May 18, 1965 L. C. HANSON 3,184,580

SURFACE UNIT DISCONNECT

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FIG. 1

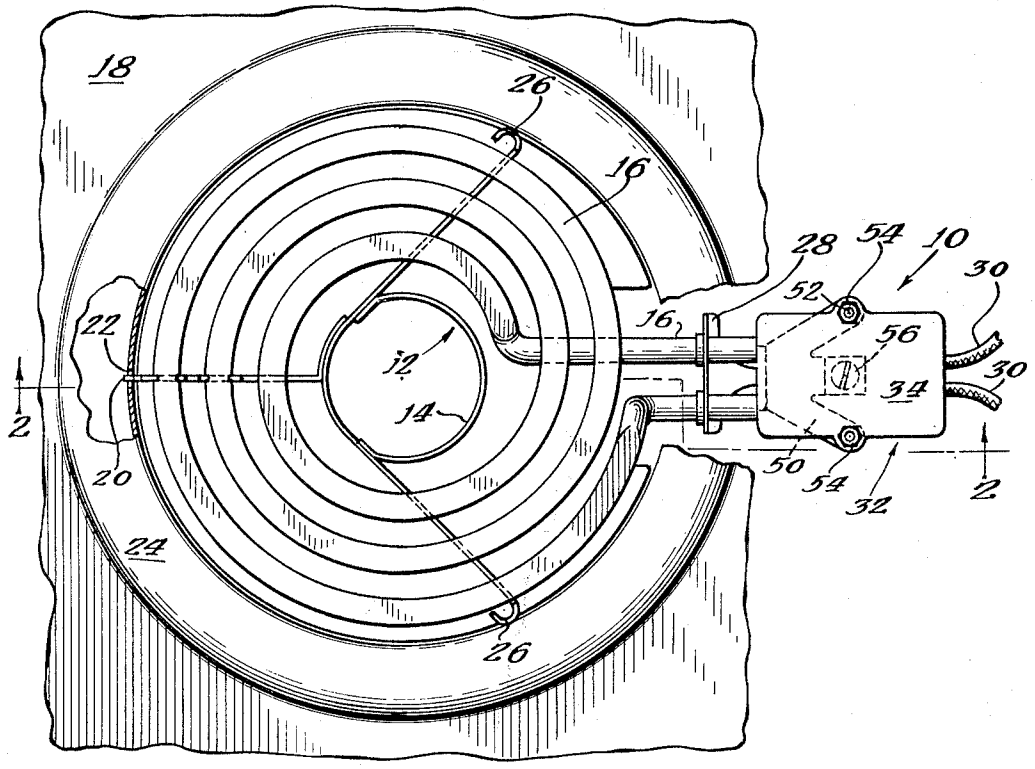
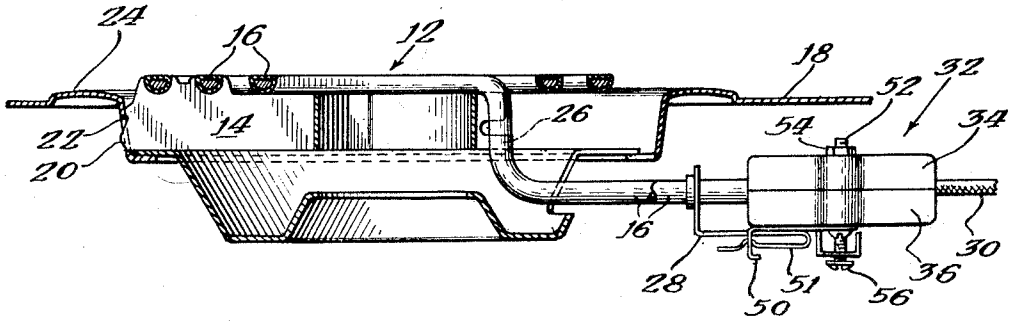


