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G. R. NEUMANN ET AL

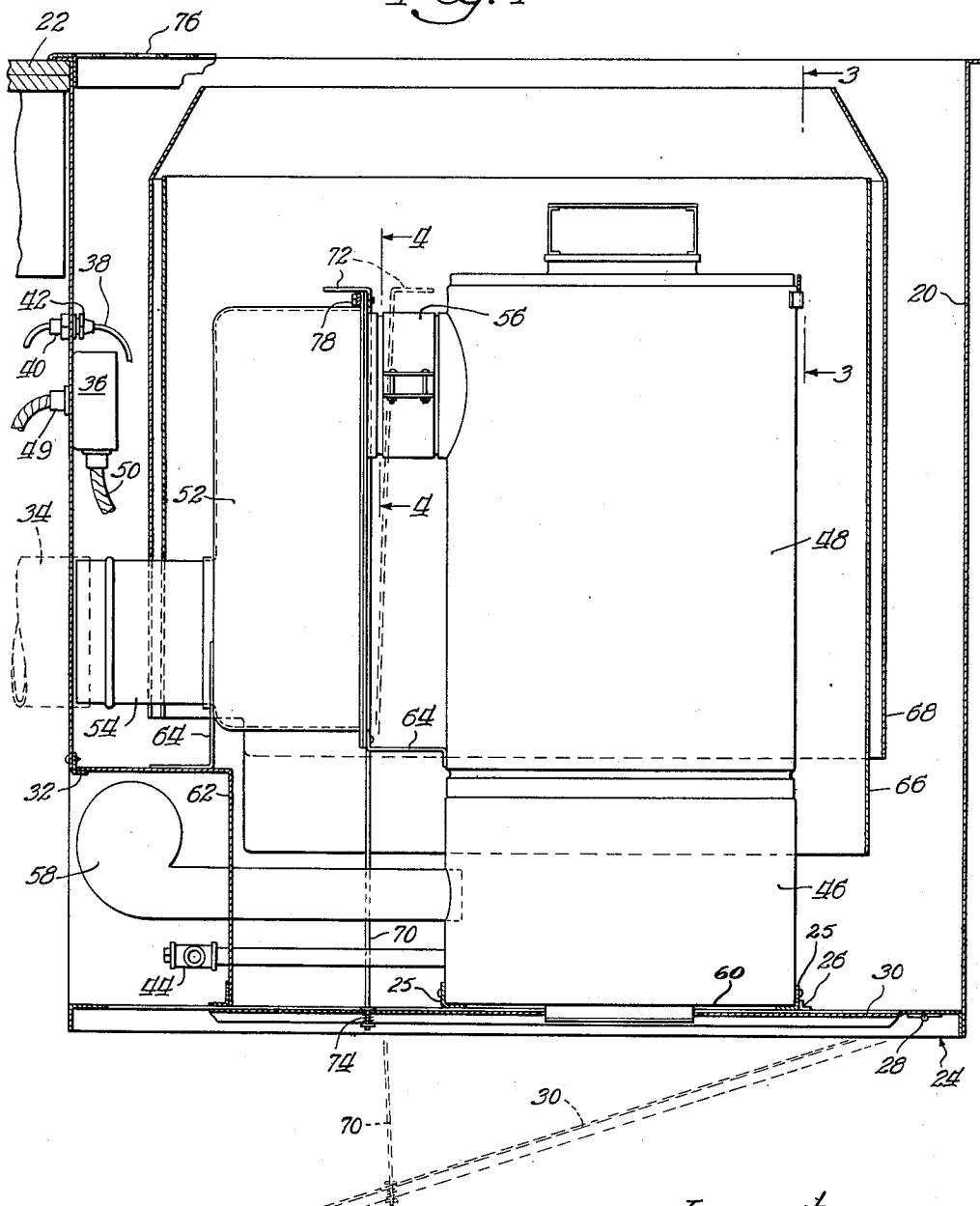
2,541,602

FLOOR FURNACE

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3 Sheets-Sheet 1

