March 24, 1953 E. H. ANDERSEN 2,632,837

ELECTRIC RANGE RESISTANCE ELEMENT SUPPORT

Filed March 28, 1951

Fig. 1

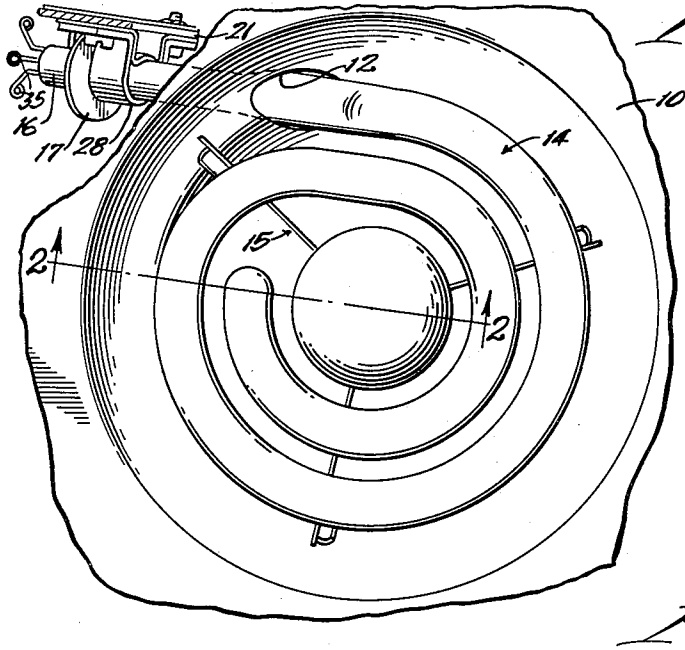


Fig. 2

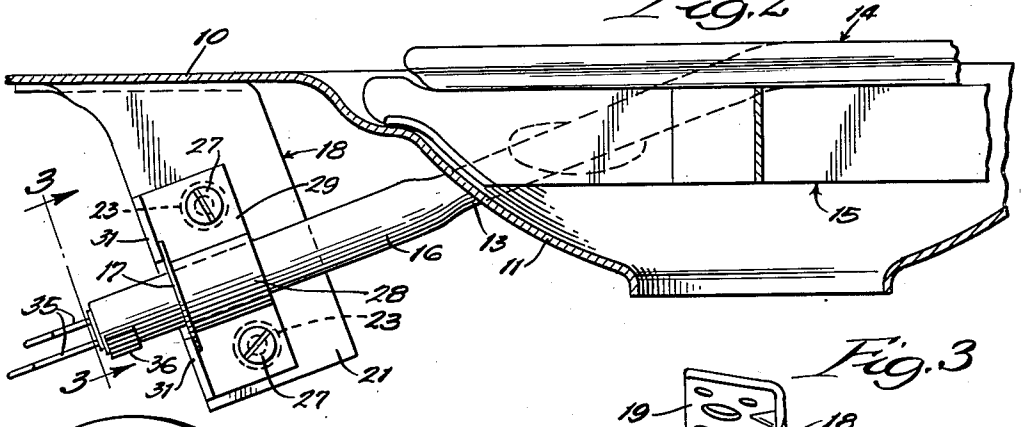


Fig. 3

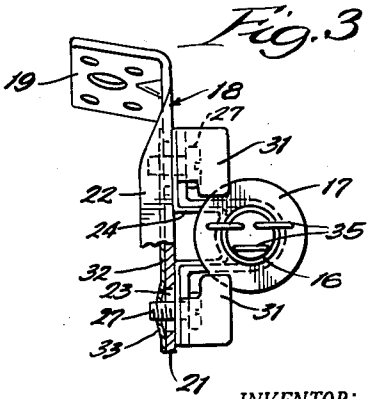
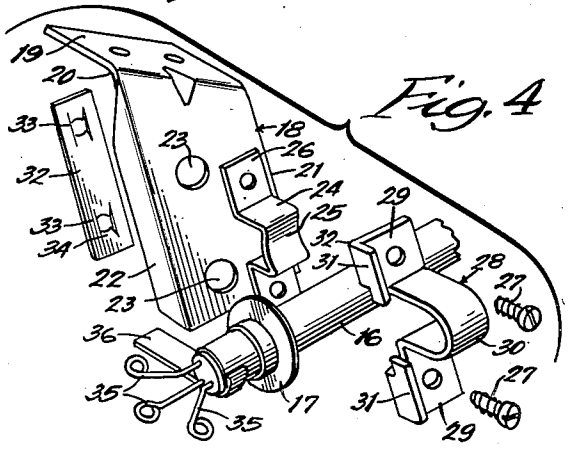


Fig. 4



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ELECTRIC RANGE RESISTANCE ELEMENT SUPPORT

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10 Claims. (Cl. 219—37)

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This invention relates to an electric range resistance element support. The invention is particularly useful in connection with an electric range having a reflector pan provided with an enlarged opening through which a cylindrical support for the resistance element extends.

