Sept. 3, 1968 E. ISOMAA 3,400,248

ELECTRIC STEAM BATH STOVE

Filed Feb. 7, 1966 3 Sheets-Sheet 1

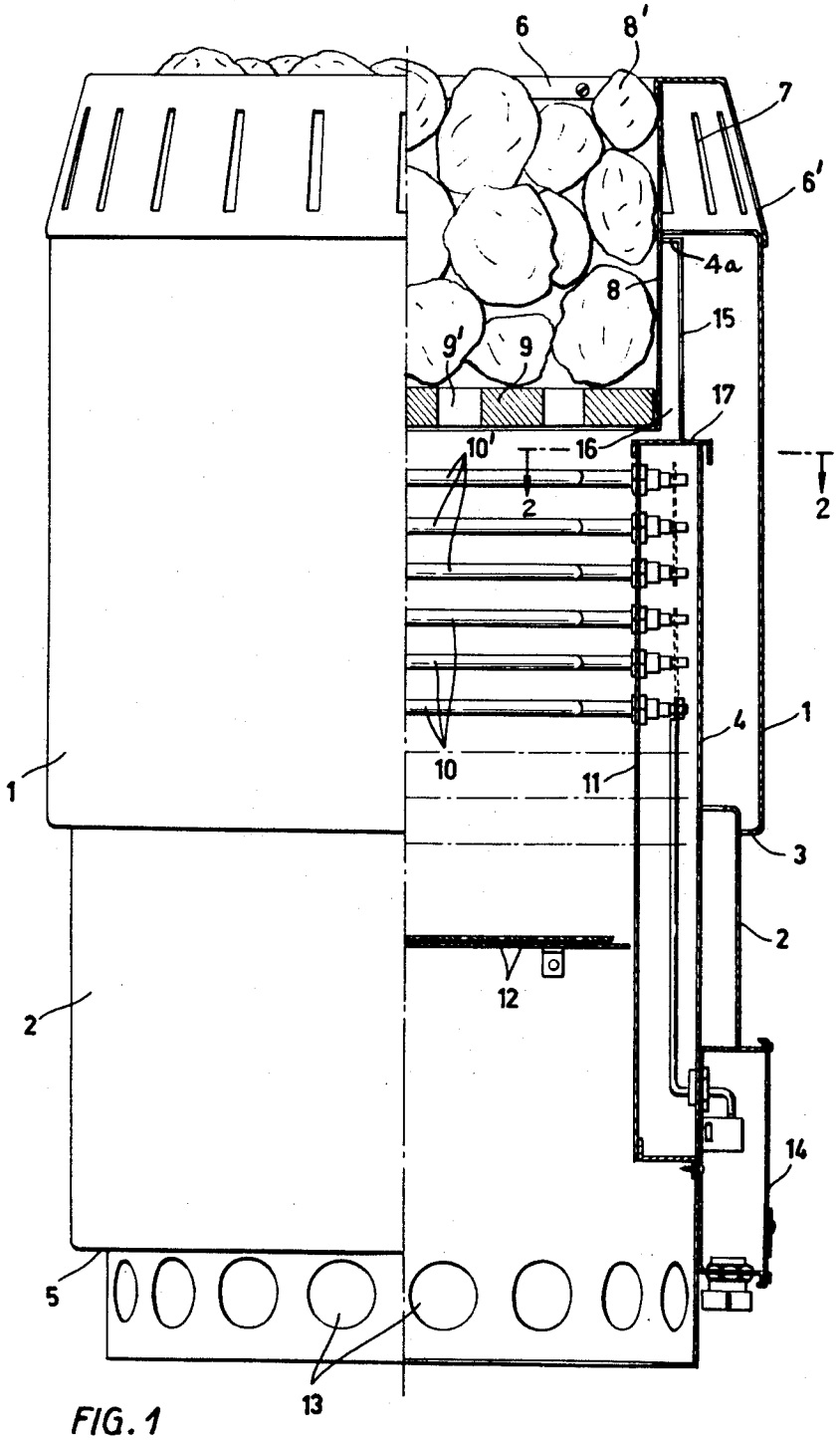

FIG. 1

ELECTRIC STEAM BATH STOVE

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