

Dec. 17, 1935.

R. C. PHELPS

2,024,386

ELECTRIC OVEN

Filed Nov. 4, 1931

2 Sheets-Sheet 1

Fig. 1.

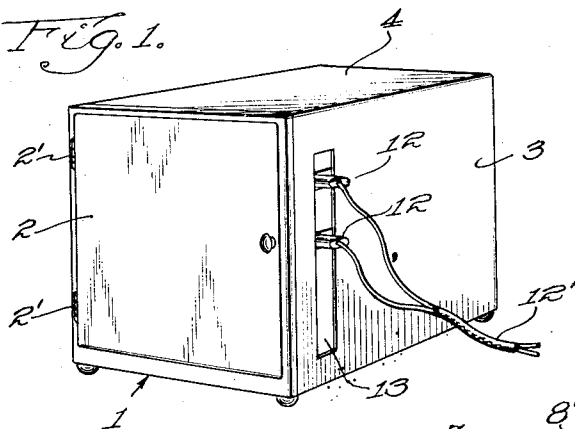


Fig. 2.

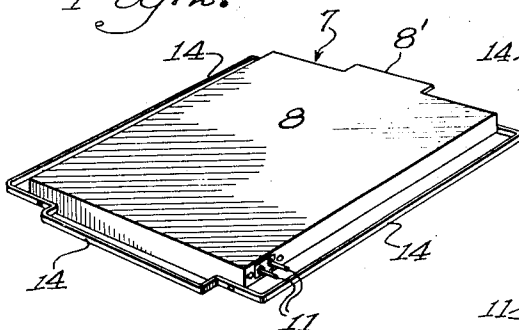


Fig. 3.

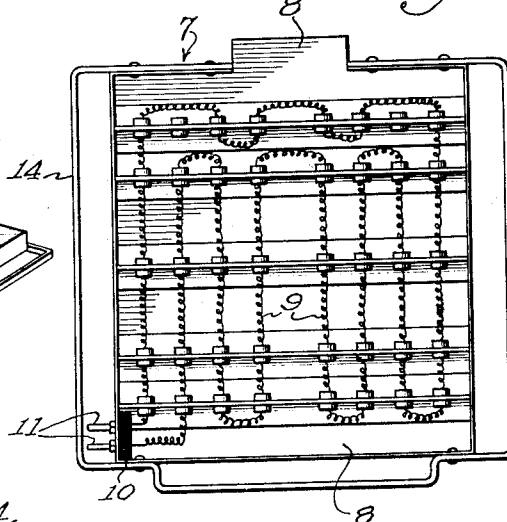
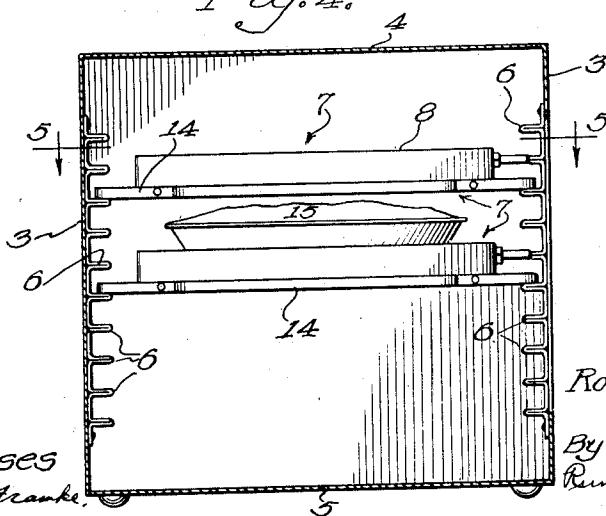


Fig. 4.



