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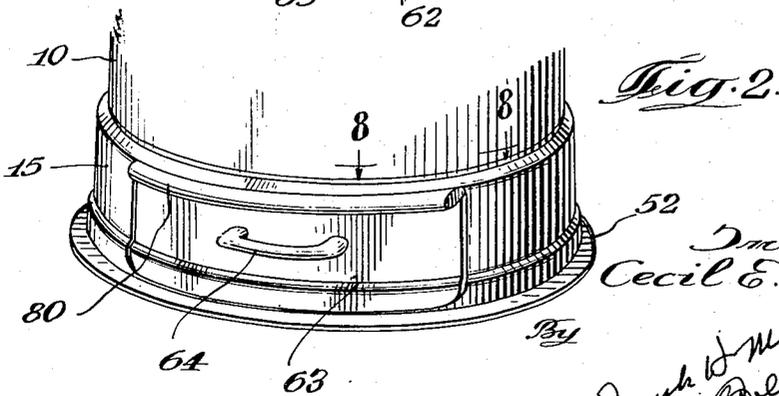
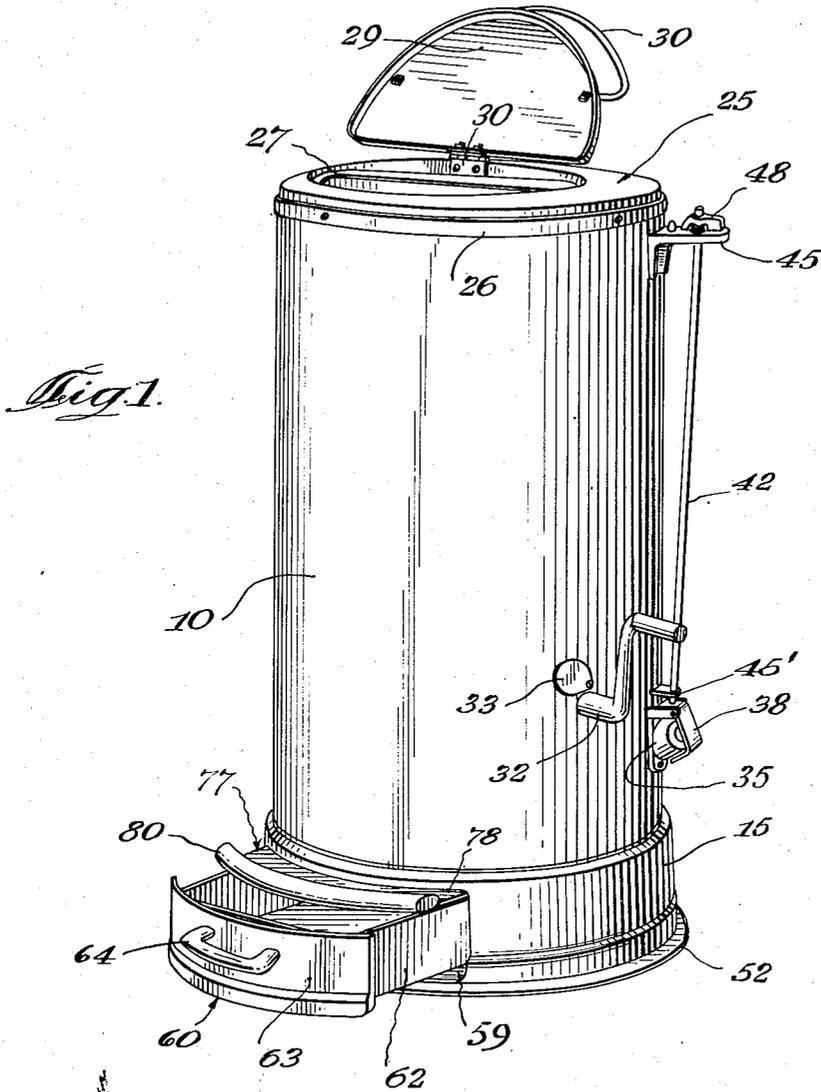
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STOVE AND ASH DISCHARGE MEANS THEREFOR

