Jan. 24, 1967 V. K. KETOLA 3,299,443

ELECTRICALLY HEATED SAUNA INSTALLATION

Filed Jan. 22, 1964 2 Sheets-Sheet 1

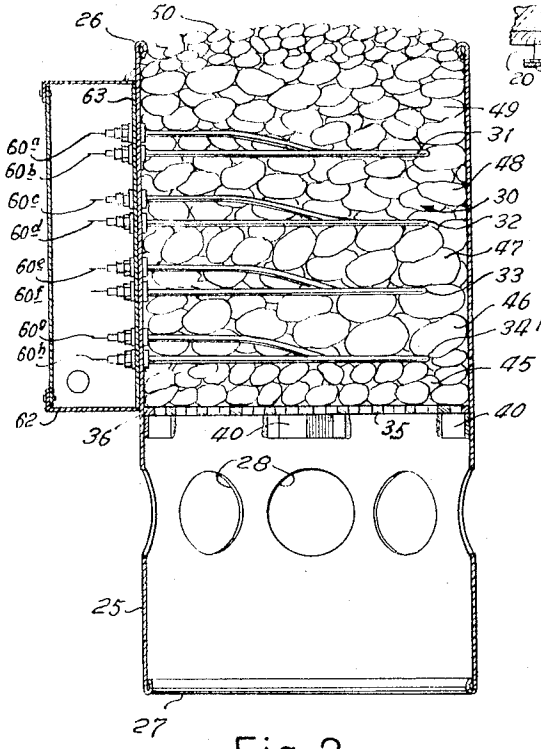


Fig. 2

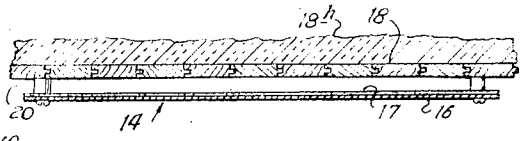


Fig. 4

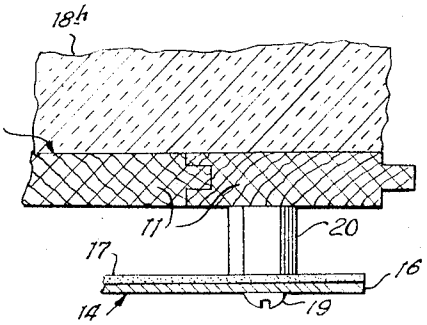


Fig. 5

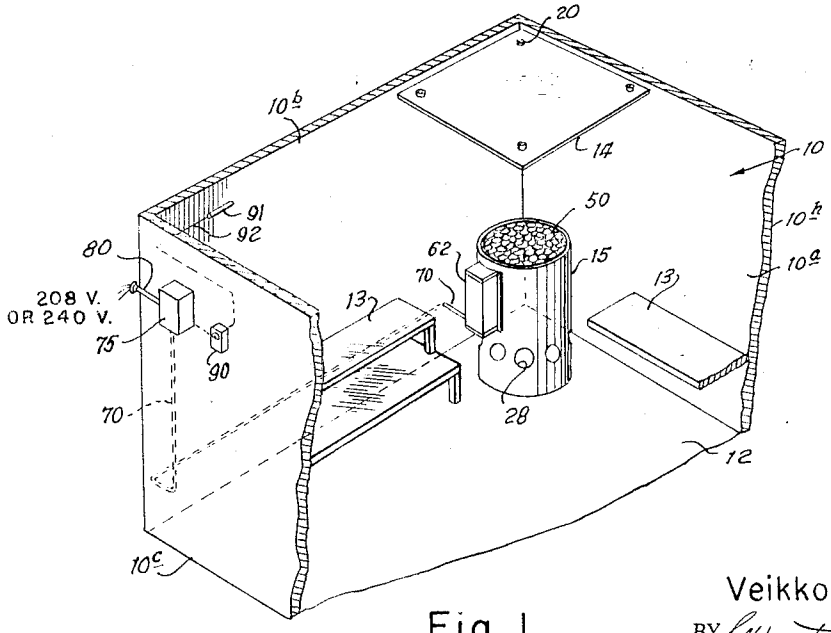


Fig. 1

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ELECTRICALLY HEATED SAUNA INSTALLATION

