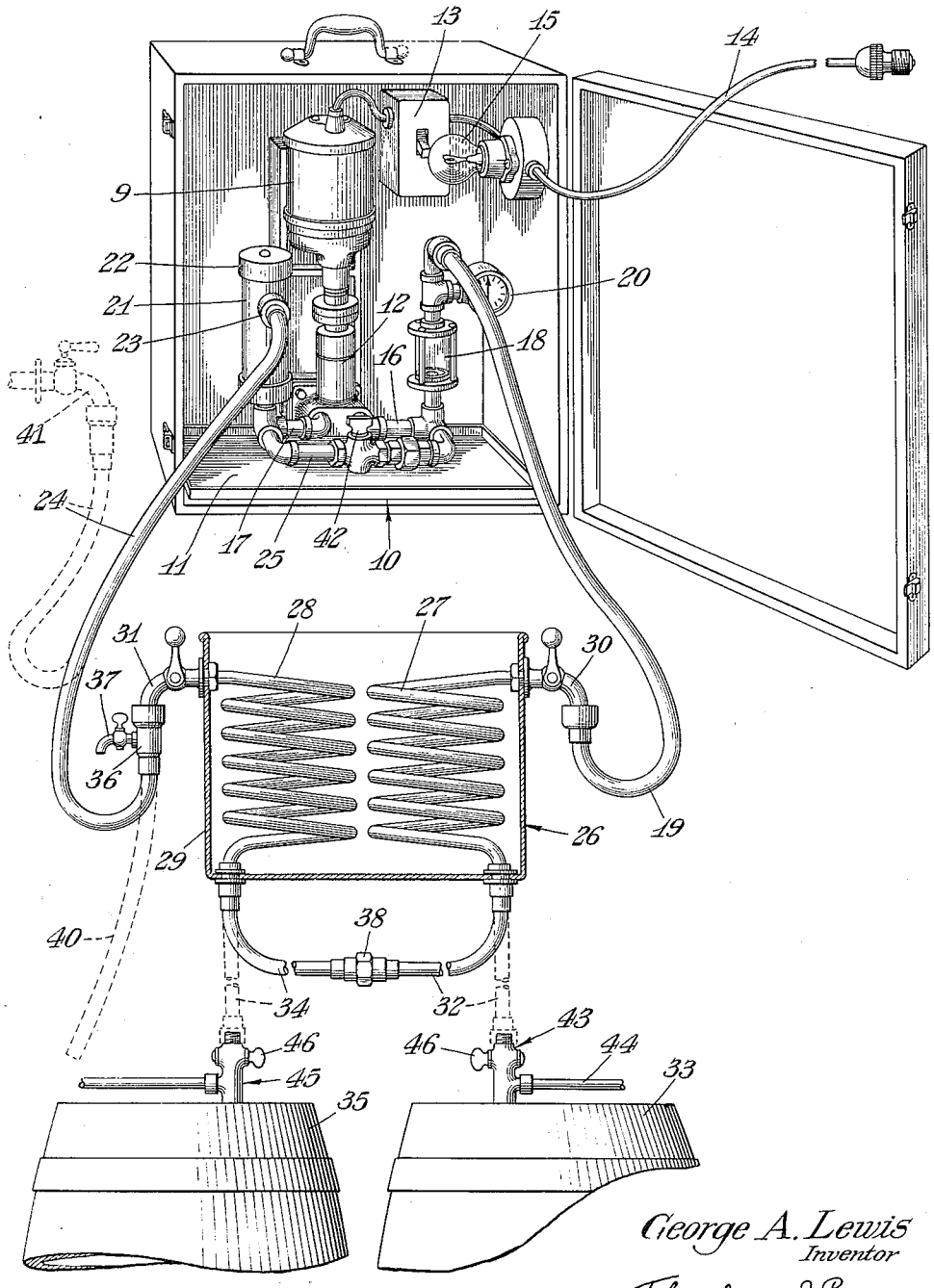
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BEER COIL CLEANER

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BEER COIL CLEANER

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5 Claims. (Cl. 225—13)

This invention relates to beer coil cleaners.