Filed Oct. 22, 1949

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

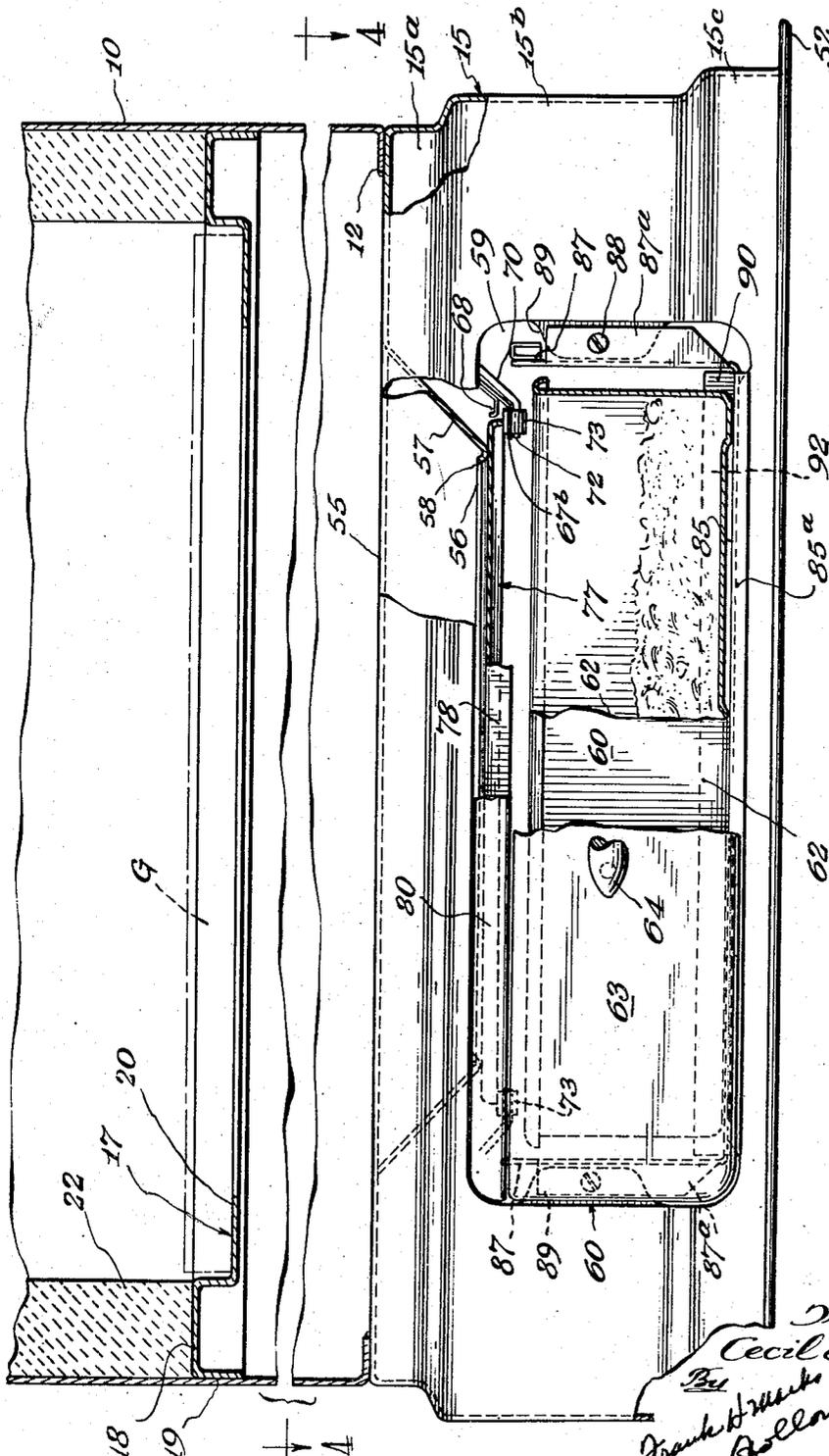


Fig. 3.