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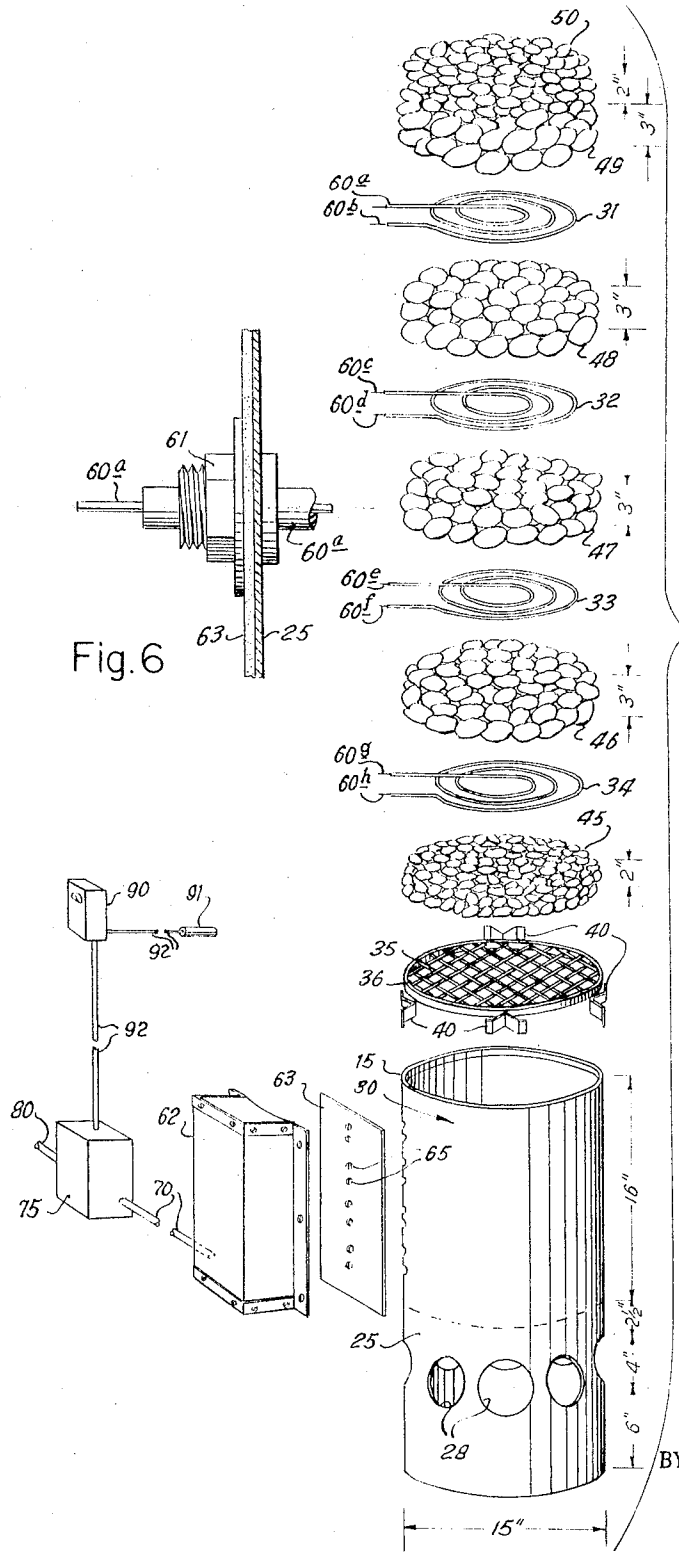


Fig. 6

Fig. 3

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ELECTRICALLY HEATED SAUNA INSTALLATION

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This invention relates to new and useful improvements in sauna installations, more particularly to a steam high temperature low air humidity steam producing heating element and bathing room. This type of hot air bath has long been know as a "sauna" or "kivi sauna" and has become popular not only for bathing but for the therapuetic or health value attached to its use.

An important object of this invention is to provide an improved "kivi suana" bath house installation and a new and improved column type kivi sauna heating unit.

A further object of the invention is to provide a sauna installation which can be constructed and used in residences and which is easily serviceable and effective in operation.

A particular object of the invention is to provide an improved kivi sauna heating unit or furnace which is simple in construction and effects efficient heating and circulation of hot air and is provided with means for quickly evaporating the water thrown on the heating stones therein to produce the super-heated steam for the bath.

Still another object of the invention is to provide an improved kivi sauna heating unit or furnace which is electrically heated and is provided with a plurality of separated layers of stones of different sizes to assure complete evaporation of the water deposited on the stones without splashing and which assures that the water is sufficiently spread over the stones to generate the steam promptly and effectively without passing through the heating unit or furnace.

A particularly important object of the invention is to provide an electrically heated kivi sauna heating unit which has a vertical columnar housing with imperforate side walls in the rock section, whereby steam generated by water thrown on the hot rocks is directed vertically upwardly and lateral discharge of steam is obviated, and wherein the electrical terminals of the heating elements are protected from the application of steam thereto and the deteriorating action of steam.