In an electric range having a reflector pan or bowl, it is desired to have an opening in the bowl through which the tubular sheet extension or cylindrical support of the resistance element may freely extend while providing adjacent thereto independent supporting means which will enable the resistance element to be turned to different positions while frictionally holding the element in raised positions during cleaning, etc. Further, when the resistance element is installed, it is necessary to make adjustments thereof to bring the element into the desired final relation with respect to the reflector pan or range top, and such adjustments should be accomplished at the place of installation. There has further been a need for providing means which will permit such adjustment while at the same time exerting friction upon the tubular support member to enable it to be held in different positions and particularly firmly in a vertical position while the reflector pan or bowl is being cleaned, etc.

An object of the invention is to provide a structure meeting the above needs while accomplishing the results with a minimum of structure and expense. A still further object is to provide a support for the resistance element through the use of a metal strap secured to the bottom of the range top and occupying little space while at the same time providing a sturdy support and means thereon for adjustably mounting the resistance element support thereon. Yet another object is to provide in such a structure effective breach or saddle means for maintaining a spring tension upon the resistance element support without the forming or cutting into the same and which will maintain the resistance element in various angular positions to which it may be moved. Other specific objects and advantages will appear as the specification proceeds.

The invention is shown in an illustrative embodiment by the accompanying drawing, in which—

Figure 1 is a broken top plan view of a portion of the range top of an electric range and support means for the resistance element embodying my invention, a portion of the support means shown in section; Fig. 2, a vertical sectional view, the section being taken as indicated, at line 2—2 of Fig. 1; Fig. 3, a detail view taken as indicated, at line 3—3 of Fig. 2; and Fig. 4, a perspective

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view of the support parts shown in spaced-apart relation and prior to the assembly thereof.

In the illustration given, 10 designates an electric range top having integrally formed therewith a reflector pan or bowl 11. It will be understood that the reflector pan 11 may, if desired, be a separate part and may be of different shapes and forms. I provide an inclined wall of the reflector pan 11 on one side with an elongated or enlarged opening 12 through which extends the neck portion 13 of the resistance element 14.

The resistance element 14 shown in the drawing is of the sheet type formed in the shape of a coil and the coil may be supported within the bowl by a removable spider 15. In the illustration given, the resistance element 14 has a downwardly-inclined neck portion extending through the enlarged opening 12 of the pan 11 and is provided with a tubular extension 16 of the sheet portion extending downwardly and laterally to provide a cylindrical support for the resistance element. It will be understood that the cylindrical support 16 may be formed of any suitable material, but may conveniently be formed as an extension of the coil portion 13 and may be provided near its lower end with a retaining collar or fin 17. Since the resistance element 14 and its cylindrical support 16 are of well-known construction, further description is believed unnecessary.

To provide a bracket support for the electric resistance cylindrical support 16, I employ a wide metal strap 18 which is preferably of thin cross-section and turn the upper portion of the strap to form a horizontal attachment flange 19. The attachment flange 19 is secured to the range top 10 by welding the flange thereto or by using rivets, bolts, or any other desired means of attachment. The strap 18 is bent along an angular line 20, as shown more clearly in Figs. 2 and 4, to provide a depending body portion 21 having its thin edge facing the reflector pan 11 adjacent the opening 12. The strap portion 21 is reinforced on one side with a rearwardly-turned flange 22 which serves an additional function which will be later described. The flange portion 21 of strap 18 is further provided with two large openings 23 which permit adjustment of the resistance support 16 in different directions, as will be later described.

I provide a raised support member 24 preferably formed of spring steel and providing a bridge or saddle portion 25 adapted to engage the lower portion of the cylindrical support 16. The member 24 has laterally-extending flanges 26 apertured to receive the screws 27.

I provide a clamp member 28 having laterally-

extending flanges 29 also apertured to receive the screws 27. The clamp 28 is provided with a U-shaped central portion 30, and along one side are spaced flanges 31 connected by integral neck portions 32 to the clamping member 28. The flanges or wings 31 are effective for engaging the outer edge portions of the collar 17 to retain it against the U-shaped portion 30 and also against the U-shaped spring support 24.