FIG. 2



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FIG. 3

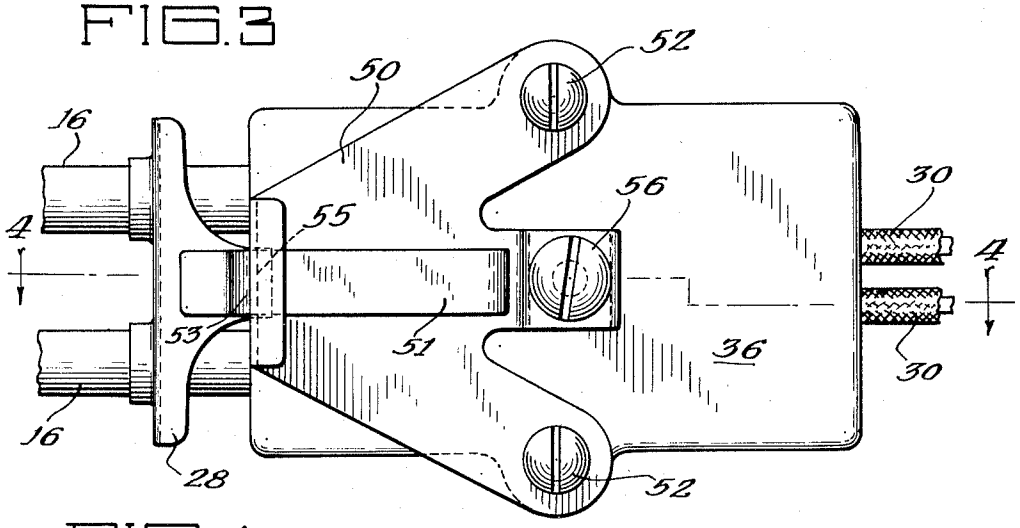


FIG. 4

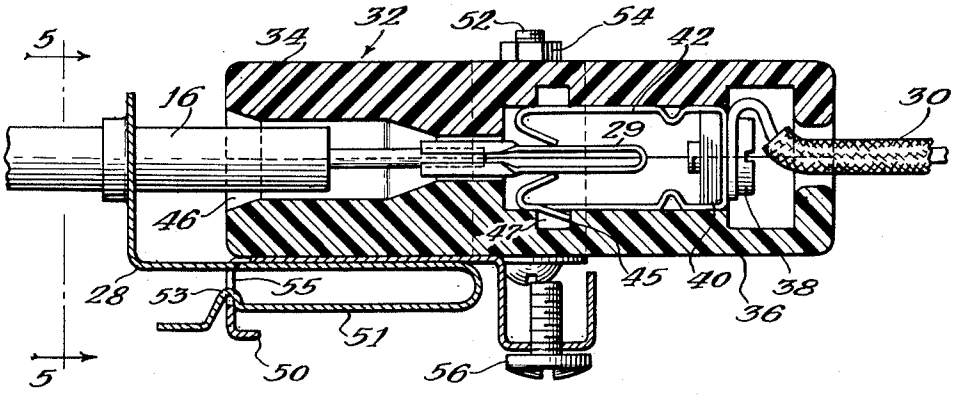
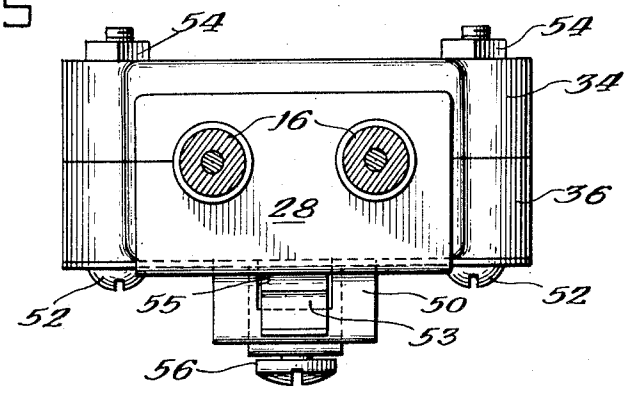


FIG. 5



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3,184,580

SURFACE UNIT DISCONNECT

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1 Claim. (Cl. 219—451)

This invention relates to surface unit heating elements in an electric range, and more particularly to a plug-in mounting connector for use with an electric heating coil.

It is desirable that surface unit heating elements used in electric ranges be easily removable from their mountings to allow for cleaning and repairing the elements. Also, these elements should be easy to replace in the range by a housewife having no technical knowledge and without the aid of a serviceman. Further, a plug-in surface unit should require no complicated wiring or channels to guide the wires, but permit a safe, easy and economical means of connecting a surface unit heating coil to the electrical circuit of an electric range.

It is therefore an object of the present invention to provide a new and improved plug-in mounting in which a surface type heating element may be easily installed and removed therefrom without the use of tools.

Another object of the present invention is to provide a new and improved plug-in mounting for use with a surface type heating element in an electric range having a frictional contact grounding clip for providing a ground circuit.

Still another object of the present invention is to provide a new and improved plug-in mounting for use with a surface type heating element in an electric range which eliminates complicated channeling for funneling the terminals of the heating element into the proper position.

