

Oct. 10, 1944.

J. C. BARNES

2,359,962

AUTOMATIC LAUNDRY HEATER

Filed Feb. 21, 1941

3 Sheets-Sheet 1

Fig. 1.

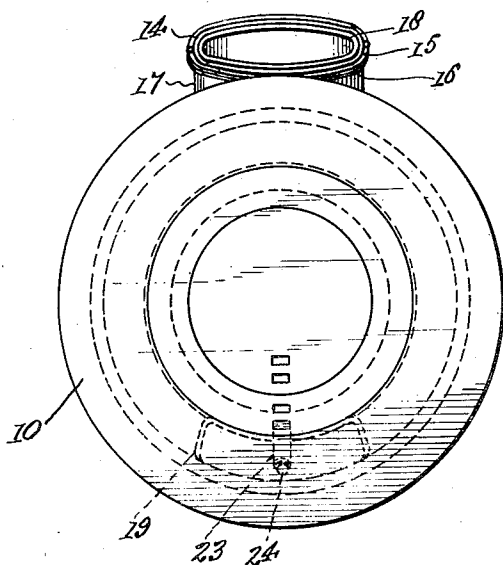


Fig. 2.

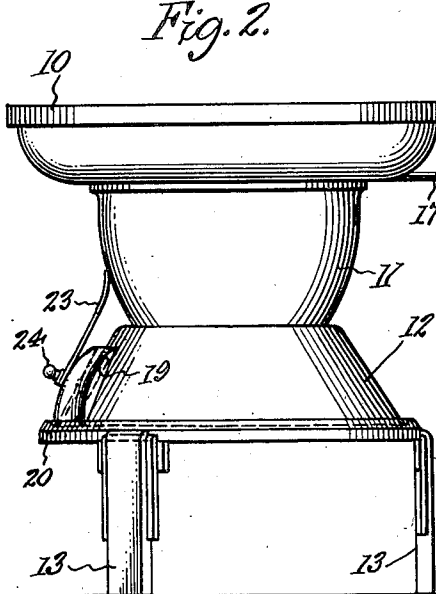


Fig. 3.

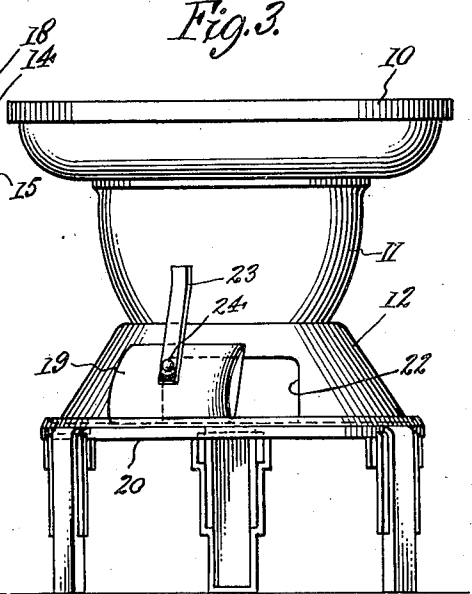
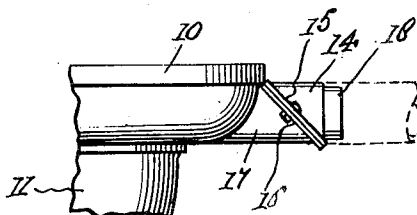


Fig. 4.