The large openings 23 permit the screws 27, which extend freely therethrough, to be moved laterally in different directions for the adjustment of the resistance element, and when the desired location is obtained, the screws may be set rigidly in such position by the bar nut 32. The bar nut 32 is provided with nut portions at either end adapted to receive the screws 27. In the specific illustration given, the nuts 33 are in the form of speed nuts and have inwardly-extending tongues 34 spaced vertically to engage different spirals of the screw. Since such nuts are of well-known construction, a detailed description is not given. The bar 32 is held against rotation by the flange 22 of the strap 18. While I prefer the strap or bar nut 32, because of the speed of assembly and firmness, etc., it will be understood that other suitable nuts may be employed for the purposes described.

The tubular sheet or cylindrical support 16 of the resistance element is provided at its outer end with the usual wire terminals 35 and strap conductor 36. It will be understood that the resistance element may be of different types and forms and that for the purpose of the present invention it need only be equipped with a cylindrical support for the element.

Operation

In the operation of the structure, the resistance element 14 is placed in position with the depending neck portion 13 extending freely through the enlarged opening 12 of the pan and the cylindrical support resting adjacent the metal strap portion 21. The spring tension member 24 is placed in position to receive the cylindrical support 16 and the clamp member 28 is placed over member 16 and spring member 24. The screws 27 are passed through the flanges 29 and 26, respectively, of members 28 and 24, and through the large openings 23. The ends of the screws are brought into engagement with the nuts 33 of the nut bar 32. The screws may be slightly tightened to hold the parts in assembled relation and then the entire assembly may be moved with the cylindrical support 16 to bring the resistance coil 14 into the desired elevational position within and above pan 11. When the resistance coil has been located at the desired point, the screws 27 are then firmly tightened to maintain the adjustment member in the desired selected position. The spring saddle or bridge 25, because of its yielding character, permits the cylindrical support 16 to be rotated when it is desired to swing the coil 14 to a raised position, and because of such friction, the resistance element remains in its raised position. The housewife may then remove the spider 15 and clean the bowl of reflector pan 11. After cleaning, the spider may be replaced and the resistance element 14 pressed downwardly to a position resting upon the spider. In the rotation of member 16, endwise movement of member 16 is prevented by the engagement of the fin or collar 17 with the flanges 31 and loop walls 30 of member 28.

In the foregoing structure, and for the purpose of producing an initial adjustment between the resistance coil and the range top or reflector pan, the entire supporting assembly, including parts 24, 27, 28 and 32, may be moved toward the reflector pan or away from the reflector pan and also in a vertical plane and in various angular directions by reason of the large round openings 23. When, however, the final desired position of the resistance coil 14 is found, the parts may be permanently clamped together for securing the resistance coil in that position. Thereafter, however, the resistance coil may be swung to various positions without disturbing such initial adjustment, and the spring saddle 25 is effective in retaining the resistance coil in the angular position to which it is moved.

The new support structure provides a bracket secured entirely independently of the pan 11 and thus enabling the resistance element to extend freely through an opening in the pan without resting upon or engaging the pan while at the same time the broad strap support which occupies a minimum of space supports the resistance element both for initial adjustment and for rotary movement to different positions. In the foregoing description, a single reflector pan has been referred to. It will be understood that the range top will normally be prepared with a number of reflector pans or bowls and that supporting strap means such as has been illustrated will be employed for each of such pans.

While in the foregoing specification, I have set out a single structure in considerable detail for the purpose of illustrating an embodiment of the invention, it will be understood that such details of structure may be varied widely by those skilled in the art without departing from the spirit of my invention.

I claim:

1. In an electric range having a top provided with a burner pan and a resistance element coil therefor equipped with a downwardly and laterally-inclined cylindrical support, said burner pan having an enlarged opening through which said resistance element freely extends, a wide strap of relatively thin cross-section having a horizontal top flange secured to said top and having a depending portion with its thin edge generally facing the pan adjacent said opening, said depending portion being apertured, and means on said strap and extending through said aperture for releasably locking said support rotatably upon said strap including a yieldable spring member bearing against said support and a member on the opposite side of said support and opposing said spring member, whereby said support is maintained in frictional engagement between said spring member and said member.

2. In an electric range having a top provided with a burner pan and a resistance element coil therefor equipped with a downwardly and laterally-inclined cylindrical support having a flange collar thereon, said burner pan having an enlarged opening through which said resistance element freely extends, a wide strap of relatively thin cross-section having a horizontal top portion secured to said top and having a depending portion with its thin edge generally facing the pan adjacent said opening, said depending portion being apertured, and means on said strap and extending through said aperture for releasably locking said support and the collar thereof rotatably upon said strap including a yieldable spring member bearing against said support and a member on the opposite side of said support and opposing said spring member, whereby said

support is maintained in frictional engagement between said spring member and said member.