Still another object of the invention is to provide a kivi sauna heating unit or furnace which is designed to heat the rocks uniformly and to deliver steam to the room by natural air flow through the rocks in the unit, and wherein the rocks are distributed in the heating unit or furnace with a small size rock layer at the lower end of the column and a small size rock layer on the top of the column to divide the column of air and distribute it uniformly through the column of rock in the kivi sauna heating unit; and, also, to assure that the water desposited thereon is evaporated thoroughly, the water being spread more evenly over the heated rocks and more widespreadly distributed from the smaller upper rocks to the larger rocks below for evaporation by the heat thereof.

Still another object of the invention is to provide an improved kivi sauna furnace or heating unit in which the enclosed column of rocks provides for circulation of air throughout the bathroom of the sauna installation to more uniformly spread the heat and steam throughout the room.

Another object of the invention is to provide a sauna bathroom in which the walls of the rooms are preferably formed of red wood lumber or the like and immediately above the kivi sauna heating unit or furnace there is provided a heat shield or baffle to prevent damage of the ceiling portion of the room by the heated vapors from the heating unit or furnace.

Additional objects and advantages of the invention will be readily apparent from the reading of the following description of a device constructed in accordance with the invention, and reference to the accompanying drawings thereof, wherein:

FIGURE 1 is a fragmentary isometric view of a kivi sauna bath installation;

FIGURE 2 is a vertical sectional view through the kivi sauna heating unit or furnace;

FIGURE 3 is an exploded view of the kivi sauna heating unit of furnace showing the elements thereof arranged in the order of their disposition in the unit;

FIGURE 4 is a transverse sectional view through the heat shield and adjacent portion of ceiling of the kivi sauna bathroom;

FIGURE 5 is an enlarged transverse sectional view of a portion of the heat shield and mounting therefor on the ceiling as shown in FIGURE 4; and,

FIGURE 6 is an enlarged fragmentary view, partly in elevation and partly in section, showing an electrical conductor cable passing through a bushing in the wall of the kivi sauna heating unit.

In the drawings, the kivi sauna bathroom **10** is formed with walls **10***a*, **10***b* and **10***c* and a ceiling **18** of wood, preferably redwood or the like, of tongue and groove style boards **11** joined together in the usual manner by nailing to suitable joists and studs. The floor **12** of the room is preferably concreted or tiled with a drain (not shown). Mounted along the walls at suitable positions are plurality of benches or seats **13** for use by the user of the room, the benches being suitably spaced from a kivi sauna heating unit or furnace **15**. Above the heating unit is a heat shield or insulating plate **14** formed of a sheet of aluminum metal over which a planar abutting relation thereto is a sheet of hard asbestos **17**, said sheets being held in spaced relationship from the ceiling **18** by suitable screws or bolts **19** extending through bushings or spacer sleeves **20** into the wooden boards **11** of the ceiling. A suitable door (not shown) for entry into the room is provided in one of the walls and is preferably located adjacent a bath or shower installation which may also be built at the same time that the room is built.

The walls of the room, of which the walls **10***a*, **10***b* and **10***c* are shown, are formed with an interior layer of the redwood wooden boards **11** and an exterior layer of insulation **10***h* for preventing heat loss therethrough. Similarly a layer of insulation **18***h* is provided above the ceiling **18** for preventing heat loss therethrough.

The heating unit or furnace **15** includes a cylindrical housing or shell **25** preferably made of stainless steel and approximately fifteen (15″) inches in diameter and thirty (30″) inches tall. A bead of approximately one-half (½″) inch is turned in at each end of the cylinder to reinforce the same and to smooth the ends thereof. The ends of the cylinder are open, and a plurality of lateral apertures **28** are formed in the lower portion of the walls of the cylinder approximately one-fourth (¼) the length thereof from the lower end. The diameter of the holes or apertures **28** is such that they provide approximately one hundred (100″) square inches of opening from the exterior of the cylinder into the interior thereof below the heating portion **30** thereof. The heating section **30** of the unit has an imperforate housing wall and a plurality of vertically spaced "Calrod" or equivalent electrical heating elements of the tubular type wound into a coil and using approximately three thousand (3,000) watts of power each. As is shown in FIGURES 2 and 3, the heating portion of the unit includes four (4) electrical heating elements, **31**, **32**, **33** and **34**, the uppermost element **31** being spaced approximately five (5″) inches from the upper end of the cylinder or housing, and each of the other units **32**, **33** and **34** being spaced at intervals

of approximately three (3") inches below the one next above. Approximately two or three (2" or 3") inches below the lowermost heating element 34 is a perforated rock supporting member 35 formed of expanded metal, woven wire or the like, preferably reinforced with a supporting ring 36 defining its outer periphery and supported on a plurality of angular bracket members 40 secured to the interior wall of the cylindrical housing at a point some two (2") inches above the uppermost edge of the apertures 28 for supporting said supporting member 35 at such point.

