Jan. 21, 1969 R. H. JONES ET AL 3,422,465

PREFABRICATED SAUNA ROOM

Filed Dec. 10, 1965 Sheet 1 of 3

Fig. 1.

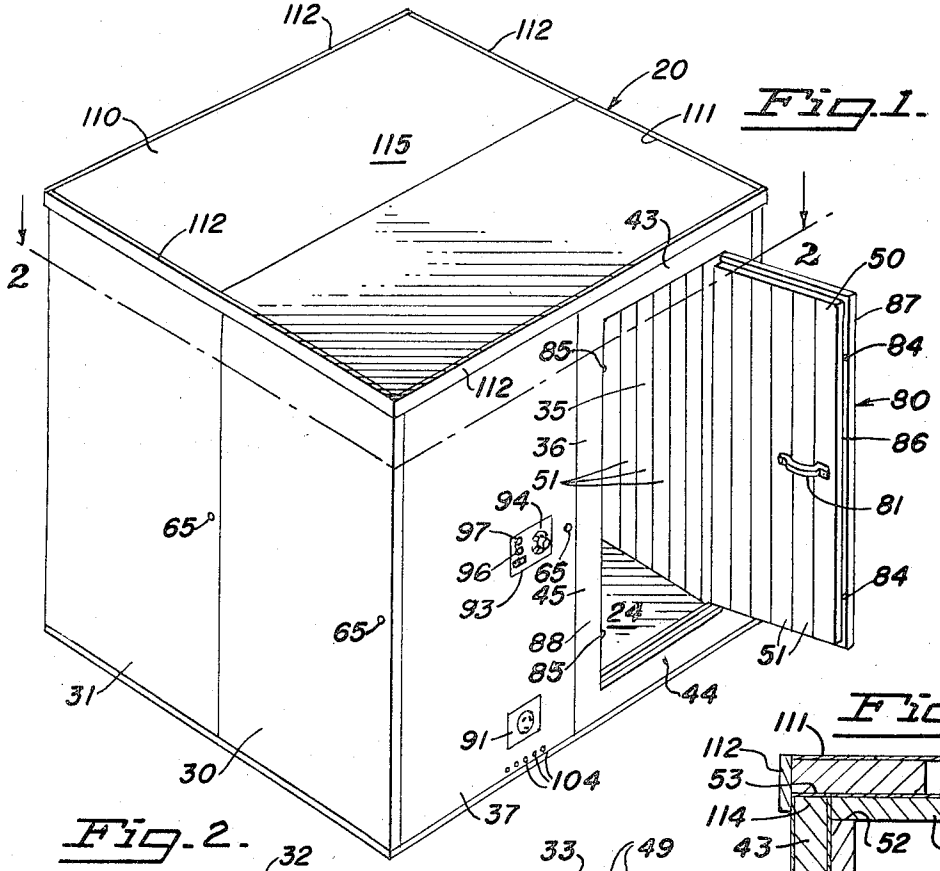


Fig. 2.

