United States Patent

[11] 3,553,427

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[54] **COOKING APPARATUS**
3 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **219/463,** 219/461, 219/467
[51] **Int. Cl.** **H05b 3/68**
[50] **Field of Search** ..... 219/467, 447, 461, 463, 462, 464, 465, 405, 396, 523, 536, 404, 37.2, 445—447

[56] **References Cited**

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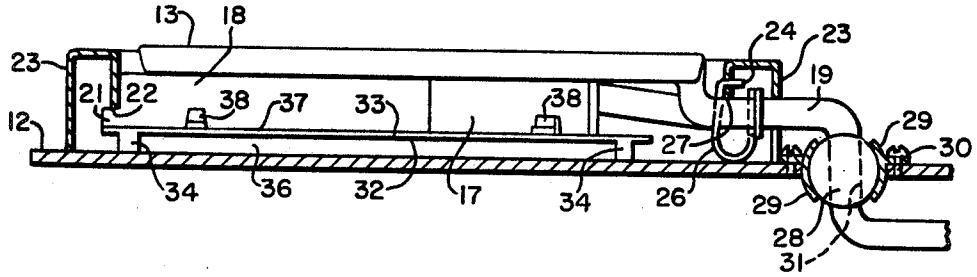
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Attorneys—F. H. Henson, E. C. Arenz and B. B. Sklar, Jr.

ABSTRACT: A cooking apparatus having surface heater structures supported above a top wall of the housing thereof. The top wall is devoid of conventional heater openings, consequently, the heater structures overlie portions of the top wall and are disposed substantially parallel thereto. Each heater structure is pivotal away from the top wall to facilitate cleaning of the top wall and also to permit removal of a combination heat shield and spacer for cleaning thereof.



