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(54) **HIGH HEAT ELECTRIC FIREPLACE**

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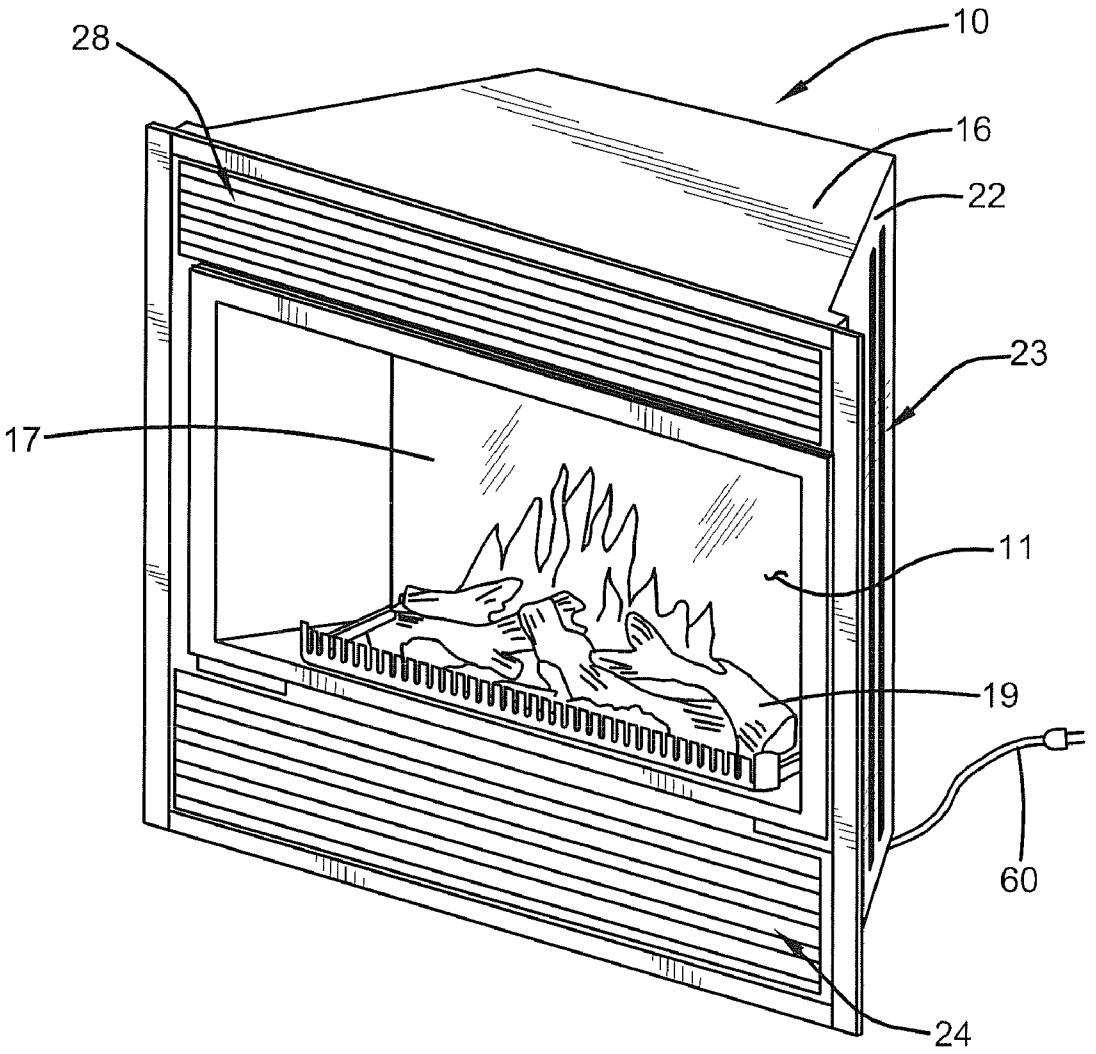
(52) **U.S. Cl.** **392/407**

(57) **ABSTRACT**

Provided is an electric fireplace comprising adaptations to permit the electric fireplace to accept electrical energy at first rate from an associated AC power supply and adaptations to permit the electric fireplace to output energy at second rate, where the second rate exceeds the first rate.