Between the supporting member 35 and the lowermost heating element 34 is disposed a layer of rocks, preferably river rocks or rounded smooth hard granite rocks of the type found in northern Minnesota. The dimensions of the rocks in the bottom layer 45 preferably range in size from one (1") inch to one and one-half (1½") inch in diameter. Between the lowermost heating element 34 and the heating element 33 next thereabove is a second layer of rocks 46 which are larger in size than the lowermost layer 45. The rocks of the layer 46 are of the same type as the smaller rocks but of a size ranging from one and one-fourth (1¼") inches to two and one-half (2½") inches in diameter. Between the element 33 and the element 32 next thereabove is disposed another layer 47 of large size rocks of approximately one and one-half (1½") inches to two and one-half (2½") inches in diameter, and between the heating element 32 and the uppermost heating element 31 is a fourth layer of rocks 48, also of the same type and size as the layer 47. Above the uppermost heating element 31 is another layer 49 of large rocks, the layer being approximately three (3") inches in height and the rocks ranging in size from one and one-fourth (1¼") inches to two and one-half (2½") inches in diameter. On top of the layer 49 of rocks above the upper element 31 is a top layer 50 of smaller rocks ranging from one (1") inch to one and one-half (1½") inch in diameter, and these smaller rocks are uniformly disposed over the layer 49 of the larger rocks. It will thus be seen that the lowermost layer 45 and the uppermost layer 50 of rocks contained in the cylindrical columnar heating housing 25 are formed of small rocks while the four (4) intermediate layers are formed of larger rocks, each layer of the larger rocks being disposed immediately above one of the heating elements in the heating section of the heating unit.

This arrangement of the large rocks immediately above the heating elements provides a large source of heat storage which is maintained in heating condition by the heating elements therebeneath. The smaller rocks provide for spreading or dispersing evenly throughout the larger rocks the water which is thrown onto the upper layer 50 of the small rocks, and for diffusing or spreading uniformly through the larger rocks the air which is drawn inwardly through the inlet apertures 28 and passes upwardly through the perforate supporting member 35 into and through the imperforate cylindrical heating section 30 of the unit.

The heating elements are capable of producing approximately fifteen hundred degrees (1500°) Fahrenheit each, and when all four (4) of the heating elements are used, twelve thousand (12,000) watts of energy are used in heating the rocks to a fifteen hundred (1500°) degrees Fahrenheit temperature.

In heating a sauna bathroom having approximately eight hundred forty (840') cubic feet of space therein, the energy required to heat the room for a period of one (1) hour starting at approximately fifty (50°) degrees Fahrenheit and raising the temperature to one hundred eighty (180°) Fahrenheit has been calculated to be approximately nineteen thousand (19,000) B.t.u.'s, using the twelve (12) k.w. heater assembly just described. During the time of heating the rocks, it was found that approximately twenty-one thousand (21,000) B.t.u.'s of energy had been stored in the approximately one and six

tenths (1.6) cubic feet of rocks comprising the heating section 30 of the heating unit. This size heating unit and sauna room produces a sufficient amount of energy for three (3) of the usual separate bath applications of approximately thirty 30 minutes per application.

For controlling the operation of the heating elements and producing the desired temperature within the sauna room 10, the heating elements 31, 32, 33 and 34 are connected electrically to a common source of electrical energy provided by cables 60*a*, 60*b* 60*c*, 60*d*, 60*e*, 60*f*, 60*g* and 60*h*, each of which extends inwardly through a bushing or fitting 61 extending through the side wall of a junction box or casing 62 secured to the exterior of the side wall of the cylindrical heater housing 25. The exterior of the wall of the housing 25 has a sheet 63 of insulating material, such as asbestos, provided with a plurality of apertures 65 through which the cables extend. Each of the bushings 61 contains one of the wires 60*a*, 60*b*, 60*c*, 60*d*, 60*e*, 60*f*, 60*g* or 60*h*, suitably extending through the insulating bushing 61 into the interior of the cylindrical housing 25 and connected to one end 60*a*, 60*b*, 60*c*, 60*d*, 60*e*, 60*f*, 60*g* or 60*h* of one of the heating coils as best shown in FIGURE 3. The bushing 61 clamps the insulating sheet 63 to the exterior of the housing 25 and the casing 62 surrounds the fittings or bushings 61 and encloses the same to protect them against heat and moisture. Also, the imperforate wall of the heating section 30 prevents steam from damaging the electrical insulation on the cables. Electric conduit means 70, which may comprise a tubular metallic conduit of the usual heat resistant type, carries at least one common lead from each of the heating elements and preferably separate leads for each of the opposite ends of the heating elements 31, 32, 33, and 34 to the exterior wall of the housing of the room and thence to a switching relay box 75 of the usual type mounted on the exterior of the building or room 10. The switching relay may include separate switches for each of the heating elements, if desired, or a common switch for all, or both. From the switching relay box 75, the usual service connection 80 extends outwardly from the building and is connected to a source of supply of electricity of approximately two hundred eight (208) volts to two hundred forty (240) volts. Connected with the switching relays in the box is a thermostat 90 having a sensing element 91 connected by means of a conductor 92 to the thermostat. The sensing element is disposed within the interior of the sauna bathroom 10 and acts in the usual manner to control the temperature of the room by controlling the supply of electricity delivered to the heating elements 31, 32, 33 and 34. The thermostat may be set for any desired temperature. All electrical wires from the relay to the heating units are asbestos covered copper conductors, and are preferably installed in a suitable heat insulating conduit.

