May 22, 1945. R. H. WHITE ET AL 2,376,409

HEATING STOVE

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Fig. 1.

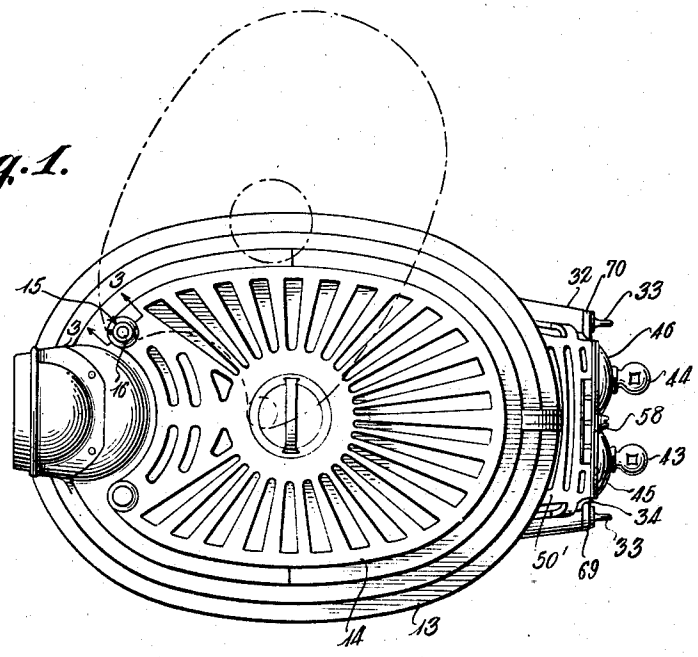


Fig. 2.

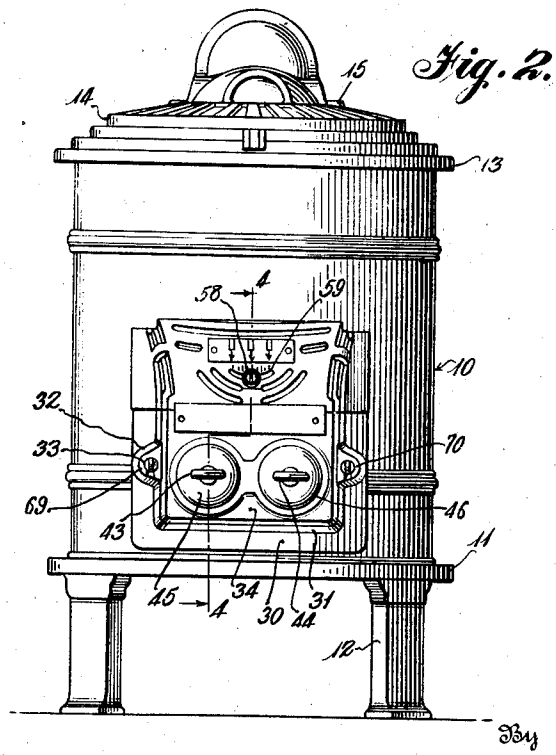
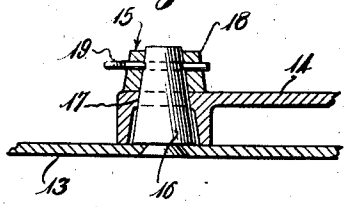


Fig. 3.



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HEATING STOVE

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Fig. 4.