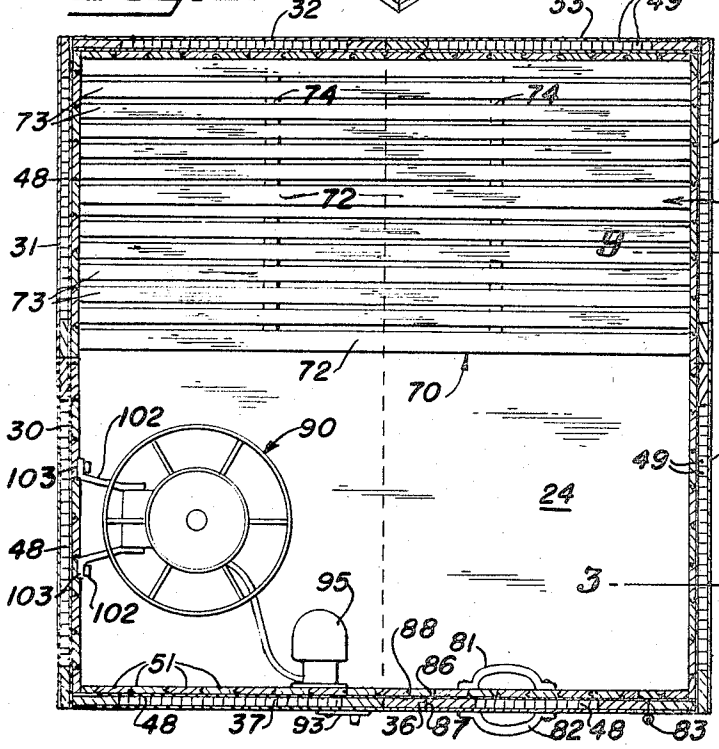
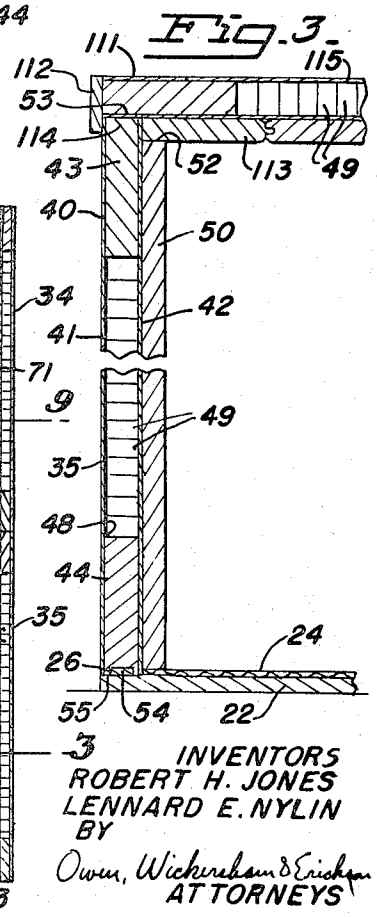


Fig. 3.



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Fig. 6.

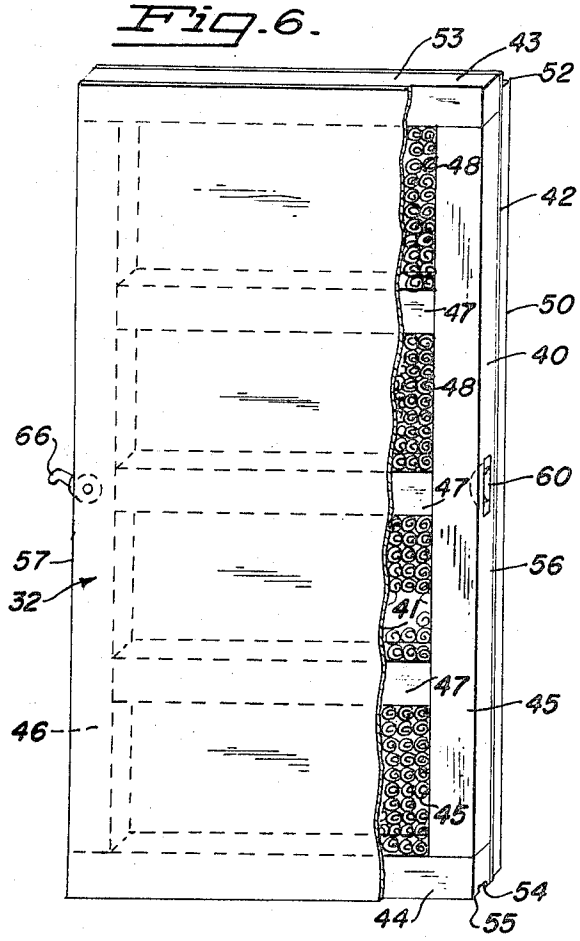


Fig. 7.

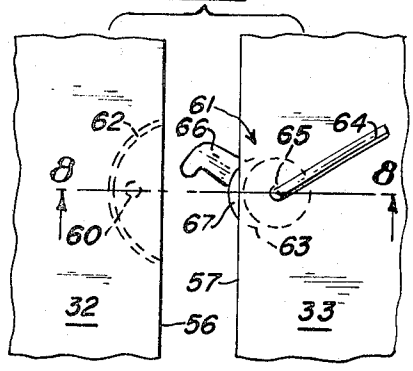


Fig. 8.

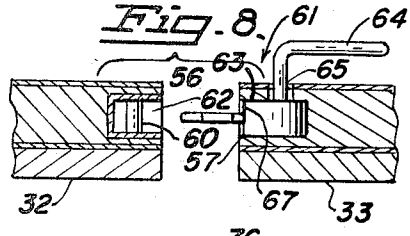


Fig. 9.

