Oct. 4, 1960 M. E. FRY 2,955,189

DOMESTIC APPLIANCE

Filed March 21, 1958 2 Sheets-Sheet 1

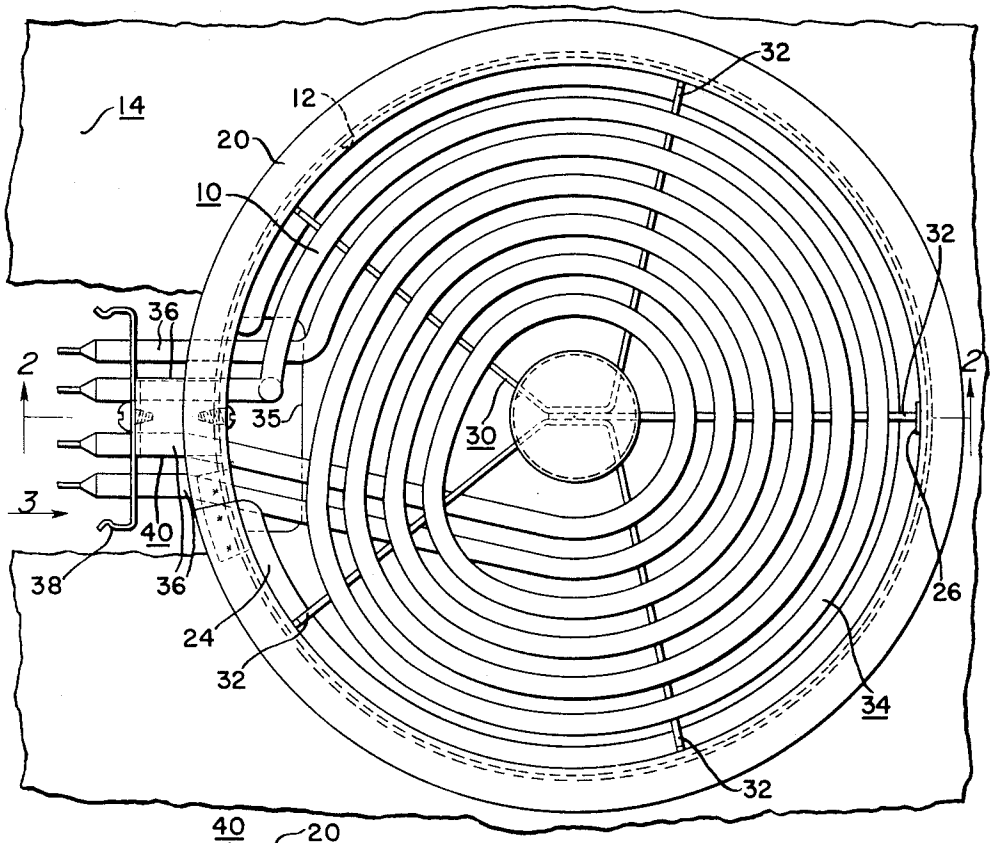



Fig. 1

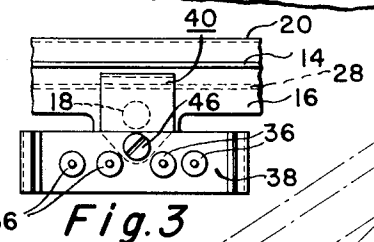



Fig. 3

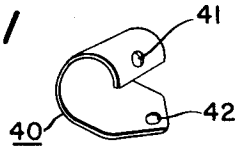