In use, the several heating elements are energized by operation of the switching relay, and after a sufficient time the heat produced by the heating elements heats the large rocks of the layers 46, 47, 48, and 49 to an elevated temperature at which the air in the bathroom is circulated inwardly through the apertures 28 at the bottom of the furnace or kivi sauna heating unit and passes upwardly therethrough and is heated sufficiently to elevate the temperature in the room 10 to approximately one hundred eighty (180°) degrees Fahrenheit.

When the room has attained a uniform temperature at the desired elevation, the rocks having been heated to approximately five hundred (500°) degrees to one thousand (1,000°) degrees Fahrenheit, the user enters the room and throws a small amount of water from a pan, or dipper or the like, onto the uppermost layer of rocks 50. A half-pint of water will remove approximately four hundred (400) B.t.u.'s of energy from the rocks and introduce the heat into the room in the form of superheated dry steam. The heat thus introduced will elevate the temperature of the room substantially and increase

the relative humidity of the room approximately ten (10%) percent as a result of the conversion of the water into steam. By depositing approximately one (1) pint of water on the rocks of the kivi sauna heating unit described herein, the temperature of a room of the size mentioned would seemingly increase. While it appears to the user of the room that the temperature of the room is increased substantially, this is merely a sensation caused by the dry superheated steam circulated into and through the room by the unit. It is necessary that the water be deposited on the rocks from a distance, as by use of a dipper or small pan since the superheated steam is extremely dangerous when it is produced by the water striking the hot rocks, and this steam area will be hazardous for a distance of approximately four (4') feet above the heating unit. For this reason, the heating unit described herein has the large circular dimension at its upper end through which water can be deposited or thrown without the user getting too close to the heating unit. It is also for this reason that the cylindrical wall of the heating section 30 of the housing is made imperforate, so that there will be no lateral projection or emission of the steam produced by throwing the water on the rocks. Lateral emission of steam could result in serious injury to the occupant or user of the bathroom. It is also desirable that the water be thrown on the rocks in a suitable quantity to produce a large volume of steam immediately; however, the steam produced will not be visible because the heat level is so high.

The columnar type heating unit heats the rocks uniformly, and produces a large reservoir of heat over which water may pass to be vaporized into superheated steam. The smaller rocks at the upper end of the column provide for an even distribution of the water over the heated larger rocks therebelow, and the smaller rocks in the bottom of the column provide for diffusing uniformly the air entering the column through the aperture inlets and passing in an evenly distributed slow flow upwardly through the large rocks in the column. The larger rocks hold the heat as a heat reservoir longer than smaller rocks would, and provide a suitable reservoir for several bath applications.

The imperforate vertically disposed heating section or column also directs the superheated steam upwardly toward the baffle 14 mounted on the ceiling of the room, where it is dispersed evenly throughout the room without danger to the occupant or bather.

By using the column principle for heating the rocks and the room through a common source, economy is provided in heating both the rocks and the sauna room, since the sauna rom becomes heated to the proper temperature at the same time as the rocks reach the desired elevated temperature for producing the dry superheated steam.

The capacity of the heating unit may be varied by varying the number of heating elements and the number of layers of larger rocks in the column. For example, the number of heating elements may be reduced to three or to two elements, each having a larger of larger rocks thereabove, with the upper and lower layers of smaller rocks still remaining in place in the column as described. Smaller bathrooms may thus be heated by such smaller heating units.