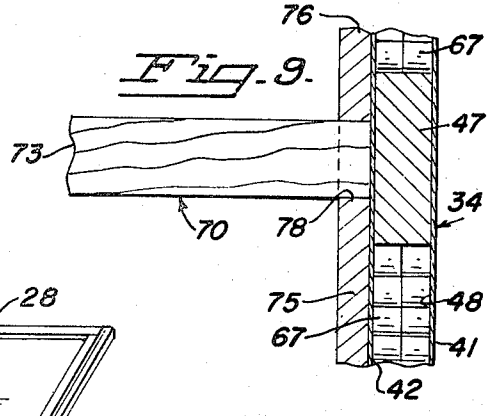
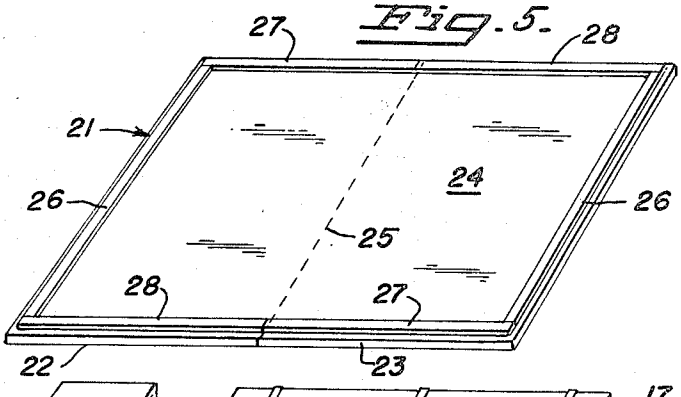


Fig. 5.



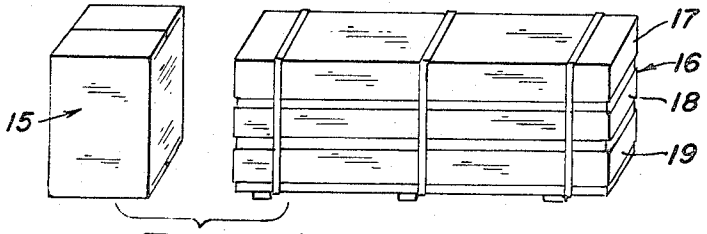


Fig. 4.

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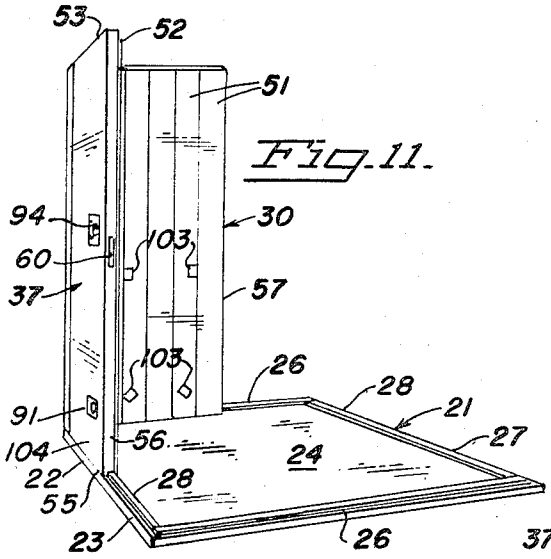


Fig. 11.

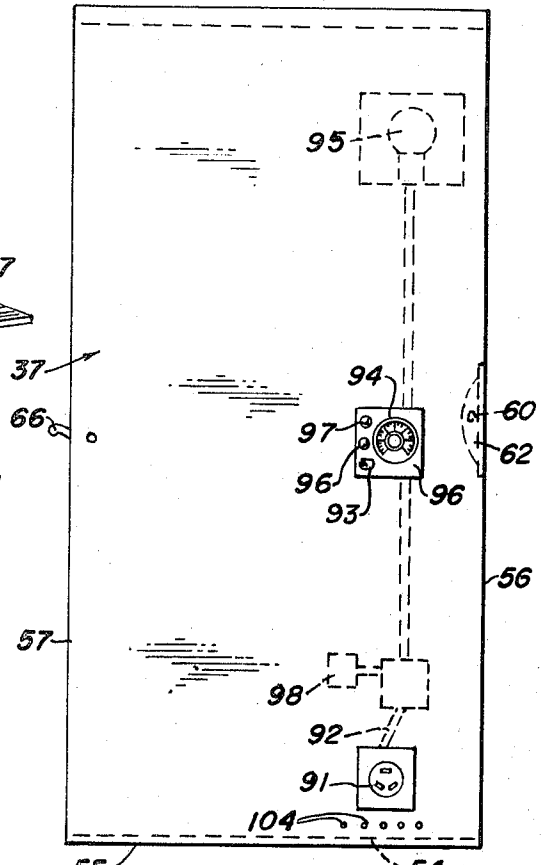


Fig. 10.

