Jan. 16, 1962 E. J. DZIEDZIULA ETAL 3,016,930

FLUID DISPENSING DEVICE

Filed May 21, 1958 3 Sheets-Sheet 1

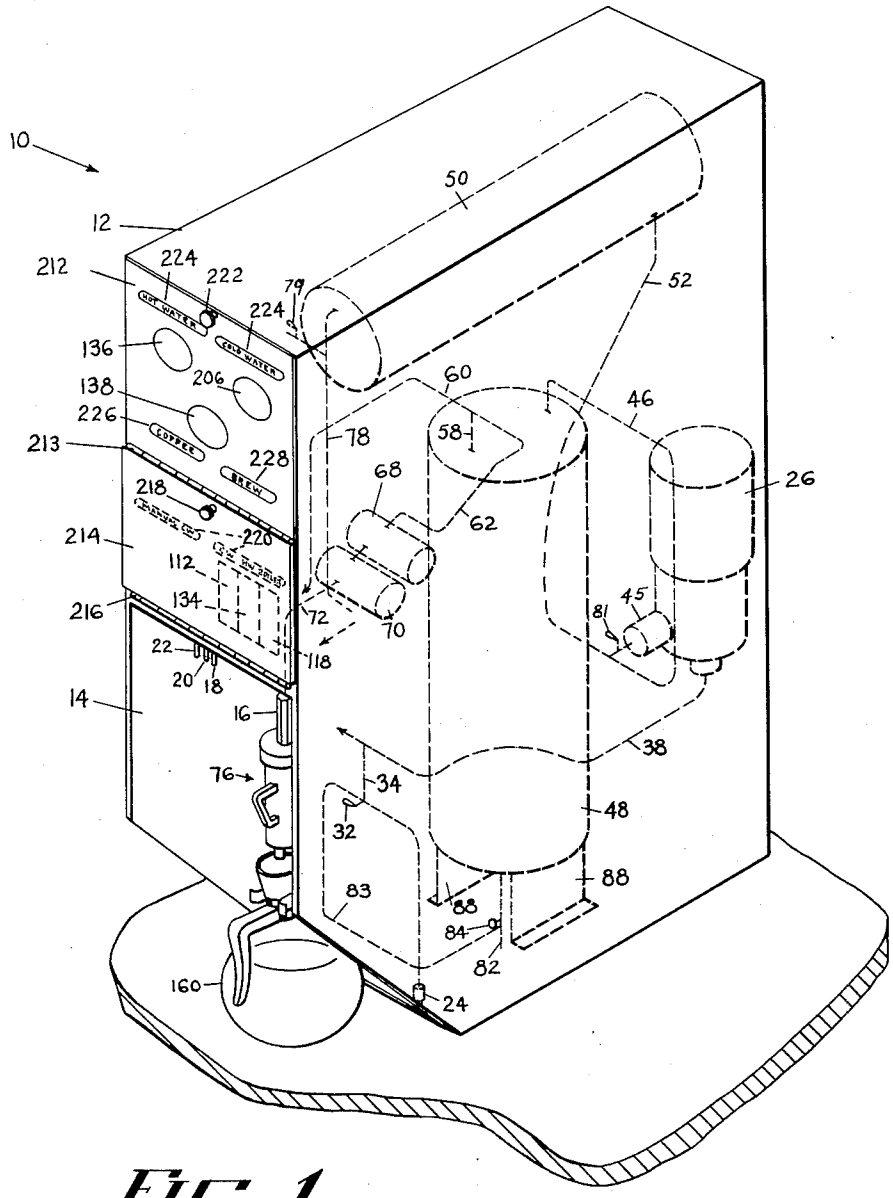

FIG. 1

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FLUID DISPENSING DEVICE

Filed May 21, 1958 3 Sheets-Sheet 2

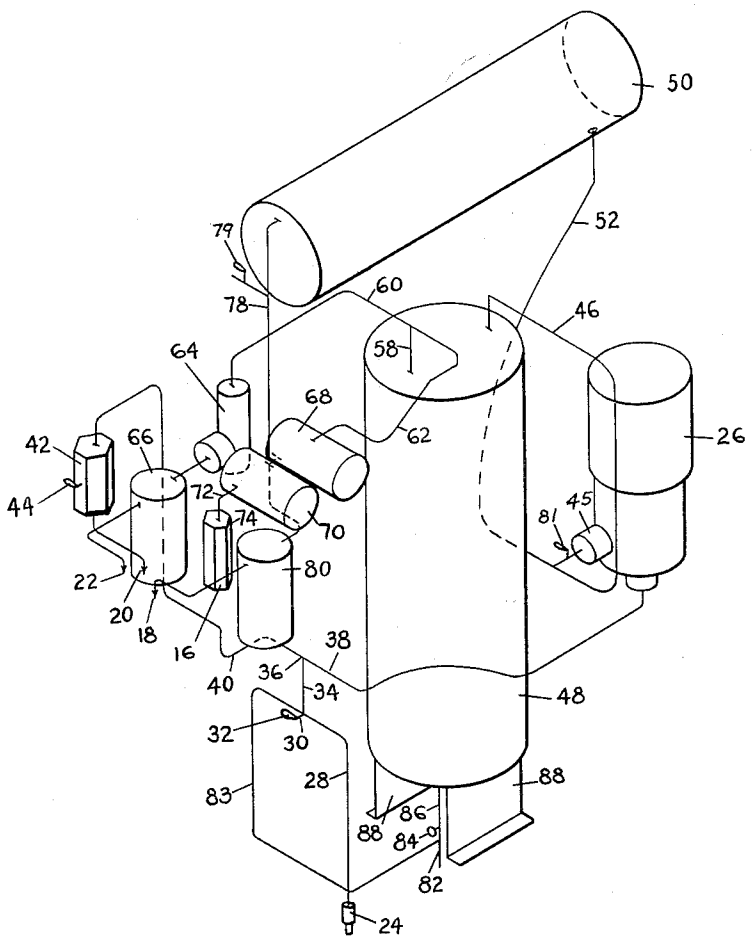

FIG. 2

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FLUID DISPENSING DEVICE

Filed May 21, 1958 3 Sheets-Sheet 3

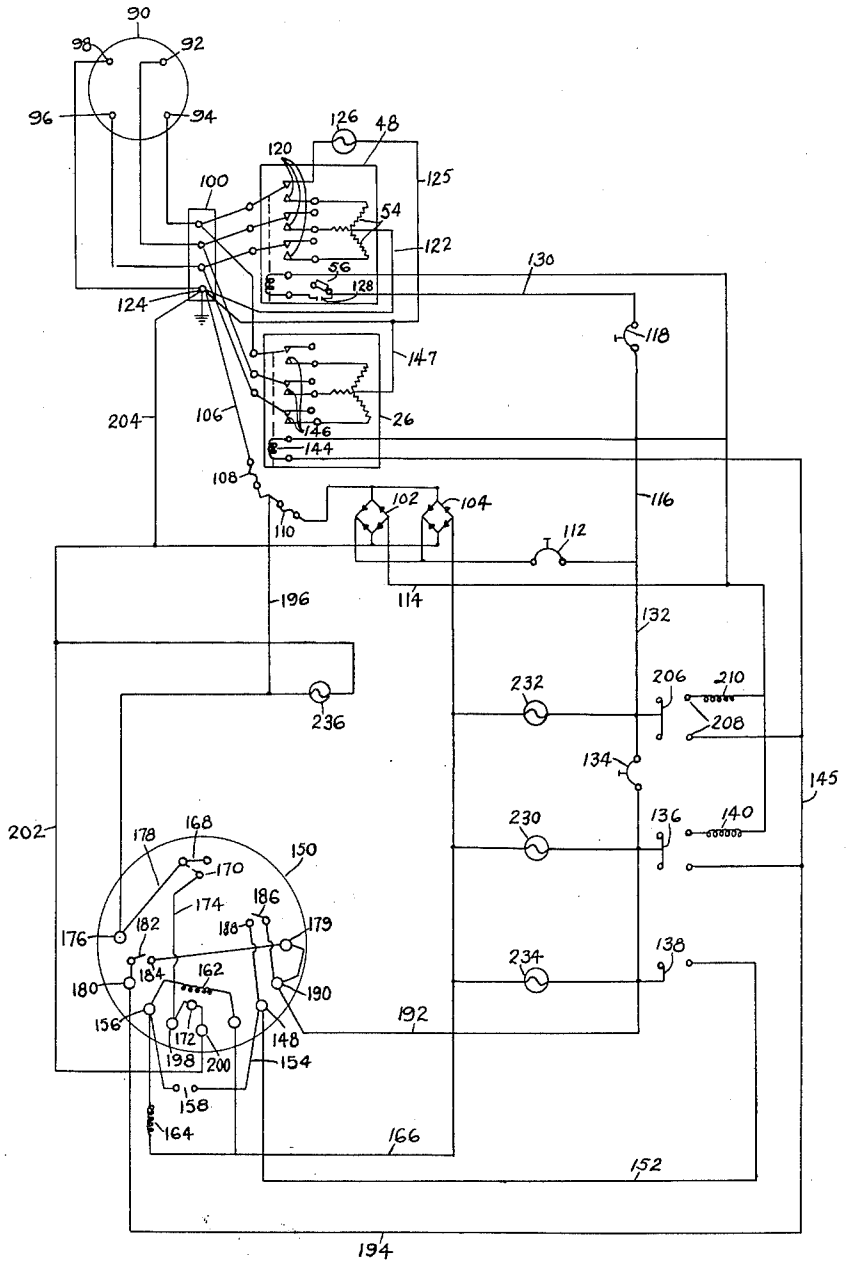

FIG. 3

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3,016,930

FLUID DISPENSING DEVICE

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Filed May 21, 1958, Ser. No. 736,771
12 Claims. (Cl. 141—361)

This invention relates to fluid dispensing devices and more particularly to devices that automatically dispense a plurality of fluids for making beverages.

The desideratum of this invention is to provide a fluid dispensing device or beverage making device that is particularly useful in galley equipment of the type generally employed in aircraft and the like. It has exceptional application where, for many reasons, space for such facilities is normally very limited.

In carrying forth the purposes of the invention, it is an object to provide a fluid dispensing beverage making device that is compact in structure, light in weight, yet efficient in operation; a device that is substantially automatic and requires very little or no skill to operate and a device that will not divert the attention of the operator from his or her other tasks or duties.

Another object of the invention is to provide a beverage or fluid dispensing device that is capable of dispensing one or more fluids each having a characteristic different from that supplied by a single fluid source.