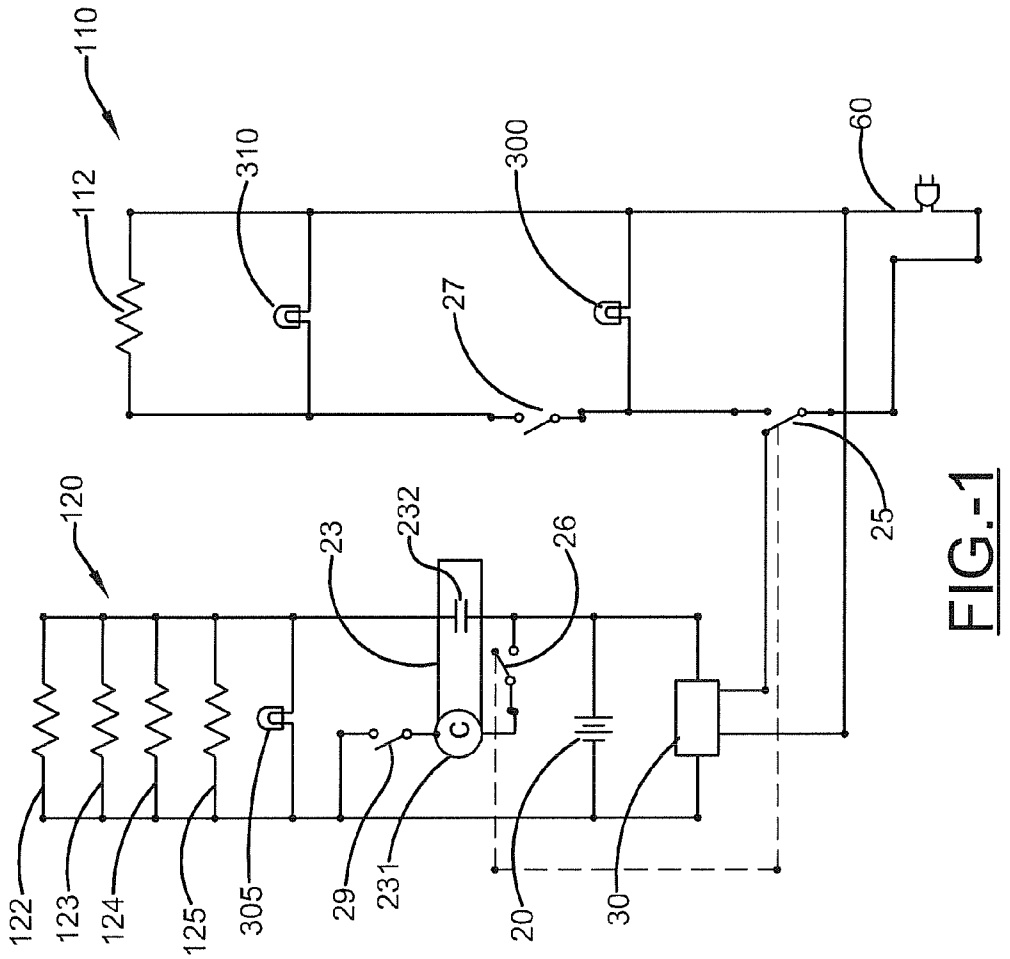

110
112
310
300
60
27
120
23
232
26
25
122
123
124
125
305
29
231
20
30

FIG.-1

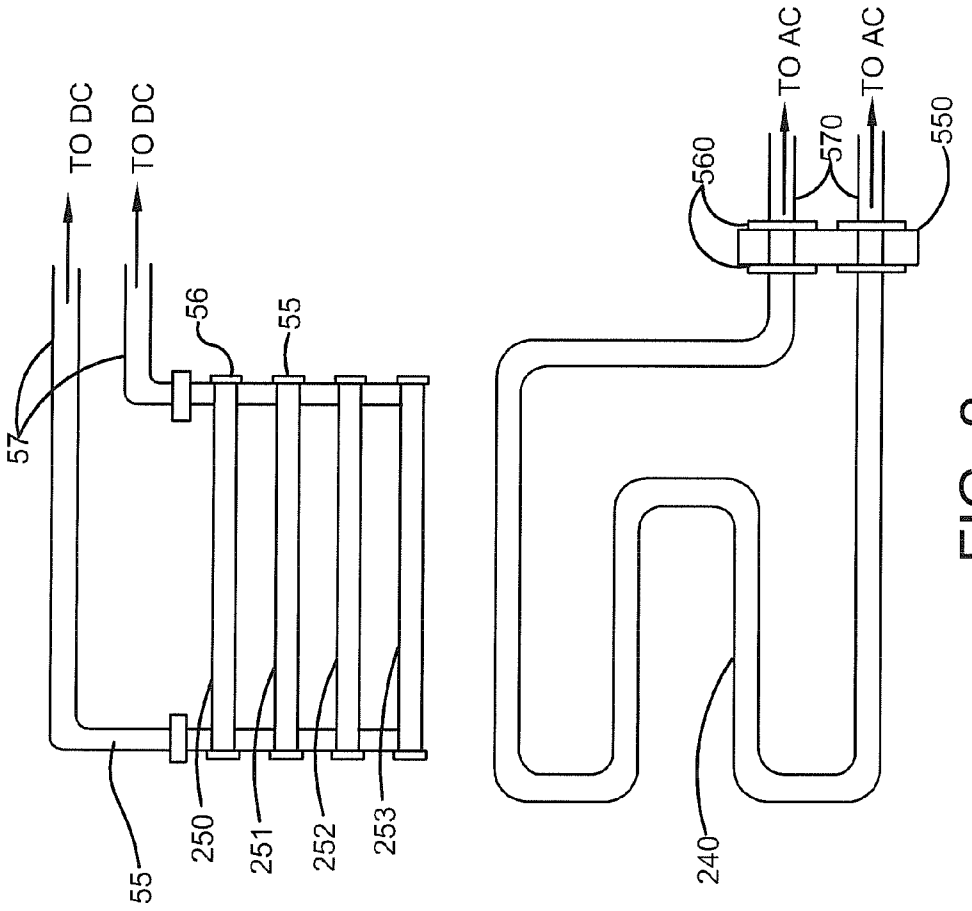


FIG.-2

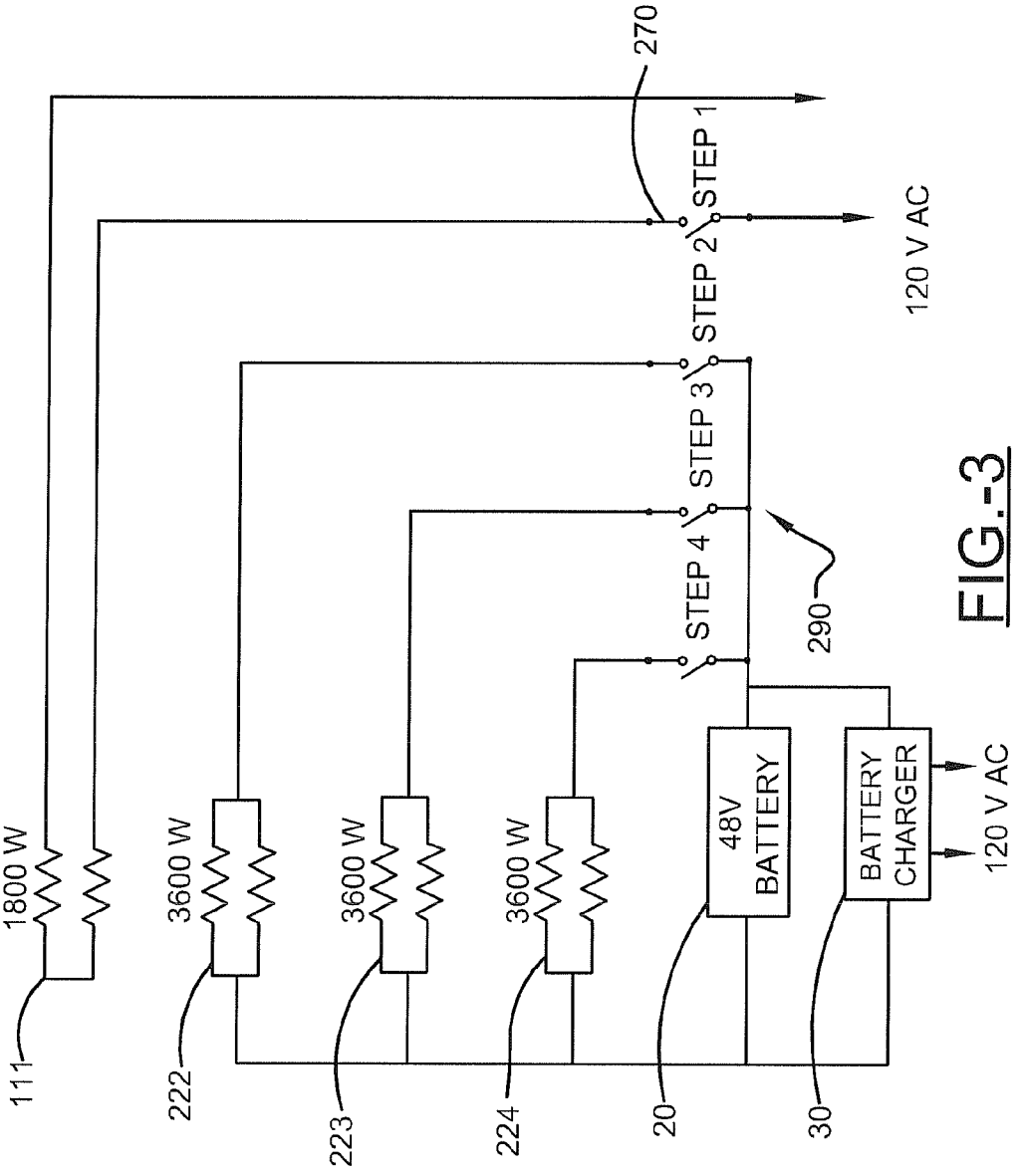

270
STEP 1
STEP 2
120 V AC
STEP 3
STEP 4
290
1800 W
3600 W
3600 W
3600 W
48V BATTERY
BATTERY CHARGER
120 V AC
111
222
223
224
20
30