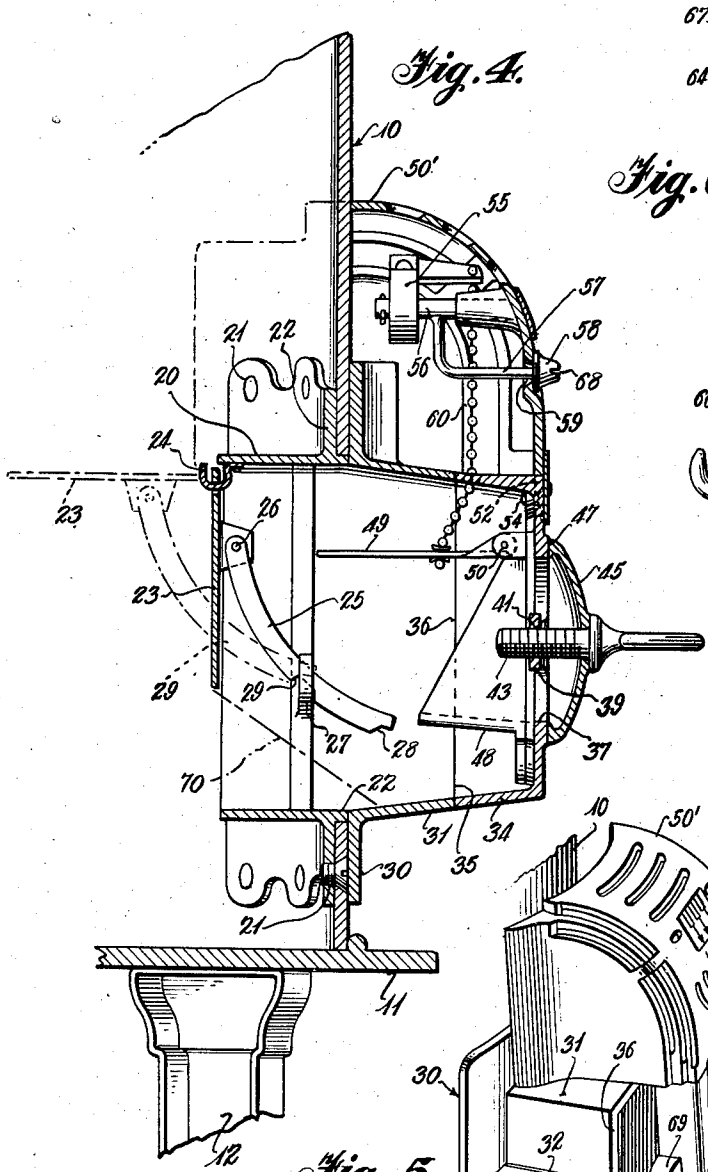


Fig. 6.

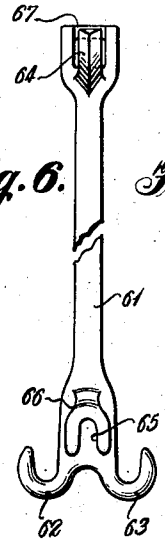


Fig. 7.

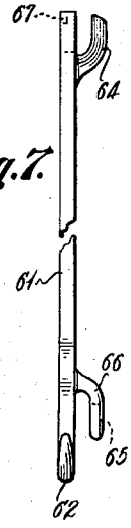
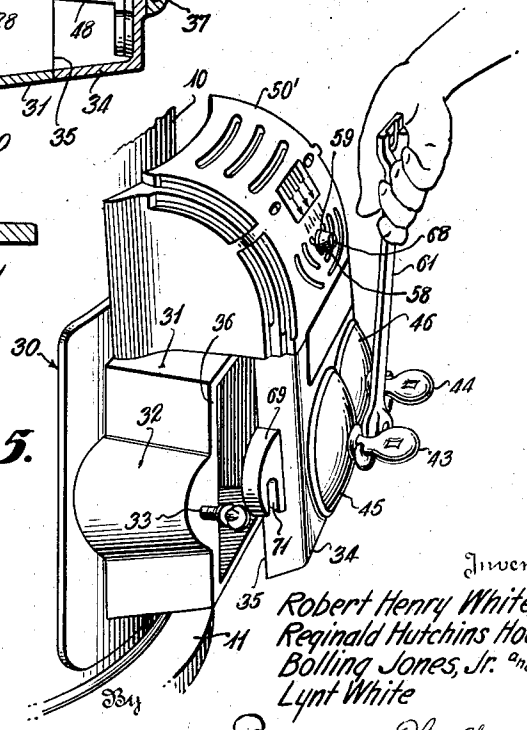


Fig. 5.



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Fig. 8.