Fig. 4

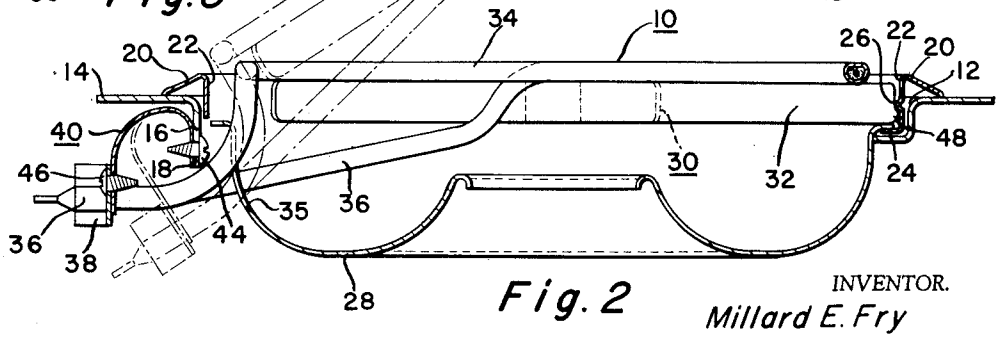



Fig. 2

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DOMESTIC APPLIANCE

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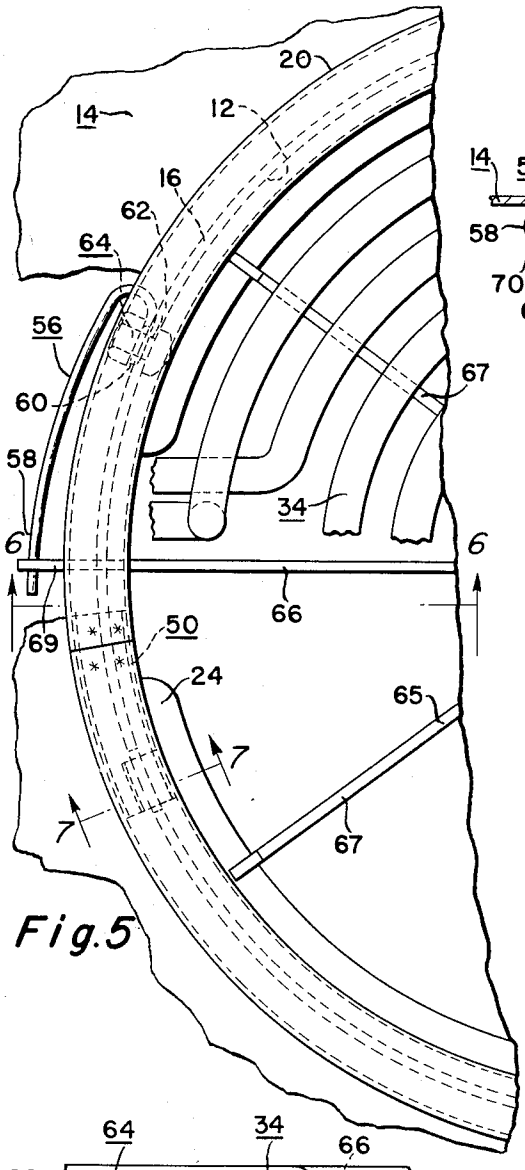