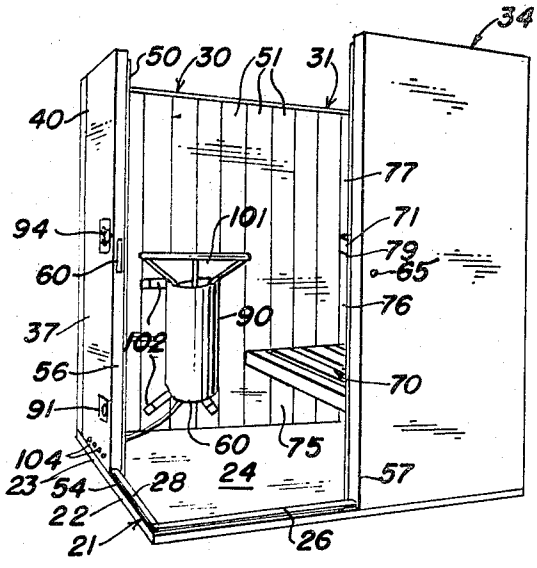


Fig. 12.

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PREFABRICATED SAUNA ROOM

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Filed Dec. 10, 1965, Ser. No. 513,019
U.S. Cl. 4—160 15 Claims
Int. Cl. A61h 33/06

ABSTRACT OF THE DISCLOSURE

A prefabricated sauna room for ready assembly and disassembly with a single tool. A floor unit, made up of panels hinged together by a carpet covering, has upstanding strips adjacent each edge, and a series of vertical wall panels are secured together (as by clamps) and keyed to the floor unit. Each wall panel has an outer portion having insulated hollow chambers between inner and outer skins and an inner portion of tongue-and-groove redwood boards covering substantially the interior surface thereof. The keying is done by a bottom channel in the outer portion of each panel for engagement with and alignment by the floor unit strips. A plurality of ceiling panels like the wall panels are secured together and have grooves for engaging the top edges of the wall panels. One wall panel comprises a door frame and a hinged door therethrough. Another wall panel has electrical wiring comprising electrical input means, a mechanical timer, switch means controlled by the timer for turning on and off the electrical circuit and a lighting fixture inside said room near an upper portion of the same panel. An electrical heating unit, having a vertical air-flow pattern with means for sending air from an intake on its lower end up through electrical heating elements to an outlet on its upper end, is supported by a wall panel adjacent the wired wall panel and is connected to the switch means. A wall panel near the heating unit is provided with a series of restricted openings to admit a small amount of air adjacent the bottom intake of the heating unit. Benches are supported by at least two wall panels against one side of the room.

This invention relates to a prefabricated sauna room.

A sauna is a well-known Finnish high-temperature bath tending to produce the feeling of well-being and aiding the bather to relax. The humidity is kept low, so that there will be little sensation of heat in spite of the high temperatures and none of the discomfort one experiences in a steam bath. The user perspires copiously, thereby cleansing the body through the skin pores. The sauna bath is usually taken in conjunction with one or more showers and may involve two or three exposures in the sauna room.

The traditional Finnish sauna was a small detached building heated by a wood-stoked furnace piled high with stones to retain and radiate heat. Much must be changed to adapt the sauna to urban American civilization. For example, the woodstoked furnace is better replaced by an electrical unit, which takes far less time to heat and is more regular and dependable, particularly when used by relatively inexperienced bathers, as distinguished from those Finns who grew up with a family sauna in Finland.

The basic problem to which the present invention is directed is that of providing an inexpensive sauna which operates in substantially the same way as a more expensive custom-designed one but which can be prefabricated for simple and quick installation by an unskilled person. The entire assembly is made of prefabricated panels and other pieces; there is a minimum use of screw drivers and wrenches, and no electrical wiring experience is needed, nor is any previous building experience required.