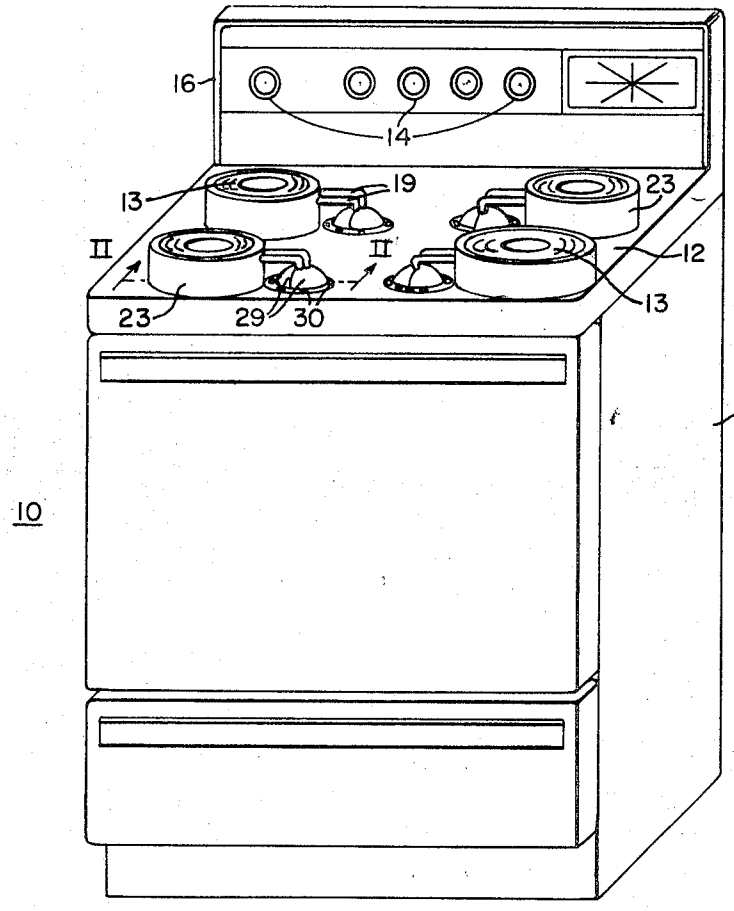


FIG. 1

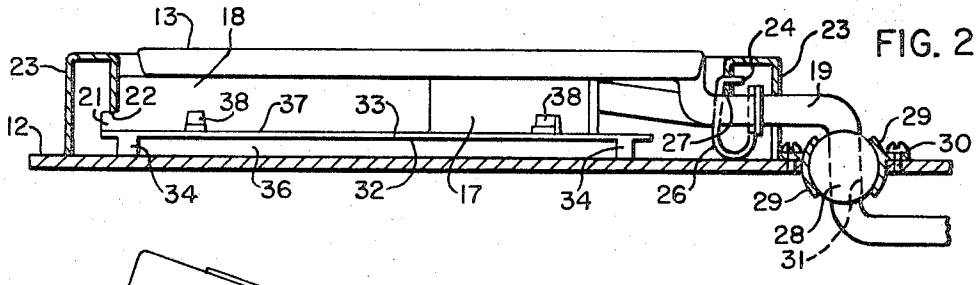


FIG. 2

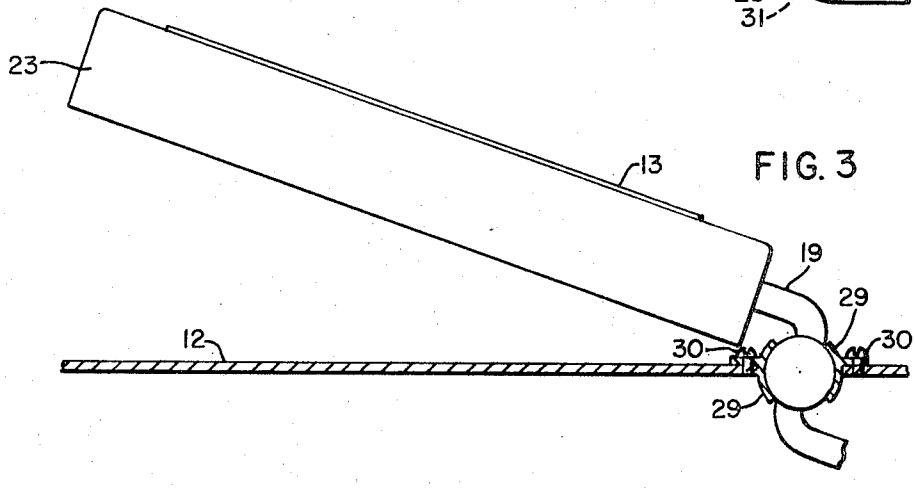


FIG. 3

COOKING APPARATUS

BACKGROUND OF THE INVENTION

This invention relates, in general, to cooking apparatus and, more particularly, to surface heater structures and mounting thereof relative to the apparatus with which they are associated.

Conventional heater structures are mounted in an opening in the top wall of the housing of the cooking appliance. Such an arrangement requires a shelf beneath and parallel to the top wall as well as individual drip shields disposed beneath each of the heater structures. For purposes of cleaning, the heater structures are normally mounted such that access to the drip shields and shelf is convenient, however, all known arrangements leave room for improvement, from the standpoint of cleanability and minimizing the fear of electrical shock, bearing in mind that the above-mentioned arrangement has electrical wiring in the vicinity being cleaned.

Accordingly, the general object of this invention is to provide a new and improved cooking apparatus.

It is a more particular object of this invention to provide cooking apparatus having surface heater structures so constructed and mounted as to facilitate cleaning of the apparatus.

SUMMARY OF THE INVENTION

Briefly, the above-cited objects are accomplished by the provision of a cooking range, the surface heater supporting surface of which, is devoid of the openings normally associated therewith. Each surface heater is pivotally mounted such that in use, it is above and parallel to the supporting surface and such that it can be temporarily moved away from the supporting surface thereby rendering the top wall and heater structure more readily cleanable. A heat shield having a polished or otherwise conditioned surface exhibiting high reflective qualities is detachable from the heater structure for cleaning thereof. The polished surface serves to reflect heat away from the supporting surface. To further aid in preventing overheating of the supporting surface, the shield has a plurality of feet on the underside thereof which serve to space the body portion of the shield from the supporting surface to thereby permit air circulation for dissipation of heat.