It will therefore be seen that an improved kivi sauna bath installation has been provided which is adapted for erection in the usual residential building, and which is economical in construction and operation. It will also be seen that the heating element is simple and economical and produces a large volume of heat and a large heat reservoir in the heating unit. It will also be seen that the heating elements may be used in single elements or in combinations of two, three or four heating elements simultaneously heating the rocks, and that the large rocks in the central portion of the column provide a large reservoir of heat while the smaller rocks at the upper and lower ends of the column of rocks in the heating section of the unit provide for uniformly distributing the water and the air over the heated larger rocks in the central portion of the column to produce a satisfactory quantity of dry superheated steam quickly, efficiently and without danger of the user. The large open mouth at the upper end of the unit, likewise, permits throwing the water onto the rocks without danger to the user. In addition the imperforate wall of the columnar heating section heats the rocks in the column rapidly and at the same time causes circulation of air through the heated rocks to heat the kivi sauna bathroom; and, when water is thrown on the rocks, such imperforate wall directs the steam generated by the hot rocks upwardly away from the user of the bathrooms. The structure of the heating unit also provides for heating the room to the desired temperature at the same time the rocks are elevated to the desired temperature for evaporation of the steam.

The foregoing description of the invention is explanatory only, and changes in the details of the construction illustrated may be made by those skilled in the art, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed and desired to be secured by Letters Patent is:

1. In a sauna installation, the combination of an insulated walled room, a heating unit disposed in said room for generating and emitting steam in a generally vertically upward direction therein, supporting means adapted to support the occupant while bathing mounted on the interior walls of said walled room, an insulating panel on the ceiling of said walled room directly above said heating unit and spaced from said ceiling, and means exterior to the walled room and connected with said heating unit for controlling the heat energy produced by said heating unit; said heating unit including a substantially vertical cylindrical housing having a plurality of electrical heating elements at vertically spaced positions therein and operatively electrically connected with said control means exteriorly of said room; perforate support means in said housing below said heating elements; a column of hard rounded rocks supported by said support means and having at each of its opposite ends a layer of rocks of approximately two (2") inches in vertical thickness or height, said rocks of said layers ranging in size from one inch to one and one-half (1½") inches in diameter; said column having between said upper and lower end layers of rocks a body of larger rounded hard rocks of diametric dimensions ranging between one and one-quarter (1¼") inches and two and one-half (2½") inches in diameter, said body of larger rocks filling the space between the lower body of smaller rocks and the upper body of smaller rocks; said plurality of vertically spaced electrical heating elements being disposed in said housing between said upper and lower layers of rocks, said larger rocks in said column being disposed between and above each of said heating elements; said column of rocks extending from said perforate support means to the upper end of said housing; the upper end of said housing being open; and aperture means in the wall of said housing below said support means providing for air inlet into said housing below said column of rocks whereby the air is circulated inwardly through said apertures and upwardly through said column of rocks and out the open end of said cylindrical housing to heat said room, said rocks being also heated by said heating elements.

2. In a sauna installation, the combination of an insulated walled room, a heating unit disposed on the floor in said room for generating and emitting steam in a generally vertically upward direction therein, supporting means adapted to support the occupant while bathing mounted on the interior walls of said walled room, an insulating panel on the ceiling of said walled room directly above said heating unit and spaced from said ceiling, and means exterior to the walled room and connected with said heating unit for controlling the heat energy

produced by said heating unit; said heating unit including a substantially vertical cylindrical housing having a plurality of electrical heating elements at vertically spaced positions therein and operatively electrically connected with said control means exteriorly of said room; perforate support means in said housing below said heating elements; a column of hard rounded rocks supported by said support means and having at each of its opposite ends a layer of rocks of approximately two (2") inches in vertical thickness or height, said rocks of said layers ranging in size from one inch to one and one-half (1" to 1½") inches in diameter; said column having between said upper and lower end layers of rocks a body of larger rounded hard rocks of diametric dimensions ranging between one and one-quarter (1¼") inches and two and one-half (2½") inches in diameter, said body of larger rocks filling the space between the lower body of smaller rocks and the upper body of smaller rocks; said plurality of vertically spaced electrical heating elements being disposed in said housing between said upper and lower layers of rocks, said larger rocks in said column being disposed between and above each of said heating elements; said column of rocks extending from said perforate support means to the upper end of said housing; said upper end of said housing being open; aperture means in the wall of said housing below said support means providing for air inlet into said housing below said column of rocks whereby the air is circulated inwardly through said aperture means and upwardly through said column of rocks and out the open end of said cylindrical housing to heat said room, said rocks being also heated by said heating elements; the walls of said housing being closed between said aperture means and the open upper end of the housing whereby heat and steam generated by said heating elements by water thrown through the open upper end of said housing on said heated rocks is directed vertically upwardly out of the open end of said heating element and prevented from being emitted laterally therefrom.

