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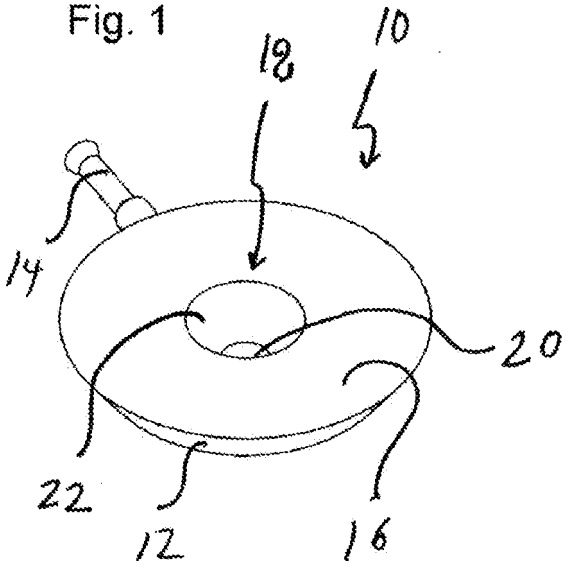
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## (54) Infrared burner with exhaust gas flue

(57) An infrared range burner (10) having a plurality of gas passageways formed therein for delivering combustion gas from a central gas supply to individual burner jets, the range burner including a burner body formed as a closed loop defining an open central area, the burner body having a plurality of gas passageways formed therein; a burner top (16) disposed on the burner body and including burner jets in communication with the gas passageways; a burner bottom (17) having an exhaust opening formed in a central area thereof, the burner bottom (17) being disposed on the burner body oppositely from the burner top (16), with the open central area in registry with the exhaust opening (20) and extending between the burner top (16) and the burner bottom (17); and a flue (24) mounted to the burner bottom (17) and projecting outwardly therefrom, the flue (24) being in fluid communication with the exhaust opening (20) for drawing exhaust gases from the open central area.

Fig. 1




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## Description

### Background of the Invention

**[0001]** The present invention is related broadly to cooktops having infrared gas burners including barbeque grills and, more particularly to an infrared gas burner having an exhaust gas flue.

**[0002]** Infrared burners work by focusing the flame of a standard gas burner onto a ceramic tile having thousands of microscopic holes in it. This converts the heat of the flame into infrared, radiant energy. The heat energy is much greater and more persistent than a standard grill can produce. Infrared burners can reach cooking temperatures greater than 1800 degrees Fahrenheit. The infrared burners are positioned below the ceramic tile, whereas the cooking pots and pans in flat contact with the upper surface of the ceramic tile.

**[0003]** Some infrared burners include burner bodies formed as a perimetorial structure or a loop, be it round, square or other closed loop shape. Such closed loop burners define an open central area in the middle of the burner. Often, unburned gas and combustion residue can collect in the atmosphere in the center of the burner. It would be advantageous to evacuate the central area as quickly and efficiently as possible in order to diminish the uncertain influence on the cooking process of collected combustion gasses and other combustion residue in the central area.

### Summary of the Invention

**[0004]** It is accordingly an object of the present invention to provide an infrared burner having an efficient apparatus for evacuating the waste gasses from the central area.

**[0005]** To that end, an infrared range burner having a plurality of gas passageways formed therein for delivering combustion gas from a central gas supply to individual burner jets includes a burner body formed as a closed loop defining an open central area, the burner body having a plurality of gas passageways formed therein; a burner top disposed on the burner body and including burner jets in communication with the gas passageways; a burner bottom having an exhaust opening formed in a central area thereof, the burner bottom being disposed on the burner body oppositely from the burner top, with the open central area in registry with the exhaust opening and extending between the burner top and the burner bottom; and a flue mounted to the burner bottom and projecting outwardly therefrom, the flue being in fluid communication with the exhaust opening for drawing exhaust gases from the open central area. The present invention also includes an infrared range burner wherein the flue has a generally circular cross section and an infrared range burner wherein the flue has a generally flat sided cross section.