Still another object is to provide a device that will operate automatically merely upon the closing of an electrical circuit to dispense a predetermined quantity of fluid having a predetermined characteristic.

A further object of the invention is to enable the dispensing of the fluid directly from the source of supply in the event of operating power failure.

Still a further object of the invention is to provide a device that will dispense hot and cold water in addition to tap water, all from a common source of supply.

Other and further objects of our invention reside in the structures and arrangements hereinafter more fully described with reference to the accompanying drawings in which:

FIG. 1 is a diagrammatic perspective view of the fluid dispensing device constructed in accordance with the teaching of the invention.

FIG. 2 is a diagrammatic perspective view of the plumbing connecting the elemental structural details, and

FIG. 3 is a schematic circuit diagram of the operating electrical apparatus.

Referring now to the drawings, the fluid dispensing beverage making device shown in FIG. 1, is generally identified by the numeral **10**. It comprises a narrow body **12** defining an interior housing that is elongated in depth and height to receive the compactly arranged operating structural elements. The body **12** may be in the form of a rigid framework that has a wall (not shown) separating an open fluid dispensing area **14** at the front thereof from the interior housing in which the operating structure is contained.

Mounted on the body **12** and extending from the interior housing thereof into the open fluid dispensing area **14** are a plurality of outlets **16**, **18**, **20** and **22**, each adapted to dispense a fluid having a predetermined characteristic. The fluid dispensing outlet **16** is adapted to dispense heated or warmed fluid or water for the purpose of making coffee. For this reason, the outlet **16** may be referred to hereinafter as the coffee outlet. Outlet **18** is adapted to dispense cold or cooled fluid or water automatically or coffee water outlet. Outlet **20** will dispense tap water directly from the tapped source, while outlet

22 is adapted automatically to dispense warmed or hot fluid or water similar to outlet **16**.

In the diagrammatic views of FIGS. 1 and 2, the outlet **16** is removed from the location of the outlets **18**, **20** and **22** within the area **14**, to permit the utilization of the coffee outlet separate and apart from the remaining outlets. Each of the fluid dispensing outlets is connected by plumbing pipes or conduit structures to a common fluid source or tap water input at nipple **24**. The nipple **24** serves to removably connect the fluid dispensing device **10** at the forward portion of the interior housing, with a fluid or water reservoir located in or near the galley equipment.

Each of the fluid dispensing outlets **16**, **18** and **22** is connected to receive fluid from the common source by way of a pump means **26** that is positioned at the rear of the interior housing of the body **12**. A fluid conveying conduit or pipe **28** conveys the fluid from the source entering the forward portion of the body **12** at **24** to a T-shaped valve **30** controlled by a manually operated valve **32**. With the valve handle **32** in the position as shown, fluid will be conveyed by the pipe **28** to the T valve **30** and from there along pipe **34** to a further T **36** where the source fluid is then diverted into two lines **38** and **40**.

The line **38** serves to link the pump or fluid moving means **26** with the fluid input **24**, while the pipe line **40** also serves to connect the tap water outlet **20** with the inlet **24**. A normally closed manually operated valve structure **42**, positioned in the line **40**, controls the fluid dispensed from outlet **20**. Valve structure **42** may be provided with a handle **44** that may be actuated to permit or allow tap water to be dispensed directly from the source **24** in the event of power failure of the operating electrical apparatus to be described.

Fluid entering the pump means **26** from the common source of supply **24** is moved thereby through a fluid regulator **45** and then in two directions simultaneously. The pump **26** serves to move the fluid along conduit **46** to the top of a heater or boiler structure **48** and at the same time to a fluid refrigerator or cooler **50** by way of conduit **52**, while the regulator **45** limits the output pressure applied by the pump in the conduits **46** and **52**.

The characteristics of the fluid supplied at the source **24** may be altered by its introduction into and through the boiler **48** and also into and through the refrigerator or cooler **50**. That is to say, that as the tap or source fluid passes from the inlet **24** through either the boiler **48** or the refrigerator **50**, its temperature characteristic is changed or altered predeterminately so that the same may have a different temperature characteristic from that supplied at the inlet.

The boiler structure **48** comprises a plurality of relay operated heating elements **54** controlled by a thermostat **56** (FIG. 3). The tap fluid circulated through the boiler structure **48** by the pump means **26**, is heated to a predetermined temperature which accordingly imparts to the fluid circulated through the boiler a temperature characteristic that is predeterminately different from that at inlet **24**. The heated fluid moves out of the boiler along the pipe line **58** and there diverted to flow into two conduits **60** and **62**. The heated fluid flowing through the pipe line **60** is caused to pass through a flow control or metering device **64** that is in line with a normally closed solenoid operated valve **66**. Operation of valve **66** permits the controlled dispensing of heated fluid from the hot water outlet **22**. The heated fluid flowing from the boiler structure **48** along the path **62**, also is metered at a flow control means **68**. A normally closed solenoid operated valve means **70**, interposed in conduit **62**, controls the dispensing of heated fluid through the coffee outlet **16**.

The coffee water outlet **16** comprises an outlet tube **72**

that extends through a plug connector device 74 of suitable construction that is adapted to accommodate and receive therein the inlet tube of a canister structure generally identified by the numeral 76 (FIG. 1). The operation of such canister structure is more fully described in co-pending application Serial No. 736,879 filed May 21, 1958, now Patent No. 2,997,940.