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3 Sheets-Sheet 2

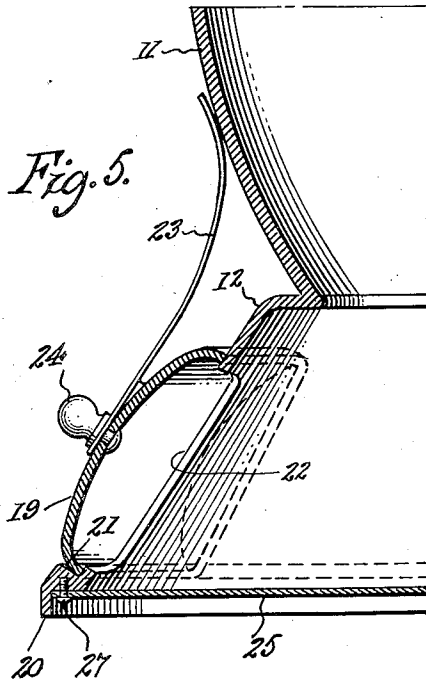
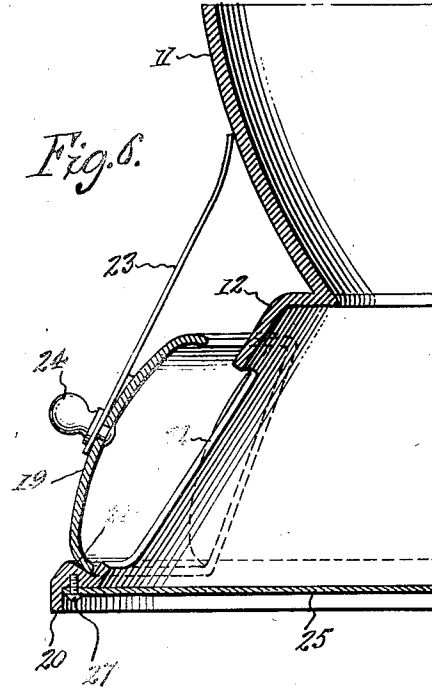


Fig. 7.

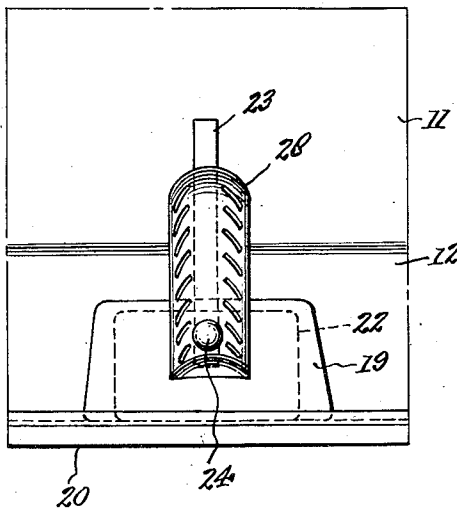
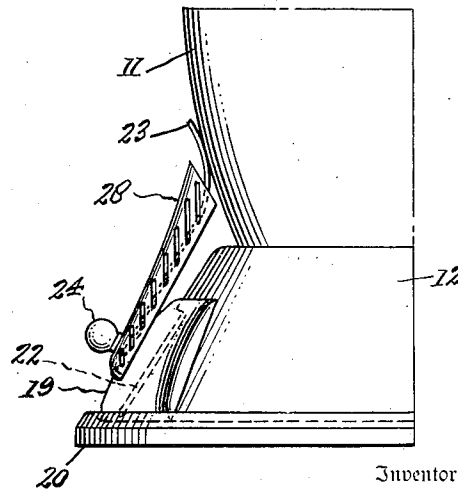


Fig. 8.



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3 Sheets-Sheet 3

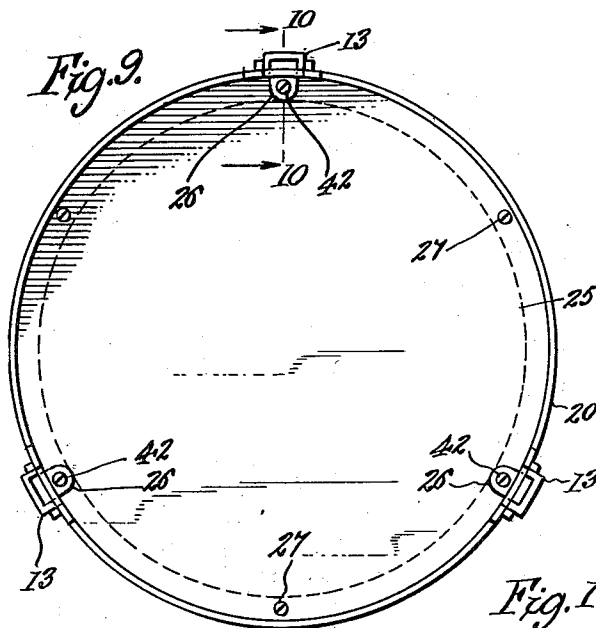
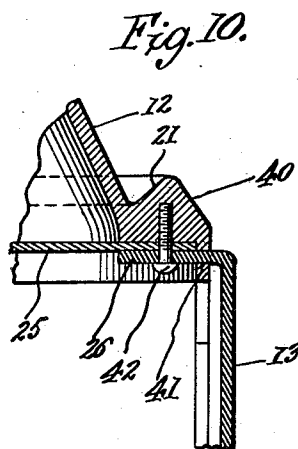


Fig. 13.