This application is a substitute for the applicant's allowed and forfeited application Ser. No. 694,572 filed October 21, 1933, and allowed April 19, 1934.

It is an object of this invention to provide an improved beer coil cleaner which is relatively simple and inexpensive in construction and efficient in use.

Another object of this invention is: to provide an improved coil cleaner by means of which a simple cleansing fluid such as water, and a chemical and fungicidal cleansing fluid such as that hereinafter referred to, may be circulated through beer cooling coils in the order named.

A further object of the invention is to provide an improved method for cleansing and washing beer cooling coils and by means of which method the growth of fungi in the coils may be prevented or at least materially retarded.

Other objects will appear hereinafter.

The invention will be best understood by reference to the accompanying drawing, showing a preferred form of construction of the new apparatus and in which:

The single figure in the drawing is, in general, diagrammatic and shows the preferrred arrangement of parts in the new apparatus.

Bacteria or fungus growths in beer cooling coils consist largely of moulds from the yeast used in making beer, acetic acid bacteria, and albumen. These substances accumulate or grow quite rapidly in beer cooling coils, making it necessary to clean or flush the coils periodically, otherwise the accumulation in the coils will spoil the taste of the beer and cause it to taste bitter. It is to prevent this that the present apparatus and method have been designed.

To this end the new coil cleansing apparatus, generally indicated at 10 in the drawing, is provided. This apparatus is arranged within a suitable portable cabinet or case 11 and comprises a fluid pressure pump 12, which may be of any suitable or conventional design, and which is driven by an electric motor 9 of any desired or suitable type. A control switch 13 is provided for the circuit to the motor 9, and a connecter 14 is provided for attachment to a source of current such as a wall outlet. An indicator or tell-tale light 15 is provided in the motor circuit in front of the switch 13.

The fluid pressure pump 12 has a fluid intake side 17 and a fluid discharge side 16. Connected to the discharge side 16 of the pump 12 is a sight glass 18 through which the outgoing fluid circulates after passing from the pump 12. A flexible intake conduit or hose 24 leads to a chemical tank 21 which is arranged on the intake side 17 of the pump 12. A pressure gauge 20 is arranged on the outlet or discharge side of the pump between the sight glass 18 and a flexible discharge hose 19.

The intake side 17 of the pump 12 leads to the chemical tank 21 which has an open top over which is arranged a detachable closure 22. This tank 21 has an inlet 23 to which the flexible rubber hose or conduit 24 is attached.

A by-pass 25 is provided between the intake and outlet sides 17 and 16, respectively, of the pump 12 and a control or shut-off valve 42 is arranged in this by-pass.

A conventional two coil draft beer cooling unit is generally indicated at 26 in the drawing and includes two cooling coils 27 and 28 which are arranged within a suitable ice box or cooling chamber 29. To the uppermost convolution of the coil 27 is attached a faucet 30 and a faucet 31 is attached to the uppermost convolution of the coil 28.

The lowermost convolution of the coil 27 is connected to a conventional flexible conduit 32 which may be a rubber hose or a flexible tin tubing. This conduit 32 is ordinarily connected (in dotted line position) to a conventional so-called beer "rod" which is generally indicated at 43. This so-called "rod" 43 projects into the beer barrel 33 and has an air intake 44. Similarly, the lowermost convolution of the coil 28 is connected to a flexible conduit 34 that is similar to the conduit 32 and this conduit 34 is in turn connected to a beer "rod" 45 which is similar to the "rod" 43; the beer "rod" 45 extending into a beer barrel or container 35.

Interconnecting the two flexible conduits 32 and 34 is a coupling 38.

A short piece of rubber hose or tubing is indicated at 40 in the drawing and a source of water under pressure is indicated at 41.

Arranged at the outer end of the intake hose 24 or conduit is a connecter 36 by means of which the hose 24 may be attached, as will be set forth hereinafter, either to the beer faucet 31 or to the water supply faucet 41. Attached to this connecter 36 is a gas pressure relief cock or valve 37.

