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L. S. BROWN
HEATING DEVICE

1,931,247

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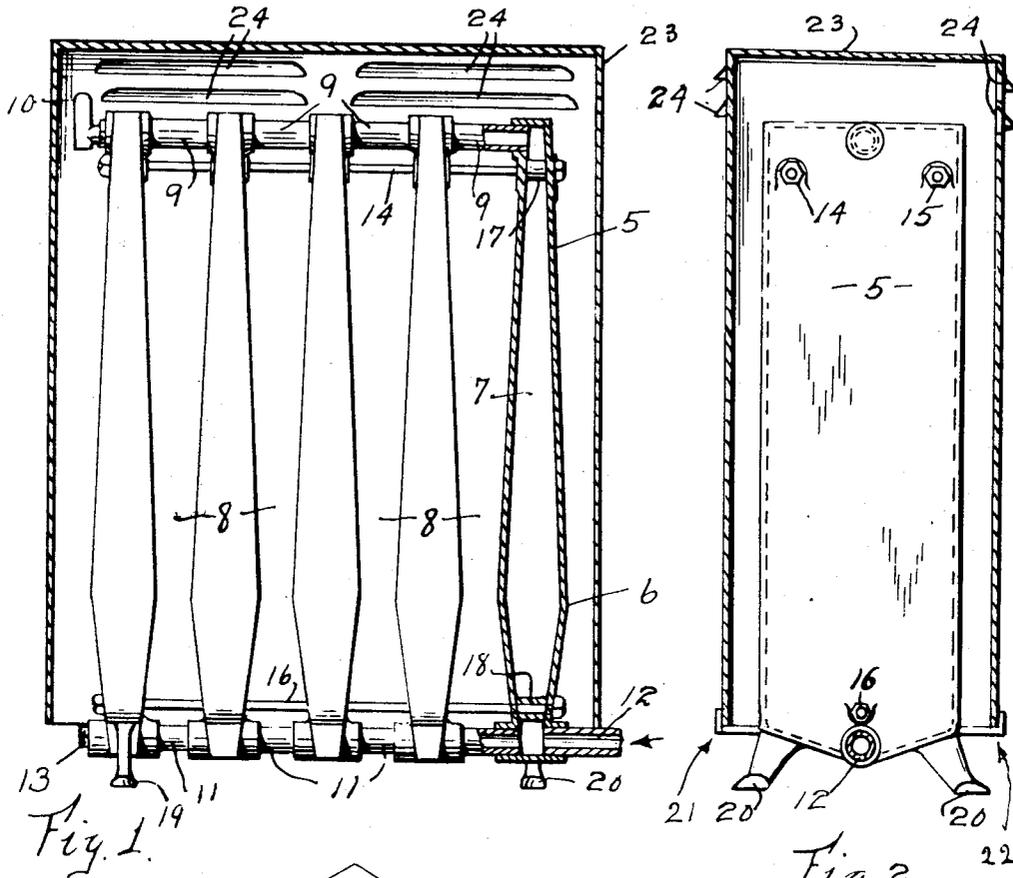


Fig. 1.

Fig. 2.

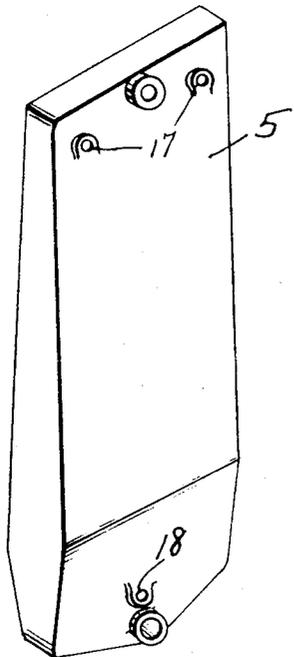


Fig. 3.

INVENTOR

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UNITED STATES PATENT OFFICE

1,931,247

HEATING DEVICE

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6 Claims. (Cl. 257—136)

My invention relates to heating devices, used for heating buildings, residences, and the like, as shown and described in United States Letters Patent No. 1,737,142 issued to me under date of November 26, 1929, and it has for its prime object the provision of an improved and modified construction whereby the same is adapted for use as a steam or hot water heating device.

While I have shown and will describe the preferred form of my invention, it will be understood that I do not limit myself to such preferred form but that various changes and adaptations may be made therein without departing from the spirit of my invention.

In the drawing accompanying and forming a part hereof:

Figure 1 is a front elevation of my invention partly broken away for clearness of illustration the casing being shown in section.

Figure 2 is an end elevation of Figure 1.

Figure 3 is a perspective view of one of the units forming my device.