The present invention provides a complete sauna unit in prefabricated form; it is readily assembled and gives the operation that is essential to a sauna. Important factors to consider in providing a sauna are to obtain the necessary dry heat, to prevent loss of heat to the outside with its consequent loss of efficiency and increase in operation expense, to provide for rapid heating inside, to provide for comfort commensurate with the sauna, to provide a unit which locates the bather in a good position relative to the flow and passage of hot air. In addition, it is important to make the unit easy to assemble and yet be strongly held together when assembled.

Usually the sauna room of this invention is installed in an inside location, as for example in a cellar, recreation room, or other place inside where space is available. A typical room of this invention would be six feet square and less than seven feet high. Units may also be made six feet by four feet or six feet by nine feet and the same height. The room may be placed outside, if the outside walls are properly sealed and painted, a roof provided, and the floor mounted sufficiently high so that water will not get into it.

Another object is to provide a sauna room which is snug and properly operable, which has the proper safety precautions, and which at the same time is relatively inexpensive and easily put together by an amateur.

Other objects and advantages of the invention will appear from the following description of a preferred form thereof.

In the drawings:

FIG. 1 is a view in perspective of a sauna room embodying the principles of this invention, the door being shown open.

FIG. 2 is a view in section taken along the plane of the line 2—2 in FIG. 1, but with the door closed.

FIG. 3 is a view in section taken along the plane of line 3—3 in FIG. 2, the view being partly broken in order to conserve space.

FIG. 4 is a view in perspective of the type of two-package delivery which the customer receives before assembly.

FIG. 5 is a view in perspective of the floor unit opened out for installation.

FIG. 6 is a view in perspective of one of the wall panels with a portion cut away to show the inner construction.

FIG. 7 is a view in elevation of portions of two panels showing the cam-controlled latching mechanism used to clamp adjacent panels firmly together.

FIG. 8 is a view in section taken along the line 8—8 in FIG. 7.

FIG. 9 is a fragmentary view in elevation and in section of one end of one bench installation, taken along the line 9—9 in FIG. 2.

FIG. 10 is a view in elevation of the wall panel having the electrical wiring.

FIG. 11 is a view in perspective showing an early stage of erection of the sauna room.

FIG. 12 is a view similar to FIG. 11 showing a later stage of erection of the room.

The customer receives the sauna room as two or more packages 15 and 16 (see FIG. 4), there being one package 15 for the sauna heater 90 and another package 16 containing a group of smaller packages 17, 18, and 19 for the room 20 itself. The room 20 of FIG. 1 is constructed from a number of prefabricated members, all contained in the package 16.

Assembly of the room 20 begins with opening out a floor unit or base 21 (see FIG. 5), made from two slabs 22 and 23 of stout plywood covered by a carpet 24, which may be of sisal or other similar long-wearing material suitable for a sauna. The carpet 24 serves to join the two

floor slabs 22 and 23 together and provides a hinge 25 for them, so that the floor unit 21 can be folded over during shipment; when the room is being assembled, the floor 21 is opened and set out flat, as shown in FIG. 5. The floor 21 is provided with a series of rimmed strips 26, 27 and 28 which serve to locate the side walls of the room. The walls are not fastened to the floor 21 but simply rest on the floor 21, held in place by the weight of the walls themselves and by these locating strips 26, 27, and 28.

The walls are assembled from a series of generally similar panels 30, 31, 32, 33, 34, 35, 36, and 37 each preferably about six feet six inches by three feet and made from two main portions 40 and 50. The portion 40 is the outer portion and comprises a wooden structure like a hollow-core door as shown in FIG. 6, having an outer skin 41 and an inner skin 42 spaced from each other by and secured to stout marginal members 43, 44, 45, and 46 around the top, bottom, and sides and strengthened by horizontal members 47, providing a series of hollow chambers 48. The chambers 48 are preferably filled with a suitable insulating material 49, such as spiral pieces of wood shavings, which serve to prevent air flow upward inside the chamber 48 and help to provide the maximum of insulation. To the inside skin 42 of each panel 30, 31, 32, 33, 34, 35, 36 and 37 is secured the inner panel portion 50, comprising interlocking tongue-and-grove redwood boards 51. The boards 51 provide substantially the entire interior surface of the walls; they extend almost the full height, but their upper edges 52 stop about their own thickness below the top edge 53 of the portions 40. The use of redwood as the interior sheathing is important, for redwood is an unusually good heat insulator and is also able to withstand the sauna temperatures for use over a period of years.

