

March 19, 1929.

R. H. MacINNES

1,706,122

ELECTRIC RANGE

Filed Oct. 24, 1927

4 Sheets-Sheet 1

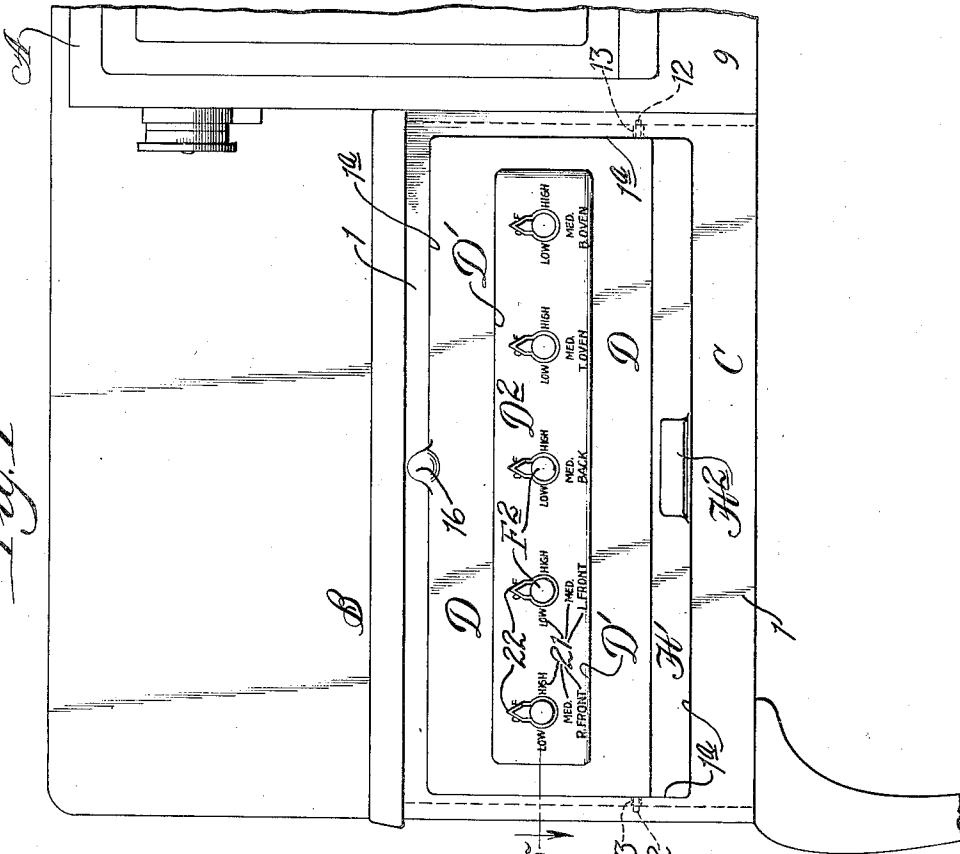
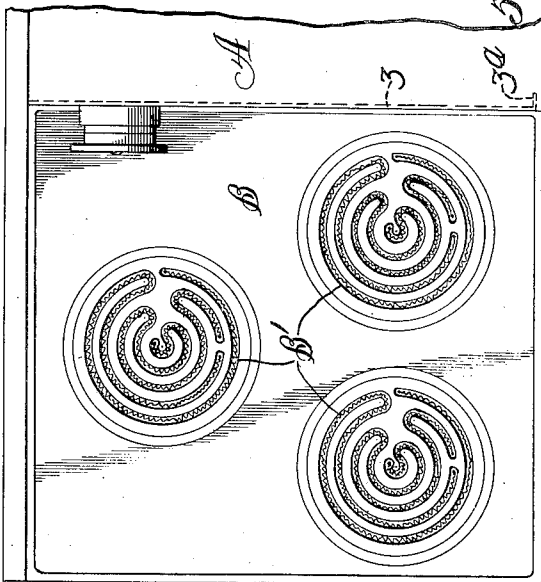
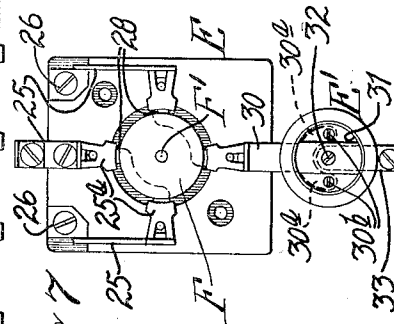


Fig. 7.