Fig. 5

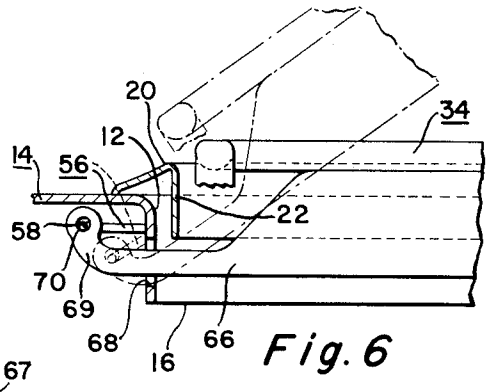



Fig. 6

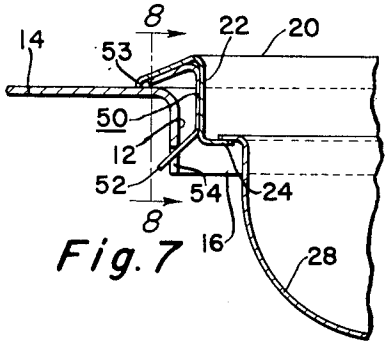



Fig. 7

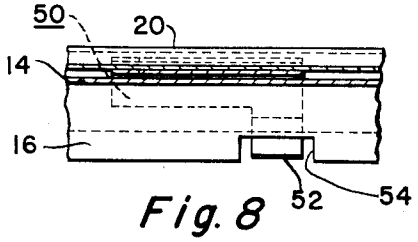



Fig. 8

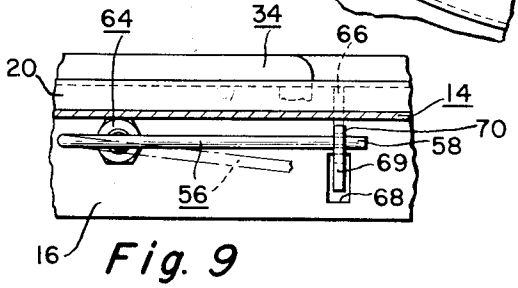



Fig. 9

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# DOMESTIC APPLIANCE

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8 Claims. (Cl. 219—37)

This invention relates to a domestic appliance and more particularly to a spring hinge for mounting a surface cooking unit on an electric range.

With surface cooking units, it is desirable to provide a mounting arrangement which will permit the unit to be raised for cleaning therebelow. Furthermore, it is desirable to effect a positive seating arrangement for the cooking unit whereby the unit is held firmly in a horizontal position.

Accordingly, it is an object of this invention to provide a cooking unit which is hinged to a range top by a unitary spring element for movement between a raised and a seated position.

Most specifically, the invention provides for a one-piece hinge element which is adapted to bias a cooking unit to a raised position for cleaning, and to a seated position for cooking.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein preferred forms of the present invention are clearly shown.

In the drawings:

Figure 1 is a fragmentary plan view, with parts broken away, of a surface cooking unit for an electric range;

Figure 2 is a partial sectional view taken in the direction of arrows 2—2 of Figure 1 and showing the preferred embodiment of this invention in functional relationship to a range top;

Figure 3 is a fragmentary elevational view taken in the direction of arrow 3 of Figure 1 showing the preferred hinge element connected to a heating element terminal plate;

Figure 4 is a perspective view of the preferred embodiment of this invention;

Figure 5 is a fragmentary plan view with parts broken away of a cooking unit utilizing a second embodiment of this invention;

Figure 6 is a fragmentary sectional view taken along line 6—6 of Figure 5 showing the second embodiment of this invention in functional relationship to a range top;

Figure 7 is a sectional view taken along line 7—7 of Figure 5 showing one arrangement for mounting a trim ring to a range surface;

Figure 8 is a fragmentary sectional view taken along line 8—8 of Figure 7 of the trim ring mounting assembly; and

Figure 9 is a side elevational view showing the arrangement of the spring of the second embodiment of this invention.

In accordance with this invention, a cooking unit 10 is adapted for mounting within an opening 12 of a range top 14. The range opening 12 is formed with a peripheral depending flange 16 provided with an aperture 18 at one point thereof for effecting a spring hinge mounting arrangement later described. Supported on



range surface 14 and adapted for ornamenting the cooking unit opening 12 is a trim ring 20. In addition to enhancing the aesthetic value of the range top 14, the trim ring 20 is functionally designed with a depending cylindrical flange 22, a substantial portion of which terminates in an inwardly turned, horizontally disposed support flange 24. At one point on the periphery of the trim ring flange 22, a tab or protuberance 26 is lanced out as a latch keeper to be more fully described hereinafter in connection with the cooking unit design. A drip pan 28 of conventional design is adapted to be carried at its outer periphery on the horizontal flange 24 of the trim ring 20.