FIG.-3

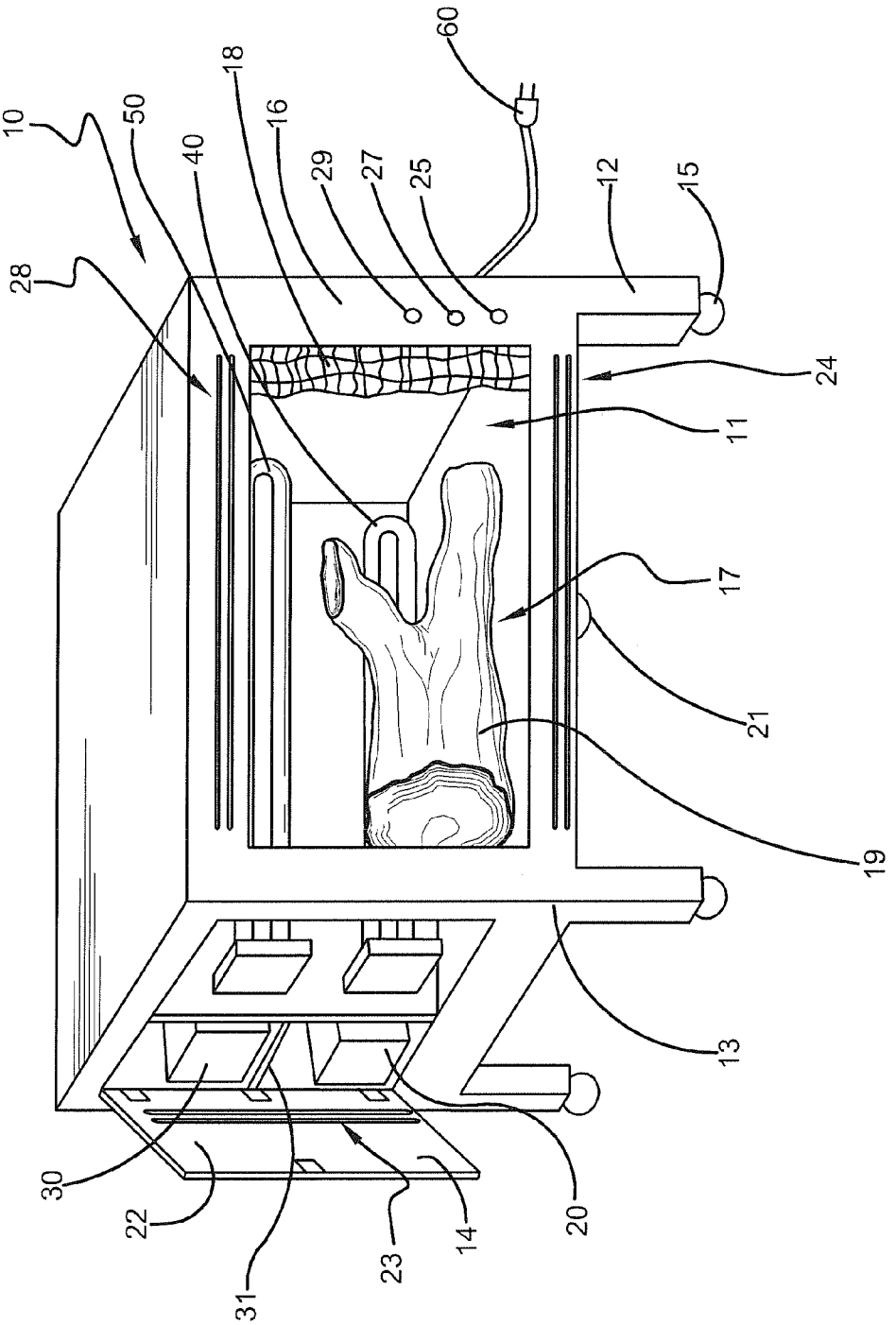


FIG.-4

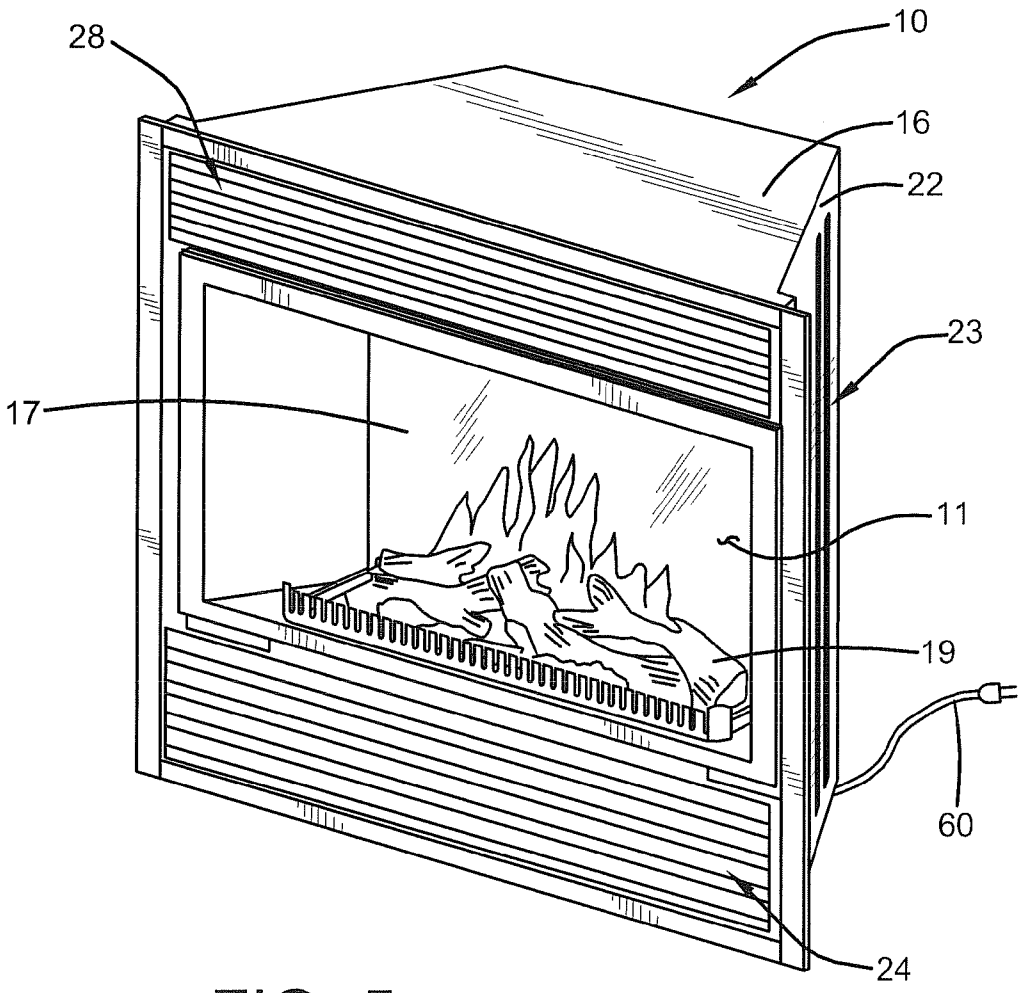


FIG.-5

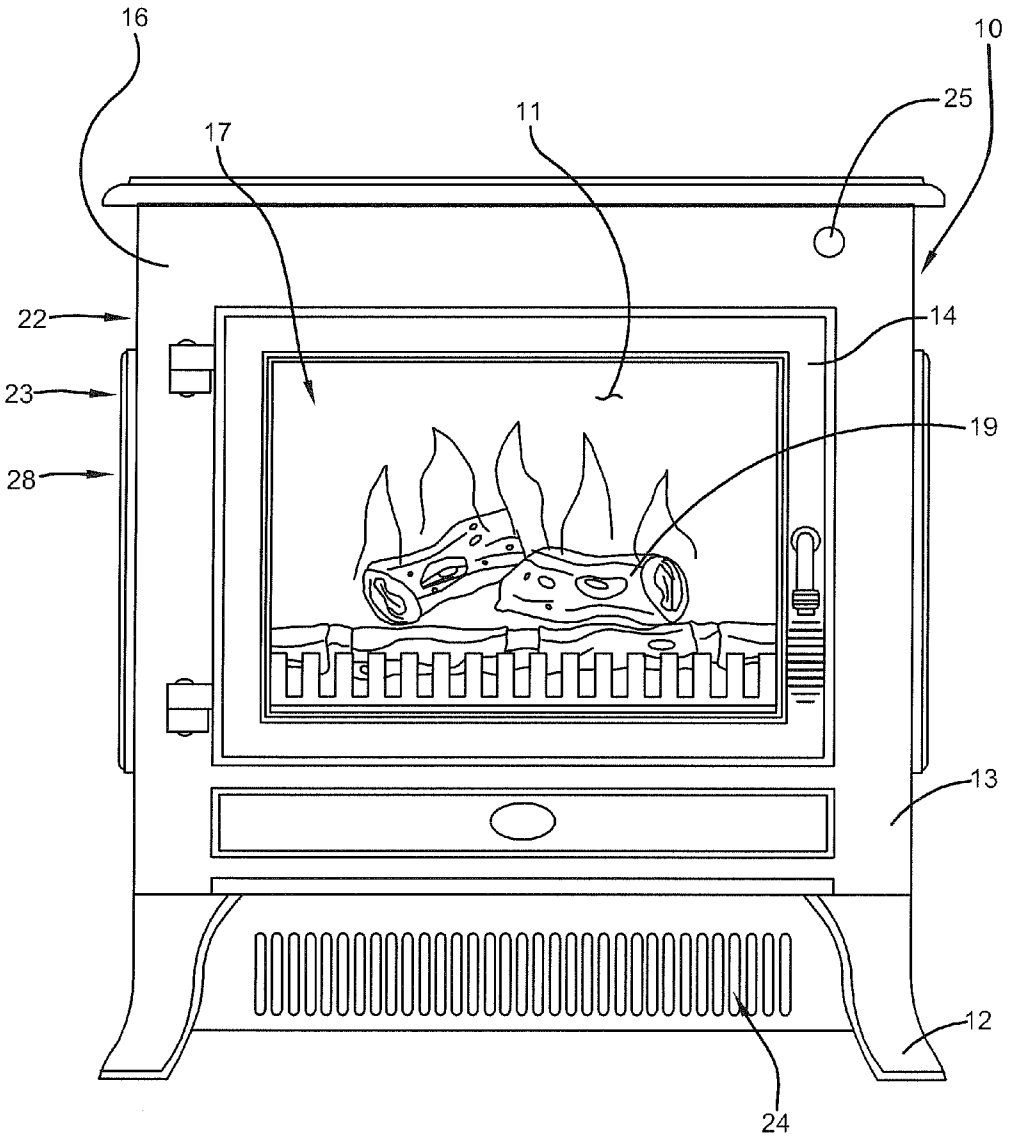


FIG.-6

HIGH HEAT ELECTRIC FIREPLACE

[0001] This utility application claims priority from a provisional patent application having serial number 61/346,661 filed on May 20, 2010.

TECHNICAL FIELD

[0002] Certain embodiments disclosed herein relate generally to a high heat electric fireplace. More specifically, certain embodiment disclosed herein related generally to an electric fireplace which may be adapted to use a combination of one or more of AC powered elements and DC powered elements to produce heat.

BACKGROUND

[0003] A drawback of electric fireplaces heretofore has been limited maximum heating capacity set by standard load limits to household electrical circuits. That is, at a given amperage and voltage or other criteria defining a power input, many appliances can provide only power output equal to or less than the power input.