The panel portions 40 are routed out along their bottom edge 55 to provide a channel or groove 54 for receiving the strips 26, 27 or 28 that are secured to the floor unit 21. The channel 54 is made substantially to exact size, so that the fit is quite snug. Except for the channel 54, the bottom and top edges 55 and 53 and the side edges 56, 57 of the panel portions 40 are made planar, as are all edges of the portions 50.

Each panel is provided in at least one location adjacent one side edge 56 with a latch bar 60 and at another location adjacent its other side edge 57 with a movable latch member 61. Preferably, a cam-type of clamping latch as shown in FIGS. 7 and 8 is used. The latch bar 60 is in an opening 62 in the edge 56 of one panel and in the next panel set into an opening 63 in the edge 57 is the cammed tightening mechanism, which is operated by a removable Allen-type wrench 64 inserted through a hole 65 in the panel, the hole 65 later being covered with a standard hole covering member. The wrench 64, when inserted, is operated to cause the locking arm 66 to engage the bar 60, then, when that is engaged, to act on a cam 67 to draw the edges 56 and 57 tightly together. This produces a very tight juncture which makes the wall quite snug and free from looseness. On the corners, the latch bar 60 is located in an opening in the side wall of its panel, the moving latch mechanism 61 being as before.

Three panels 32, 33, and 35 have no further features than what has been described. Two other panels 31 and 34 are prepared to support a pair of benches 70 and 71. The benches 70 and 71 are somewhat like duck board, each being made from one two-by-four 72 at an outer edge and then a series of two-by-twos 73, all preferably redwood, joined together by some two-by-twos 74 going perpendicular thereto. On the two panels 31 and 34, the inside portion 50 comprises three sets 75, 76, and 77 of redwood tongue-and-groove boards (see FIG. 12). The lowest boards 75 end about sixteen inches above the floor 21 and on their upper edges 78 support the lower bench 70, the top of which is thus about eighteen inches above the floor 21. Spaced from the edges 78, a second series 76 of boards ends another sixteen inches above the bench 70, with its top edges 79 supporting the upper bench 71, the top of which is thus about thirty-six inches above floor level. Above the bench 71, the redwood panels 77 continue to the edge 52, their own thickness short of the top edge 53 of the panel portion 40. The lower bench 70 is about three feet wide, while the upper bench 71 is about eighteen inches wide.

The panel 36 is substantially the same as the panels 32, 33, and 35 except for having a door 80 cut out from it and hinged to it. The door 80 itself has the same two-portion structure, and in order to make it possible to cut out the door's portion 40, the marginal members 43, 44, 45, and 46 of the panel 36 are made sufficiently wide. Suitable handles 81 and 82 are placed on both the inside and outside of the door 80, for opening and closing it on its hinges 83, and suitable catches 84 and 85 are provided. The edges 86 of the redwood portion 50 on the door 80 are set in from the edges 87 of the portion 40, and the redwood portion on the frame 88 extends out beyond the edges of the frame's portion 40, to provide an overlap that helps to hold the heat in.

The panel 37 next to the door panel 36 is preferably wired to provide all the electrical circuitry needed by the room 20. On the outside, the panel 37 is provided with a suitable plug 91 for receiving 240-volt current, since the heater 90 typically uses a 30-ampere, 240-volt power supply. The wiring 92 goes from the inlet plug 91 up to a timing switch 93, where a mechanical timer 94 is preferably employed to operate two switch poles, in order to accommodate the power. The wiring also sends 120 volts to a lamp 95 in the room 20. Two pilot light 96 and 97 are provided on the switch; the pilot light 96 shows when the timer circuit (which operates the heater 90) is on for a set time, while the other pilot light 97 indicates whether the inside light 95 of the sauna room 20 is on. The pilot lights 96 and 97 indicate to one outside the room 20 whether the room is being heated and whether it is lighted. From the switch 93, the wiring goes to an inside plug 98.

The sauna heater 90 is an electrical heater having a fan near its lower end 100 for pulling the air from below it, passing it through electrical heating elements, and expelling it at an outlet at its upper end 101. The heating unit 90 is preferably supported by four brackets 102 which extend into the panels 30, where shallow portions 103 are chiseled out.