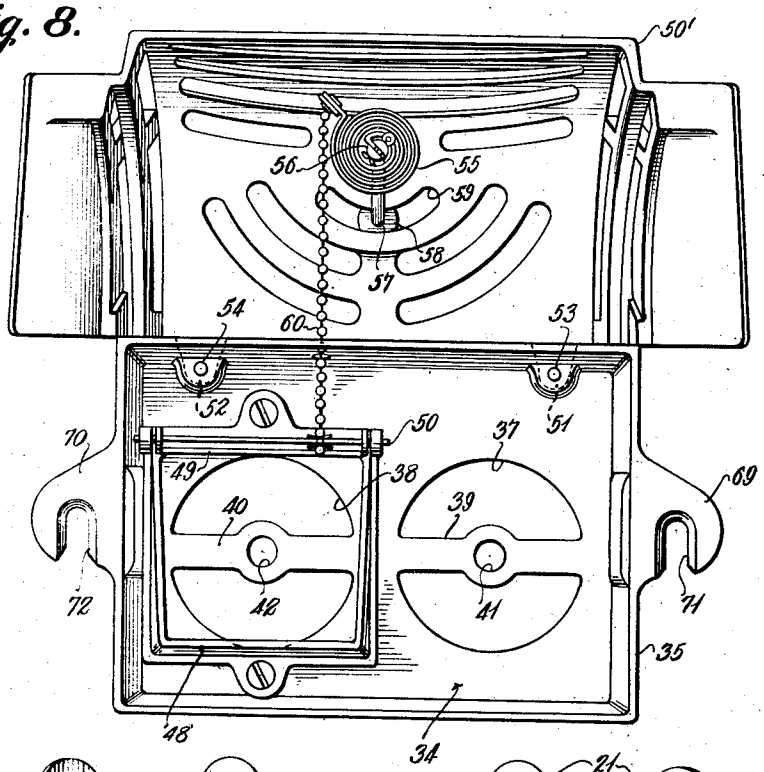
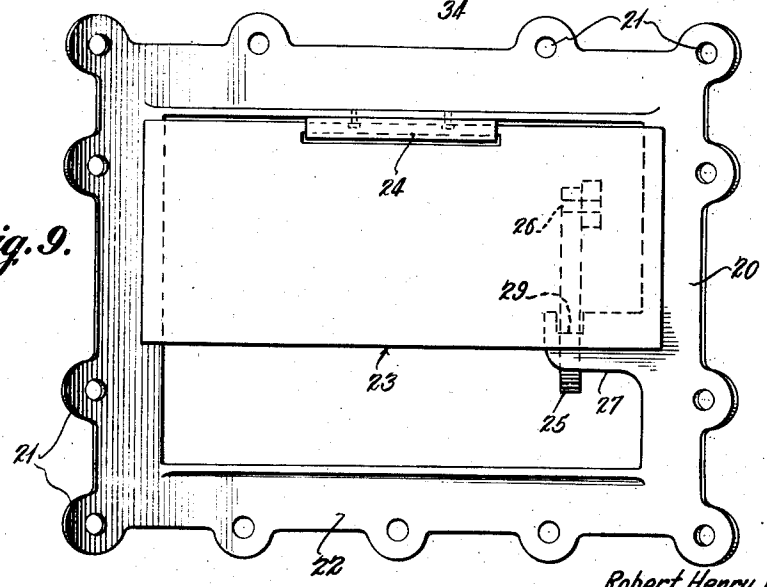


Fig. 9.



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Patented May 22, 1945 2,376,409

UNITED STATES PATENT OFFICE

2,376,409

HEATING STOVE

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Application June 17, 1940, Serial No. 341,052

1 Claim. (Cl. 126—58)

The invention relates to heating stoves and is shown as applied to a stove of the so-called air-tight heater type.

It is an object of the invention to improve upon a stove of this character in details. It is a further object of the invention to provide in a stove of this type for efficient automatic action of the draft opening combined with means to provide a draft by manual control.

It is a further object of the invention to provide an automatic draft control combined with means to limit the maximum draft which may be given by the automatic means.

It is a further object of the invention to provide a thermostatically controlled damper with means to vary the thermostatic limits of the control.

It is a further object of the invention to provide a thermostatically controlled damper wherein the control is removable as a unit with the damper for access to the interior of the stove.

It is a further object of the invention to provide an ash guard for the draft opening of a stove.

It is a further object of the invention to provide a tool for removal of the draft plate as well as for manipulation of the screws securing the same in place.

Further objects of the invention will appear from the following description when read in connection with the accompanying drawings showing an illustrative embodiment of the invention, and wherein

Figure 1 is a plan view;

Fig. 2 is a front elevation;

Fig. 3 is a detail vertical section on line 3—3 of Figure 1 upon an enlarged scale;

Fig. 4 is a detail vertical section on line 4—4 of Figure 2 upon an enlarged scale;

Fig. 5 is a detail perspective view showing the draft plate in course of removal from the stove;

Fig. 6 is a front elevation, and

Fig. 7 is an edge view of a tool for manipulating the stove parts;

Fig. 8 is a rear view of the draft plate removed from the stove, and

Fig. 9 is an inside elevation of the base plate to which the draft opening frame is secured.

As shown the stove comprises a body 10 desirably formed of sheet metal in accordance with the usual practice, seated upon a base plate 11 supported by legs 12.

The stove is shown as provided with a cover plate 13 formed with the usual fuel opening, not shown, which is covered with a swinging cover 14, pivoted at 15 in the manner more particularly shown in Figure 3. As shown in Figure 3, the pivot for the cover comprises a conical stud 16 secured to the top plate 13 of the stove. The cover plate 14 is provided with an opening 17 fitting over the stud 16 and secured thereon as by a collar 18 and cotter pin 19.

The draft opening for the stove is shown as interiorly surrounded by means of a frame plate 20, shown in rear elevation or inside view in Figure 9, which is formed with screw openings 21 for attachment to the body of the stove. This plate is shown as formed with a marginal flange 22 about its opening to receive the sheet metal 10 of the stove body.