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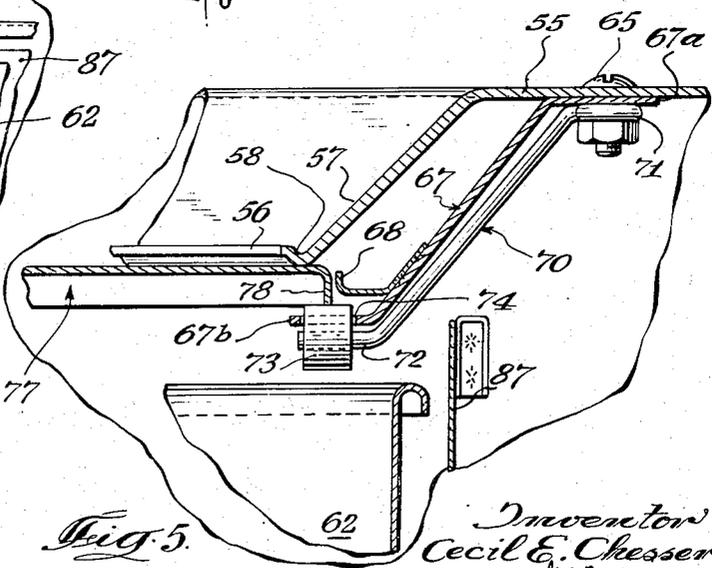
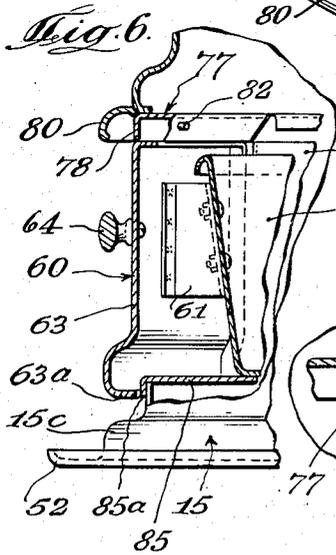
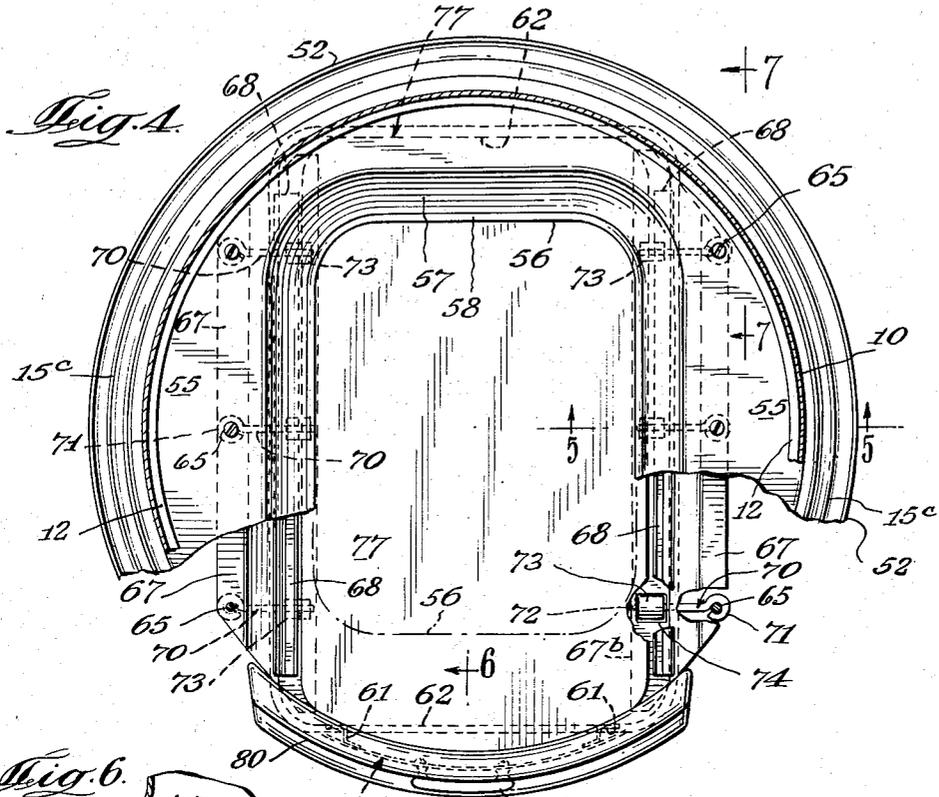
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STOVE AND ASH DISCHARGE MEANS THEREFOR