A further object of the present invention is to provide a new and improved plug-in mounting for use with a surface type heating element in an electric range that is not firmly affixed to the electric range, and will float with the heating element unit.

Still another object of the present invention is to provide a new and improved plug-in mounting for use with a surface type heating element in an electric range which is part of the wiring harness of the range.

Other objects and advantages will become readily apparent from the following detailed description taken in connection with the accompanying drawings, in which:

FIG. 1 is a plan view of the invention in its environment with a surface heating element, a support therefor, and an electric range;

FIG. 2 is a sectional view taken along line 2—2 in FIG. 1;

FIG. 3 is a bottom view of the present invention on an enlarged scale including the heating element contacts;

FIG. 4 is a sectional view taken along the line 4—4 in FIG. 3; and

FIG. 5 is a sectional view taken along the line 5—5 in FIG. 4.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail an embodiment of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the

invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

Referring now to the drawings, FIG. 1 best shows the mounting connector indicated generally at **10** in its environment with a heating element **12**. The heating element **12** includes a support unit or spider **14** which supports the heating coil **16** on a range surface **18** as is well known in the art. The spider **14** includes a small dog **20** which fits in aperture **22** of the ring **24** and resilient members **26** firmly yet releasably hold the spider **14**, and hence the heating coil **16**, in place inasmuch as the heating coil is firmly attached to the spider **14** as is well known in the art. Grounding member **28** is electrically connected to the heating coil **16** and is operatively related to mounting connector **10** as will be described in detail hereinafter. As best shown in FIG. 4, male contacts **29** are firmly affixed one to each end of the heating coil.

The mounting connector **10** is floatingly mounted and is not positively attached to the electric range except by means of wires **30** which are connected to the electrical circuit of the range (not shown). Included in the mounting connector **10** is an insulator block **32** comprising two identical halves **34** and **36**. As best shown in FIG. 4 the wires **30** are connected by a screw **38** and nut **40** to a pair of female contacts, one of which is indicated at **42** and both of which are identical. This female contact **42** is mounted in aperture **46** in the insulating block **32**. The other female contact is similarly mounted. Ground clip **50** is fastened to the underside of the insulator block by means of screws **52** and nuts **54** which also function to hold the two halves of the insulator block together. The ground clip **50** includes a screw **56** by which the ground clip is electrically connected to the grounding circuit of the electric range.

In operation, the mounting block **10** is factory assembled with the range and wired to wires **30** of the electrical circuit therein. The female contacts **42** each include a projection **45** which positions them in a slot **47** found in the insulator block. The ground clip **50** is also installed on the insulating block **32** with screws **52** and nuts **54**. These elements then form mounting connector **10** which is unattached to the electric range except by the wires **30**. To complete the electrical circuit to the heating coil **16**, it is then necessary simply to insert the male contacts **29** into the apertures **46** and **48** of the mounting connector and push the mounting connector and the heating element unit **12** together. When the male contacts **29** engage the female contacts **42**, the grounding member **28** on the heating coil **16** becomes electrically connected to the ground clip **50** on the insulator block **32**. The grounding member **28** is then held in ground clip **50** by means of a resilient portion **51** of member **28** having a protuberance **53** which passes through an engages aperture **55** in grounding clip **50**. The heating element **16** is then placed in the range surface as described hereinabove thereby supporting the mounting connection in position in the electric range.

When it is desired to remove the heating element unit **12** from the mounting connector **10** it is necessary only to raise the heating element unit **12** from its position in the range surface **18**, apply a slight pressure on spring member **51** and gently separate the heating element unit from the mounting connector **10** by pulling them apart.

This permits easy cleaning of the range and simplifies replacement of the heating element 16 should this become necessary.

I claim:

In combination with a surface heating element having a pair of juxtapositioned end portions provided with contacts at the terminal ends thereof, a mounting means comprising: an insulator block having a pair of apertures therein adapted to receive said contacts, second electrical contacts within said block adapted electrically to engage the first mentioned contacts upon insertion of said first mentioned contacts into said apertures, a plate extending between and connected to said end portions, said plate being provided with a resilient catch member having a flat surface area portion and a recurved portion, a latch secured to the insulator block and having a slot adapted to receive said portions and having a flat surface area positioned to engage the flat surface of said catch when the first mentioned contacts are inserted in said aperture,

said recurved portion extending outwardly of said slot to provide a means for releasing the latch, and a ground connection on the insulator block adapted to be connected to ground, said ground connection being electrically connected to said latch.

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