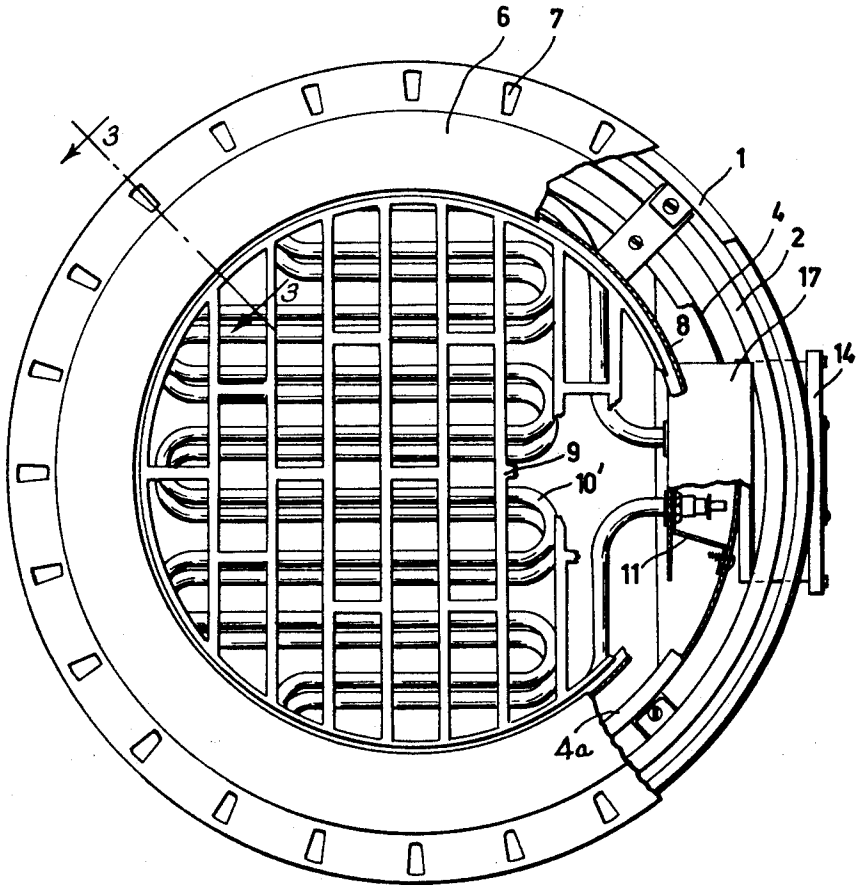

FIG. 2

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FIG. 3

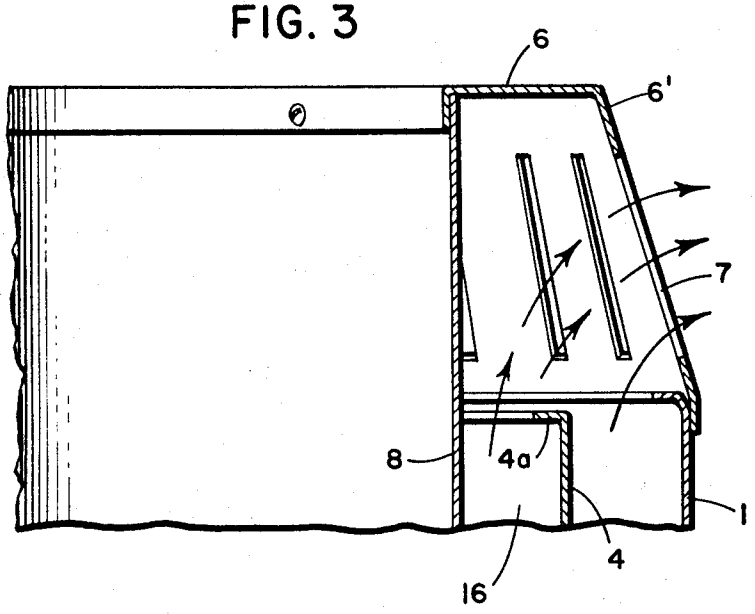
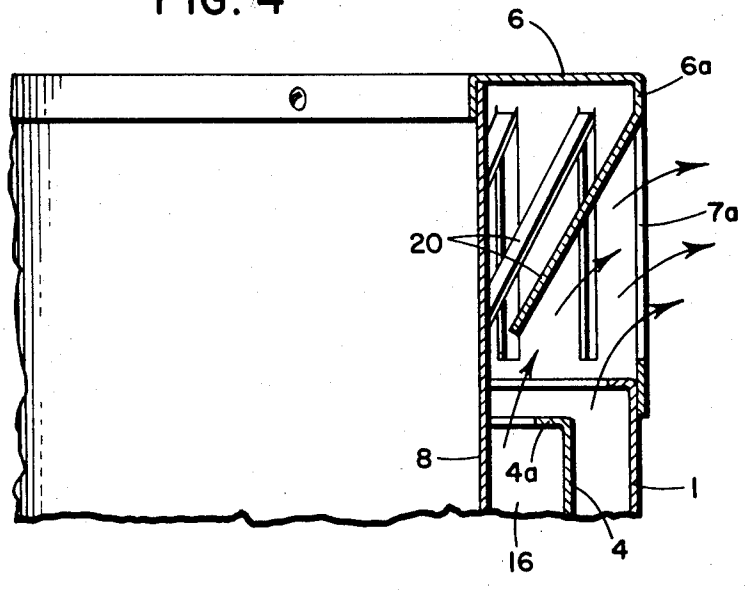