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4 Sheets-Sheet 3



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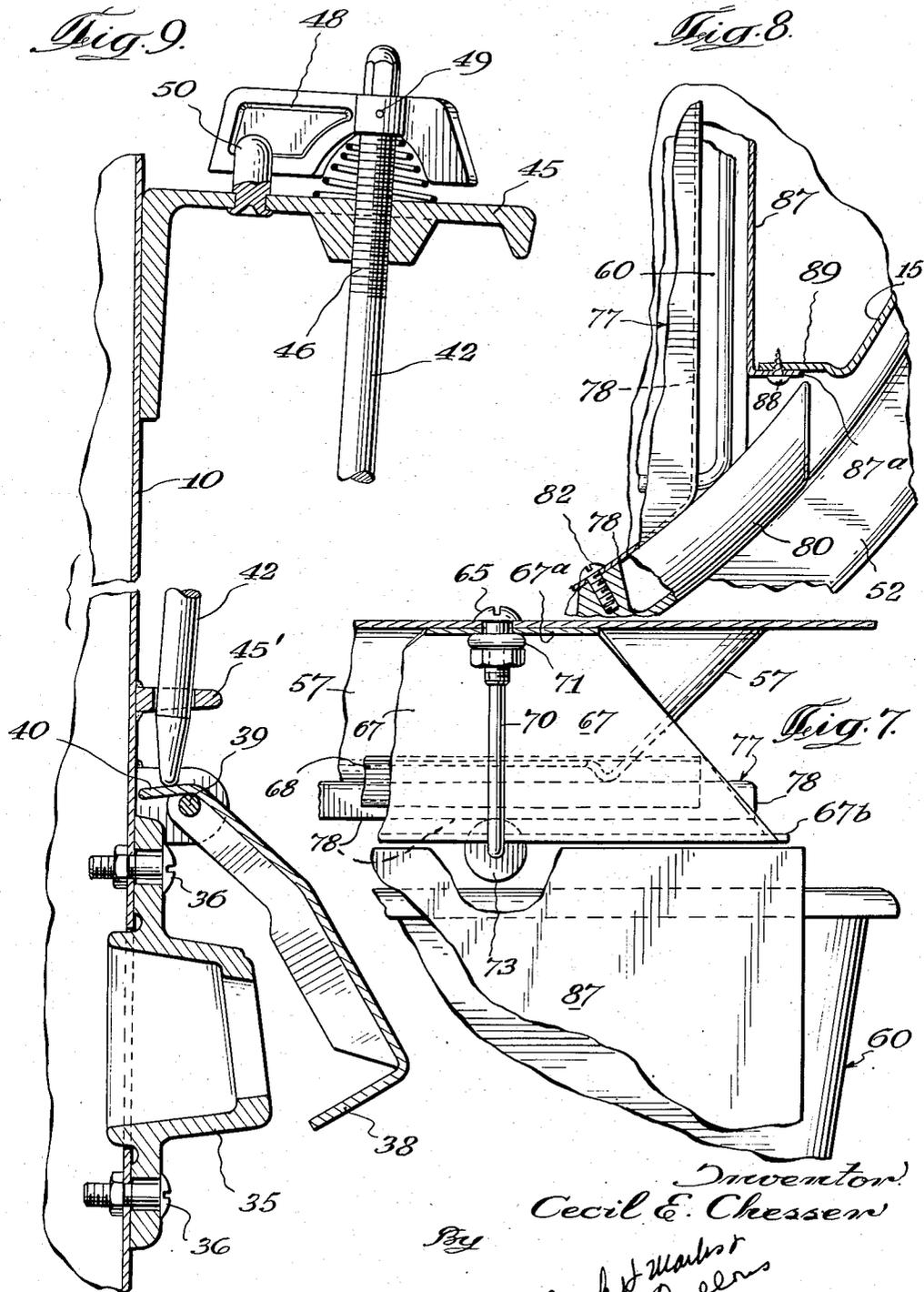
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STOVE AND ASH DISCHARGE MEANS THEREFOR