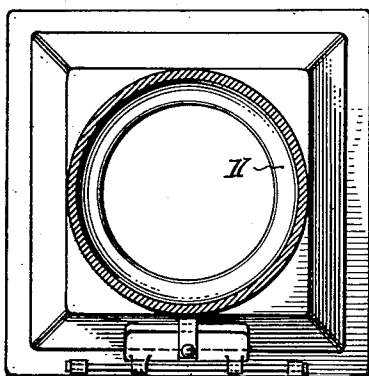
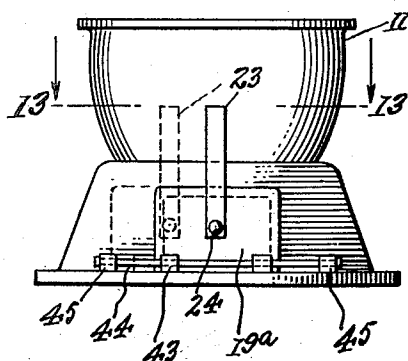
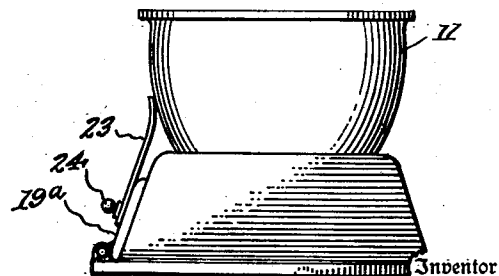


Fig. 11.

Fig. 12.



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UNITED STATES PATENT OFFICE

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AUTOMATIC LAUNDRY HEATER

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Application February 21, 1941, Serial No. 380,064

7 Claims. (Cl. 126—290)

The present invention relates to improvements in automatic laundry heaters and has for an object to provide an improved construction of laundry heaters in which the top of the heater is constructed with reference to the conventional round or cylindrical fire bowl to receive a maximum of heat therefrom and more heat than is received by the customary square or rectangular top.

Another object of the invention is to provide a reversible collar for vertical or horizontal pipe mounting, achieved by merely reversing the end of the collar at the joint.

A still further object of the invention is to provide an improved ash pit and door in which the door is supported for horizontal movement and adjustment upon a ledge to enable the door to be supported and moved without the aid of hinges or lugs, with the added advantage that such ash door may slide around the ash pit base and expose the ash pit opening, making it very simple to remove ashes and also to adjust the door to variable positions with respect to the ash door opening, thereby determining the amount or volume of air to be admitted to the fire box, and as a consequence regulating the amount or degree of heat desired.

A still further object of the invention is to provide an automatic laundry heater of the above or any other suitable type in which an ash door is associated with a thermostatic element in such relation that the thermostatic element, under the effects of varying heat conditions, acts to open the door to a desired degree allowing a volume of air to the ash pit, or permitting the door to close and to shut off the supply of air or oxygen as when the fire registers a maximum peak.

With the foregoing and other objects in view, the invention will be hereinafter more fully described and more particularly pointed out in the appended claims.

In the drawings in which the same reference characters identify like or corresponding parts throughout the several views,

Figure 1 is a top plan view of an improved automatic laundry heater constructed in accordance with the present invention.

Figure 2 is a side elevational view of the same.

Figure 3 is a front elevation of the heater with the ash door shown as having been shifted horizontally partly out of registry with the ash pit opening.

Figure 4 is a fractional side elevation similar to Figure 2 but illustrating the smoke collar in the reversed position.

Figure 5 is a fractional vertical section taken through a portion of the fire bowl and ash pit and illustrating the ash door in the closed position.

Figure 6 is a similar view showing the ash door partly opened by the thermostatic action.

Figure 7 is a fractional front elevation showing the thermostat and ash door combined with a guard.

Figure 8 is a fractional side view of the same.

Figure 9 is a bottom plan view of the heater.

Figure 10 is a cross section on the line 10—10 in Figure 9.

Figure 11 is a fragmentary front elevational view of a modification.

Figure 12 is a side elevation of the same, and Figure 13 is a horizontal section on line 13—13 of Figure 11.

Referring more particularly to the drawings 10 designates the stove top, 11 the round fire bowl, 12 the ash pit and 13 the stove legs.