[0004] Some electric fireplaces adapted to operate on 110v are limited to a maximum output of 1500 Watts.

[0005] It remains desirable to provide an electric fireplace for use with household electrical circuits that can provide a sustained output power substantially greater than the power input limits created by the standard load limits to household electrical circuits.

SUMMARY

[0006] Provided is an electrical fireplace comprising adaptations to permit the electrical fireplace to accept electrical energy at first rate from an associated AC power supply and adaptations to permit the electrical fireplace to output energy at second rate, where the second rate exceeds the first rate.

[0007] Further provided is an electrical fireplace comprising a storage battery, a power cord adapted to operationally engage an associated AC power supply, a charging circuit operationally engaged with the power cord, an AC heating element operationally connected to the power cord, and a DC heating element operationally connected to the storage battery. The storage battery may be adapted to accept a charge of electrical energy, to store energy, and to output DC electrical energy. The power cord may be adapted to obtain AC electrical energy from the associated AC power supply. The charging circuit may be adapted to receive AC electrical energy from the power cord and may be adapted to provide a charge of electrical energy to the storage battery. The AC heating element may be adapted to accept AC electrical energy from the power cord and may be adapted to convert the AC electrical energy to heat. The DC heating element may be adapted to accept DC electrical energy from the storage battery, and may be adapted to convert the DC electrical energy to heat.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. **1** is an electrical circuit schematic of one embodiment of a high heat fireplace;

[0009] FIG. **2** is a plan view of heating elements in one embodiment of a high heat fireplace;

[0010] FIG. **3** is an electrical schematic of one embodiment of a high heat fireplace;

[0011] FIG. **4** is a drawing of one embodiment of a high heat fireplace;

[0012] FIG. **5** is a drawing of one embodiment of a high heat fireplace;

[0013] FIG. **6** is a drawing of one embodiment of a high heat fireplace;

DETAILED DESCRIPTION

[0014] Reference will be made to the drawings, FIGS. **1-6**, wherein the showings are only for purposes of illustrating certain embodiments of a high heat fireplace, and not for purposes of limiting the same.

[0015] A high heat electric fireplace may produce a substantially greater heat output rate than conventional electric fireplaces without requiring the use of high voltage (240 volt) circuits. Heat output capacity greater than conventional electric fireplaces can be provided, in some embodiments, and without limitation, by providing an energy storage device that can output power in addition to the power provided by a normal household power supply. Heat output capacity greater than conventional electric fireplaces can be provided by using two different power sources, an AC source and a DC battery source in a hybrid configuration. The AC source may be a household electrical supply adapted to supply power from the distribution grid. In certain embodiments, and in certain countries, without limitation, a household electrical supply may be adapted to deliver 120V, 60 Hertz, AC current. By using an AC power source to charge batteries when the fireplace is not in use, or when the fireplace is consuming less than all of the available AC power, one can obtain DC power from these batteries in addition to AC power when the fireplace is in use.

[0016] A high heat fireplace **10** may comprise a housing **16** defining an interior region **17** therein. In certain embodiments, a housing **16** may comprise a frame **13** and a leg **12**. In certain embodiments, a leg **12** may be engaged with a castor **15**, wheel or other element to facilitate movement of the fireplace.

[0017] A high heat fireplace **10** may comprise a battery **20**. A battery **20** or may be located in interior region **17**. In some embodiments, a fireplace **10** may comprise more than one battery **20**. In certain embodiments a fireplace may comprise two 12 volt marine-type deep-cycle batteries wired in series and rated at 75 ampere hours. Two 12 volt batteries wired in series and rated at 75 ampere hours may be used to energize a 24 volt, 1800 watt fireplace for one hour.

[0018] A high heat fireplace **10** may comprise a battery charger **30**. In some embodiments, a battery charger **30** may be located within interior region **17**. A battery charger **30** may be wired so it automatically recharges the battery **20** whenever the fireplace is turned off. In some embodiments, a battery charger **30** may have the capacity to fully charge the battery **20** or batteries within 24 hours. In some embodiments the battery charger charges the battery **20** or batteries automatically. In some embodiments the battery charger charges the battery **20** or batteries automatically if output from the high heat fireplace **10** is turned off. In some embodiments, a battery charger **30** may comprise an automatic commercial battery charger which may use a step-down transformer to feed four diodes in a full wave rectifier configuration to convert AC to DC and may also use a capacitor for smoothing the output along with a diode by-pass to prevent over-charging.

[0019] In some embodiments, the battery charger **30** may be adapted to recharge the battery **20** when less than 100% of

the available AC power is being used for other purposes. In some embodiments some fraction of the available AC power may be used for operations while some other fraction is simultaneously used to recharge the battery **20**.

[0020] In some embodiments a high heat fireplace **10** may comprise a timer (not shown). A timer (not shown) may be adapted to turn a high heat fireplace **10** on or off as a function of time. A timer (not shown) may be adapted to turn a high heat fireplace **10** off after some selected period of time. In certain embodiments, a timer (not shown) may be adapted to turn a high heat fireplace **10** off after one hour of operation. A timer may be adapted to function as a safety precaution, or to protect the battery from being overly discharged, or both. In certain embodiments, a timer (not shown) may be integrated into a main power switch.

[0021] In some embodiments a high heat fireplace **10** may comprise a thermostat (not shown). A thermostat (not shown) may be adapted to turn a high heat fireplace **10** on or off as a function of temperature. A thermostat (not shown) may be adapted to turn a high heat fireplace **10** off at temperatures at or above some selected temperatures. A thermostat may be adapted to function as a safety precaution, or to protect the battery from being overly discharged, or both. In certain embodiments, a thermostat (not shown) may be integrated into a main power switch.

[0022] In some embodiments a high heat fireplace **10** may comprise a low battery voltage disconnect box (not shown). In some embodiments, a low battery voltage disconnect box (not shown) is engaged with the high heat fireplace **10** to turn the high heat fireplace **10** off if the battery charge drops to some selected amount. In some embodiments, a low battery voltage disconnect box (not shown) comprises a commercially available low battery voltage disconnect box (not shown).

[0023] In some embodiments, a high heat fireplace **10** may comprise an electrical switch adapted to aid in the prevention of unauthorized activation of the high heat fireplace **10**. Without limitation, an electrical switch adapted to aid in the prevention of unauthorized activation of the high heat fireplace **10**, may comprise a switch that requires a key to operate or a child-proof switch.