Tap fluid moved from the source of supply 24 by the pump means 26 into the cooling apparatus 50, located lengthwise along the top of the body 12, is pumped out of the same at the top forward end thereof to flow through the conduit 78 downward for dispensing at the outlet 18. The cooled water is dispensed upon the opening operation of a normally closed solenoid operated valve means 80 that is interposed in the conduit 78.

It will be seen that the common source of fluid input or supply is connected with the coffee, cold water and hot water outlets 16, 18 and 22 by way of the pump means 26 which serves to move the input fluid through the fluid characteristic changing elements 48 and 50. The pump means 26 and the solenoid operated valve structures 66, 70 and 80 are electrically operated. Hence, in the event of electrical power failure, it would be impossible to obtain fluid from the input source 24. However, by virtue of the direct connection of the top outlet 20 with the inlet 24 by the conduit 40, it is possible to dispense tap fluid therefrom by manual operation of the valve handle 44.

Upon occasion it becomes necessary to drain the device 10 of fluid to facilitate overhaul or cleaning. This may be accomplished by turning the valve handle 32 such that the top water emanating from inlet 24 is closed to pipe 34. At the same time, fluid in lines 38 and 40 will drain by gravity down along pipe line 34, through the T valve 30 along conduit 83, to a drain outlet 82. Draining of the boiler is controlled by a normally closed manually operated valve 84. The drain outlet 82 may be provided beneath the boiler or heating structure 48 to serve also as a drain therefor by way of drain pipe 86 that enters the lower side of the boiler between the upright supporting standards 88. Opening drain valve 81 will enable the drainage of fluid from the pump 26, regulator 45, line 46 and cooler 50 by way of line 52. An air inlet valve 79 will permit the entry of air into the cooler as the fluid is being drained therefrom.

The electrical apparatus schematically shown in FIG. 3, affords intricate control of the operation of the dispensing device 10 by the selective energization of a plurality of circuits to be described. A four-pole electrical input Amphenol type plug connector 90 may be conveniently mounted at the rear of the body or framework 12 for plug-in connection with a mating Amphenol connector mounted on the galley equipment of which the device 10 is to form a part. Each pole 92, 94, 96 and 98 of the connector 90 is connected with a terminal respectively mounted on a terminal block 100 to supply 400 cycle 115/208 volt alternating current to the terminals of the block 100. The alternating current is transmitted to rectifiers 102 and 104 by a conductor 106 where the same is rectified to direct current. Interposed in the line 106 are a pair of spaced fuses 108 and 110 to insure against overloading the line during the operation of the various electrical circuits and systems.

Rectification of the alternating current and initiation of the operation of the electrical apparatus is accomplished by closing a circuit breaker 112 connected in series with the rectifying means 102 and 104 by the conductor 114. Hence, the combination of the operation of the rectifying means and the operating circuit breaker 112 may be termed the first operating circuit of the electrical apparatus.

The rectified direct current may now be transmitted through a second circuit along a conductor 116 to the boiler 48 to energize and operate the same. Included in the second circuit is a normally open circuit breaker 118 that serves to transmit the direct current to the normally open relay contacts 120 of the boiler 48 and to the normally closed boiler control thermostat 56. The circuit from the boiler 48 is completed by way of connector 122 grounded to the ground terminal 124 of the terminal block 100.

A connector light 126 is included in the second or boiler circuit. It is connected with one of the normally open contacts of the boiler 48 that is, in turn, serially connected with a contact of the terminal board linked to the pole 94 of the plug 90. The light 126 therefore will operate when the plug 90 is plugged into the galley equipment. Closing the circuit breaker 118 to energize the boiler 48 causes the relay contacts 120 to close. This automatically opens the circuit to the indicator light 126 to extinguish the same while closing the circuit to the boiler heating elements 54. The absence of the signal 126 upon closing the boiler circuit breaker 118, serves to indicate to the operator that the boiler circuit is operating and that the water or fluid in the boiler 48 is now being warmed.

When after a period of operation, the boiler reaches its operating temperature of approximately 196° F., the predeterminately adjusted thermostat 56 will automatically open to break the circuit from the circuit breaker 118 to the contact relays 120. This permits the contact relays to return to their normally open position and thus automatically re-engages the circuit to the signal light 126 to operate the same. The subsequent relighting of the indicator 126 after a period of operation of the boiler circuit, serves to indicate to the operator that the boiler and the hot water passing therethrough is now at proper operating temperature. To prevent overloading of the thermostat 56, there is provided a by-pass condenser 128 positioned parallel therewith in the conductor 130.

When the circuit breaker 112 is closed, it also serves to transmit rectified direct current by way of conductor 132 to a third circuit that is so named for convenience of identification. The operation of the third circuit is controlled by a circuit breaker switch 134 interposed in the line 132 to transmit rectified direct current to hot water and coffee water dispensing systems. By closing the normally open circuit breaker 134, the operation of either one or the other of the hot water and coffee systems may be controlled selectively by manual pressure applied to the button-type switches 136 and 138 respectively.

To obtain hot water from the outlet 22, it is merely necessary to close the switch 136, thereby closing a circuit from the line 132 to the solenoid 140 of the hot water valve 66. A circuit is also simultaneously made to a relay 144 of the pump 26 along the connector 145 to close a set of normally open contacts 146. This serves to complete a circuit to the pump which is grounded to the terminal board 100 at contact 124 by a conductor 147.