An important feature of the invention is the provision of a series of ventilating openings 104 at the bottom of the wired panel 37; these openings enable just the right amount of metered air to enter when the heater 90 is operating. The intake of fresh air aids the circulation pattern of the heated air; also, the ventilation pattern is improved by this air. The room 20 is normally heated to about 175° F. for a sauna bath, and the heater 90 reaches this heat in about twenty-three minutes. The timer 94 enables the user to set the unit to heat up and give it time to get warm, so that he can tell how long it has been on; also he can set it so that if he goes inside and falls asleep, it will cut itself off. Furthermore, if something should happen that he should not enter the room 20, the timer 94 will shut the heater 90 off within a maximum time, which may be one hour. With the aid of the ventilation openings 104 and the timer 94, the sauna heater 90 operates quite efficiently in this room 20. A person using the sauna may sit on either of the benches 70 or 71; he may sit on the upper bench 71 with his feet on the lower bench 70, or he may lie down on either bench. The room may be used by more than one person at a time.

The ceiling panels 110 and 111 are similar to the wall panels, except that there is an overhang made by a board strip 112 secured along the edges, and the redwood liner 113 is spaced from the overhanging strip 112 so as to form, in effect, a groove or channel 114 to receive the upper ends of the outer portion 40 of the wall panels and to

rest on the top edge **52** of the redwood linings **50** of the wall panels. The ceiling panels **110** and **111** may both include hollow and insulated outer portions **115** with the redwood tongue-and-groove interior lining **113**, these latter resting snugly on the upper ends **53** of the redwood lining **50**. Preferably, the ceiling panels **110** and **111** are provided with two latches **60**, **61** rather than one, with the opening **64** on the inside, for easy assembly.

In assembling the room, the customer places the floor panel **21** on the level surface where he wishes the room to be installed, orienting it for the door opening according to markings placed on the panel **21**. He may then start by placing the electrical control panel **37** and the heating-unit-support panel **30** in position on the first corner, with their channels **54** resting on floor strips **26** and **28**. The top edges **53** of the panels **37** and **30** are checked to make sure that they are flush with each other, to indicate proper installation, and then the locking device **61** is used to clamp the two panels **37** and **30** against each other and to form the first corner. This is shown in FIG. 11.

The next step is to place the next adjacent wall panel **31**, one of the two bench-supporting panels, in place and to lock it to the panel **30**. Then one of the rear panels **32** is placed and locked to the side panel **31**, followed by the second rear panel **33** being installed and locked to the rear panel **32**. Before installing the next side panel **34**, the two benches **70** and **71** are placed into the grooves in the side panel **31**, resting on the upper edges **78** and **79** of the redwood boards **76** and **77**. Then, while one person holds them about level, the panel **34** is put into place, with the benches **70** and **71** properly held by it. The benches **70** and **71**, when locked in place, are quite steady and are supported by the two panels **31** and **34**, the panels **31** and **34** being supported by the panels adjacent them. The final side panel **35** is next installed, and then the door panel **36** is locked to the panels **35** and **37**. The side walls being completed, the ceiling panels **110** and **111** are put into place over the side walls, with the channels **114** properly located. When the ceiling panels **110** and **111** are locked together, they serve to lock the entire room together. As the two cam-operated latches **61** tighten on their two bars **60**, the entire room **20** is pulled into its stiff, final position where it is well insulated.

The sauna heater **90** may then be installed by its brackets **102** on the wall of its panel and plugged to its outlet **98**. The wall lamp **95** is put in place and a bulb put into it, and then the room **20** is complete and ready for use as soon as the outside current is sent to the plug **91**.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

We claim:

1. A prefabricated sauna room for ready assembly and disassembly with a single tool comprising

a floor unit having upstanding strips adjacent each edge,

a series of vertical wall panels, each comprising an outer portion having insulated hollow chambers between inner and outer skins and an inner portion of tongue-and-groove redwood boards covering substantially the interior surface thereof, each said wall panel having a bottom channel in its outer portion for engagement with and alignment by said strips,

means for tightly securing said wall panels together to define an enclosure upon said floor unit,

a plurality of ceiling panels having grooves for engaging the top edges of said wall panels and having an interior redwood tongue-and-groove lining,

means for tightly securing said ceiling panels together,

one said wall panel comprising a door frame and a hinged door therethrough,

another said wall panel having electrical wiring therein comprising electrical input means leading inside the room, a mechanical timer, switch means inside said panel controlled by said timer for turning on and off the connection to said electrical input means, and a lighting fixture inside said room near an upper portion of the same said panel, and

an electrical heating unit having a vertical air-flow pattern with means for sending air from an intake on its lower end up through electrical heating elements to an outlet on its upper end, said heating unit being supported by a wall panel adjacent the wired said wall panel and being connected to said switch means.