[0024] In some embodiments, a housing **16** may comprise a side panel **22**. A side panel **22** may comprise louvers or slots **23** for ventilation for a battery **20** or a charger **30**. In some embodiments, a high heat fireplace **10** may comprise a rear, front, or side door **14** to selectably close housing **16**. In some embodiments, a rear, front, or side door **14** may be lockable.

[0025] In some embodiments, a housing **16** may comprise an air inlet region **24**, an air outlet region **28**, or some combination thereof An air inlet region **24** may be adapted to provide fluid communication of air between the interior region **17** and the atmosphere. An air inlet region **24** may allow air to flow into the interior region **17** from the atmosphere. An air outlet region **28** may be adapted to provide fluid communication of air between the interior region **17** and the atmosphere. An air outlet region **28** may allow air to flow out of the interior region **17** and into the atmosphere. In some embodiments, a high heat fireplace **10** may comprise a fan **21**, blower, or other component adapted to induce air flow through the high heat fireplace **10**. A fan **21**, blower, or other component adapted to induce air flow may be used to induce air flow to cool a battery **20**, a charger **30**, or other components of the high heat fireplace **10**. A fan **21**, blower, or other component adapted to induce air flow, may be used to draw air over or around a DC heating element **40** or an AC heating element **50** in order to heat air, or cool a DC heating element **40** or an AC heating element **50**, or some combination thereof In some embodiments, a fan **21**, blower, or other component adapted to induce air flow, may be used to induce forced convection to promote heat transfer in the high heat fireplace **10** or in the surrounding environment, or both. In some embodiments, natural convection or mixed natural and forced convection promotes heat transfer in the high heat fireplace **10** or in the surrounding environment, or both.

[0026] In some embodiments a high heat fireplace **10** may comprise an artificial log **19**. An artificial log **19** may comprise ceramics, ceramic composites, or other appropriate materials. In some embodiments, an artificial log **19** may be adapted to cosmetic or aesthetic functions, such as, without limitation, providing the appearance of a natural log. In some embodiments, an artificial log **19** may be adapted to facilitate radiative, convective, or conductive heat transfer. In some embodiments, a first surface of an artificial log **19** may be adapted to facilitate radiative heat transfer between the artificial log **19** and either or both of a DC heating element **40** or an AC heating element **50**; and a second surface of the artificial log **19** may be adapted to facilitate convective heat transfer between the artificial log **19** and air flowing through the high heat fireplace **10**.

[0027] In some embodiments a high heat fireplace **10** may comprise a screen **18**. A screen **18** may comprise a backdrop, grid, mesh, or other components. A screen **18** may be adapted to promote cosmetic or aesthetic functions, such as, without limitation, to promote the appearance and/or aspect of a natural wood burning fireplace or gas fireplace. A screen **18** may be adapted to conceal or shroud a DC heating element **40** or an AC heating element **50**.

[0028] In some embodiments a high heat fireplace **10** may comprise a window **11**, cover, or view plate. A window **11**, cover, or view plate may be adapted to permit a user or observer to observe a section of an interior region **17** from an external viewpoint. A window **11**, cover, or view plate may be adapted to transmit certain kinds of light, certain kinds of infrared radiation, or some combination thereof. A window **11**, cover, or view plate may be adapted to reflect or absorb certain kinds of light, certain kinds of infrared radiation, certain kinds of ultraviolet radiation, or some combination thereof. A window **11**, cover, or view plate may comprise, glass, mica, quartz, or other appropriate materials.

[0029] In some embodiments a high heat fireplace **10** may comprise a device to provide appearances or sounds adapted to facilitate similar aesthetics to those of fire or a natural wood burning. In some embodiments a high heat fireplace **10** may comprise lights adapted to provide the appearance of flames or an appearance of fire for aesthetic purposes. In some embodiments, and without limitation, a high heat fireplace **10** may comprise lights adapted to flicker, to provide certain color light or variation in colored light, to provide variation in brightness of light, or some combination thereof. In some embodiments, and without limitation, a high heat fireplace **10** may comprise lights adapted to provide light through a movable device as described further herebelow. In some embodiments, and without limitation, a high heat fireplace **10** may comprise a movable device adapted to facilitate similar aesthetics to those of fire or a natural wood burning fireplace. In some embodiments, and without limitation, a movable device adapted to facilitate similar aesthetics to those of fire or a natural wood burning fireplace may comprise a movable aper-

ture, or a movable reflector, or a movable transmissive element or lens adapted to produce variation in light output adapted to simulate the flicker or dancing of fire. In some embodiments, and without limitation, a high heat fireplace **10** may comprise a sound output device adapted to simulate the crackling of a fire, to simulate other sounds of a real fire, or to simulate other sounds.

[0030] In some embodiments, a high heat fireplace **10** may comprise a power cord **60**. A power cord **60** may comprise a conventional three-wire insulated power cord where the third wire is ground.

[0031] In some embodiments, a high heat fireplace **10** may comprise a control switch **25**. In some embodiments, control switch **25** is the main power switch for the AC power. In some embodiments, when the main power switch for the AC power is in the "ON" position, the charging circuit is disabled and the AC and DC heating element circuits are enabled. In some embodiments, when the main power switch for the AC power is in the "OFF" position, the charging circuit is enabled and the AC and DC heating element circuits are disabled. In some embodiments, when the main power switch for the AC power is in the "OFF" position, the charging circuit is disabled and the AC and DC heating element circuits are disabled.

[0032] In some embodiments, a high heat fireplace **10** may comprise additional controls **27** and **29** adapted to enable a user to select between AC heaters only ON, DC heaters only ON or both AC and DC heaters ON.

[0033] In some embodiments, a high heat fireplace **10** may comprise a remote control. A remote control may control the high heat fireplace **10** by radio signals, infrared signals, or other remote control technology. In some embodiments, a high heat fireplace **10** may comprise a remote thermostat. A remote thermostat may control the high heat fireplace **10** by radio signals, infrared signals, or other remote control technology.

[0034] The DC heating elements may be connected in parallel between a set of bus bars. In some embodiments, the bus bars may also be located at the back of the fireplace or along the front of the fireplace.

[0035] In some embodiments, a housing **13** or frame **16** may comprise support shelves **31** for a battery **20** or charger **30** or other components, or some combination thereof. In some embodiments, without limitation, support shelves are below the AC and DC electrical heating elements so the weight of the support shelves and components thereon lowers the center of gravity of said high heat fireplace **10**. Such placement may also increase separation of the batteries from electrical heating elements.

[0036] FIG. **1** is an electrical schematic of one embodiment of a high heat fireplace **10**. FIG. **1** shows the AC heating elements **110** and DC heating elements **120**.