Operation

To institute the coil cleansing and washing operation the connecter 36 on the intake hose or conduit 24 is attached to the source 41 of water under pressure; the conductor 14 is attached to

an electric wall outlet or like source of current; the drain hose 40 is attached to the beer faucet 31; the by-pass valve 42 is closed; the flexible conduits 32 and 34 are detached from the beer "rods" 43 and 45 and these conduits 32 and 34 are then connected by the coupling 38. During this operation the valves 46 in the beer "rods" 43 and 45 are, of course, shut off. The motor control switch 13 is then closed to set the motor 9 and its associated pump 12 in operation, whereupon water from the pressure supply source 41 is led through the flexible intake hose or conduit 24, into and through the tank 21, and thence into the pump 12 through the intake side 17 thereof. The pump 12 then forces the water through the discharge or outlet side 16 thereof, through the sight glass 18, into the conduit 19; thence through the beer faucet 30, coil 27, conduit 32, coupling 38 and conduit 34; through the coil 28 and faucet 31, out through the drain hose 40 to the sewer. This flow of water is kept up for suitable length of time to flush the beer cooling coils 27 and 28 thoroughly, whereupon the water supply is shut off at 41, and the motor at 13, leaving the coils 27 and 28 full of water.

During this operation the tell-tale light 18 is illuminated and helps to illuminate the casing 11 and the sight glass 18 so that the fluid flow through the glass may readily be observed.

The drain hose 40 is then detached from the beer faucet 31 and the hose 24 is attached to the faucet 31 by means of connecter 36, in the manner shown in full lines in the drawing.

The closure 22 is then removed from the chemical tank 21. An alkaline chemical cleansing and fungicidal charge or solution is then introduced into the tank 21 and the closure 22 therefor replaced. The motor control switch 13 is then closed to set the motor 9 and the pump 12 in operation whereupon the chemical cleansing and fungicidal solution in the tank 21 is drawn out of the tank 21 by way of the pump intake 17, thence through the pump 12, out of the latter by way of its discharge side 16, and thence through the circuit 19—20—27—32—38—34—28—31—36 and 24 back into the tank 21. This circulation of the chemical cleansing and fungicidal solution through the coils 27 and 28 is kept up for a suitable length of time, at a preferred rate of about three gallons per minute, whereupon the pressure relief valve 37 is opened to permit the escape of gas formed in the system by action of the chemical cleansing agent, as will be pointed out more fully hereinafter. The parts are then rinsed by attaching the flexible conduit 24 to the water supply 41, attaching the drain hose 40 to the faucet 31, and then circulating rinsing water through the system, which includes the coils 27 and 28, for a suitable length of time until the rinse water is neutral to an alkali indicator.

After the washing and rinsing operations, the motor 9 is shut off, the drain hose 40 is detached from the beer faucet 31, the flexible conduit 24 is detached from the water supply 41, the conduit 19 is detached from the beer faucet 30, and the conduits 32 and 34 are separated at the coupling 38 and reattached to the beer "rods" 43 and 45 so that beer may be drawn from the barrels 33 and 35 as desired.

To cleanse a single beer cooling coil by means of water, using the present apparatus, the intake side 17 of pump is connected to the water supply 41 by means of the conduit 24 and the conduit 19 is attached to the uppermost convolution of the coil; and to cleanse a single coil with the chemical cleansing and fungicidal solution, hereinafter referred to, the conduit 19 is attached to the uppermost convolution of the single coil and the conduit 24 is attached to the lowermost convolutions thereof, whereupon the motor 9 is set in operation to circulate the cleansing fluid through the single coil.

While the chemical tank 21 may be charged with chemical cleansing agents or fungicides, other than that presently to be referred to, a preferred composition for this purpose is a mixture or solution of aluminum silicate or meta-silicate and sodium hydroxide, which forms, in effect, a fluid silicate. While this substance will flow freely through the cooling coils, under pressure, it nevertheless exerts considerable friction against the walls of the coils and very effectively tears down and emulsifies the fungus growths and other accumulations in the cooling coils. Moreover, it forms or deposits on the insides of the coils a silicate film which hardens and is very effective in preventing fungus or like growths in the beer cooling coils. Furthermore, when this alkaline silicate mixture is introduced into the cooling coils it apparently reacts in the mixture of water and substance that accumulate in the coils, since a very considerable amount of gas is formed during the chemical cleansing operation. Often this gas will form as much as 40 lbs. of pressure in the system, which helps to circulate the chemical cleansing agent therethrough and lightens the load on the pump. It is to permit the escape of this gas, before opening the system after the chemical cleansing operation, that the relief valve 37 is provided.