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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STOVE AND ASH DISCHARGE MEANS THEREFOR

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2 Claims. (Cl. 126—245)

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My invention relates to improvements in magazine heaters designed for heating dwelling places and other enclosures. Such heaters, in basic design, are old and well known. They comprise a magazine usually formed out of sheet metal or the like and lined with firebrick to form a combustion chamber for solid fuels, usually coal, although other fuels such as coke and wood may be used. The basic design also includes a top closure for the magazine. Access for the introduction of solid fuel is provided at the top usually in the form of a door which may be disposed in the top closure plate or in the side wall of the magazine near the top. A grate is provided below the firebrick lining with means for shaking said grate, and an ash pit is provided below the grate with access thereto. Primary air is introduced near the grate and secondary air is introduced into the upper portion of the magazine.

In heaters of this type it has been customary in the past to provide cast iron parts in the lower portion of the magazine for access to the ash pit, in the form of a door and a sleeve mounted on the magazine cooperating with the door. In order to prevent leakage of air around this access door and resultant disturbance to the proper combustion, it has been necessary carefully to grind these cast iron parts in order to effect a close fit between the door and the collar or neck to which it was hinged secured. Such construction necessitated unduly high cost, not only because of the large quantity of metal required for the cast parts but also because of the large amount of skilled labor required for machining the same.

An object of my invention, therefore, is to produce a magazine heater of the general type heretofore described which may be produced at substantially reduced cost, and at the same time, will be more satisfactory from the standpoint of primary air control.

I find that these results can be accomplished by entirely eliminating the expensive cast iron parts heretofore considered necessary for this type of heater and substituting therefor drawn metal parts which may be produced to dimensions of reasonable accuracy while completely eliminating the expensive machining heretofore required for the cast parts.

In accordance with my invention, I provide a magazine heater with simple and inexpensive means for effectively sealing the magazine below the grate against passage of air, so that the undesirable leakage encountered with the old heat-

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ers including cast iron parts is eliminated. By the use of such sealing means, which may be in the form of a simple sheet metal plate removably disposed below the grate, I am able to substitute for the cast iron parts previously used to provide access to the ash pit an inexpensive drawn or sheet metal drawer with a front panel which need not make a close fit with the casing.

My invention may be best understood by reference to the appended drawings, wherein:

Fig. 1 is a perspective view of a magazine heater embodying my invention, with certain parts shown partly extended;

Fig. 2 is a detailed perspective view, on a larger scale, of the bottom part of the heater, with the parts shown fully assembled;

Fig. 3 is a vertical section of the bottom part of the heater, partly in elevation;

Fig. 4 is a fragmentary transverse section taken substantially along line 4—4 of Fig. 3, with certain parts shown broken away;

Figs. 5, 6 and 7 are fragmentary detailed sections taken substantially along the lines 5—5, 6—6 and 7—7, respectively, of Fig. 4;

Fig. 8 is a fragmentary sectional view taken substantially along the line 8—8 of Fig. 2; and

Fig. 9 is a fragmentary vertical section detailing the thermostatic draft control.