Fig. 1



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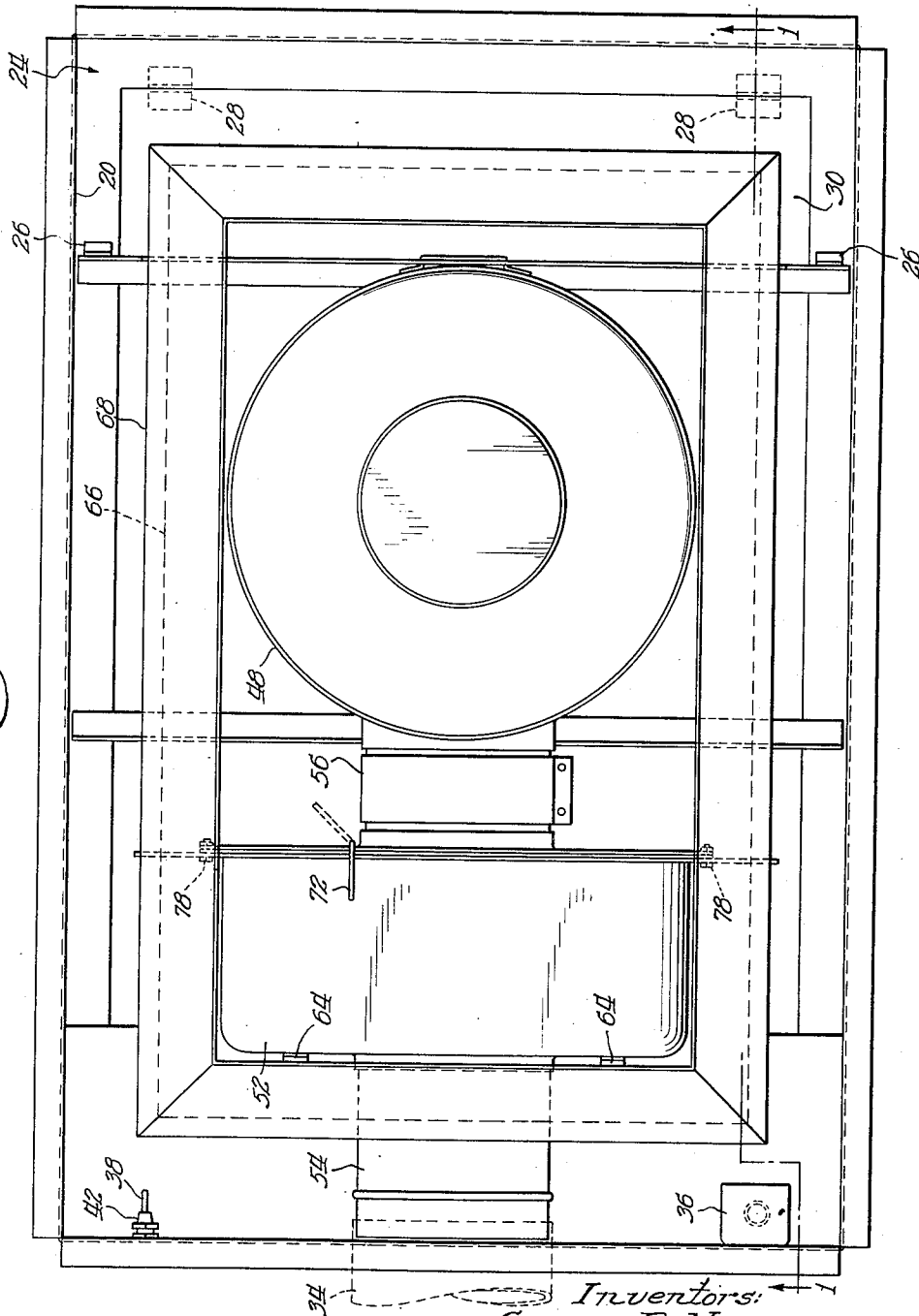
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FIG. 2