The cooking unit 10 is comprised of a spider or heating element support 30 having a plurality of generally radially extending arms 32. Overlying and affixedly supported by spider arms 32 is a heating element 34 in generally horizontal spiral arrangement within the trim ring 20. Although the Figure 1 arrangement utilizes two spirally wound coils to form the heating element 34, it is to be understood that one coil of somewhat broader dimensions will serve equally as well. The terminal portions 36 of the heating element 34 dip below the range surface 14 and project through a cut-out 35 in the drip pan 28, where they align with and terminate in a terminal plate 38 to which the electrical supply connections are made. It will be noted that the cooking unit 10, at this point, is supported only by the outer extremities of spider arms 32 resting upon trim ring flange 24.

To effect a pivotal mounting for the cooking unit 10 and to aid in a positive positioning of this unit within the range opening 12, a band spring hinge, clip or fastening member 40 is interposed between terminal plate 38 and range opening flange 16. With reference to Figure 4, the spring hinge 40 carries a range mounting aperture 41 for facilitating attachment to opening flange 16 and a second cooking unit mounting aperture 42 which serves a similar purpose in connecting the spring hinge 40 to terminal plate 38. The Figure 4 clearly illustrates the preset condition of spring hinge 40 in that it tends toward a curled natural configuration. When used as a hinge for the cooking unit 10, any conventional fastening means such as screw means 44 may be used to join hinge mounting aperture 41 to the attachment aperture 18 of the flange 16. A similar fastening means 46 holds fast the other end of spring hinge 40 to the terminal plate 38. With the cooking unit 10 in a horizontal position as shown solid in Figure 2, the spring hinge 40 is expanded from its natural configuration of Figure 4. This, of course, forces the cooking unit 10 rightwardly from the fixed spring hinge 40 in a manner to force a protuberance 48 formed on the end of spider arm 32 into engagement with the trim ring latch tab 26. Thus, it is apparent that the cooking unit 10 may be securely held in a seated position. When the protuberance 48 is disengaged from latch tab 26, the cooking unit 10 will raise automatically in response to the curling action of spring hinge 40 to a position shown in phantom in Figure 2. In this relationship, the area beneath the cooking unit may be cleaned and the unit again reseated by merely bearing down upon the cooking unit 10 until the spider protuberance 48 is relatched on the trim ring tab 26.

The trim ring 20 may be mounted in a novel manner to the range surface 14. As best seen in Figures 5, 7 and 8, a channel member 50 is welded to the under surface of trim ring 20. Extending from one end of the channel 50, a depending leg 52 is adapted to project into a notched-out portion 54 in flange 16 of range opening 12. A squeezing action between the leg 52 and

the outer peripheral edge 53 of trim ring 20 serves to firmly hold the trim ring in proper relationship to the opening 12 in range surface 14.

The second embodiment of this invention will be more fully understood in connection with Figs. 5, 6 and 9. In this arrangement, a wire rod hinge or spring pivot 56 is preformed into the configuration of Fig. 9. The wire rod 56 is formed from spring stock with a cooking unit pivot pin end 58 and a range top attachment hook portion 60. As with the preferred embodiment, a depending flange 16 of range opening 12 carries an aperture 62 through which any conventional fastening means such as a bolt and nut 64 may rigidly fasten the hook portion 60 of wire rod hinge 56. This second embodiment, however, varies from that described hereinbefore in that the heating element support spider 65 is formed with a pivot arm 66 which projects through an aperture 68 in opening flange 16 to a point adjacent the wire rod spring hinge 56. Spider arm 66 carries on its outer terminus 69 an aperture 70 adapted to receive the pivot pin end 58 of the wire rod member 56. With the heating element 34 supported on spider arms 67 in a horizontal position, spider pivot arm 66 forces pivot portion 58 of wire rod hinge 56 upwardly to the stressed location shown in solid in Fig. 6. A similar latching feature to that shown and described in the preferred embodiment is again used to hold the cooking unit horizontally seated. When this latch is disengaged, the cooking unit will pivot or raise of its own accord to the position shown in phantom in Fig. 6. This automatic function is effected through the preset condition of wire rod spring hinge 56 which forces the outer terminus 69 of spider arm 66 downwardly against the fixed bottom or fulcrum edge of flange aperture 68, thereby imposing a leverage action to lift the cooking unit. The preset condition or cooking unit lift position of wire rod spring hinge 56 is best seen in the phantom line illustrations of Figs. 6 and 9. In both the preferred and secondary embodiments, it should now be apparent that a very simple and economical hinging procedure and apparatus has been devised for pivotally mounting and securing a range top cooking unit.