Inventor:
Robert H. MacInnes,
By Dymally, Lee, Chittton & Miles,
Att'ys.

March 19, 1929.

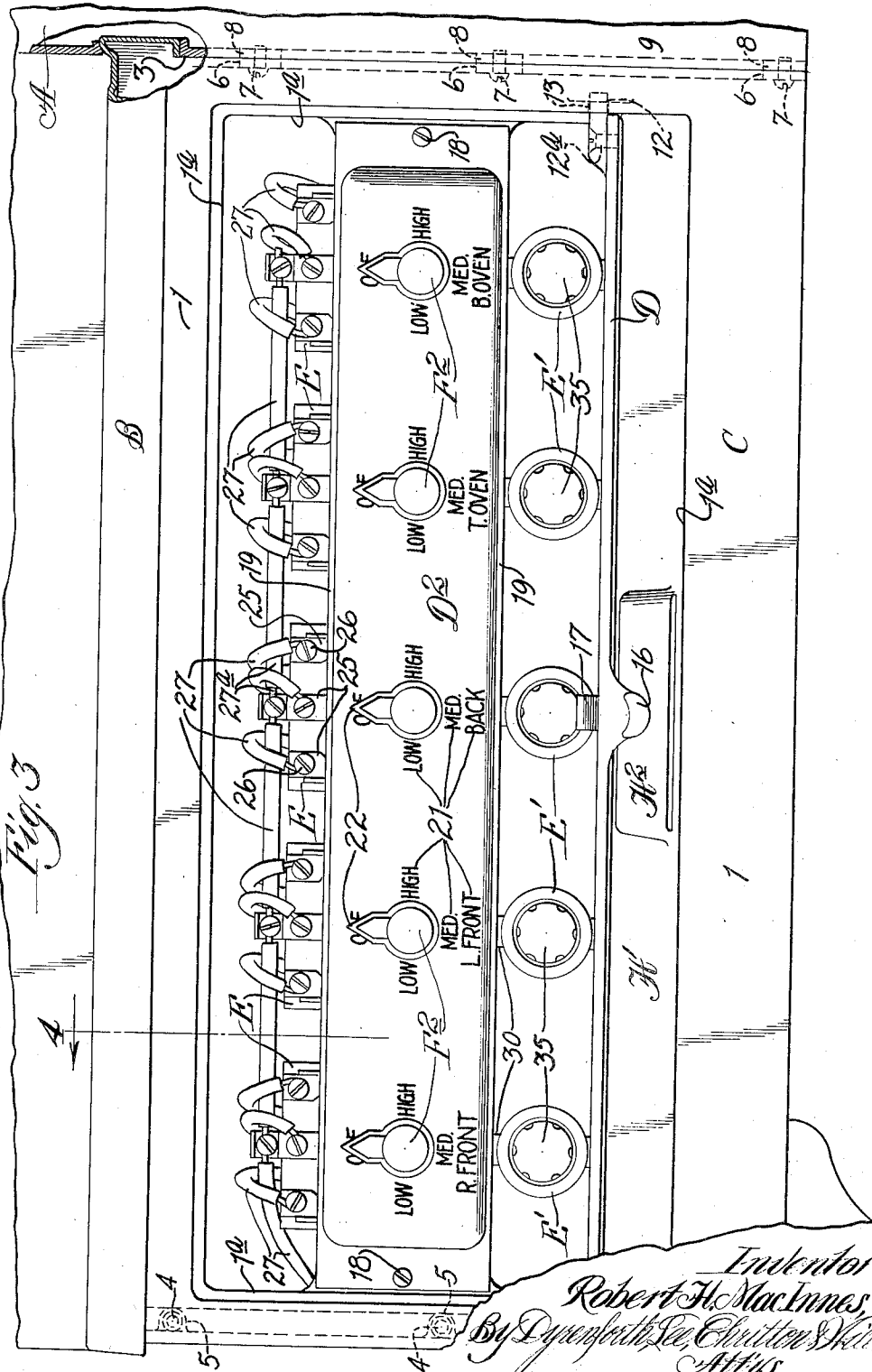
R. H. MacINNES

1,706,122

ELECTRIC RANGE

Filed Oct. 24, 1927

4 Sheets-Sheet 2



March 19, 1929.