Referring to the drawing, my heater is formed or built up of one or more individual units enclosed within an outer housing or jacket and inasmuch as all of these units are similar, one only will be described. Each of these units comprises a housing 5, substantially rectangular in side elevation and relatively narrow in transverse cross-section being widest at a point 6, a short distance from the lower end and from this point 6, tapering inwardly and downwardly to the bottom and inwardly and upwardly to the top with the top narrower than the bottom, and formed within this housing 5 is a heat chamber 7 of the same configuration as the housing thus forming a chamber which gradually increases in area from the bottom to the point 6 and then decreases in area to the top, the object of this construction being to provide air passages 8 between the units which gradually decrease in width from the bottom to the point 6 and gradually increase in width to the top so as to take advantage of the well known fact that air expands as it becomes heated and it will consequently be forced upwards creating a partial vacuum at the narrow portion and causing cold air to be drawn therein and automatically creating a rapid circulation through my heater without the aid of any mechanical or artificial means. Each of the chambers 7 is connected at its upper end to the next adjacent chamber by a pipe 9; an air valve 10 being provided at the top of one of the end chambers to permit the escape of any air which may become

trapped. The lower ends of the housings 5 extend downwardly at an angle to a point centrally of their width, the object of which will be obvious, and the chambers 7 are connected at this point by pipes 11, the chamber at one end being connected by a pipe 12 to a suitable source of supply of steam or hot water, and the chamber at the opposite end being connected by a pipe 13 to a suitable return (not shown). The units are held secured together by bolts 14 and 15 at their upper ends and by bolt 16 at their lower ends which bolts pass through tubes 17 and 18 which are integral with housings 5 and extend across the chambers 7. The two end housings 5 are provided with legs 19 and 20 which serve to maintain the heater units above the floor.

Extending outwardly from the edges of the housings 5 near the bottom are brackets 21 and 22 and resting upon these brackets is the lower end of the outer casing or jacket 23. The lower end of jacket 23 is open and the upper end is provided with louvers 24 through which the heated air escapes from the jacket.

Having described my invention, what I claim is:

1. A steam or hot water heating device comprising a plurality of vertically disposed casings mounted in parallel relation but spaced apart to provide a plurality of vertically extending air passages therebetween, said casings being relatively narrow and gradually increasing in area from the bottom upwardly for a distance and then gradually decreasing in area to the top whereby said air passages gradually decrease in area from the bottom upwardly for a distance and then gradually increase in area to the top.

2. A steam or hot water heating device comprising a plurality of vertically disposed casings mounted in parallel relation but spaced apart to provide a plurality of vertically extending air passages therebetween, said casings being relatively narrow and gradually increasing in area from the bottom upwardly for a distance and then gradually decreasing in area to the top; the spaces between said heat chambers forming passages for the passage of air being heated, which are relatively narrow and of varying cross-sectional area; the bottom end of said passages decreasing in area from the bottom upwardly for a distance and then gradually increasing in area to the top; connections between the upper ends of said casings; connections between the lower ends of said casings;

a connection from casings to a fluid supply; and a housing enclosing all of said casings but spaced therefrom, said housing being open at the bottom and having outlet opening at the top.

5 3. A steam and hot water heating device comprising a plurality of casings substantially rectangular in side elevation and relatively narrow in transverse cross-section, said transverse cross-section gradually increasing in width from the bottom upwardly for a distance and then gradually decreasing in width to their upper ends, said casings being mounted in parallel relation and spaced apart whereby air passages are provided therebetween which gradually decrease in width from the bottom upwardly for a distance and then gradually increase in width to the top; connections between said casings at opposite ends thereof; a connection from said casings to a fluid supply, and a housing enclosing said casings excepting at the bottom and having outlet openings in its upper end.

10 4. A steam and hot water heating device comprising a substantially rectangular housing; air inlets in the bottom wall thereof; air outlets in the side walls thereof near the top; a plurality of narrow heat chambers mounted in said outer casing to extend vertically in parallel spaced relation, and said heat chambers being relatively narrow in transverse cross-section and having their side walls tapering outwardly from each other and gradually increasing in area from the bottom upwardly for a distance and then the side walls tapering inwardly toward each other, gradually decreasing in area to the top; the out side walls of said heat chambers forming air passages therebetween for the passage of air being heated; the transverse configuration of the

said air passages being similar to the transverse configuration of the said heat chambers in reversed order; an air vent in the top of said heat chambers; connections between the upper ends of said heat chambers; connections between the lower ends of said heat chambers; means for holding said heat chambers together; a connection from said heat chambers to a heated fluid supply; means for controlling said heated fluid supply.

15 5. A steam and hot water heating device comprising a plurality of heat casings, mounted in parallel spaced relation, to extend vertically and forming a plurality of air passages therebetween which gradually decrease in area from the bottom for a distance upwardly and then gradually increase in area to the top; connections between said casings, a connection from said casings to a fluid supply, and an outer housing enclosing said casings, excepting at the bottom, having air outlets in its upper end.

20 6. A steam and hot water heating device comprising a plurality of heat chambers arranged to extend vertically, and gradually increasing in transverse area from the bottom upwardly for a distance and then gradually decreasing in transverse area to their upper ends, said chambers being spaced apart to form an air passage at each side of each of said heat chambers, said air passages being, in transverse area, of reversed configuration to the heat passages, connections between said heat chambers at the upper and lower ends thereof, a connection from one of the end heat chambers to a fluid supply, and a connection from the other end heat chamber to an exhaust.

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