3. In an electric range having a top provided with a burner pan and a resistance element coil therefor equipped with a downwardly and laterally-inclined cylindrical support having a flange collar thereon, said burner pan having an enlarged opening through which said resistance element freely extends, a wide strap of relatively thin cross-section having a horizontal top portion secured to said top and having a depending portion with its thin edge generally facing the pan adjacent said opening, said depending portion being apertured, and means on said strap and extending through said aperture for releasably locking said support and the collar thereof rotatably upon said strap, said means including a spring saddle frictionally engaging the bottom portion of said cylindrical support and clamping means urging said cylindrical support into frictional engagement with said saddle.

4. In combination with a range top having an electric resistance element and a cylindrical support thereon, a bracket having a top flange welded to the bottom of the range top and a main body portion depending therefrom, said body portion being provided with spaced apertures therethrough, a spring member providing a saddle receiving said cylindrical support, a clamp over said support and said spring member, fastening means having shanks smaller than said apertures extending through said spring and clamping members and through said apertures, and means on the opposite side of said body member cooperating with said fastening means for securing said members and the cylindrical support on said body member, whereby said cylindrical support is releasably locked rotatably between said spring member and said clamp.

5. A support bracket for adjustably supporting the cylindrical portion of an electric resistance element, comprising a wide metal strap of thin cross-section having a top horizontal flange portion and a depending body portion, said body portion being provided with spaced openings in general vertical alignment, U-shaped clamping means having a surface thereof arcuately formed to engage the cylindrical portion of said resistance element, fastening means having shanks of lesser diameter than the openings of said body portion, means on the side of said body portion opposite said clamp member for cooperating with said fastening means to secure said clamp member in position, and yieldable spring means between said cylindrical portion of the resistance element and said body portion of the support bracket for resisting rotary movement of said cylindrical portion of the resistance element.

6. A support bracket for adjustably supporting the cylindrical portion of an electric resistance element having a flange collar thereon, comprising a wide metal strap of thin cross-section having a top horizontal flange portion and a depending body portion, said body portion being provided with spaced openings in general vertical alignment, clamping means adapted to engage the cylindrical portion of said resistance element and further adapted to receive the flange collar of said cylindrical portion of the resistance element, fastening means having shanks of lesser diameter than the openings of said body portion, means on the side of said body portion opposite said clamp member for cooperating with said fastening means to secure said clamp member in position, and spring means for resisting rotary movement of said cylindrical portion of the resistance element, said spring means comprising a U-shaped spring member having a saddle receiving the bottom portion of said cylindrical part of the resistance element.

7. In an electric range having a top provided with a burner pan and a resistance element coil therefor equipped with a downwardly- and laterally-inclined cylindrical support having a flange collar thereon, said burner pan having an enlarged opening through which the cylindrical support freely extends, a wide strap of relatively thin cross-section having a horizontal top portion secured to said range top and having a depending portion with its thin edge generally facing the pan adjacent said opening, said depending portion being provided with a large aperture, a U-shaped spring member provided with a saddle receiving the lower portion of said cylindrical support, a U-shaped clamping member extending over said support and over said U-shaped spring member, said U-shaped clamping member being slotted and flanged to receive the flange collar on the cylindrical support of the resistance element, screw means extending through said spring member, clamping member, and said aperture, and nut means on the side of said strap opposite said spring member and clamping member for engaging said screw means.

8. In an electric range having a top provided with a burner pan and a resistance element coil therefor equipped with a downwardly and laterally inclined cylindrical support having a flange collar thereon, said burner pan having an enlarged opening through which the cylindrical support freely extends, a wide strap of relatively thin cross section having a body portion with its thin edge generally facing the pan adjacent said opening, said body portion being provided with a large aperture, a yieldable spring member bearing against said cylindrical support, a U-shaped clamping member extending over said support and over said spring member, screw means extending through said spring member, clamping member and said aperture, and nut means on the side of said strap opposite said spring member and clamping member for engaging said screw means whereby said cylindrical support is urged into frictional engagement with said spring member and said clamping member.

9. The structure of claim 8 in which the body portion is provided with two apertures and screws extending through said apertures, and a metal bar providing nuts receiving said screws.

10. The structure of claim 9 in which the body portion is provided with a rearwardly-extending flange abutting said bar.

EARL H. ANDERSEN.

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