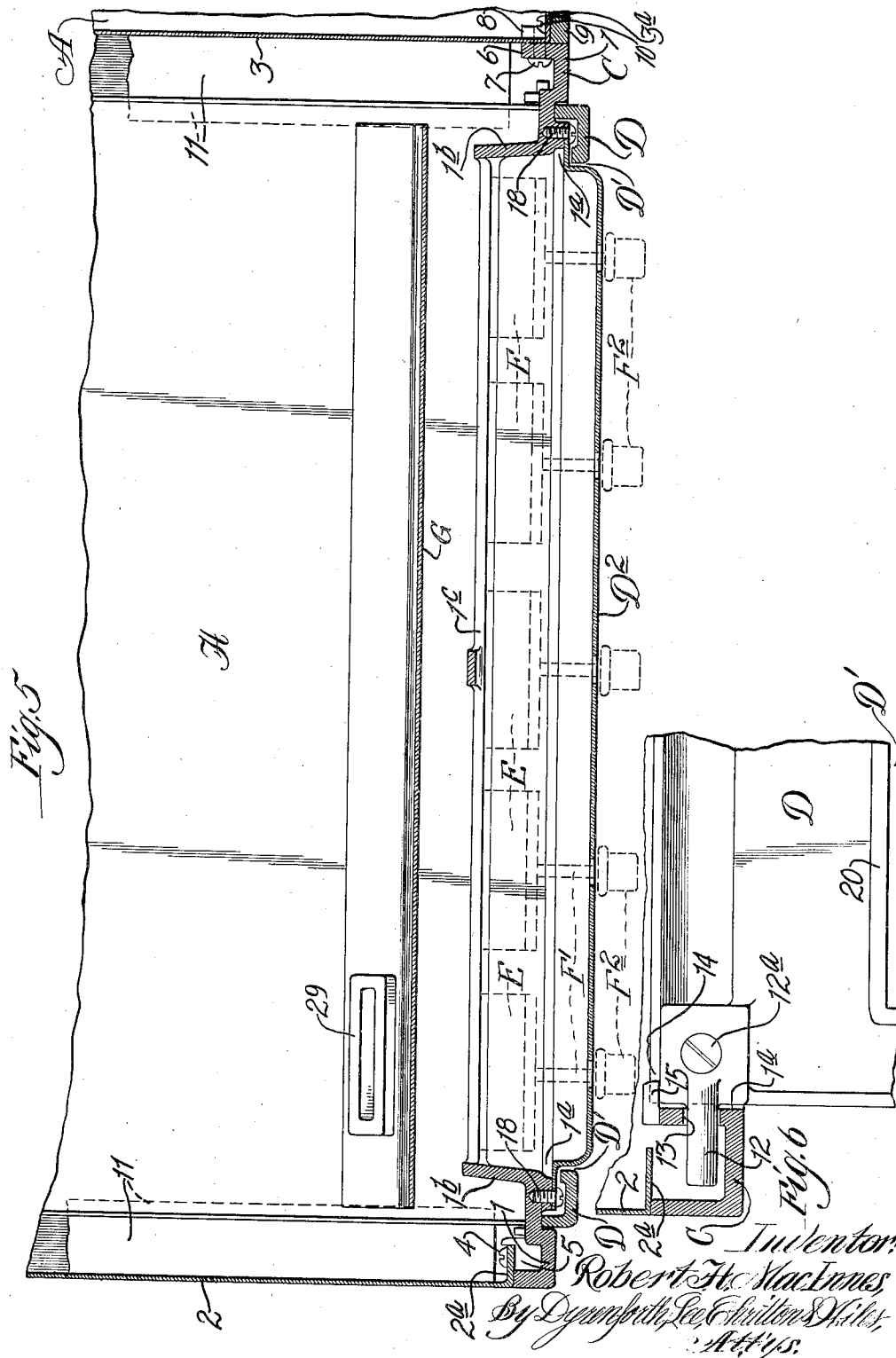
R. H. MacINNES

1,706,122

ELECTRIC RANGE

Filed Oct. 24, 1927

4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE.

ROBERT H. MACINNES, OF CHICAGO, ILLINOIS, ASSIGNOR TO CRIBBEN & SEXTON COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ELECTRIC RANGE.

Application filed October 24, 1927. Serial No. 228,387.

This invention relates particularly to electric ranges and more especially to the provision of a suitable construction of switches and the mounting and housing thereof in such a manner as to prevent injury of the switch-mountings in the handling or transportation of the range, the improved construction and arrangement having provision also, for more convenient servicing than has heretofore been provided.

One important object is to so mount and house the switches that danger of injury to the switch-blocks of insulating material will be obviated. Another important object is to so arrange and locate the connections as to render them readily accessible from the front of the range. Other objects will appear from the description which follows.

The invention is illustrated in the preferred embodiment in the accompanying drawings, in which—

Fig. 1 is a broken front elevational view of an electric range embodying the invention; Fig. 2, a broken plan view of the same on a reduced scale; Fig. 3, a broken front elevational view, partly in section, showing the cooking-top of the range and switches housed below the front portion of the cooking-top, a service-door of the housing being shown in open (horizontal) position; Fig. 4, a broken vertical sectional view taken as indicated at line 4 of Fig. 3; Fig. 5, a broken plan sectional view taken as indicated at line 5 of Fig. 1; Fig. 6, a broken plan section taken as indicated at line 6 of Fig. 4; and Fig. 7 (Sheet 1), a front view of one of a series of insulation-blocks carrying fixed contact-members and the usual rotatable disk equipped with contact-members.