While the embodiments of the present invention as herein disclosed constitute preferred forms, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. In a surface opening mounting arrangement for a surface heating unit, comprising; a flange depending from said opening, a trim ring removably affixed to said opening, a catch on said trim ring, a support spider, a protuberance on said support spider adapted to engage said catch in a heating unit horizontal position, a heating element secured to said support spider and having a terminal portion below said surface opening, a terminal plate connected to said terminal portion, and a spring hinge having one member thereof joining said terminal plate to said flange and adapted to bias said protuberance toward said catch in said heating unit horizontal position and to bias said heating unit to a nonhorizontal raised position when said protuberance and said catch are disengaged.

2. In a surface opening mounting arrangement for a surface heating unit, comprising, a flange depending from said opening, a trim ring removably affixed to said opening, a catch on said trim ring, a support spider having a depending pivot arm, a protuberance on said support spider adapted to engage said catch in a heating unit horizontal position, a heating element secured to said support spider and having a terminal portion below said surface opening, and a spring hinge joining said pivot arm to said flange and adapted to bias said protuberance toward said catch in said heating unit horizontal position and to bias said heating unit to a nonhorizontal position when said protuberance and said catch are disengaged.

3. In a surface opening mounting arrangement for a surface heating unit, comprising, a flange depending from said opening, a trim ring removably affixed to said opening, a catch on said trim ring, a support spider, a protuberance on said support spider adapted to engage said catch in a heating unit horizontal position, a heating element secured to said support spider and having a terminal portion below said surface opening, a terminal plate connected to said terminal portion, and a one-piece spring hinge fastened to said flange and connected to said heating unit and adapted to bias said protuberance toward said catch in said heating unit horizontal position and to bias said heating unit to a nonhorizontal raised position when said protuberance and said catch are disengaged.

4. An arrangement for pivotally mounting a surface cooking unit in a range top opening including a protuberance on said cooking unit, a catch on said range top, and a spring supportingly connecting said cooking unit and said range top, said spring having a preset to bias said protuberance against said catch and to pivot said cooking unit upwardly.

5. An arrangement for pivotally mounting a surface cooking unit in a range top opening including a protuberance on said cooking unit, a catch on said range top, and a band spring hinge interposed between said cooking unit and said range top, said band spring having a curled configuration, means for connecting said spring to said cooking unit and said range top, and a preset to bias said protuberance against said catch and to pivot said cooking unit upwardly.

6. An arrangement for pivotally mounting a surface cooking unit in a range top opening including a protuberance on said cooking unit, a catch on said range top, and a wire spring interposed between said cooking unit and said range top, said wire spring having a range top connecting portion and a pivot portion, said pivot portion preset to bias said protuberance against said catch and to pivot said cooking unit upwardly.

7. An arrangement for pivotally mounting a surface cooking unit in a range top opening including a catch on said range top, and a spring supportingly connecting said cooking unit and said range top, said spring having a preset to bias said cooking unit into cooperation with said catch and to pivot said cooking unit upwardly.

8. An arrangement for pivotally mounting a surface cooking unit in a range top opening including a unitary spring solely hingedly and supportingly connecting said cooking unit and said range top, said spring having a preset to bias said cooking unit pivotally upwardly.

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