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P. J. ZEIMET

2,052,067

BROILER BURNER

Filed June 26, 1933

Fig. 1

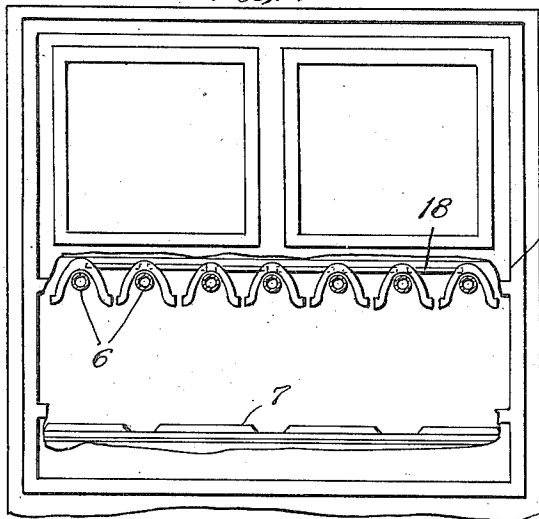


Fig. 2

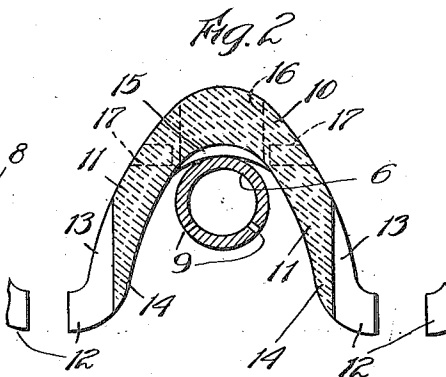


Fig. 3

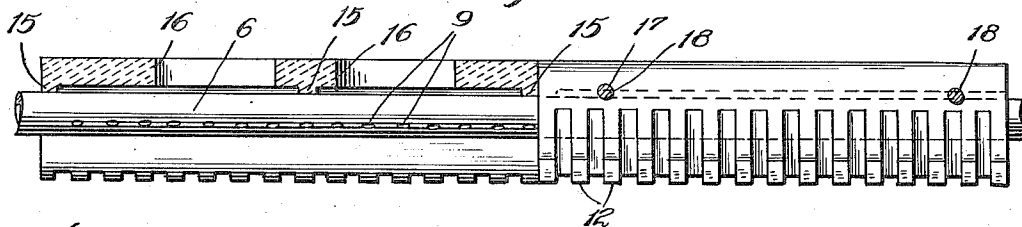


Fig. 4

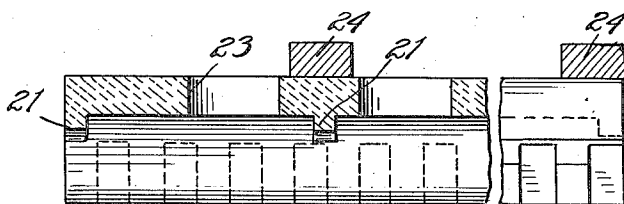
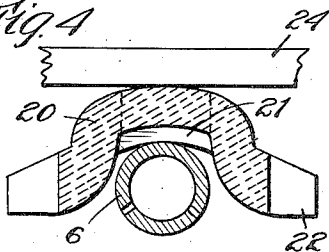


Fig. 5

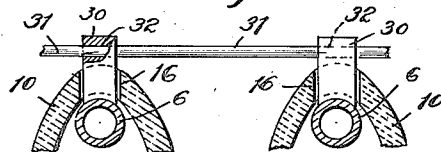
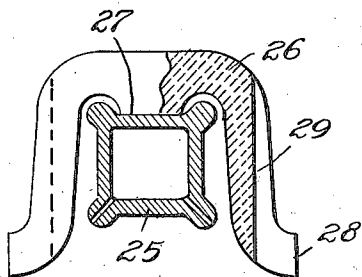


Fig. 7

Fig. 6



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UNITED STATES PATENT OFFICE

2,052,067

BROILER BURNER

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Application June 26, 1933, Serial No. 677,567

4 Claims. (Cl. 158—99)

This invention relates in general to a broiler burner for cooking stoves of that type in which gas is used as the fuel, and has particular reference to a radiant ceramic tile adapted to be placed upon or adjacent fuel supply pipes for utilizing the heat therefrom more efficiently.