In the preferred construction, which is illustrated, A designates the oven of a range; B, the cooking-top which supports hot-plates B'; C, a front-plate which preferably is of cast-iron and so formed as to provide the main member of a housing for the switches; D, a service-door which extends substantially the full length of the front-plate, said door having a central longitudinal opening D' which accommodates a shield-plate, or index-panel, D², which has its end-portion secured to the front-plate C; E, insulation-blocks, or switch-blocks, mounted in and on the front-plate C; E', fuses suspended

from the switch-blocks; and F, the rotary member of a switch mounted in the switch-block and equipped with a forwardly projecting stem F' which protrudes through an opening in the shield-plate D² and is equipped at its front extremity with a knob, or handle, F², by means of which the switch is operated. A sheet-metal shield G has its upper margin attached to the upper portion of the front C, and the lower portion of the shield serves as a means for supporting conductors, as shown in Fig. 4.

The construction of the oven A need not be described. Some of the switches shown control the heating elements of the oven and others control the heating elements of the hot-plates with which the cooking-top is equipped.

The top B comprises a casting having suitable openings in which the hot-plates are removably mounted.

The front-plate C consists of a rectangular marginal portion 1 forming a perimetry about a large opening 1^a; vertical walls 1^b extending rearwardly from the lateral members of the perimetral portion 1; and cross-bars 1^c connecting the rear portions of the walls, or flanges, 1^b. These parts preferably are cast integrally so as to provide a rigid construction adapted to support the insulation-blocks E. The purpose is to give such rigidity to the cast-iron mounting of the blocks as to prevent racking of this portion of the structure, so as to obviate injury to the switch-blocks, usually made of porcelain, or other rather brittle material.