FIG. 4



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United States Patent Office 3,400,248
Patented Sept. 3, 1968

3,400,248

ELECTRIC STEAM BATH STOVE

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Filed Feb. 7, 1966, Ser. No. 525,471
Claims priority, application Finland, Dec. 8, 1965, 2,950/65
6 Claims. (Cl. 219—367)

ABSTRACT OF THE DISCLOSURE

Thermostatically controlled heating elements are positioned in the inner jacket of a sauna stove below the perforated bottom of an open-topped stove-filled compartment at the upper end of the jacket. An outer jacket surrounds the inner jacket and compartment to define a passage through which room air flows thereby maintaining the temperature of the outer jacket at a safe level. Room air also flows upwardly through the inner jacket over the elements and through the stove compartment. Some of the heated air from the inner jacket is diverted into the upper end of the passage to accelerate the flow of room air therethrough.

The present invention relates to an electric steam bath stove of the so called Finnish "sauna"-oven type comprising at the top an open compartment filled with stones, which are arranged to be heated by the aid of an electric heating unit so as to when water is poured on the hot stones they create steam. The invention relates particularly to stoves having multiple jackets. Said stoves contain canals, adapted to conduct air upwards from the floor level under simultaneous heating of the air. The heated air is used for the heating of the bath room itself, whilst the steam from the hot stones serve the steam bathing purposes.

Previously known stoves of this type have a number of disadvantages. It has not been possible to arrange an efficient and fast working heating device with such a stone volume which is big enough to give the desired heating capacity for the stones to create steam. The air stream flowing upwards from the floor level in known double jackets sauna ovens does not provide enough warm air for an effective heating of the bathroom. The balance between sufficiently heated stones and a sufficient quantity of heated air for the bathroom has been inadequate.

According to one known stove construction the air rising in the double jacket flows into the stone compartment through holes in the inner jacket. Before this air comes out into the bath room, it must consequently pass at least a part of the stones in the stone compartment. This causes an unwanted cooling of the stones. Another disadvantage in known stove types that the shape and dimensions of the jackets are ill suited for economical treatment in for instance enamelling, anodizing and chrome units.

In the stove according to the present invention these disadvantages have been eliminated. Its jacket is composed of elements suitably dimensioned for economical and practical finishing treatment. The shape of the stove differs from that of previously known electric stoves by the fact that it is shaped as a cylinder. Its double jacket is constructed as to lead the air rising in the jacket space out into the bath room in an extremely efficient manner and which will not affect the heating of the stones. The temperature of the outer jacket of the stove is nevertheless maintained at a level which cannot do any harm to the bather in the bath room.

The electric steam bath stove according to the present

invention is in general characterized in that it is of cylindrical shape and that its outer jacket is horizontally, for instance halfway up divided into two different parts, whereby the uppper jacket part has a larger diameter than the lower jacket part, and protrudes telescopically over the edge of the lower jacket, forming an annular space between the jacket parts, through which additional air from the outside can enter and join the air flow rising in conventional manner from the floor level up between the inner and outer jackets and that the double jacket of the stove at the top has an annular top piece, which closes the space between the jackets and has a conical, inwardly including outer wall provided with oblong slots all round the periphery through which the air rising in the jacket space is conducted obliquely upwards and out into the bath room.

The outer wall of the annular top piece may according to another embodiment of the stove be vertical and have guiding planes on the inside conducting the air in outward and upward direction.

According to another embodiment may the stove at the top, near the stone compartment have a third jacket wall, which is so arranged as to conduct a part of the hot air flowing through the electrical heating unit along the outside surface of the wall of the stone compartment, whereupon it joins the air rising up in the double jacket. This latter air flow is thereby accelerated through the additional overheated air and flows with greater speed out into the bath room.

The invention will now be described in detail with reference to the accompanying drawing, visualizing one suitable embodiment thereof.

FIG. 1 shows the stove from the side and partly in vertical section,

FIG. 2 shows the stove seen from above and partly in horizontal section along the line **2**—**2** in FIG. 1,

FIG. 3 is a cross-sectional view taken along line **3**—**3** of FIG. 2, and

FIG. 4 is a view similar to FIG. 3, but showing an alternate embodiment of the present invention.