The preferred example of magazine heater embodying my invention comprises a sheet metal casing 10 which is preferably in the form of a cylinder, the lower edge of which is bent inwardly to provide a circular flange 12 which is welded to a sheet metal base portion 15. Welded to the inside of the cylindrical casing 10 is a sheet metal annulus 17 having an inverted U-portion 18 welded to the casing 10 as at 19 and an inwardly extending ledge portion 20 upon which rests a grate G of any suitable design, hence, need not be shown in detail.

Resting on top of the U-shaped portion 18 of the annulus 17 is a firebrick lining 22 which extends from the level of the grate, as seen in Fig. 3, to the top of the casing 10. Secured to the top of said casing is a circular closure plate 25 which is flanged over as at 26 to provide a snug fit with casing 10, which flange 26 may be secured to casing 10 in any suitable manner. The closure plate 25 is provided with an access opening 27, which may be of semi-circular or other suitable shape and closed by means of a lid 29 hinged as at 30 to the plate 25 and provided with a suitable handle 31.

Suitable means is provided for shaking the grate, such as removable crank 32 which extends through an opening in the side of the casing 10

and through the firebrick, a hinged closure 33 being provided to close the crank opening when the crank is removed. A stack (not shown) for escape of products of combustion is provided in the upper rear part of the casing.

Primary air may be introduced into the heater below the grate as by means of a cast damper member 35 (Fig. 9) secured in an opening in the casing 10 by means of screws 36 or the like, a lid member 38 being pivoted as at 39 to control the amount of air entering the heater. The lid 38 is provided with an offset flange 40 which serves as an actuating crank. A metal rod 42 (Fig. 9) bears against the flange 40 and serves as a thermostatic control for the primary air introduced into the heater through damper 35, said rod being secured to the casing by vertically spaced brackets 45, 45'. The rod is threaded as at 46, the upper bracket 45 being tapped to cooperate with said threads, and an adjustment knob 48 with integral pointer cooperating with indicia on top of bracket 45 is fixed to the rod as at 49, a boss 50 being provided on the bracket 45 to limit rotation of said knob 48.

By the differential in the thermal expansion between the rod 42 and the heater jacket the damper is automatically adjusted to control the flow of primary air through the damper.

Referring now to Fig. 3 et seq., the base section 15 comprises a plurality of cylindrical portions 15a, 15b and 15c which are stepped apart, as seen best in Fig. 3, at progressively greater diameters from top to bottom, the lowermost portion 15c terminating in an outwardly flanged foot 52.

Formed with the uppermost portion 15a, as by a known metal drawing process, is a horizontal portion 55 defining a generally rectangular opening 56 underlying and of approximately the same area as the grate, and adjoining inwardly and downwardly sloping walls 57 surrounding said opening 56. The sloping portion 57 terminates at the bottom in an inwardly and upwardly turned flange 58 which provides a downwardly extending bearing surface extending around the opening 56. While I have shown opening 56 as rectangular, it could be round or otherwise shaped.

The front of the base portion 15 is cut out to provide an opening 59 to receive an ash drawer 60, said drawer comprising a pan 62 and a front panel 63 having a handle 64. The front panel 63 is secured to the ash drawer by Z-shaped brackets 61 and is somewhat larger than the opening 59 so as to provide an effective closure for opening 59, being curved in conformity with the base portion 15b. Thus, when the drawer is closed, said front panel will overlap the opening and inhibit passage of air into said opening. The pan 62 is substantially rectangular so that the front plate 63 is, in effect, a false front for the drawer, as seen best in Figs. 1 and 6.

It will be seen from Fig. 6 that the front panel 63 of the ash drawer has an inwardly rolled edge 63a.

Secured under opposite sides of the opening 56 as by bolts and nuts 65 is a pair of guide plates 67. (See Fig. 5.) Each of said guide plates has a portion which slopes angularly approximately in a parallel plane to the adjacent inclined plate 57 and a pair of approximately horizontal extremities 67a and 67b. Welded above the flange 67b is a guide plate 68 of approximately inverted U-shape. Also secured by the bolts and nuts 65 is a plurality of resilient rods 70 having an eye

71 at one end and a journal portion 72 at the other end, upon which journal portions are rotatably mounted rollers 73. The lower extremities 67b of the guide plates 67 are apertured as at 74 for passage of the rollers 73.