The front-plate C, in the preferred construction, is connected with sheet-metal side-walls 2 and 3, as shown in Fig. 5. The wall 2 constitutes one end-wall of the range; and the wall 3 is a dividing wall between the cooking portion of the range and the oven portion. The sheet-metal member 2 has at its front portion an inturned flange 2^a which is connected by screws 4 to lugs 5 with which the front C is provided. At the other vertical edge, the front-plate is provided with a rearwardly turned flange 6 which is connected by screws 7 with lugs 8 with which the front-plate 9 of the oven is equipped. The screws 7 may also serve to secure the intervening sheet-metal member 3. In any event, it is preferred to provide the member

3 with a lateral flange 3^a which is secured by screws 10 to the front-plate 9 of the oven.

A shallow sliding drawer, or pan, H is mounted on horizontal guides 11 with which the walls 2 and 3 are equipped, this drawer having secured to its front flange a cast-metal member H' formed with a handle H². The member H' is adapted to serve as a closure for the lower portion of the opening 1^a of the front-plate C, being located below the pivoted service-door D. The drawer H is in the nature of a drip-pan adapted to collect any materials which may drop to the bottom of the chamber which is located beneath the cooking-top.

The service-door D is provided at or near its lower corners with pintles 12 which preferably are removably secured to the door by means of screws 12^a. These pintles are received by perforations, or bearings, 13 with which the end-members of the rectangular frame-portion 1 are provided. The service-door is provided at its lower edge with a stop-shoulder 14 which is adapted to engage stop-lugs 15 with which the flanges 1^b of the casting C are equipped. That is, these stops come into engagement when the service-door is in the open position. The service-door is equipped at its upper portion with a knob, or handle, 16, and a spring-catch 17 adapted to support the door in its closed position.

The index-panel D² preferably is an outwardly bowed sheet-metal plate having its end-portions removably connected, by screws 18, to the end-members of the marginal frame-portion 1 of the front-plate C, as shown in Fig. 3. The panel is provided at its edges with flanges 19 which are engaged by an intumed boss, or flange, 20 with which the service-door is equipped at the border of the opening D'. The panel protrudes through the opening D', as shown in Fig. 4, and has its outer surface provided with inscriptions 21 indicating positions of the switch and the burner with which the switch is associated. The switch-handles F² are removably secured to the front ends of the switch-stems F' and are equipped with index-pointers 22. Preferably, the switch-handles have threaded connection with the outer extremities of the stems F'. In case of necessity, the handles may be removed and the index-panel may be removed by withdrawing the screws 18.

The switch-blocks E are provided at their rear surfaces with angular recesses 23 into which fit projections on the cross-bars 1^c of the front-plate C; and the switch-blocks are secured in position by means of screws 24 which connect the blocks to the cross-bars 1^c.

The upper ends of the switch-blocks project above the upper edge of the index-panel. The front face of the switch-block (Figs. 4 and 7) is suitably recessed to receive contact-bars 25 which are secured to the block by means of binding-screws 26 which serve to

secure to the contact-bars the electric wires 27 which pass rearwardly over the upper bar 1^c with which the front-plate C is provided. The contact-bars 25 are provided, as shown in Fig. 7, with spring contact-fingers 25^a which co-act with suitable contact-members 28 with which the rotatable disk F is equipped. The central contact-bars 25 are extended and bent rearwardly over the upper ends of the blocks and are connected with a bus-bar 27^a with which is connected the return-conductor 27. The return-wires 27 from the outer or flanking contact-bars 25 pass downwardly back of the bars 1^c and through insulation-rings, or bushing, 29 with which the shield G is equipped at its lower portion.

Each switch-block E has firmly secured to the front face of its lower portion a heavy contact-bar 30 which depends from the switch-block and is struck rearwardly beneath the switch-block and provided with a depending forked extremity 30^a, whose furcations are secured by screws 30^b, to the body, or shell, of the fuse E'. The fuse-shell is equipped interiorly with a threaded metal shell 31 with which the screws 30^b are connected. The shell is equipped with a central contact 32 in the form of a screw which extends through the wall at the bottom of the socket and connects with a bar 33, which, in turn, connects with one of the line-wires 34.