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Fig. 3

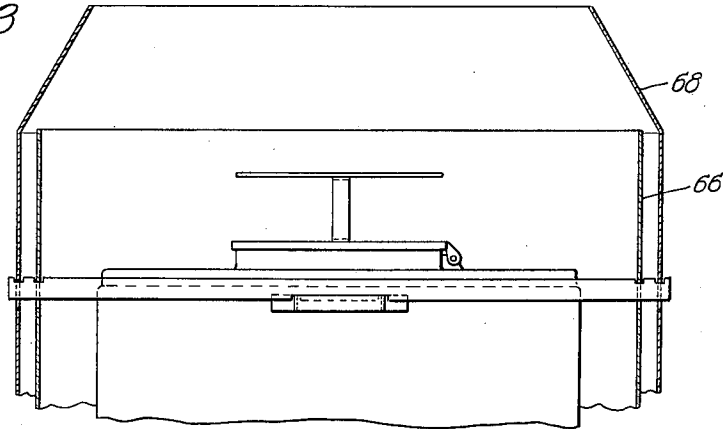
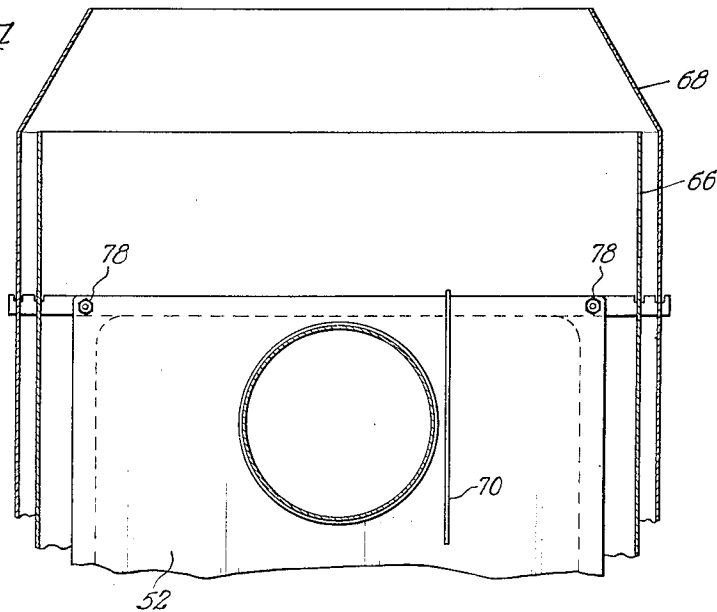


Fig. 4



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UNITED STATES PATENT OFFICE

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FLOOR FURNACE

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2 Claims. (Cl. 126-116)

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This invention relates to floor furnaces. More specifically, the invention is directed to an improved form of floor furnaces and has for its principal object the provision of means whereby the furnace may be more easily cleaned of dirt and accumulated waste.

One object of the present invention is the provision of means whereby the dirt and accumulated waste can be dropped or flushed from the bottom of the furnace. In this connection, it is a feature of the present device that the furnace does not have to be removed for cleaning out the entrapped dirt and the like, and the user can, by simple operation, effectively clean the furnace in a few moments' time.

By way of explanation, it is noted that a floor furnace is usually mounted level or substantially level with the top surface of the floor. The average housewife in cleaning the floor, and especially where a broom is used, will, from time to time, drop litter, dust and the like through the grill. As a result, in a short time the bottom of the furnace becomes filthy, and with the present constructions now on the market, is almost impossible to clean without entirely disassembling the furnace. Further, in order to service the furnace, it has heretofore been necessary in most installations to crawl under the house to disconnect the heating unit whereby it can be removed.

Other objects, advantages and uses of the present invention will be apparent from the drawings, wherein:

Fig. 1 is a cross-sectional side view of the furnace assembly showing the present invention, the view being taken on the line 1-1 of Fig. 2 looking in the direction of the arrows;

Fig. 2 is a plan view of the device of Fig. 1, with the floor grill removed;

Fig. 3 is a view taken on the line 3-3 of Fig. 1 looking in the direction of the arrows; and

Fig. 4 is a view taken on the line 4-4 of Fig. 1 looking in the direction of the arrows.

Referring now to the drawings and particularly Figs. 1 and 2 thereof, a floor furnace is there illustrated having a generally rectangular cabinet 20 mounted at its upper end flush with a floor 22 of a building (not shown). A base frame assembly 24 is secured to the inside of the base of the cabinet 20 and is formed of four L-shaped bars. A pair of spaced parallel cross bars 25 extend laterally across the base of the cabinet and are spaced from the right and left ends thereof as viewed in Figs. 1 and 2, the bars being secured at their ends to the frame assembly 24 by stub tabs 26. These cross bars are preferably formed

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of L-shaped bar stock and are oppositely disposed as shown in Fig. 1 to provide a seat for the heating unit, as will be later described.

Pivotaly attached to the right-hand member of the base frame 24 (as viewed in Fig. 1) by a pair of spaced hinges 28 is a large rectangular bottom plate 30 which forms a floor for the cabinet, the open position of the floor being indicated in dotted lines in Fig. 1. At its left side, near the base, the cabinet is provided with a large L-shaped plate 62 which serves both as a hood and as a support for the flue assembly, to be later described. The hood 62 is secured to the left wall of the cabinet 20 by a bracket 32. The cabinet is provided, as will be apparent from the drawings, with a smoke stack opening at its rear end, the opening having a smoke pipe 34 extending thereinto and terminating a short distance inside the cabinet. The pipe 34 is shown by dotted lines in Fig. 1.

Near the top of the cabinet, and normally positioned only sufficiently far down to avoid the structure of the floor braces, there is provided on one side the terminal box 36, and on the other side the oil conduit 38. The oil conduit 38 has an outside connection 40 and an inside connector nipple 42, and leads from the oil tank (not shown) to the control valve 44 for the burner. The details of the burner are not shown but the burner generally is located in the burner chamber 46 and the combustion chamber is shown generally at 48.