### Brief Description of the Drawings

**[0006]**

Figure 1 is a top perspective view of an infrared burner according to one preferred embodiment of the present invention;

Figure 2 is a bottom perspective view of the infrared burner illustrated in Figure 1;

Figure 3 is a top perspective view of an infrared burner according to another preferred embodiment of the present invention; and

Figure 4 is a bottom perspective view of the infrared burner illustrated in Figure 3.

### Description of the Preferred Embodiment

**[0007]** Turning now to the drawings and, more particularly to Figure 1, an infrared burner is illustrated generally at 10 and includes a generally circular burner body 12 having a burner top 16 and a burner bottom 17 attached thereto as seen in Figures 1 and 2. The result is a washer-like structure with tapered side walls wherein the major and minor diameters of the burner top 16 are larger than the major and minor diameters of the burner bottom 17. A gas feed pipe 14 projects outwardly from one portion of the burner body 12. The burner body 12 defines gas passageways therein (not shown).

**[0008]** A central area 18 is defined by the central openings within the burner top 16 and burner bottom 17. The opening of the burner bottom 17 is an exhaust opening 20. Walls 22 are formed on the inside of the central area and are tapered from the larger central area opening to the smaller exhaust opening 20. The walls 22 of the central area 18 act like a nozzle and if a draft is drawn through the central area, aid in the evacuation of the unwanted gasses in the central area.

**[0009]** Turning again to Figure 1, according to the present invention, a flue 24 is attached to the bottom portion 17 of the burner 10 adjacent and surrounding the exhaust opening 20. The flue 24 projects away from the burner bottom 17. The cross section of the flue 20 is a circle making the flue itself a cylinder.

**[0010]** Turning now to Figures 3 and 4, a second preferred embodiment of the present invention is illustrated therein. As seen in Figures 3 and 4, the burner structure is essentially a square whereas in Figures 1 and 2 the burner structure is essentially a circle.

**[0011]** Accordingly, the walls 22 of the central area 18 are angled with respect to one another yet the evacuation of the central area remains substantially the same process as in the first embodiment.

**[0012]** Turning now to Figure 4, the flue 24 is once again attached to the burner bottom 17 and projects away therefrom. According to the second preferred embodiment of the present invention, the cross section of the flue 24 may include several angular areas and the flue 24 structure may include several flat panels. Accordingly,

the flue 24 can be a multisided structure.

**[0013]** By the above, the present invention provides an economical, mechanical structure for evacuating unwanted gasses and unburned matter from an open central area of an infrared burner.

**[0014]** It will therefore be readily understood by those persons skilled in the art that the present invention is susceptible of a broad utility and application. While the present invention is described in all currently foreseeable embodiments, there may be other, unforeseeable embodiments and adaptations of the present invention, as well as variations, modifications and equivalent arrangements, that do not depart from the substance or scope of the present invention. The foregoing disclosure is not intended or to be construed to limit the present invention or otherwise to exclude such other embodiments, adaptations, variations, modifications and equivalent arrangements, the present invention being limited only by the claims appended hereto and the equivalents thereof.

## Claims

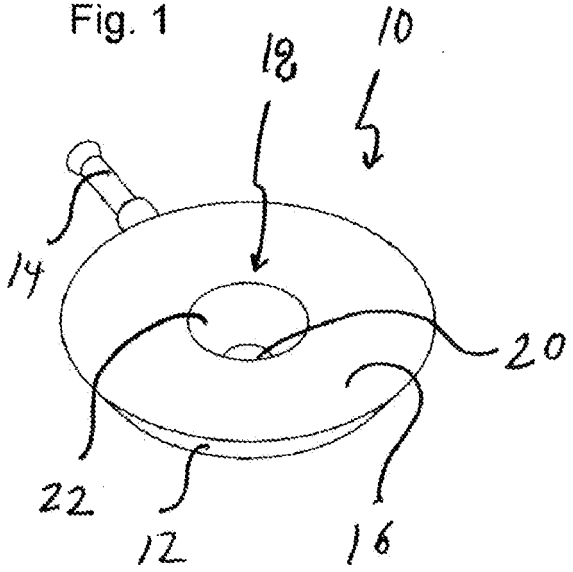
**1.** An infrared range burner (10) having a plurality of gas passageways formed therein for delivering combustion gas from a central gas supply to individual burner jets, said range burner comprising:

a burner body formed as a closed loop defining an open central area, said burner body having a plurality of gas passageways formed therein, a burner top (16) disposed on said burner body and including burner jets in communication with said gas passageways, and a burner bottom (17) having an exhaust opening (20), said burner bottom (17) being disposed on said burner body oppositely from said burner top (16), with said open central area of said burner body being in registry with said exhaust opening (20) and extending between said burner top (16) and said burner bottom (17); and
a flue (24) mounted to said burner bottom and projecting outwardly therefrom, said flue (24) being in fluid communication with said exhaust opening (20) for drawing exhaust gases from said open central area of said burner body.

**2.** The infrared range burner according to claim 1 wherein said flue (24) has a generally circular cross section.

**3.** The infrared range burner according to claim 1 wherein said flue (24) has a generally flat sided cross section.

Fig. 1



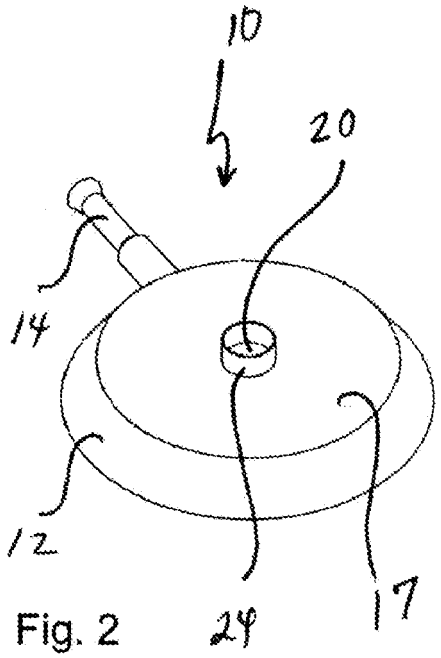




Fig. 2

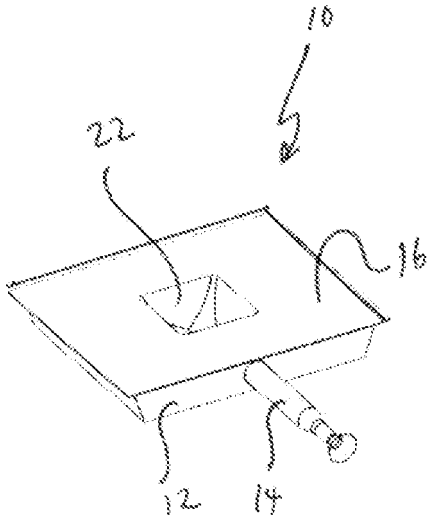



Fig. 3

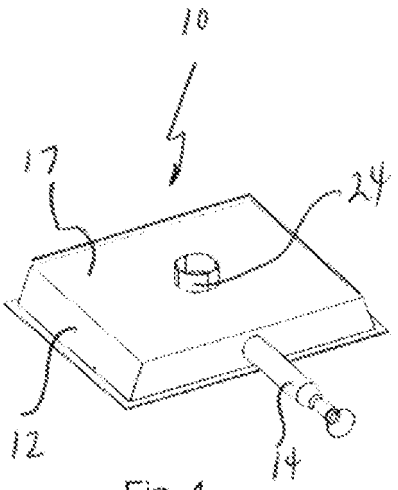



Fig. 4

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# EUROPEAN SEARCH REPORT

Application Number
EP 07 12 3323

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
|---|---|---|---|
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| | | | TECHNICAL FIELDS SEARCHED (IPC)<br>F23D |

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| Munich | 10 April 2008 | Theis, Gilbert |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 07 12 3323

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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10-04-2008

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82