3. In a sauna installation, the combination of an insulated walled room, a heating unit disposed in said room for generating and emitting steam in a generally vertically upward direction therein, supporting means adapted to support the occupant of the bath while bathing mounted on the interior walls of said walled room spaced from said heating unit, an insulating panel secured to the ceiling of said walled room directly above said heating unit and spaced from said ceiling, and means exterior to the walled room and connected with said heating unit for controlling the heat energy produced by said heating unit; said heating unit including: a substantially vertical cylindrical housing having electrical heating means therein and operatively electrically connected with said control means exteriorly of said room; perforate support means in said housing below said heating means; a column of hard rounded rocks supported by said support means and having at its opposite ends upper and lower spaced layers of rocks, each of said layers of rocks being approximately two (2") inches in vertical thickness or height, said rocks of said layers ranging in size from one inch to one and one-half (1" to 1½") inches in diameter; said column having between said upper and lower end layers of rocks a body of larger rounded hard rocks of diametric dimensions ranging between one and one-quarter (1¼") inches and two and one-half (2½") inches in diameter, said body of larger rocks filling the space between the lower body of smaller rocks and the upper body of smaller rocks; said electrical heating means being disposed in said housing between said upper and lower layers of rocks, said larger rocks in said column being disposed above said heating means; said column of rocks extending from said perforate support means to the upper end of said housing; said upper end of said housing being open; and aperture means in the wall of said housing below said support means providing for air inlet into said housing below said column of rocks whereby the air is circulated inwardly through said apertures and upwardly through said column of rocks and out the open end of said cylindrical housing to heat said room, said rocks being also heated by said heating means; the walls of said housing being closed between said aperture means and the open upper end thereof whereby heat and steam generated by said heating means by water thrown through the open upper end of said housing on said heated rocks is directed vertically upwardly out of the open end of said heating element and prevented from being emitted laterally therefrom; said means for controlling the heat energy produced by said heating unit comprising a temperature sensitive control means having a sensing element disposed in said walled room adjacent the supporting means, and an operating member located exteriorly of said walled room and connected with a source of electrical energy supplying energy to the electrical heating means to control the heat supplied by the heating means to the column of rocks in the heating unit in accordance with the temperature sensed by said sensing element.

4. A heating element for a sauna installation comprising: an elongate cylindrical metallic housing having an open top; a perforate supporting member disposed interiorly of said housing at a level of approximately one-third (⅓) the height of said housing from the bottom thereof; a layer of hard rounded rocks of a diameter size between one inch (1") and one and one-half (1½") inches disposed on said supporting member and of a thickness or columnar height of at least two (2") inches; heating means disposed in said housing in abutting relationship with the upper plane of said first layer of rocks and above said first layer of rocks, a second layer of larger hard rounded rocks supported by said first layer of rocks and engaging said heating means, said second layer of larger rocks being of a columnar height of at least three (3") inches and being formed of rocks of a diameter size ranging from one and one-quarter (1¼") inches and two and one-half (2½") inches in diameter; and an upper layer of smaller rocks disposed above and supported by said intermediate layer of larger rocks, said upper layer of rocks being of a diameter size ranging from one inch (1") and one and one-half (1½") inches and of a vertical height or thickness of at least two (2") inches, the upper plane of said upper layer of rocks being disposed substantially in the plane of the open upper end of said housing; said housing having lateral inlet apertures below the perforate supporting member and lower layer of rocks and being imperforate and closed between said inlet apertures and said open upper end whereby heat generated in the rocks by the heating means and steam generated by throwing water on the heated rocks through the upper open end of said housing is directed vertically upwardly out the open upper end of said housing and is prevented from lateral emission from said housing; and means for connecting said heating means to a source of electrical energy, said connecting means being disposed exteriorly of said housing and insulated from said heating means and protected from steam generated by said unit.

5. A heating element for a sauna installation comprising: an elongate cylindrical metallic housing having an open top; a perforate supporting member disposed interiorly of said housing at a level approximately one-third (⅓) of the height of said housing; a first layer of hard rounded rocks of a diameter between one (1") inch and one and one-half (1½") inches disposed on said supporting member said layer being approximately two (2") inches in vertical thickness or height; a first heating element disposed in said housing and in abutting relationship with the upper plane of said first layer of rocks; a second layer of larger hard rounded rocks supported by said first layer of rocks and engaging said first heating element, said second layer of rocks being of a thickness or columnar height of approximately three (3") inches and being formed of rocks of a diameter size