2. A prefabricated sauna room comprising

a floor unit having vertical projections,

a series of vertical wall panels, each comprising an outer insulating portion and an inner portion of interlocking redwood boards covering substantially the interior surface thereof, each said wall panel having bottom receiving means in its outer portion for engagement with said projections,

means for tightly securing said wall panels together to define an enclosure upon said floor unit,

a plurality of ceiling panels having means for interlockingly engaging the top edges of said wall panels and having an interior redwood lining,

means for tightly securing said ceiling panels together,

one said wall panel comprising a door frame and a hinged door therethrough,

another said wall panel having electrical wiring therein comprising electrical input means leading from outside the room to inside the room, a mechanical timer, switch means inside said panel controlled by said timer for turning on and off the connection to said electrical input means, and a lighting fixture inside said room near an upper portion of the same said panel, and

an electrical heating unit in said room having a vertical air-flow pattern with means for sending air from an intake on its lower end up through said heating unit to an outlet on its upper end, said heating unit being connected to said switch means.

3. A prefabricated sauna room comprising

a base formed of a plurality of hinged panels,

a plurality of wall panels of height identical to each other keyed to the periphery of the base and secured to each other,

a roof comprising a plurality of panels latched together and capping the upper ends of the wall panels to hold said panels together, and

a door pivoted in one of the wall panels,

said roof being held to the walls by gravity and being fully separable therefrom, said walls being held to said base by gravity and freely separable therefrom.

4. The sauna room of claim **3** having heating means supported by one said wall panel.

5. The sauna room of claim **3** wherein said base slabs comprise wooden members covered by a carpet covering serving as the hinge for said panels.

6. The sauna room of claim **3** wherein said wall panels and said ceiling panels each comprise an outer portion having insulated hollow chambers between inner and outer skins and an inner portion of interlocked redwood boards covering substantially the interior surface thereof.

7. The sauna room of claim **6** wherein said door has the same outer and inner portions as the remainder of its said panel, said inner portions of the door and of the frame being offset from the outer portions to provide an overlap closure.

8. The sauna room of claim **6** wherein two of said wall panels have their redwood tongue-and-groove boards put on in three horizontal series to provide two bench-supporting upper edges extending thereacross, one about three feet above floor level, the other about half that high

above the floor level of said base, and two benches of spaced apart boards, supported by the immediately aforesaid wall panels, one an upper bench, the other a lower bench approximately twice as wide as the upper bench and occupying approximately half the width of the room, the upper bench occupying approximately one quarter of the width of the room, the lower bench being approximately eighteen inches off the floor and the upper bench approximately three feet off the floor.

9. The sauna room of claim **3** having bench means against one wall thereof supported by recesses in some of said wall panels so that benches are removable only after removing at least one said wall panel.

10. The sauna room of claim **3** wherein said base has upstanding strips and said wall panels have bottom channels for engagement with and alignment by said strips to accomplish said keyed relationship between said base and said wall panels.

11. The sauna room of claim **3** wherein said ceiling panels have grooves for engaging the top edges of said wall panels.

12. The sauna room of claim **3** having an electrical heating unit supported by one said wall panel and an electrical control panel on another said wall panel with electrical input means and switch means for connecting and disconnecting said electrical input means to said heating unit.

13. The sauna room of claim **3** wherein said heating unit has a vertical air-flow pattern with a bottom intake and a said wall panel near said heating unit is provided with a series of restricted openings to admit a small amount of air adjacent the bottom intake of said heating unit.

14. The sauna room of claim **3** wherein said redwood boards of said wall panels are spaced down from the top edge of said outer portion, by the width of said boards, and wherein said redwood lining of said ceiling panels is spaced in from the outside edges by the width of said outer portion.

15. The sauna room of claim **3** wherein said wall panels are secured together and said ceiling panels are latched together by a latch bar inset adjacent one panel edge and, insert into the opposite side panel edge, a movable latch member for engaging said latch bar, and cam means for tightening said latch member after locking it, for bringing two adjacent panels snugly together.

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