When the contacts 146 of the pump 26 are closed, fluid is caused to be moved from the fluid inlet 24 through the boiler 48 and from there through the hot water conduit 60. Because solenoid 140 is energized to open its valve 66 simultaneously with the energization and operation of the pump, fluid will be dispensed from the outlet 22 for as long as the hot water switch 136 is depressed. When manual pressure on the hot water switch 136 is released, the same is permitted to return to its normally open position, thereby breaking the circuits to the solenoid 140 and the pump 26 simultaneously. The valve 66 is thus allowed to return to its normally closed position to block the dispensing of fluid from the hot water outlet 22. The de-energization of the pump halts the movement of fluid from the inlet 24 to the outlet 22.

The coffee system includes a normally open momentarily depressible switch 138 which serves to initiate simultaneous operation of the pump means 26, the valve means 70, and the timed dispensing of coffee water or fluid. Manual pressure applied to momentarily close the switch 138 serves to transmit rectified direct

current to a receiving contact 148 of an automatic timer device 150 by way of connector 152. Current is then permitted to flow from contact 148 along the conductor 154 toward a solenoid contact 156. However, interposed in the line 154, is an interlocking safety switch 158 that is normally open to disconnect the pump and valve means from the source of energizing current, but is closable by the reception of a Silex container or other pouring vessel 160 in the open fluid dispensing area 14.

In actual use, the interlock 158 is positioned in an accessible portion of the open fluid dispensing area 14 for engagement about the neck of the pouring vessel 160. The switch may be of any well known construction; however, it is normally open as shown in FIG. 3 to insure that coffee fluid will not be moved by the pump means 26 or dispensed by the valve 70 from the outlet 16 unless the vessel 160 is properly positioned beneath the outlet. Thus it is merely necessary that the switch 158 be of suitable construction to close and complete the circuit between the contacts 148 and 156 along the connector 154 when the vessel 160 is located in position beneath the outlet 16 and the canister 76 as shown in FIG. 1.

Assuming that a vessel 160 is properly positioned beneath the outlet 16 and the canister 76, the safety switch 158 then will be closed to interlock the circuit between the contacts 148 and 156, thereby energizing a timer coil 162 simultaneously with the valve solenoid 164, both of which are in circuit in the connecting line 166. Energization of the solenoid 164 serves to open the coffee valve 70 to permit fluid to be dispensed from the outlet 16. The coil 162 operates in the manner of a relay to move a switch arm 168 into engagement with a contact 170 to close a circuit between a motor 172, its connecting line 174 and a contact 176 by way of connector 178. Simultaneously therewith, a circuit is also made from pole 179 across to a contact 180 by the movement of an arm 182 into engagement with a contact 184 at the same time that arm 186 is engaged with contact 188 to link together the contacts 190 and 148. Arms 182 and 186 are moved to their closed positions by the energized coil 162.

The simultaneous closing of the switch contacts 168, 182 and 186 enables direct current to be transmitted from the rectifiers 102 and 104 through circuit breaker 112 along line 132 across the circuit breaker 134 along connector 192 to timer contact 190. From there the current is transmitted to contact 148 along connector 154 to contact 156 across energized coil 162 to the line 166. At the same time, a circuit is completed across the switch arm 182 from 179 to contact 180 along conductors 194 and 145 to the pump relay 144.

A holding or timing circuit is completed across the timing motor 172 by the transmission of alternating current from plug 90, contact 98 along connector 106, 196 and thence to contact 176 of the timer 150. The alternating current traverses the closed arm 168 to the contact 170 along line 174 to the motor contact 198. The motor is operated by the completion of the circuit across the contact 200 along connector lines 202 and 204 to the ground contact 124 of the terminal block 100.

Both the coffee solenoid 164 of the valve 70 and the contacts 146 of the pump 26 are operated simultaneously. Opening the valve permits coffee fluid to be exhausted from the outlet 16 into the canister 76 and from there to be received in vessel 160 while, at the same time, the operating pump 26 will move fluid from the inlet 24 through the boiler 48 along conduit 62 through the meter control 68, the open valve 70, and out of the outlet 16.

The holding circuit of the timer 150 may be adjustable to provide predetermined periods of operation. In practice, it is set for a period of three minutes of operation to permit the required amount of coffee water to be dispensed in the canister 76 for infusion with the coffee grounds therein. When the timing cycle is completed, a mechanical switch (not shown) disengages the arms 168, 182 and 186 from their operating contacts 170, 184 and 188 respectively. This causes a simultaneous disconnection of the solenoid 164 and of the operating relay 144 of the pump 26 from the source of operating rectified direct current. Accordingly, the valve 70 returns to its normally closed position to close off the dispensing of fluid from the outlet 16 while the operation of the pump stops and the movement of fluid along the described path is halted.

Included in the electrical apparatus, is a cold water system for dispensing cold water automatically from the outlet 18 (FIG. 2). The cold water operating system is located intermediate the circuit breakers 112 and 134 along the conductor 132. It comprises a cold water switch 206 that is responsive to manual pressure applied thereto to move the same from its normal open position into circuit making engagement with contacts 208. When the switch 206 is depressed into engagement with the contacts 208, it closes a circuit to transmit rectified direct current from the rectifiers 102 and 104, across the closed circuit breaker 112, along line 132 to the solenoid 210 of the cold water valve 80 (FIG. 2). The circuit closed to the solenoid 210 is made simultaneously with the closing of a circuit to the pump means 26 by way of connector 145 to energize the operator 144 and move the normally open contacts 146 into operating engagement.