One of the principal objects of the invention is in the provision of a broiler tile adapted to receive and direct the flames from a supply pipe and to become radiant in a short time for forming an overlying blanket of heat to more quickly cook food placed thereunder.

A further object of the invention is in the provision of a radiant tile adapted to set upon and extend downwardly and partially around a fuel pipe for receiving and radiating heat.

A still further object of the invention is in the provision of a broiler having radiant heat tiles supported by parallel pipes in close relation to each other so that the fuel from the pipes will form with the tiles a substantially continuous blanket of heat.

A further object of the invention is in the provision of parallel pipe supported tiles with means for holding the tiles in place against displacement.

A further object of the invention is in the provision of radiant broiler tiles having projecting teeth alternate with reduced portions for receiving and deflecting heat from its supporting fuel pipe.

Other objects of the invention will appear hereinafter, the preferred constructions being illustrated in the accompanying drawing.

In the drawing, Fig. 1 is a front elevation of a broiler with parts broken away for clearness, illustrating the invention;

Fig. 2 is a section of one of the broiler tiles;

Fig. 3 is a longitudinal view partly in section of a pair of broiler tiles mounted upon a supporting pipe;

Fig. 4 is a sectional view of a modified form of tile;

Fig. 5 is a longitudinal view partly in section, of the tile of Fig. 4;

Fig. 6 is a sectional view of a modification; and Fig. 7 illustrates a modified tile positioning means.

In an ordinary broiler used for cooking, flames shoot out at the lower opposite sides of a number of parallel fuel pipes, each flame being entirely independent of the other. Gas consumed in this manner is very costly, producing a temperature of five hundred to seven hundred degrees Fahrenheit and requiring as much as thirty

to forty-five minutes time for heating the broiler before actual broiling can take place. Under this system an excessive amount of gas is used and an excess of time is required giving slow service to customers.

The present invention proposes the installation of the radiant ceramic tiles as an addition to the parallel fuel pipes which diffuse and divert the flames so that all of the independent flames engage the tiles and quickly heat them, forming a radiant blanket of heat. This causes a temperature increase of from three hundred to five hundred degrees Fahrenheit over the old method; the heat does not escape so rapidly; the gas or fuel is consumed more cleanly; food can be prepared more rapidly without affecting its flavor; customers are served more quickly; and a more economical use of gas and fuel is obtained.

Referring now more particularly to the drawing, an ordinary broiler is represented in Fig. 1 having a number of parallel pipes 6 arranged above a cooking grill 7 within a suitable container 8. The fuel pipes are commonly provided with fuel apertures 9 extending downwardly at opposite sides to deflect independent flames downwardly and outwardly.

To such an installation the present invention adds a tile 10 adapted to rest upon and be supported by the fuel pipes 6.

Each tile 10 has depending sides 11 terminating in teeth 12 between which are slots 13 forming intermediate thin walls 14 graduated in thickness so that they are thinner at the bottom than at the top in order to heat up and become radiant more quickly.

Instead of the tiles resting directly upon their entire under surface it is preferable to form ridges 15 at the ends and intermediate the ends of the tile of greater curvature than the under surface of the tile so that it will be supported upon the ridges, leaving an air space around the pipe. For further cooling effect the top of the tile is formed with one or more openings 16 which communicate with the space surrounding the pipe and within the tile so that even though the tiles become heated to a high degree, the fuel pipes may be cooled by the passage of fuel there-through and by the air space surrounding the pipes.

Even though the tiles are seated firmly upon the pipes, an occasional bump may tend to cause displacement, but in order to hold the tiles firmly in place and properly spaced apart the opposite sides adjacent the top are provided with perfor-

rations 17 into which short spacing bars 18 are inserted, the bars being preferably formed of metal and being set loosely in place between adjacent tiles when they are set up upon the fuel pipes.