Further objects and advantages of the present invention will become more apparent in view of the following detailed description and drawings forming a part hereof.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an electric range incorporating the invention;

FIG. 2 is a cross-sectional view taken on the line II–II of FIG. 1; and

FIG. 3 is a view similar to that shown in FIG. 2, but with the heater structure in a position for facilitating cleaning of the supporting surface.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, especially FIG. 1, reference character 10 designates generally an electric range embodying the invention. It will be appreciated that while the invention is disclosed in an electric range, other cooking apparatus may be employed, for example, gas ranges and electric hot plates. The range 10 comprises cabinet structure 11 including a top wall panel or surface 12 which supports a plurality of electrical heater structures 13 adapted to be energized by means of control knobs 14 carried by a back splasher panel 16.

Each heater structure 13 is preferably of the tubular sheath type formed into a spiralled configuration and is secured to a three-legged supporting spider 17 generally of the type described and claimed in U.S. Pat. No. 2,725,426 of Paul M. Weyrick, assigned to the assignee of the present invention. The spider 17 is attached to the heater structure 13 such that

one of its three legs 18 (only two of which are shown) is axially aligned with horizontally extending offset terminal portions 19 of the heater structure 13. It will be noted (FIG. 2) that the plane occupied by the downward termination of the axially aligned leg 18 lies above that of the offset terminal portions 19.

A tab 21 at the front end of the axially aligned leg 18 is received in a slot 22 of a trim ring or member 23 and together with a projection 24 of a spring structure 26, received in a second slot 27 of the trim ring 23, serves to attach the trim ring to the heater structure 13 for support thereby. As can be seen from FIG. 2, each heater structure 13 is supported above and parallel to the surface 12 by means of a spherical-shaped element 28 which is carried by one of the terminal portions 19. The spherical-shaped element 28, together with a pair of cup-shaped retainers 29, attached to the top surface 12 by means of screws 30, form a universal coupling for supporting the heater structure 13 for movement from the position shown in FIG. 2 to the position shown in FIG. 3. The spherical-shaped element 28 is preferably one piece and has a cylindrical bore 31 therethrough for insertion of one end of the heater structure 13 prior to forming thereof and prior to installation of the spring structure 26.

A heat shield 32 (see FIG. 2) comprising a flat circular body portion 33 having integral with the underside thereof a plurality of feet 34 rests on the top surface 12, the feet serving to provide an air gap as indicated at 36 to permit air circulation. The top surface 37 of the heat shield, made from any suitable material, for example, aluminum, is preferably highly polished or otherwise conditioned to exhibit good heat reflecting properties. The heat shield 32 may simply rest on the surface 12 or may be attached to the spider 17 as by clips 38 which are attached to the heat shield 32 in any suitable manner, for example, by spot welding. The clips 38 serve to removably attach the shield to the spider.

Since numerous changes may be made in the described apparatus and different embodiments of the invention may be made without departing from the spirit thereof, it is intended that all matter contained in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. Cooking apparatus comprising:
- housing structure including a top wall having a flat, planar extent;
- at least one heater structure, said heater structure being electrical and having a flat, planar extent;
- means for supporting said flat, planar extent of said heater structure in a first position substantially parallel to and above said flat, planar extent of said top wall, said support means being adapted to said support said flat, planar extent of said heater structure away from said flat, planar extent of said top wall for facilitating cleaning of said top wall and said heater structure;
- said heater structure having attached rigid terminal means received in a ball of a universal coupling means consisting of said ball and complementary elements carried by said top wall;
- said rigid terminal means being a portion of said support means and including offset portions displaced vertically above said ball for mounting said flat, planar extent of said heater structure above said flat, planar surface of said top wall and said ball when said heating structure is in said substantially parallel position;
- a heat shield interposed between said heater structure and said top wall and situated above said flat, planar surface of said top wall for minimizing transfer of heat to the latter; and
- said heat shield comprising a highly reflective surface facing said heater structure and a plurality of spacers facing said top wall for providing, respectively, heat reflection back to said heater structure and an air space to optimize retardation of heat transfer to said top wall.

2. Structure as specified in claim 1 wherein:

said means for supporting said heater structure include a supporting spider means having downwardly depending leg means;

said supporting spider means being disposed immediately below said heater structure; and

said legs means of said spider means abuttingly supported by said heat shield means.

3. Structure as specified in claim 2 wherein; said spacers for said heat shield abuttingly contact said flat, planar surface of said top wall for supporting said heat shield, said spider means and at least a portion of said heater structure.