Conventional laundry heaters have square or rectangular tops over a round fire bowl 11, resulting in corner portions of the top hanging or protruding to great distances laterally or horizontally beyond the bowl 11. These corner portions receive no heat from the inside of the heater, being heated only by the heat rising on the outside of the fire bowl, and by such heat as reaches the corners by conduction.

In accordance with the present invention the top 10 is round conformably to the round fire bowl 11. Being round the top 10 receives heat over its entire surface from the inside of the fire bowl. Such construction of the top 10 converts the automatic heater into an entirely cylindrical construction.

The top 10 may be equipped with any suitable eye set for instance a standard 8" eye set inside of a 12" ring, both being removable from top.

The smoke collar 14 is shown by comparison in Figures 2 and 4 as being reversible due to its bias or inclined edge 15 mating with a similar edge 16 upon the pipe shank 17. By rotating the smoke collar 14 through a half circle or 180° the outer end 18 of such smoke collar may be presented either in the upright position illustrated in Figure 2 or the horizontal position shown in Figure 4. The bias or inclined edges 15 and 16 may be flanged and bolted together as represented in the drawings or secured in any other desired manner. This construction provides for vertical or horizontal pipe mounting as indicated in dotted lined in Figures 2 and 4.

The ash pit door is indicated at 19, the same resting upon a ledge 20 extending around the

base of the round ash pit 12. This ledge 20 may have an inclined seat 21 to support the ash door 19 and allow it to be supported in closed position over the ash pit opening 22 due to the inclination given to the door, as indicated in Figure 5. The door 19 is enabled to slide around the ash pit base on the ledge, for instance compare Figures 1 and 3. In Figure 1 the door 19 is shown as completely masking the ash pit opening 22; while in Figure 3 a certain port area of the opening 22 is left exposed. By sliding the door 19 around the ledge 20 until the opening 22 is wholly unobstructed the ashes may be simply and easily removed through the opening 22. By moving the door laterally or horizontally around on the ledge 20 admits of the manual adjustment to admit the amount of air desired. The extent of the opening will determine the amount of air admitted and consequently regulate the amount of heat desired.

The door 19 has no permanent connection with the heater but may be lifted away from the heater. It derives its support from the ledge 20, which also being round subserves the double function of permitting support of the door 19 at various angular positions with respect to the ash pit opening. The door is manually settable to expose a desired port area to incoming air or supporting oxygen. Moreover the ledge 20, due to the inclination of its seat 21 serves to support the door or its lower edge in a position of inclination corresponding to the vertical inclination given the side wall of the ash pit 12, for which see Figures 5 and 6. Therefore by its own weight or by gravity action the door 19 closes, or tends to close, about the opening 22 and against the surrounding wall of ash pit 12. Such is the condition shown in Figure 5. The ash door 19 is rounded in a horizontal direction to conform generally to the rounded curvature of the ash pit wall 12.

A thermostatic element 23 is carried by the door 19, such element being advantageously in the form of a bimetal strip of two or more component metals having different coefficients of expansion, whereby the strip will deform or bend on heating and tend to straighten when cooled. This strip 23 has its lower end secured to the door 19, as by the knob 24, by which the door may be lifted or adjusted in position. The strip is sufficiently long to extend beyond the door and rest at its free end against the fire bowl 11.

As shown in Figure 5 the strip 23 is so made that when the bimetallic material absorbs heat from the bowl 11 in sufficient amount it bends outward from the fire bowl. In this event the ash door 19, due to its own weight, lays snugly against the ash pit and ash opening 22, thus cutting off the air supply to the fire.

As the fire slows down, due to lack of air entering through the ash door, the fire bowl 11 cools. In cooling it also cools the thermostatic strip 23, enabling this strip to regain its original shape as indicated in Figure 6. The straightening of the strip will require the door to be tilted about its lower edge as a fulcrum, moving its upper edge and its side edges away from the fire bowl wall. In such condition air may flow in past the tilted fire door in through the opening 22. In other words the flow of air to the heater is automatically resumed or cooled. In actual operation there is no rapid fluctuations of the ash door 19 due to the fact that when a fire is started in the heater the ash door will be open about one-half inch at its top edge. As the

heater becomes heated the ash door will gradually close until it reaches a mean point where the amount of air entering and the corresponding amount of heat generated hold the door in the correct position. As the fuel is exhausted and the heat leaves the heater and is dissipated from the bimetal thermostat 23 the door will return to the original position.