ranging between one and one-quarter (1¼") inches and two and one-half (2½") inches in diameter; a second heating element disposed in said housing and abutting the plane of the upper level of said second layer of rocks; a third layer of rocks supported by said second layer of rocks and contacting said second heating element and comprising hard rounded rocks of a size ranging between one and one-quarter (1¼") inches and two and one-half (2½") inches in diameter and being approximately three (3") inches in thickness or columnar height; a third heating element disposed within said housing and in the plane of the upper level of said third layer of rocks; a fourth layer of rocks supported by said third layer of rocks and engaging said third heating element and comprising hard rounded rocks of a size ranging between one and one-quarter (1¼") inches and two and one-half (2½") inches in diameter and being approximately three (3") inches in thickness or columnar height; a fourth heating element disposed within said housing and in the plane of the upper level of said fourth layer of rocks; a fifth layer of rocks supported on the upper surface of said fourth layer of rocks and engaging said fourth heating element and comprising hard rounded rocks of a size range from one and one-quarter (1¼") inches to two and one-half (2½") inches in diameter and being approximately three (3") inches in thickness or columnar height; a sixth layer of rocks supported on the upper surface of said fifth layer of rocks, said rocks of said sixth layer being hard rounded rocks of a size range between one (1") inch and one and one-half (1½") inches in diameter and forming a layer approximately two (2") inches in vertical thickness or columnar height, the upper surface of said sixth layer of rocks being disposed in substantially the plane of the open top of said housing; a plurality of lateral inlet apertures formed in said housing wall below said perforate supporting member for admitting air into said housing below said column of rocks; the wall of said housing being closed throughout its length above said apertures and to the open upper end thereof, whereby heat generated in said unit is directed vertically upwardly therethrough and prevented from escaping laterally; and means on the exterior of said housing wall providing for connecting said heating elements to a source of heating energy for heating the rocks.

6. A heating element for a sauna installation comprising: an elongate cylindrical metallic housing having an open top; a perforate supporting member disposed interiorly of said housing at a level approximately one-third (⅓) the height of the housing from the bottom thereof, said housing being imperforate throughout its length from the supporting member to the open upper end thereof; a column of hard rounded rocks disposed on said supporting member and extending from said supporting member to the open upper end of the housing, the upper portion and lower portion of said column of rocks being formed of rocks of a diameter size range between (1") inch and one and one-half (1½") inches and the medial portion of the rocks between such upper and lower portions being composed of larger rocks of a diameter size range between one and one-quarter (1¼") inches and two and one-half (2½") inches; heating means disposed in said housing in contact with said column of rocks above said lower portion of said column of rocks for heating said rocks; and means providing for entry of air into the housing from the exterior thereof below the supporting surface.

7. A heating element for a sauna installation comprising: an elongate cylindrical metallic housing having an open top; a perforate supporting member disposed interiorly of said housing at a level approximately one-third the height of the housing from the bottom thereof, said housing having an imperforate wall throughout its length from the supporting member to the open top thereof; a column of hard rounded rocks disposed on said supporting member and extending from said supporting member to the open top of said housing, said column of rocks comprising upper, medial and lower portions, said upper and lower portions being formed of rocks of a diameter size range between one inch and one and one-half inches, said medial portion of said column between said upper and lower portions being composed of a plurality of layers of rocks of a diameter size range between one and one-quarter inches and two and one-half inches; a plurality of horizontally disposed flat electrical heating elements disposed in said housing in said column of rocks beneath each layer of large rocks forming said medial portion of said column of rocks, the lowermost heating element being disposed above said lower portion of said column of rocks; means for connecting said heating elements with a source of electrical energy for heating the column of rocks in said housing; and means providing for entry of air into the housing from the exterior thereof below the supporting surface carrying the column rocks.

8. A heating element for a sauna installation comprising: an elongate cylindrical metallic housing having an open top; a perforate supporting member disposed interiorly of said housing at a level approximately one-third (⅓) the height of the housing from the bottom thereof, said housing having an imperforate wall throughout its length from the supporting member to the open top thereof having a plurality of lateral openings formed in the wall thereof below the perforate supporting member and providing for entry of air into the housing from the exterior thereof below said perforate supporting member to pass through imperforate portion of the housing and out the open top thereof; a column of hard rounded rocks disposed on said supporting member and extending from said supporting member to the upper open top of said housing, said column of rocks comprising upper, medium and lower portions; said lower portion of said rocks being supported on said perforate supporting member; a plurality of horizontally disposed flat electrical heating elements disposed in said housing in contact with said column of rocks between adjacent portions of said column of said rock, one of said heating elements being disposed beneath and in contact with the upper portion and above and in contact with the medial portion, and another of said heating elements being disposed beneath and in contact with said medial portion and above and in contact with said lower portion of said column of rocks; and means for connecting said heating elements with a source of electrical energy for heating the column of rocks in said housing, said lateral openings and said imperforate walls of said housing providing for entry of air into said housing below said column of rocks to pass through said column of rocks and out the open top of said housing, whereby steam is generated by water thrown inwardly through the open top of the housing onto said column of heated rocks.

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