An air sealing slide plate 77 somewhat larger than opening 56 is arranged to fit snugly thereunder and is adapted to engage snugly against the rounded lower surface of flange 58. Said plate 77, as seen best in Fig. 5, is an inverted shallow tray with its four edges bent at approximately right angles to form flanges 78. The edges of the side flanges 78 engage the rollers 73, and since these rollers are mounted on resilient rods, it will be seen that the plate 77 is thus urged upwardly to make a close fit with the downwardly extending flanges 58 to provide an effective seal against passage of air from the ash pit into the firebox. Furthermore, the retaining members 68 serve to limit lateral movement of the slide 77.

The slide member 77 is provided with a handle portion 66 in the form of an arcuate member secured as by screws 82 to the front flange 78. Thus, the slide is accessible from the front of the heater for manual control.

In order to provide an enclosure around the ash pan 60 to facilitate removal of ash which might escape the pan, there is provided a bottom plate 85 (Fig. 6) having a down-turned flange 85a welded or otherwise secured to the front edge of the opening 59 in base member 15. Integral with said bottom plate 85 on each side is a side plate 87 (Figs. 3 and 6), said side plates each having an outwardly extending front flange 87a, said flanges being secured as by screws 88 to ears 89 bent inwardly from the base member. Integral with said bottom plate 85 at the rear thereof is an upwardly extending flange 90 which is secured to the rear of base member 15 by screws 92 or the like and serving as a seat or guide for the ash pan.

It will be seen that my improved heater avoids the expensive construction of former devices of like character. The slide 77 cooperating with the downwardly sloping walls 57 and maintained in close engagement therewith by means of the resiliently mounted rollers effectively prevents passage of air from the ash pit into the combustion chamber. Thus, the primary combustion air may be effectively controlled by means of the thermostat. Obviously, this arrangement permits the inexpensive construction I have provided for closing the ash pit, avoiding the expensive arrangements heretofore required. Practically all parts of my entire device are stamped or drawn from sheet metal.

When it is desired to eliminate ash from the grate, the slide is withdrawn by means of its handle so that the cold ashes from the last shaking of the grate are dumped into the ash drawer. The slide is then returned to its original position and the grates shaken. This allows the user to handle cold ashes at all times. Further advantages of this method of handling the ash are that the coals and the hot ashes dissipate their heat into the primary air being used for combustion, thus affording a small but significant economy in the operation of the heater. Leaving ashes on the slide has the advantage of also sealing any crack or air leak that might occur because of some unforeseen alignment or warpage to the functional parts of the heater.

Various changes coming within the spirit of my invention are susceptible of being incorporated without departing from the essential spirit

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or scope thereof. I do not wish, therefore, to be limited to the particulars of the accompanying illustrations and drawings nor by the language chosen in the foregoing description, except to the extent indicated in the appended claims.

I claim:

1. In a combination of the class described, a casing providing a combustion chamber for solid fuel and an ash pit thereunder with a grate disposed therebetween, a sheet metal yoke disposed below said grate, said yoke having a downwardly and inwardly sloping neck defining an open space approximately coextensive with the area of said grate, resilient bearing means spaced below said neck, a slide plate engageable with said bearing means and with said neck for normally substantially closing the opening of said yoke against passage of ash from the grate into the ash pit, said bearing means comprising a plurality of resilient arms having roller bearings journalled thereon, and means for preventing lateral displacement of said plate.

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2. In a combination as defined in claim 1, an opening provided in said casing to give access to the ash pit, a drawer slidably mounted in the ash pit through said opening in the casing, and a panel carried by said ash drawer overlapping said opening, said plate being likewise movable through said opening above said drawer.

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