The cylindrical shape of the heater has a further advantage in that it is supportable on only three legs instead of the conventional four legs necessary on square base stoves.

The bottom 25 of the ash pit is preferably of sheet steel held in place by lugs 26 on the legs 13. In addition screws 27 spaced between the legs and engaging through the ash pit or its ledge ring or annulus 20 may be used to assist in the support of the bottom 25.

Aside from the bimetal or thermostatic control feature, it will be appreciated that the improved heater of this invention is original in design and shape for this type or classification.

A grilled guard 28 may be provided and attached to the ash door 19, such guard extending vertically to cover and protect the bimetal strip 23 from injury, while also adding a decorative effect to the heater. The guard will be sufficiently rigid and rigidly supported to avoid touching or bearing on the fire bowl when the door is in a closed position.

It will be understood that this same type door may be mounted on the front of a square base conventional type laundry heater, in which case the door will lean against the sloping face of the square base fire bowl wall and slide to either side of the base of the heater. For the removal of ashes the door is lifted from the square base and placed on the floor.

In Figure 9 the three legs 13 are shown. Three screws 27 pass through the steel bottom 25 and are threaded into the cast iron rim 40 of the ash pit 12 serving to hold the bottom 25 in place.

Lugs 26 are cast on legs 13, as shown in Figures 9 and 10. These lugs pass through cut-away portions 41 in the ash pit rim 40. The steel bottom 25 rests on lugs 26. Screws or bolts 42 or other fastening means pass through lugs 26, bottom 25 and are threaded in the rim 40.

Referring more particularly to Figures 11 and 12 ash door 19^a has perforated lugs 43 slidable on rod 44 held in brackets 45 upon ash pit frame or other part of stove.

Rod 44 is longer than door opening to permit door to slide away from opening as indicated in dotted lines in Figure 11. Door 19^a may also hinge down so as to be completely out of the way for the removal of ashes. The hinging action of door about rod 44^a also allows for thermostat operation. This construction may be used in the square type of stove as indicated in Figure 13.

The drawings and description illustrate and describe only preferred embodiments of which the invention is susceptible but it will be understood that various modifications may be made in the herein described specific form without departing from the spirit of the invention, provided such modifications are within the scope of the following claims.

What is claimed is:

1. An improved laundry heater comprising a generally round ash pit having a wall, said wall having an opening, an arcuate support about and beyond the opening having an inclined seat, and a door for the opening freely and movably resting on said seat for movement around the arcu-

ate support and for tilting movement about its lower edge.

2. An improved laundry heater comprising an ash pit having a wall substantially round horizontally and sloping vertically, said wall having an opening, a door for the opening, and an arcuate support for the door permitting the door to be adjusted along the support to wholly or partially expose the opening, said support having an inclined seat constructed with reference to said wall to support the door on an inclination biased to said wall.

3. An improved laundry heater comprising a round top, a round fire bowl, a round ash pit with vertically sloping wall, a round sloping edge about the lower part of the ash pit and having an inclined seat, said wall having an opening, a door unconnected with the heater and resting freely on said ledge with the seat inclining the door towards a closed position about the opening against said sloping wall, a bimetallic strip held by and movable with the door around said ledge and having its upper free end resting against said fire bowl to cause the door to tilt away from the opening when cold.

4. An improved laundry heater comprising an ash pit having an opening, a support along and beyond the opening, a door for said opening resting freely on said support and movable bodily along said support, said door being tiltably supported in front of said opening and biased to a closed position over said opening, and thermo-

static means on the door engaging the heater to cause opening of the door.

5. An improved laundry heater comprising an ash pit having an opening, a support along and beyond the opening, a door freely resting on said support and movable bodily along said support, said door tiltably supported in front of said opening in an inclined position biased to a closed position over the opening, and a warpable thermostatic strip carried at its lower end portion by said door and at its upper free end positioned to engage said heater to cause tilting and opening of the door when cold and allowing the door to close when heated.

6. An improved laundry heater comprising an ash pit having a wall with an opening in said wall, a support along and beyond said opening, a door tiltably and slidably supported in front of said opening, said door being manually movable along said support to completely cover and uncover said opening, and thermostatic means on the door engaging the heater and subject to heat therein to cause automatic tilting and opening of the door when said door is positioned over the ash pit opening.

7. A laundry heater as defined in claim 6 in which said support comprises a rod adjacent and longer than said opening, said door having means enabling it to slide on said rod and to pivot about the rod.

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