The current enters through a central contact, passes through the plug 35, and finally passes through the bar 30 to the switch.

It will be noted from Fig. 3 that the binding-screws 26 are accessible above the index-panel when the door D is in the dropped position; also, the fuses E' are accessible beneath the panel. It may happen, on rare occasions, that access to the switch-contacts is necessary. In such case, the switch-handles F² may be taken off and the index-panel D² may be removed to give access to switch-contacts. Usually the switch-blocks have secured thereto arched bearing-members 36 in which the stems F' are journaled; and these bearing-members are housed inside the forwardly bowed panel-plate D². The precise construction of the switches is unimportant. That is, there are now available for the purpose switches comprising an insulation-block carrying stationary contact-fingers, and a rotary disk carrying co-acting contact-members. The present invention provides for the secure mounting of the switch-blocks on a rigid bed which constitutes a part of the front-plate of the range, and provides for ready accessibility to the binding-screws which secure the electric wires to the contact-bars; also ready access to the connections between the fuses and the switches and to the connections between the wire 34 and the conductor-bars 33 which depend from the fuses, it being noted that the wire 34 may connect with a bus-bar 34^a which is secured by screws 37 to the de-

pending pieces 33. The screws 37 are accessible when the pan H is removed. That is, these screws are accessible through the lower portion of the opening with which the front-frame C is provided.

The preferred method of connecting the front-plate C with the top-plate D is illustrated in Fig. 4. The upper portion of the front-plate is provided at its front side with lugs 38 which are secured by screws 39 to lugs 40 carried by the overhanging portion 40^a of the cooking top; and a flange 40^b depending from the projecting portion 40^a serves to house the lugs 38 and 40, it being noted that the screws are accessible from below.

The construction described is durable and can be manufactured at moderate cost. While the sheet-metal portions of the range may be warped, or racked, in handling or transporting, the front-plate C, which constitutes the mounting for the switch-blocks E, remains rigid and undistorted, so that the switch-blocks will not be broken and the electric connections will not be disturbed.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. In an electric range, a cooking-top, a front-plate secured thereto, said front-plate carrying a rigid extension and having an opening in front of said extension, and switch-blocks mounted on said extension and accessible through said opening.

2. An electric range comprising, in integral formation, a front-plate provided with an opening and in the rear thereof with an extension, and a switch-block mounted on said extension and accessible through said opening.

3. An electric range comprising a front-plate provided with an opening and in the rear of said opening with a transverse member, a switch-block disposed in front of and secured to said transverse member, contact-bars mounted on the front face of said switch-block, binding-screws connected with said contact-members, and conductors connected with said binding-screws.

4. An electric range comprising a front-plate provided with an opening and in the rear of said opening with a transverse member, a switch-block disposed in front of and secured to said transverse member, contact-bars mounted on the front face of said switch-block, binding-screws connected with said contact-members, conductors connected with said binding-screws, and a door for said opening connected with said front-plate.

5. An electric range comprising a front-plate having its rear side equipped with a bracket and having an opening in front of said bracket, switch-blocks mounted in said bracket back of said opening, an index-plate extending across said opening and removably secured to said front-plate, and a door connected with said front-plate and having an opening through which said index-plate is visible.

6. An electric range comprising a front-plate formed with an opening and carrying an integral rearwardly extending bracket having a transverse wall disposed back of said opening, a switch-block mounted in front of said transverse wall and secured thereto, a switch mounted on said switch-block and having a forwardly extending rotatable stem, an index-plate extending across said opening and secured to said front-plate, said index-plate having a perforation through which said stem projects, a switch-handle removably secured to said stem, and a service-door pivotally connected with said front-plate and provided with an opening registering with said index-plate.

7. An electric range comprising a front-plate having an opening and a rigid bracket projecting rearwardly from the plate and having a transverse wall disposed back of the plane of said opening, switch-blocks mounted on said transverse wall and disposed back of the plane of said opening, switches mounted on said blocks and having forwardly extending rotatable stems, an index-plate secured to said front-plate and having perforations through which said stems extend, handles removably mounted on said stems, a door pivotally connected with said front-plate and having an opening registering with said panel, contact-bars mounted on the front faces of said switch-blocks and equipped with binding-screws accessible above said panel when the door is in open position, and conductors connected with said binding-screws.