It will be seen that during the simultaneous energization of the solenoid 210 of the valve 80 and of the pump 26, fluid is moved from the inlet 24 through the pump 26 to the cooler 50, by way of conduit 52, and from there along conduit 78 through the now open fluid dispensing valve 80 to permit the cold water to be dispensed from the outlet 18. Cold water will continue to be dispensed from the outlet 18 for as long as the switch 206 remains in circuit engagement with the contacts 208.

By releasing pressure on the switch 206, the circuit to the solenoid 210 opens, as will the circuit to the pump 26. The solenoid 210 will be de-energized, permitting the valve to move to its normally closed position. The relay contacts 146 of the pump 26 will return to their normally open position to halt the pumping operation.

It will be understood from the foregoing description that each of the fluid dispensing systems may be selectively operated to dispense their fluids upon the selected operation of the actuating switches 136, 138 and 206. The operation of any one of these switches initiates the operation of its respective valve into its open fluid dispensing position while simultaneously initiating the operation of the pump 26. Inasmuch as the pump serves to connect the coffee, hot water and automatic cold water fluid dispensing plumbing systems with the common inlet source at 24, its operation automatically places the fluid in each system under pressure so that it may be dispensed from the selected outlet.

The selection of a particular fluid to be dispensed from either one of the outlets 16, 18 or 22, is facilitated by conveniently locating the respective selector switches 138, 206 and 136 on a front panel 212 hinged at 213 to the framework 12. The initiating circuit breakers 112, 118 and 134 are conveniently positioned behind a hinged panel 214. The panel 214 is hinged at 216 to the framework of the body 12 immediately above the open fluid dispensing area 14. A knob 218 is rotatable to releasably secure the panel 214 normally closed, as shown, while the hinges 216 may have a spring (not shown) to constantly urge the panel to its closed position.

Thus the panel 214 provides convenient access to the current initiating circuit breakers 112, 118 and 134 and also to the manually operated tap water valve handle 44 (FIG. 2) that is located therebehind. Either the panel 214 or a placard therebehind may be inscribed with suitable notations 220 that serve to provide the operator with an immediate recognition of the actuating elements located behind the panel. To initially close the circuits of the related circuit breakers 112, 118 and 134 or to provide access to the valve handle 44 to dispense tap water directly from the source by way of outlet 20, it is neces-

sary that the panel 214 be dropped open by rotation of the knob 218, and similarly closed after the circuit breakers or handle have been actuated.

The hinged panel 212 is also provided with a knob 222 that enables the same to be dropped open much in the manner of the described panel 214. When the panel 212 is open, access is afforded to the water cooler or refrigerating device 50 positioned longitudinally along the topmost portion of the framework 12. The open panel 212 also facilitates repair of the electrical apparatus connected to the panel thereof.

The panel 212 is provided with a plurality of illuminable transparent or translucent name plates 224, one for each of the hot water and cold water switches 136 and 206. The coffee switch 138 is provided with two illuminable name plates or indices 226 and 228. The name plate 226 serves to indicate the location of the coffee button or switch 138 while the name plate 228 is illuminated by the previously described signal light 126 that is rendered operable when the electrical apparatus in initially plugged into circuit, and subsequently when the boiler 48 is brought to operating temperature. For this reason, the plate 228 may be inscribed with the word, "Brew," indicating to the operator the fact that the boiler has reached its proper operating temperature and that coffee is ready to be served or that the water in the hot water system has been warmed to the desired temperature.

The hot water plate 224 is illuminated by a small light 230. The cold water plate 224 is illuminated by a light 232 positioned in line with the cold water switch 206, while the "Coffee" indicator plate is illuminated by a light 234. A further light 236, interposed between conductors 196 and 204, is located at the top of the open fluid dispensing area 14 to provide illumination for this area so the operator may clearly see thereinto. When the plug 90 is connected with the mating plug connector of the galley equipment into which the device 10 is mounted, the light 236 immediately illuminates the dispensing area 14 while the light 126 initially illuminates the "Brew" plate 228 on the panel 212.

Operation of the electrical apparatus is initiated by opening the panel 214 to provide access to the circuit breaker 112 and by depressing the same into its engaged position. The alternating current emanating from the source plug connector 90, is thus rectified at 102 and 104 and the current is transmited therefrom immediately along lines 116 and 132 toward the circuit breakers 118 and 134 respectively. When circuit breaker 134 is closed the indicator lights 230, 232 and 234 are then energized to illuminate the panels relating to their respective switches 136, 206, and 138.

If the fluid dispensing coffee making apparatus is installed in an aircraft for use and operation by a stewardess, the same must be substantially automatic to permit the stewardess to devote her time and energy to other tasks. If the device 10 has not been employed recently or if the same has been drained of fluid as a result of cleaning or repair, it is first necessary to fill the boiler 48 and cooler 50 with water. The stewardess may do this by manually depressing the cold water switch button 206 on the panel 212. When the switch button 206 is depressed, rectified direct current is transmitted across circuit breaker 112, line 132, to make a circuit with the contacts 208 thereby actuating the solenoid 210 of the cold water valve 80, causing the same to open. The pump 26 is energized simultaneously with the opening of the valve 80 to move water from the inlet 24 into the cooler 50 and also into the boiler 48 until the same are filled.