In cases where the pressure of the water at the source 41 is sufficiently high, the operator may rinse the cooling coils without using the pump 12 and without running the motor 9. This may be accomplished by opening the by-pass valve 42, attaching the hose 24 to water source 41, attaching the drain hose 40 to the faucet 31, and attaching the hose 19 to the faucet 30 whereupon the rinse water will circulate through the system by way of the by-pass 25 and its valve 42. This effects economy in the use of the apparatus since it permits the operator to cut out the motor and thereby eliminate the expense of its current consumption when the municipal water supply pressure is sufficiently high.

It is a decided advantage to have the combination of elements forming the apparatus assembled into a portable unit since by this arrangement one operator may service a large number of beer cooling units, each of which is preferably serviced about once each week.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A beer coil cleaning unit comprising a portable casing having arranged therein a circulating pump with input and output ports, a tank for cleansing chemicals, a conduit connecting said tank with said input port and providing a sup-

port for the tank, a conduit connected with said output port and through valve means with said first-mentioned conduit, the said output conduit having a sight glass connected thereto and supported thereby and the said sight glass having a fitting for coupling to a cleansing line, the said cleansing tank likewise having a coupling for connection with a cleansing line whereby fluid may be circulated by said pump through said tank, said sight glass and said cleansing lines.

2. A portable device for cleansing and washing beer coils and the like comprising a portable casing having arranged therein a pump, a tank for cleansing chemicals, a conduit connecting said tank and pump and forming a support for the tank, a second conduit connected to said pump and to a sight glass, the latter being supported by said connection with said conduit in a position for ready inspection in said casing, and having a fitting including a pressure gauge, and means for coupling said sight glass and conduit with a cleansing line, and said tank having means for coupling with a second cleansing line.

3. A portable beer coil cleansing unit comprising a cabinet, a pump arranged within the cabinet and having input and output ports, a tank having a removable closure and means for coupling said tank with a cleansing line, conduit means connecting said input port in circuit with said output port, valve means for shutting off the circuit between said ports through said conduit means, said tank being connected to and supported by said conduit means between said valve means and said input port, a sight glass connected to and supported by said conduit means between said valve means and said output port, said sight glass having a fitting including a pressure gauge and adapted for connection with a second cleansing line and being disposed in a position in said cabinet accessible for ready inspection.

4. A device for cleansing pipe lines and the like, said device comprising a cabinet, a power-driven pump arranged within said cabinet and having input and output ports, a tank for cleansing chemicals, means on said tank for coupling engagement with a first cleansing line, a conduit connecting said tank and pump and supporting the tank within the cabinet, a sight glass, a conduit connecting said sight glass with said pump and forming a support for the glass, a fitting connected with said glass and adapted for coupling engagement with a second cleansing line, said first and second cleansing lines being adapted for connection with a pipe line to be cleansed in such manner that fluid may be circulated by said pump through said several cleansing lines, said pipe line, said tank and said sight glass.

5. A portable device for cleansing pipe lines and the like, said device comprising a portable cabinet, a pump arranged within said cabinet and having input and output ports, conduit means interconnecting said ports and including valve means for closing off said interconnection, a tank for cleansing chemicals and having a connection with said conduit means between said input port and said valve means, said connection also serving to support said tank and the latter having means for coupling engagement with a first cleansing conduit, a sight glass having a connection with said conduit means between said output port and said valve means, said connection serving to support said sight glass and the latter having a pressure gauge operably supported thereby and connected therewith and having means for coupling engagement with a second cleansing conduit, the said cleansing conduits being adapted for connection with a pipe line to be cleansed whereby cleansing fluid may be circulated through said pipe line, said tank and said sight glass.

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