The jacket of the stove is composed of two parts **1** and **2**, which approximately halfway up the stove are telescopically overlapping each other as to create opening **3** between them, through which air can flow into the space between the outer jacket, composed of parts **1** and **2**, and the inner jacket **4**. At the base of the stove air comes from the floor level through the opening **5** in between the inner jacket **4** and the lower part **2** of the outer jacket. The air flowing in through the opening **5** later joins the additional air coming in through the opening **3** and continues upwards into an annular top piece **6**, which closes the space between the outer and inner jackets of the stove. The top piece has an inwards conically inclining wall **6'** with oblong slots **7**. The rising air is conducted obliquely upwards and outwards through said slots **7**. The stone compartment of the stove is indicated by reference **8**. Its bottom **9** is perforated, having holes **9'** for heating air coming from the heating unit arranged beneath the stone compartment. The electric heating unit comprises two groups of electrical elements **10** and **10'** and is supported by a flange part **11** under the bottom **9** of the stone compartment. The heating unit is regulated by a thermostat switching one or both element groups off when desired temperature is reached. The lower group is preferably shut off first. The upper group, which serves to heat the stones, is not shut off until the stones are sufficiently hot. The stones are designated **8'**. Under the heating unit is a valve device **12**, by which the flow of air, which passes the stones heating them, can be regulated. The valve **12** will also protect the floor under the stove against overheating. The stove stands on an elongation of the inner

jacket **4**, which has been provided with holes **13** for the air entering the heating unit. At the side of the stove there is a box **14** for electric current leading-ins, fuses etc.

The upper part of jacket **4** is bent inward as shown at **4***a*, but does not extend to stone compartment **8**. Also, there is a vertical opening **15** in the inner jacket **4** for inserting of the heating unit, including plate **17**, from above into the stove. An annular canal **16** from the heating unit space is formed between the stone compartment **8** and the upper part of the inner jacket **4**, which canal is adapted to conduct heated air from the heating unit to flow out and along the outer surface of the stone compartment **8** and then to join the air rising in the space in the double jacket and to disappear through the slots **7** in the annular top piece. Due to the perforated bottom of the stone container, the regulating valve **12** and the side heating of the container by air coming through the slot **16**, the stone compartment can be enlarged in comparison with previously known stove types so that the stone volume corresponds approximately to at least two thirds of the volume of the space occupied by the heating unit. Thus the heating capacity of the stove is improved.

FIG. 4 depicts an alternative embodiment of the present invention in which the top piece **6** has a cylindrical outer wall **6***a* having a plurality of spaced slots **7***a*. Associated with slots **7***a* and extending downwardly and inwardly from the tops thereof are louvres **20** which serve to guide the heated air out through said slots **7***a*.

Other modifications of the details of the stove can of course be made within the scope of the invention. According to one modified embodiment the slots in the top piece are adjustable for regulating the amount of air escaping through the slots **7**. According to still another embodiment valves are provided to regulate the amount of air passing between the jackets of the stove and through the heating unit.

What I claim is:

1. An electrical steam bath stove of the sauna-oven type comprising an inner jacket; an outer jacket telescoped over said inner jacket and spaced therefrom to define an air flow passage between said jackets; a stone compartment disposed in the upper portion of said inner jacket, said stone compartment having an open top providing an air outlet, and a perforated bottom plate; heating means disposed within said inner jacket and below said stone compartment, an annular top piece extending from said stone compartment to said outer jacket and covering said air flow passage; and an air inlet into the lower portion of the inner jacket so that air may flow upwardly through said inner jacket, over said heating unit, through said bottom plate and stones, and out said top of said compartment.

2. The stove of claim **1**, wherein said top piece has an outer wall inclined conically upwardly and inwardly, a plurality of vertically oblong slots being formed in the periphery of said wall to provide an air outlet for said air flow passage.

3. The stove of claim **1**, wherein said top piece has at least one cylindrical vertical wall with oblong slots being formed thereon to provide an outlet for said air flow passage, and further comprising guiding means provided on the inside of said slots and adapted to conduct the air flowing through said air flow passage upwardly and outwardly.

4. The stove of claim **1**, wherein said stone compartment has a volume approximately corresponding to at least two-thirds of the volume of the space occupied by said heating means.

5. The stove of claim **1**, further comprising regulating means disposed in said inner jacket and adapted to regulate the flow of air therethrough.

6. The stove of claim **1**, wherein the side wall of said stone compartment is spaced from the inner surface of said inner jacket to define an additional air flow passage.

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