The stewardess will hold switch 206 closed until the system is filled with water. She will recognize when the system is filled by noting the flow of water from the cold water spigot or outlet 18. At that time she can release the pressure on the switch 206 to disengage the circuit and permit the valve 80 to return to its normally closed position.

Now that both the cooler 50 and the boiler 48 are filled with water, the device 10 is ready to dispense fluids from each one of the automatic fluid dispensing outlets 16, 18 and 22. With circuit breaker 112 engaged, cold water is dispensed from the outlet 18 in the manner previously described by the depression of the cold water switch button 206 located on the panel 212.

Hot water is dispensed from the outlet 22 by closing the circuit breaker 134 and also the circuit breaker 118, both located behind the panel 14. Rectified current is thus transmitted by closing circuit breaker 118 to the boiler 48 to close its contacts and to automatically extinguish the signal light 126 that illuminates the "Brew" plate 228. After a period of operation, the boiler thermostat 56 will open, thereby breaking the circuit from the circuit breaker 118 to the contacts 120 of the boiler 48, immediately closing the initial circuit to the light 126 to illuminate the "Brew" plate 228.

When the "Brew" plate 228 is again illuminated, the operator then knows that the boiler has been brought to operating temperature. By pressing the switch 136 beneath the hot water indicator 224 on the panel 212, a circuit is closed along conductor 145 to the pump 26 which serves to operate the same simultaneously with the opening of the hot water valve 66. Hot water will be dispensed from the outlet 22 for as long as the operator maintains finger pressure on the switch button 136. Relaxation of pressure on the switch will immediately de-energize the valve solenoid 140 and also relay operator 144 of the pump 26 to disengage the pump contacts 146, thereby stopping the movement of fluid through the plumbing system to the outlet 22 and also permitting the hot water valve 66 to return to its normally closed position.

It will be recognized that the dispensing of coffee water by way of the outlet 16 is the same as previously described. The switch 138 merely requires momentary pressure to initiate the operation of the timer 150. As noted previously, unless a fluid receiving vessel 160 is properly located in position beneath the outlet 16 and within the fluid dispensing area 14, the interlock switch 158 will prevent the operation of the timer and also will retain the circuit to the pump 26 and to the solenoid 164 of the coffee valve 70 in open de-energized, non-operating condition. Hence, the interlock 158 serves as a safety mechanism to insure against spillage and loss of coffee water.

During the course of the description, it has been noted that the three outlets or spigots 18, 20 and 22 are arranged in a group spaced from the coffee outlet 16. The coffee outlet is positioned in the rear of area 14 to enable the canister 76 to be connected into the outlet connector 16 and the placement of the Silex vessel 160 therebeneath so that it may operate automatically without interference with the other fluid outlet. The outlets 18, 20 and 22 are moved well forward in the area 14 to permit them to dispense fluid and to be utilized even while or during the operation of the coffee system. Therefore, one skilled in the art will readily understand that the stewardess may draw either hot or cold water from the respective outlets 22 and 18 simultaneously with the dispensing of hot coffee water via outlet 16 into the canister 76 and vessel 106.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred embodiment thereof, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art, without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto.

We claim:

1. In a fluid dispensing device, a source of fluid, a plurality of fluid dispensing outlets, means connected between said outlets and said source to vary the characteristics of the source fluid, normally closed valve means

operable selectively to dispense fluids from selected ones of said outlets, pump means operable to connect said plurality of outlets with said source of fluid, means to selectively operate said valve means to dispense fluid from a selected one of said outlets and to operate said pump means with said valve means to move the fluid from said source through said fluid characteristic varying means to said selected outlet, a further fluid dispensing outlet connected directly with said source of fluid, normally closed valve means for said further outlet operable to dispense fluid directly from said source, timer means to control the operation of said pump and selectively operable valve means after a predetermined period of operation, and means connecting said timer means with said pump and selectively operable valve means to render said timer operative with said pump and selectively operable valve means to control the period of operation thereof.

2. In a fluid dispensing device, a plurality of fluid outlets, a fluid source connected with said fluid outlets, pump means to move the fluid from said source to said outlets, means energizable to heat said fluid during its movement to at least one of said fluid outlets, means to cool said fluid during its movement from said source to another of said outlets, normally closed valve means selectively operable to permit the dispensing of fluid from a selected one of said outlets, and an electrical apparatus including said pump means, said valve means and said heating means and having switch means to energize said heating means and further switch means to operate said valve means selectively and simultaneously with said pump means to dispense fluid from a selected one of said outlets, means to terminate the dispensing operation of said pump means and said valve means of certain of said outlets after a predetermined period, means connecting said terminating means with said pump and valve means to render said pump and valve means operative therewith and to control their period of operation, a further fluid outlet connected with said fluid source, and normally closed valve means connected to said further fluid outlet and manually operable to dispense fluid from said further fluid outlet.