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Witnesses

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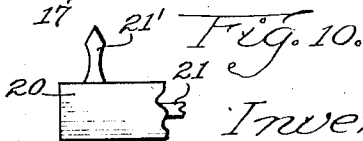
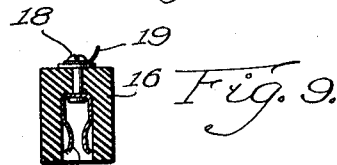
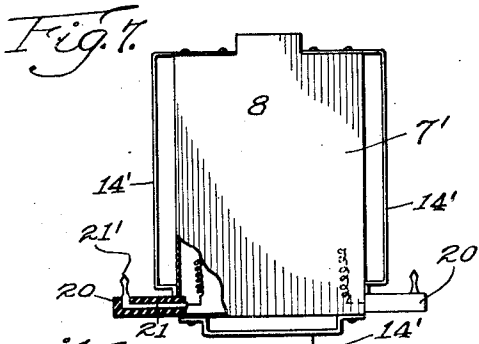
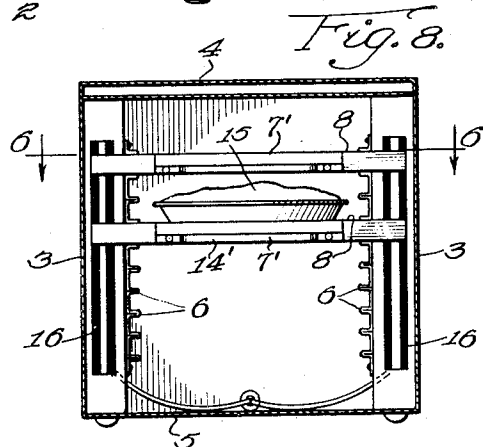
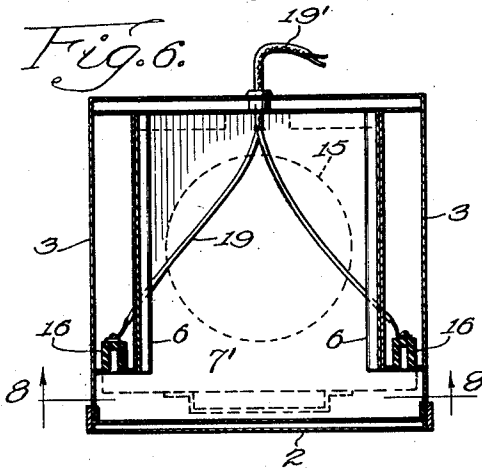
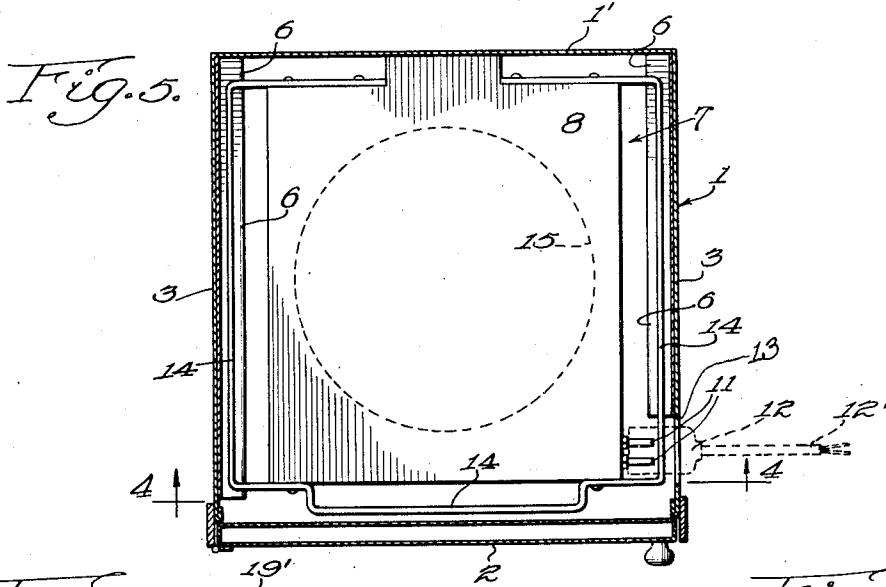
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ELECTRIC OVEN

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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ELECTRIC OVEN

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Application November 4, 1931, Serial No. 572,946

1 Claim. (Cl. 219—35)

This invention relates to electric stoves and more particularly to such devices or accessories commonly known as ovens, adapted for domestic use.

5 The main objects of the invention are to provide an improved and simplified form of portable electric stove or oven of the character referred to; to provide such a device for making electrical connection to the front part of each
10 heater element respectively at the front of the oven, and if desired automatically as the combined shelf and element is pushed back into place in the oven; and to provide simplified and more accessible electrical contacts of low cost
15 and adapted for independent unit connection and capable of ready accessibility for cleaning and possible repairs.

This invention is illustrated by the accompanying drawings in which:

20 Figure 1 is a perspective exterior view of a complete oven unit, with the door closed, and with front corner side connections for the supply of heating current.

Fig. 2 is a perspective view, showing the top face, of one of the removable heating elements adapted for use in the oven of Fig. 1.

Fig. 3 is an enlarged underneath view of the element shown in Fig. 2.

Fig. 4 is a vertical section of the oven taken
30 on the line 4—4 of Fig. 5.

Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 4.

Fig. 6 is a horizontal section of a modified form of oven taken on the line 6—6 of Fig. 8.

35 Fig. 7 is a plan of a modified form of heater element adapted for use in the oven of Figs. 6 and 8, with the lower left-hand corner shown in section to illustrate one of the electrical connections.

40 Fig. 8 is a vertical section on the line 8—8 of Fig. 6.

Fig. 9 is an enlarged cross section through the channel-shaped contact bar and insulating channel member shown in Figs. 6 and 8.

45 Fig. 10 is a plan of a corresponding contact plug such as is shown on each front corner of the heater element of Fig. 7.