8. An electric range comprising a front-plate having a perimetral portion and an opening encircled thereby and having rearwardly extending walls carrying transverse bars disposed back of the plane of said opening, switch-blocks mounted on said bars, contact-bars mounted on the front faces of the switch-blocks and equipped with binding-screws, conductors extending forwardly over the upper bar and connected with said binding-screws, a switch-disk mounted in each switch-block and equipped with a forwardly extending stem, an index-panel extending across an intermediate portion of said opening and secured at its ends to said front-plate, said panel having openings through which said stems extend, and a drop-door pivotally connected at its lower portion with said front-plate and having an opening registering with said panel.

9. An electric range comprising a front-plate formed with an opening and with a rearwardly projecting bracket, having a transverse wall disposed back of the plane of said opening, switch-blocks interposed between the plane of said opening and said transverse wall and secured to said bracket, switches mounted on said blocks and equipped with forwardly extending rotatable stems, an index-panel extending across an intermediate portion of said opening and secured to said front-plate, handles secured to said stems and disposed in front of said panel, a service-door having its lower portion pivotally connected with said front-plate and having an opening registering with said panel, and a drawer in a plane below said door and withdrawable through said front-plate.
10. An electric range comprising a transverse supporting-bar, switch blocks mounted thereon, contact-bars mounted on said switch-blocks and equipped with binding-screws accessible from the front, conductors connected with said binding-screws, contact-bars mounted on the lower portions of said blocks and having portions depending below said blocks, fuses mounted on the depending portions of said last-mentioned contact-bars, rotatable switch-disks mounted in said switch-blocks and equipped with contact-members and having forwardly extending rotatable stems, an index-panel through which said stems extend, a front-plate having an opening and to which said panel is secured, and a service-door pivotally connected with said front-plate and having an opening registering with said panel, said binding-screws and fuses being accessible through said opening when the service-door is in open position.
11. An electric range comprising a cooking-top, a front-plate secured to the front portion of said cooking-top and having an opening and having also an integrally formed rearwardly projecting bracket provided back of the plane of the opening with a transverse wall, switch-blocks mounted on said wall back of the plane of said opening, intermediate contact-bars secured to the front faces of the upper portions of said switch-blocks and having rearwardly struck extensions, a bus-bar extending across said extensions, binding-screws carried by said extensions and securing said bus-bar thereto, said screws being accessible from the front, contact-bars flanking said intermediate contact-bars and secured to the front faces of the upper portion of said blocks, binding-screws connected with said last-mentioned contact-bars, electric wires extending forwardly over the switch-blocks and connected with said last-mentioned binding-screws, and a service-door pivotally connected to said front-plate.
12. In an electric range, a transverse supporting-bar, a series of insulation-blocks mounted thereon, contact-bars secured to said blocks at the front sides of their upper portions and equipped thereat with binding-screws, contact-bars secured to the lower portions of said blocks and having depending portions, fuses mounted on said depending portions, conductor-bars depending from the rear ends of said fuses and equipped at their front sides with binding-screws, and a bus-bar connected with said binding-screws.
13. An electric range comprising a cooking-top, a front-plate connected with said cooking-top and provided with an opening and with an integral bracket having a transverse wall disposed back of the plane of said opening, switch-blocks mounted on said transverse wall and disposed back of the plane of said opening, a transverse index-panel extending across said opening and having its ends secured to said front-plate, contact-bars mounted on the front faces of said switch-blocks and equipped thereat with binding-screws accessible through said opening above said panel, contact-bars depending from said switch-blocks and carrying fuses accessible through said opening below said panel, a drawer working through the lower portion of said opening, and a service-door pivotally connected with said front-plate above the plane of said drawer, and provided with an opening registering with said panel.

ROBERT H. MacINNES