3. A fluid dispensing device comprising a plurality of outlets, a common source of fluid connected to each of said outlets, means to cool the fluid dispensed from one of said outlets, means operable to heat the fluid dispensed from at least another of said outlets, valve means operable to permit the dispensing of the cooled and heated fluids from said respective outlets, pump means operable to move the fluid from said common source through said cooling and heating means and said outlets, and an electrical apparatus including a circuit having switch means to operate said heating means and at least a circuit having switch means to operate said pump and valve means simultaneously, means to terminate the operation of said pump means and said valve means for dispensing said heated fluid after a predetermined period of operation, means connecting said terminating means with said pump and valve means to render said pump and valve means operative with said terminating means to control their period of operation, one of said outlets being adapted to dispense fluid directly from said common source, and valve means connected to said last mentioned outlet and being manually operable to permit the dispensing of fluid from said last mentioned outlet.

4. A fluid dispensing device comprising a narrow body defining an interior housing elongated in depth and height and including a fluid dispensing area open at the front of said body for the reception of a container into which fluid is adapted to be dispensed, a fluid dispensing outlet extending from said housing and into said dispensing area, a source of fluid entering said housing and connected with said outlet, an electrical apparatus including pump means within said housing and operable to move fluid from said source through said outlet, normally closed valve means operable to permit the dispensing of fluid from said outlet, a source of electricity, switch means operable to connect said pump and valve means to said source of electricity to operate the same simultaneously, and normally open safety switch means to disconnect said source of electricity from said pump and valve means and closeable by the reception of a container in said dispensing area to connect said pump and valve means to said source of electricity for said simultaneous operation.

5. In a fluid dispensing device, a source of fluid, an outlet connected with said source and from which fluid may be dispensed, pump means operable to move the fluid from said source for dispensing through said outlet, means adapted to alter the characteristic of the fluid as it is moved from said source to said outlet, normally closed valve means operable to permit the dispensing of fluid from said outlet, a source of operating electricity, switch means to connect said pump and valve means with said electrical source, and means electrically connected with said pump and valve means for operation therewith to time the operation of said pump and valve means and disconnect the same from said electrical source after a predetermined period of operation.

6. In a fluid dispensing device as in claim 5, a second fluid outlet connected with said fluid source independent of the connection of said first mentioned outlet with said source, and normally closed valve means manually operable to dispense fluid directly from said fluid source.

7. In a fluid dispensing device as in claim 5, a second fluid outlet connected with said fluid source and from which fluid may be dispensed, normally closed valve means operable to permit the dispensing of fluid from said second outlet, said pump means being operable to move the fluid from said source for dispensing through said second outlet, and switch means to connect said second mentioned valve means and said pump means with said source of operating electricity to operate the same simultaneously.

8. In a fluid dispensing device as in claim 7, and means to alter the characteristics of the fluid as it is moved from said source to said second outlet.

9. A beverage making device comprising manual cold water, hot water, automatic cold water and coffee water outlets, a common water source connected with each of said outlets, means to control the flow of water from each of said outlets, means operative to heat the water for dispensing from said hot water and coffee water outlets, means to cool the water for dispensing from said automatic cold water outlet, means operative to pump the water from said source to said heating and cooling means and for dispensing from their respective outlets, said manual cold water outlet being operable to dispense cold water directly from said source, and a source of electricity connected with said heating means and said means to control the flow of water from said hot water, said automatic cold water and said coffee water outlets for simultaneous operation with said pump means and including timer means to control the operation of said pump means and said means to control the flow of water from said hot water and coffee outlets to simultaneously terminate their operation after a predetermined period.

10. A beverage making device comprising a common source of fluid, a plurality of fluid outlet means each connected to said source and certain of which are adapted to dispense a fluid having a characteristic predeterminately different from that of said source of fluid, normally closed valve means selectively operable to dispense fluid from selected ones of said outlet means, means connected between said fluid source and at least one of said outlet means to provide the fluid to be dispensed therefrom with a predetermined characteristic different from that of said source fluid, pump means operable to move the fluid from said common source through said characteristic means and to the respective outlet means, a source of electricity, switch means to connect said source of electricity with certain of said valve means and said pump means to operate the same, and timing means in circuit with a certain one of said valve means and said pump means and

rendered operable therewith to disconnect the same from said source of electricity after a predetermined period of operation and wherein a certain one of said outlet means is adapted to dispense fluid directly from said source.

11. A fluid dispensing device comprising a common source of water, a plurality of outlets for dispensing cold water, hot water, and coffee water respectively and each connected with said common source; means to cool said water dispensed from said cold water outlet; an electrical apparatus having a source of alternating current and comprising first, second and third circuits; a cold water system, said first circuit including means to rectify said alternating current to direct current and switch means to initiate operation of said electrical apparatus and said cold water system; said second circuit including means to heat said water dispensed from said hot water and coffee outlets and switch means to transmit said rectified current to said heating means; said third circuit including hot water and coffee water systems each operable to control the dispensing of water from said hot water and coffee water outlets respectively; switch means to transmit the rectified current to each of said systems, said systems each having solenoid operated valve means to control the dispensing of water from their respective outlets, pump means

common to and connected in series with each of said solenoid operated valve means and operated therewith to move water from said source through said outlets and switch means operable to transmit operating rectifying current to said solenoid operated valve means, and timer means operable in response to the operation of said coffee system switch means to automatically terminate the operation of said pump means and the coffee system valve means after a predetermined period.

12. A fluid dispensing device as in claim 11, wherein an outlet is connected with said common source of water to dispense the same, and normally closed valve means being manually operable to permit the dispensing of common source water from said last mentioned outlet.

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