The terminal box 36 is connected to the outside terminal 49, which is connected to a suitable source of current (not shown). The cable 50 leads from the terminal to the heating unit, for the purpose of supplying the electrical current necessary to operate the thermostat, etc. (not shown).

The heating unit assembly comprises the combustion chamber 48, burner chamber 46, heat exchanger 52, smoke outlet pipe 54 leading from heat exchanger, a connecting collar 56 from the combustion chamber to the heat exchanger, draft booster 58 leading into the combustion chamber 48, and the various furnace thermostats, etc., commonly provided. The heat unit assembly which is, as shown in Fig. 2, substantially cylindrical in cross section has its base 60 mounted on the inwardly flanged portion of the cross bars 25 of the base frame assembly 24, as shown in Fig. 1.

The heat exchanger 52 is supported above the hood 62 by a brace 64. The heat exchanger 52 is attached to the combustion chamber assembly by

means of brackets 64 at its lower edge and by means of the collar 56 at its upper end. Any convenient means which will hold these devices in assembly may be provided for this purpose, but as shown, a strong rigid structure is the result. The heat unit is provided around its outer portions with the baffles 66 and 68 which prevent the heat from being lost by radiation and which direct the heat and air currents upwardly.

In the arrangement shown, the floor 30 is hinged, as previously stated, at 28, to the cabinet base. This floor is adapted to be dropped down at one end without disturbing the heating unit assembly, and in that position may be flushed out with water, or cleaned in any other convenient means.

The floor 30 is normally maintained in position under the heating unit by means of a vertically disposed rod 70, on the upper end of which is the handle 72, which may be pivoted over the upper part of the heat exchanger and normally retains the floor tightly positioned against the base. The spring 74 is provided at the lower end of the said rod to exert an upward tension, assuring the floor of tight engagement.

It will be seen that by turning the handle 72 to the dotted line position of Fig. 1, the floor may be dropped to the dotted line position and cleaned. This handle 72 can be reached by merely lifting the grill 76 from the opening above the furnace.

In order to remove the baffles 66 and 68, and the heating unit, the user should first remove the bolts 78 (see Fig. 4) which bolts are near the top of the furnace. The baffles may then be lifted out separately. The nipple 42 of the oil line 38 may then be easily reached and threaded off of its connection with the oil line connection 40. The electrical connections in the terminal box 36 are then released by means of a screw driver, or the like, and the cable 50 is removed from the box 36.

Since the baffles have been removed, it is a very simple matter to remove the heating unit by raising it over the upwardly extending portions of the cross bars 25, in the arrangement shown in Fig. 1, and sliding or moving the unit to the front of the furnace to disengage the smoke outlet pipe 54. This is accomplished, of course, after the handle 72 has been released from its seat on the heat exchanger 52, which allows the rod 70 to drop down out of the way. In the manner above outlined, the heating unit may be released from all means holding it in place. The cross bars 25 normally serve to secure the furnace from moving out of position so that the smoke stack would become disengaged.

It will thus be seen that we have disclosed an improved device in which the heating unit is readily removed from the cabinet by moving it upwardly after disconnecting the baffles, the oil line, and the cable. This enables the user to have a considerable advantage over prior furnaces of this type which have been difficult to service and clean and which in many instances required the user to crawl under the house to disassemble the furnace or to drop the pan for cleaning the furnace.

While we have herein described our invention in connection with one specific embodiment thereof, it is to be understood that this is by way of illustration and not by way of limitation and the scope of our invention is defined solely by the appended claims which should be construed as the prior art will permit.

What is claimed is:

1. In a floor furnace, a cabinet for a heating unit, a hinged floor in said cabinet whereby the floor may be dropped for cleaning, releasable means yieldingly retaining the floor in an un-tilted position for normal use comprising a rod resiliently attached to the floor and extending to approximately the top of said furnace said rod having a latch member engageable with a heating unit portion remote from said floor.

2. In a floor furnace, a heating unit, a housing for said heating unit being of substantially box-like construction, said housing having side walls, a perforate removable cover and a hinged floor whereby by dropping the floor the housing may be cleaned, flanged means on said housing for supporting said housing on a floor substantially flush therewith, latching means accessible from the top of said housing for yieldingly holding said floor in closed position, said latching means comprising a rod connected to the floor by a spring to provide a resilient connection, and having a latch member engageable with a heating unit portion remote from said floor whereby said floor is resiliently urged toward closed position.

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