To prevent ashes which may accumulate in the bottom of the stove from falling into the draft opening there is shown a swinging plate 23 pivoted in loops 24 carried by the frame 20 and hanging downwardly to cover the upper portion of the opening in the frame.

To permit of the swinging of the plate 23 out of the way when ashes are to be removed and to the position shown in dotted lines in Figure 4, a link 25 is shown pivoted at 26 to the plate and operable in a lug 27. When the link 25 is swung to the position shown in dotted lines in Figure 4 a notch 28 will contact with the lug 27 to hold the same elevated. A second notch 29 is shown to preserve the plate in its lowermost position.

Exteriorly of the frame 20 there is shown a frame 30 having a projecting collar 31 formed with bosses 32 at opposite sides to receive thumb screws 33 for securing of the draft plate. The draft plate is shown as formed of a member 34 having an edge surface 35 ground to form a good joint with the edge surface 36 of the collar 31.

The plate 34 is shown as formed with two openings 37 and 38, each provided with a bisecting member 38, 40, formed with openings 41, 42, which are interiorly screw-threaded for reception of screw threaded studs 43, 44, carried by plates 45, 46, which are adapted to be screwed into tight contact as at 47, Figure 4, with the face of the plate 34.

The plate 46 may be adjusted to manually control draft of the stove in the conventional manner. The draft opening 38 however is shown as provided with a thermostatic control. To this end an inwardly projecting collar 48 is shown provided with a damper 49 pivoted at 50 to swing between the open position shown in Figure 4 and a closed position, or any intermediate position between these two points. To this end there is shown a supplemental plate 50' secured to the

plate 34 as by ears 51, 52, and screws 53, 54, shown in Figure 8.

Supported upon the interior of the plate 50 there is shown a spiral thermostat 55 supported by a revoluble stud 56 adjustable by a finger 57 projecting to the exterior of the plate 50. To lock the finger 57 in adjusted position a nut 58 is shown. The finger 57 as shown in Figure 2 is movable in an arcuate slot 59 to cause the thermostat to open or close at a desired temperature. The outer end of the spiral thermostat is shown as connected by means of a flexible element 60 with the damper 49.

The plate 50 is shown as provided with ventilating openings so formed as to present an ornamental appearance whereby the thermostat may be influenced by a temperature approximately that of the entire exterior surface of the stove body and not by a temperature which is influenced by a closed space. To facilitate the removal of plate 34 a tool 61, shown in detail in Figures 6 and 7, is provided, and which tool comprises a pair of oppositely directed hooks 62, 63 adapted to take under the necks of the studs 43, 44, as clearly shown in Figure 5.

To act as a wrench upon the thumb screw 33, the upper end of the tool 61 is shown as provided with an outstanding lug 64. Also to act as a wrench for manipulation of the studs 43, 44, a wrench slot is shown at 65 in a lug 66. At 67 is shown a thin portion which may be used upon the slot 68 of the lock nut 58.

The plate 34 is shown as formed with ears 69, 70, formed with downwardly open slots 71, 72, to take over the screws 33, which screws being tightened down will force the plate 34 into substantially airtight engagement with the face 36 of the draft opening.

When it is desired to force the fire beyond a temperature which would be allowed by the thermostat 55, the manually operated draft closure 46 may be utilized. When the automatic control of the fire is desired the closure 46 will be screwed airtight and the closure 45 will be open to a desired extent, whereupon the thermostat 55 and damper 49 will take over the control of the fire.

The maximum draft allowed by the damper 49 may be greater than that desired even when controlled by the movement of a finger 57, in which case the plate 45 may be adjusted to a maximum draft desired when the damper 49 is wide open.

The plate 23 will allow the ashes to enter the collar 31 only so far as the angle of repose of the ashes may permit, which angle may be approximately that indicated by dotted lines 73, Figure 4.

Minor changes may be made in the physical embodiment of the invention without departing from the spirit thereof.

We claim:

A heating stove comprising, in combination: a stove body having an ash removal and draft opening; a projecting flange surrounding said opening formed with a joint forming edge; a closure plate forming a tight joint with said edge, and bodily removable from said stove body and flange; releasable means to clamp said plate upon said flange; said plate formed with at least two draft openings; means for manual control of each of said openings; a thermostatically actuated closure for one of said openings; an upward, inwardly convex extension of said plate with its edges standing closely adjacent the stove body; a thermostat housed in the convexity of said extension; and means connecting said thermostat and said closure; whereby said plate, its extension, said thermostat and said manual draft control means may be bodily removed for access to ashes without interference with an adjusted position of the thermostat.

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