The prior ovens of this general type all embodied electrical connections located in the rear
50 portion of the oven. But it was not easy to get at the electrical connecting parts when they burned out or needed cleaning; and their non-accessibility caused great inconvenience.

Applicant has constructed a device in which
55 the electrical connecting parts are all located

forwardly in the front and side portions of the oven, which makes their accessibility very convenient.

Referring first to Figs. 1 to 5, the oven as a whole comprises an enclosed oven body 1 having
5 a front door 2, hinged at 2', sides 3, top 4, a bottom 5, and a back 1'. The interior of the oven has mutually spaced brackets or supports 6 mounted on the inner portions of the sides 3
10 for accommodating a combined shelf and heater element units 7 which are slidably mounted for manual control on the supports or rails 6. Each unit 7 comprises a metallic top plate 8 and electric heating elements or coils 9. Said plate
15 forms a housing for said elements and also acts as a shelf for pans, dishes and foods while cooking or baking. The elements 9 are mounted on or adjacent to the underside of plate 8. The ends of said elements or series of elements are carried by an insulator 10 which is mounted on
20 a front corner of the housing formed by the shelf 8. These element ends are secured to two parallel contacts 11 protruding sideways beyond the edge of the housing. An electric plug 12, one of several, connected to a power source, not
25 shown, slidably engages the contacts 11, through a vertical aperture 13 in the side wall of the oven, near its front edge. A number of plugs, say one for each shelf 7, may be carried by a single forked cord 12'.

30 A guide and handle bar 14 is mounted in horizontally spaced relation around the outer periphery of the heater housing, forming a support for the entire unit 7 for slidable engagement with the rails 6 of the oven. The narrow
35 medial spacer tongue 8' assures air circulation space at the adjacent corners.

In operation if a pie, such as indicated at 15, is to be baked, the best results would be obtained by employing two units. The lower unit
40 7 is inserted into the oven and a pie plate containing the pie is placed thereon, resting on the plate 8, now acting as a shelf; and a second unit 7 is placed above the first, as shown in Fig. 4. The oven door is then closed, and the electric
45 plug 12 is connected to the unit 7, as by inserting it through the aperture 13 in the side wall (see Figs. 1 and 5), in registry with the contacts 11 of the unit 7, thereby causing current to pass through the heating elements 9.

50 The pie will now receive heat conductively from the lower unit acting as a shelf, radiantly from the upper unit, and also by convection from air currents flowing throughout the oven. The aperture 13 in the side wall of the oven ac-
55

commodates ventilation and escape of steam and other gases, and being exposed to the atmosphere of the room in which the baking or cooking is taking place, permits the outside air to circulate somewhat through the oven thereby assuring in the oven a desired uniformity of heat and preventing excessive heat pockets.

Referring to the modification shown in Figs. 6 to 10, this oven differs little from the preferred embodiment except in the precise form and arrangement of the electrical connections, which, however, are all well in front and readily accessible.

Vertical channel insulators 16 are mounted one on each side in the forward portion of the interior of the oven as shown in Figs. 6 and 8. Secured in each bar 16 is a resilient channel conductor 17 to serve as a receptor part for the unit switches. A sectional view of this is shown in Fig. 9. The conductor 17 is secured by bolts 18 and is connected to a power source by a wire 19 and cable 19'. (See Fig. 6.)

The unit 7' is constructed as disclosed in the preferred embodiment, except that the electric terminals are changed to correspond with the two oven channels 17. Hence it has insulative arms 20 extending oppositely on each front corner, with heater terminal connectors 21 embedded in them as shown in Fig. 7, each conductor terminating in a plug 21'.

It will now be apparent that when the unit 7' is inserted into the oven the connectors 21' slip into the receptors 17 respectively and a circuit is thereby closed with the current source. As the vertical receptor plates or channels 18 extend substantially the entire height of the

oven, a heater connection may be made at any point and any reasonable number of units 7' may be used.

In operating this modification, upon insertion of the unit 7' into the oven on the supports 6, by forcing the unit toward the rear of the oven the connectors 21' will be caused to engage with the receptors 17 and a contact with the current supply will be made, as will be apparent. If the unit is to be turned "off", the unit may be extracted from the oven or pulled out a short distance or just enough to free the connectors from the receptors. The baking and cooking operations are performed in the same way as is done in the preferred embodiment.

It is to be understood that some of the details herein set forth may be modified or omitted without departing from the spirit of the invention as defined by the following claim.

I claim:

An electric oven having a front opening with an operable closure therefor and lateral interior supports on the walls, in combination with a plurality of vertically spaced horizontally movable heater and supporting units adapted to receive the material to be cooked, said units having electrical contact members respectively in accessible position adjacent to their forward side parts for operative manual control to close and open the current supply circuit, the oven side wall being laterally slotted vertically near the front in registry with and to give access to the contact members and to provide limited air inlet and outlet.

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