[0037] As shown in FIG. **1**, in some embodiments, the DC heating elements **102** may be sub-divided into four sections **122**, **123**, **124** and **125** wired in parallel. A parallel configuration as shown may, without limitation, reduce the current flowing through each DC heating element by three quarters as compared to a single 1800 watt, 24 volt DC heating element. Increasing the number of DC heating elements **120** may increase the rate of heat output capacity from the DC heating elements **120**. For example, and without limitation, for a high heat fireplace **10** comprising a 170 square inches outlet aperture, for example and not limitation, a 10"×17" aperture, two 450 watt DC heating elements in conjunction with the 1800 watt AC heating element will provide a total 2700 watt output capacity. A switch for the DC elements **29** and a switch for AC element **27** are indicated as separate switches. In certain embodiments, a switch for the DC elements **29** and a switch for AC element **27** may be activated from a common dual control switch.

[0038] In some embodiments, a high heat fireplace **10** may comprise a component adapted to regulate the output heat rate. A component adapted to regulate the output heat rate may comprise an infinitely variable control such as a rheostat, a solid state pulse width modulation controller, silicon controlled rectifier controller, or some combination thereof. In some embodiments, and without limitation, switch **27** or switch **29**, or both switches **27** and **29** may comprise a control with on, off, and either discrete or continuous intermediate positions. In some embodiments, as shown in FIG. **5**, step switches may be used to regulate the number of heating elements activated to control the level of heat.

[0039] In some embodiments, a high heat fireplace **10** may comprise a main power switch **25**. One embodiment of a main power switch **25** is shown in FIG. **1**. In some embodiments, a main power switch **25** may be a double pull, double throw switch. A double pull, double throw main power switch **25** may comprise a first side **27** adapted to control AC input and a second side **26** adapted to control energizing of the DC heating coils. A double pull, double throw main power switch **25** may be adapted to disengage AC as well as DC heating circuits when it is turned "OFF". As noted above, in some embodiments, when a main power switch **25** is in the "ON" position, a charging circuit may be disabled. As noted above, in some embodiments, when a main power switch **25** is in the "OFF" position, the charging circuit may be enabled and the AC as well as the DC heating elements may be disabled.

[0040] In some embodiments, as shown in FIG. **1**, a high heat fireplace **10** may comprise a grounded power cord **60** adapted to supply power to the high heat fireplace **10** from a 120 volt AC outlet.

[0041] In some embodiments, as shown in FIG. **1**, switching to connect or disconnect power from the batteries may be done using a contactor **23** comprised of contacts **232** and a coil **231** which when activated by switch **25** and **29** being both closed, closes the contacts to energize the DC heating elements **120**.

[0042] In some embodiments, as shown in FIG. **1**, some or all of the DC heating elements **122**, **123**, **124**, **125** are connected in parallel and some or all are activated upon closure of switches **25** and **29**. In some embodiments, activation of individual elements **122**, **123**, **124**, **125** may be done selectively using a multiple position rotary switch, as shown in FIG. **3**, or an infinitely variable control such as a variable resistance rheostat or a solid state device. In some embodiments, activation of elements **122**, **123**, **124**, **125** may be connected to an independent switch such that any one element **122**, **123**, **124**, **125** may be activated independently of the activation state of any other element **122**, **123**, **124**, **125**.

[0043] In some embodiments, a battery **20** may be connected to a battery charger **30** as indicated. In some embodiments, a battery charger **30** provides a charging rate appropriate for the type of battery. In some embodiments a battery may comprise a lead-acid battery, a lithium ion battery, a nickel-cadmium battery, a nickel-metal hydride battery, a nickel-zinc battery, or some combination thereof. Without limitation, in embodiments where in the batteries are lead-

acid batteries, the charging rate may be relatively slow charge initially followed by a float charge to maintain full charge without overcharging.

[0044] In some embodiments, a high heat fireplace **10** may comprise adaptations to provide protection against overcharge of the battery **20**. In some embodiments, overcharge protection may comprise a diode having a specific voltage cut-off similar to that of the rated battery voltage so that when voltage reaches this level the diode ceases to conduct. For example, and not limitation, in some embodiments the rated battery voltage may be 12 volts or 24 volts.

[0045] A battery **20** may be a single unit, multiple batteries in series or multiple batteries in parallel. In some embodiments, without limitation, two 12 volt batteries are used in series.

[0046] In some embodiments, as shown in FIG. **1**, the high heat fireplace **10** may comprise an indicator lamp **300**, **305**, **310**. The high heat fireplace **10** may comprise an indicator lamp **300** that is adapted to indicate whether or not main power is ON. The high heat fireplace **10** may comprise an indicator lamp **310** adapted to indicate whether or not the AC elements are energized. The high heat fireplace **10** may comprise an indicator lamp **305** adapted to indicate whether or not the DC elements are energized. In some embodiments, one or more the indicator lamps **300**, **305**, **310** may be colored. In embodiments in which the indicator lamps are colored, the color may be green, yellow, red, blue, or any other color.

[0047] FIG. **2** is a view of one embodiment of an arrangement of heating element **240** and heating elements **250**, **251**, **252** and **253**. In some embodiments, a AC heating element **240** may be comprised of a single resistive element and one or more DC heating elements **250**, **251**, **252** and **253** may be connected in parallel. Many combinations of and shapes of heating elements are readily acceptable subject to good engineering judgment. In some embodiments, a DC heating element **250**, **251**, **252** may be connected to bus bars **55**. In some embodiments, a DC heating element **250**, **251**, **252** may be connected to a pair of bus bars **55** using locking nuts **56**. In some embodiments, conductors **57** engage bus bars **55** to a contactor **23**, a DC switch **29**, a battery **20** or other DC power source, or some combination thereof. In some embodiments, one or more DC heating elements **250**, **251**, **252** may be engaged to the same conductors **57** to provide a single contact which in turn may be regulated using an infinitely variable control such as a rheostat or electronic controllers. In some embodiments, as illustrated in FIG. **3**, and without limitation, one or more DC heating elements **222**, **223**, **224** may be engaged to different conductors **57** and independently controlled to provide different levels of heat depending on which combinations of elements are energized.

[0048] In certain embodiments, and without limitation, heating elements may comprise a resistive wire, a resistive strip, a sealed element, a heat lamp, a positive thermal coefficient ceramic, a quartz element, or combinations thereof.