In the modification shown in Figs. 4 and 5, the curvature or crown of this tile 20 is somewhat greater and the tile is flatter than the other tile, it has interior ribs 21 which engage the pipe 6 for supporting the tile, the projecting teeth 22 do not extend below the lower edge of the pipe, and the openings 23 may be round instead of oblong. To hold these tiles in place, a cross piece 24 of some suitable material such as metal or a ceramic bar engages the tops of the tiles and holds them in place against displacement.

In the modification shown by Fig. 6, a fuel pipe 25 of irregular cross section requires a tile 26 of somewhat similar section having an interior projection 27 for engaging in the corresponding recess at the top of the pipe 25, the sides of the tile being spaced apart and free of contact with the sides of the pipe, the teeth 28 at the lower edges of the tile being formed by slots 29 in substantially the same manner as the other tiles.

Instead of inserting short spacing bars 18 or applying a cross piece 24 at the top of the tiles for holding them in place, a positioning structure as shown in Fig. 7 may be used in which the tiles 10 having openings 16 are placed upon adjacent parallel pipes 6 and perforated blocks 30 are inserted in the openings 16 resting upon the pipes with a positioning bar 31 inserted through the perforations 32 in the blocks for holding the blocks in upright position and properly spaced apart and thereby holding the tiles in similar upright positions and tending to prevent them from being displaced on the fuel pipes. This construction prevents any strain upon the tiles, protects them from breakage, and the tiles and the positioning blocks are easily assembled and replaced if there is any breakage.

The teeth formed in the tiles are not necessarily spaced opposite the openings 9 of the pipe and their function is to break up and spread the flames and to offer a reduced tile section for rapid heating and quick radiance. The particular ingredients for making tiles of this radiant type is no part of this invention but preferably the tiles are composed of ground shell rock mixed with sawdust and coke in various proportions, which when fired in making the tile cause the burning up of the sawdust and coke forming a

light, porous and quickly heated and highly radiant composition.

In actual use these radiant tiles are quickly heated, they break up and disperse the flames, and by spacing the tiles closely together so that their teeth or lower edges are adjacent, if not touching, the burning fuel quickly forms a radiant blanket which retains the heat and reaches a temperature found to be several hundred degrees higher than is possible with a broiler in which pipes alone are used. The heat is obtained more quickly, is more easily controlled, and is found to cook more quickly and economically, resulting in the use of less gas, which is the fuel most commonly used.

I claim:

1. A broiler burner comprising a plurality of parallel fuel supply pipes, a ceramic radiant supported by each pipe, said radiants having imperforate walls depending downwardly and outwardly below said pipes for deflecting and receiving heat from the fuel supplied to said pipes and to retain a heat blanket below said pipes.

2. A broiler burner comprising a plurality of parallel fuel supply pipes, a ceramic radiant supported by each pipe having imperforate walls depending downwardly and outwardly below said pipes for deflecting and receiving heat from the fuel supplied to said pipes, and the edges of adjacent radiants being closely adjacent to retain a heat blanket below said pipes.

3. A broiler burner comprising a plurality of parallel fuel supply pipes, a ceramic radiant supported by each pipe, said radiants having imperforate walls depending downwardly and outwardly below said pipes for deflecting and receiving heat from the fuel supplied to said pipes and the walls of the radiants being grooved on their outer faces and terminating in spaced teeth below the pipes, and the extremities of the teeth of adjacent tiles being closely adjacent to retain a heat blanket below said pipes.

4. A broiler burner comprising a plurality of parallel fuel supply pipes, a ceramic radiant supported by each pipe, said radiants having imperforate walls depending downwardly and outwardly below said pipes for deflecting and receiving heat from the fuel supplied to said pipes and to retain a heat blanket below said pipes, the opposite side walls adjacent the top portion of each radiant being formed with openings, and spacing bars inserted in the corresponding openings of adjacent radiants for holding them in place on the pipes.

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