[0049] In some embodiments, as illustrated in FIG. **3**, and without limitation, the AC heating element may be engaged to a mounting bracket **550** and secured with locking nuts **560**. In some embodiments, as illustrated in FIG. **3**, and without limitation, the AC heating element may be engaged to electrical conductors **570**. Electrical conductors **570** may engage the AC heating element **240** to an AC switch **27**, an AC power cord **60**, or some combination thereof In some embodiments, an AC switch **27** may be a simple contact closure or a controller providing variable power.

[0050] FIG. **3** is, without limitation, an schematic of one embodiment adapted to provide multiple switchable heat output rates as referred to above. AC heating element **111** may be energized upon closure of switch **270**. In some embodiments, DC heating elements **222**, **223**, and **224** may be connected on one side to a common power and on the other side to different contact points of a multiple pole switch **290**. The multiple pole switch **290** may be a sliding switch, a rotary switch, or any other type of multiple pole switch **290**. Switches **270** and **290** may be incorporated into the same switch. In certain embodiments, switches **270** and **290** may be incorporated into the same switch in which, in a first position all of the contacts are open and the heating element are OFF; in a second position the AC heating element **111** energized; in a third position, the AC heating element **111** and one DC heating elements **222**, **223**, and **224** is energized; in a fourth position, the AC heating element **111** and two DC heating elements **222**, **223**, and **224** is energized; in a fifth position, the AC element **111** is energized and three DC heating elements **222**, **223**, and **224** are energized. In certain embodiments, a high heat fireplace **10** may also include settings which turn on a DC heating element, but do not turn on an AC heating element.

[0051] In some embodiments, each switch has two activity states: ON and OFF. Switching may be designed to offer any possible permutation of activity states of the heating elements. In a high heat fireplace **10** comprising, N heating elements connected to N switches, each such heating element and switch set having two activity states, 2^N different activation states of the fireplace are possible.

[0052] In some embodiments, a plurality of DC heating elements **222**, **223**, and **224** are connected simultaneously but current flow to the DC heating elements **222**, **223**, and **224** is regulated using an infinitely variable control such as a variable resistance rheostat or similarly adjustable current or voltage limiting device. In some embodiments, a high heat fireplace **10** comprises circuits adapted to use high power semi-conductor devices to regulate current flow. In some embodiments, circuits adapted to use high power semi-conductor devices to regulate current flow may comprise circuits using a silicon controlled rectifier or a pulse width modulation type circuit.

[0053] In some embodiments, timing circuitry may be used to automatically provide an initial high heat output stage followed by a lower heat output stage. Different heat output stages can be established by manually by flipping the switch **290** to different positions.

[0054] In some embodiments, a high heat fireplace **10** may include adaptations to indicate the level of discharge of a battery **20** reached during operation or adaptations to automatically shut off the high heat fireplace **10** operation if the discharge depth is outside of the acceptable performance range for the battery **20**.

[0055] In some embodiments, a high heat fireplace **10** may be portable and cordless. In some portable and cordless embodiments, the high heat fireplace **10** may comprise additional battery storage capacity, additional output rate capacity, or some combination thereof. In some portable and cordless embodiments, the high heat fireplace **10** may comprise adaptations to permit a power cord to be selectably operationally engaged with the high heat fireplace **10** to permit recharging of the battery **20**, and, optionally, disengaged during use of the high heat fireplace **10**. In some portable and cordless embodiments, the high heat fireplace **10** may comprise adaptations to permit a battery charger **30** to be selectably opera-

tionally engaged with the high heat fireplace **10** to permit recharging of the battery **20**, and, optionally, disengaged during use of the high heat fireplace **10**.

[0056] In some embodiments, a high heat fireplace **10** may comprise a humidifier. A humidifier may be adapted to add humidity to the air. In some embodiments, a humidifier may be connected to a control to add humidity based upon time, air temperature, air humidity, a user-defined constant, other parameters, or at some combination thereof. In some embodiments, a humidifier may be operationally engaged with a water reservoir. In some embodiments, a humidifier may use water from an operationally engaged water reservoir in order to humidify the air. In some embodiments, a humidifier may be operationally engaged with a water supply line. In some embodiments, a water supply line may comprise a pipe, hose, conduit, or other connection to a water utility or other external water supply. In some embodiments, a humidifier may use water from an operationally engaged water supply line in order to humidify the air. In some embodiments, a high heat fireplace **10** may comprise a humidifier, a water reservoir operationally engaged therewith, and a control system that produces an output to indicate to a user information about the fill level of the water reservoir. Without limitation, a control system that produces an output to indicate to a user information about the fill level of a water reservoir may comprise a light or lamp adapted to indicate a water level at or below some level, a light or lamp adapted to indicate a water level at or above some level, a meter adapted to indicate the amount of water in the reservoir, or other output devices.

[0057] Among the design variables relevant to a high heat fireplace **10** are: battery size and rating, a charging circuit, a low battery sensing circuit, heating elements, voltage, amperage and wattage, electrical wiring sizing, heat and electrical insulating barriers, safety interlocks, and support frame sizing and specifications.

[0058] While the high heat fireplace has been described above in connection with the certain embodiments, it is to be understood that other embodiments may be used or modifications and additions may be made to the described embodiments for performing the same function of the high heat fireplace without deviating therefrom. Further, the high heat fireplace may include embodiments disclosed but not described in exacting detail. Further, all embodiments disclosed are not necessarily in the alternative, as various embodiments may be combined to provide the desired characteristics. Variations can be made by one having ordinary skill in the art without departing from the spirit and scope of the high heat fireplace. Therefore, the high heat fireplace should not be limited to any single embodiment, but rather construed in breadth and scope in accordance with the recitation of the attached claims.

What is claimed is:

1. An electrical fireplace comprising

adaptations to permit the electrical fireplace to accept electrical energy at first rate from an associated AC power supply;

adaptations to permit the electrical fireplace to output energy at second rate, where said second rate exceeds said first rate.

2. An electrical fireplace comprising:

a storage battery, said battery adapted to,
- accept a charge of electrical energy,
- to store energy, and
- output DC electrical energy;

a power cord adapted to operationally engage an associated AC power supply and obtain AC electrical energy therefrom,
- wherein said associated AC power supply is a household electrical power supply;

a charging circuit operationally engaged with said power cord,
- said charging circuit adapted to receive AC electrical energy from said power cord,
- said charging circuit adapted to provide a charge of electrical energy to said storage battery;

an AC heating element operationally connected to said power cord,
- said AC heating element adapted to accept AC electrical energy from said power cord; and
- said AC heating element adapted to convert said AC electrical energy to heat; and

a DC heating element operationally connected to said storage battery,
- said DC heating element adapted to accept DC electrical energy from said storage battery, and
- said DC heating element adapted to convert said DC electrical energy to heat.

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