July 6, 1937. H. H. HEIDBREDER 2,086,223

STOVE

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Fig. 1

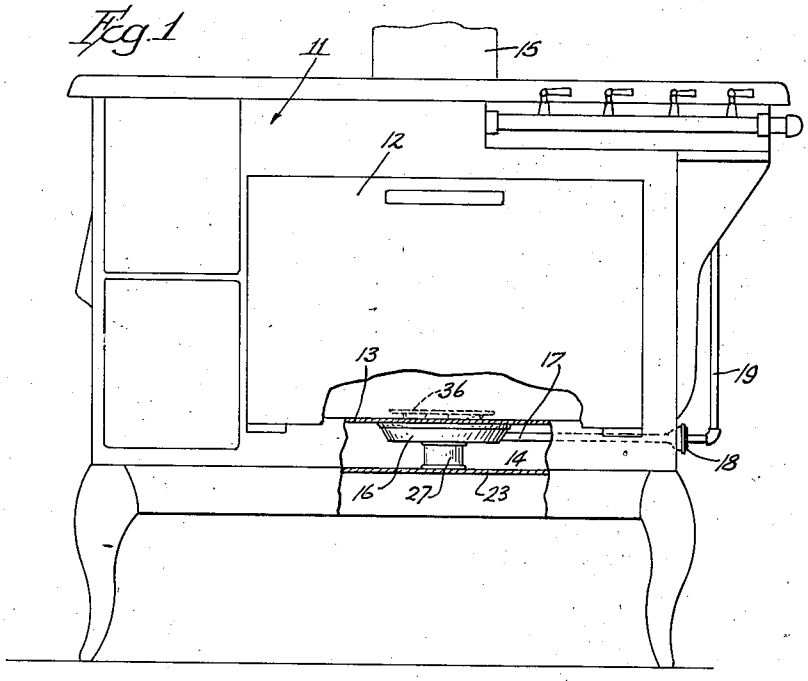

Fig. 2

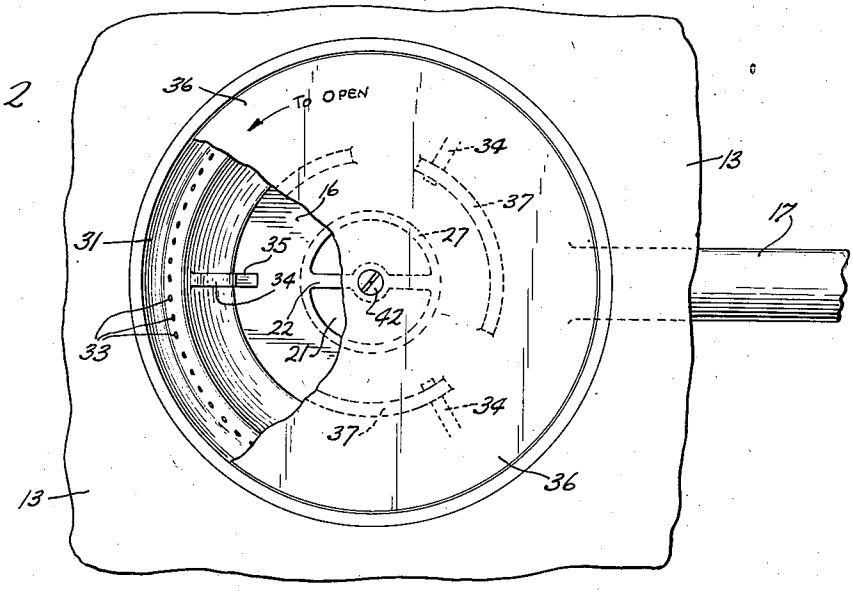

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Fig. 3.

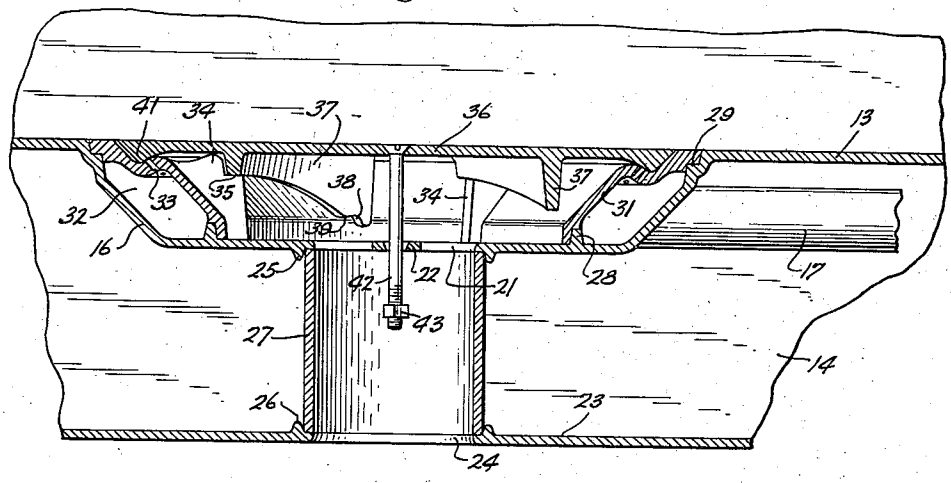


Fig. 4.

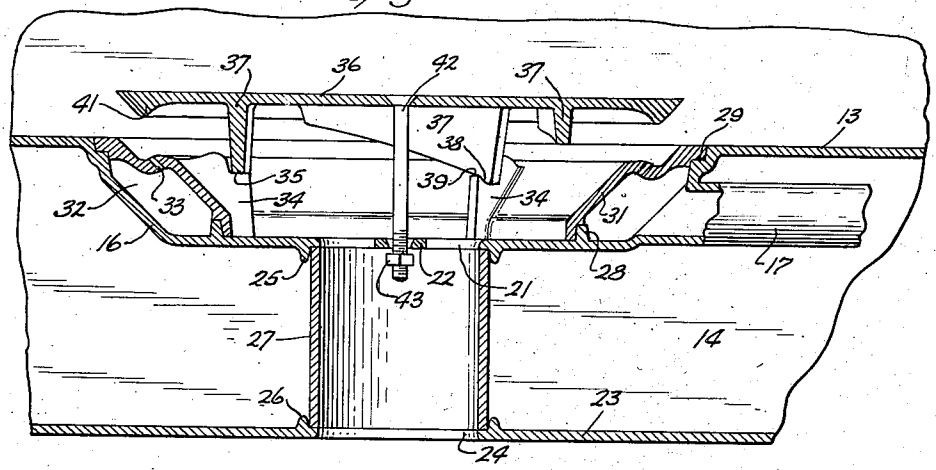
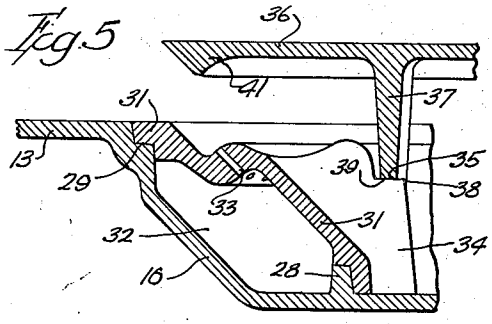


Fig. 5



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Patented July 6, 1937 2,086,223

UNITED STATES PATENT OFFICE

2,086,223

STOVE

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Application November 12, 1934, Serial No. 752,581

2 Claims. (Cl. 126—36)

This invention relates in general to stoves, and has more particular reference to a novel gas burner provided in the oven bottom of a combination gas and solid fuel stove.

A principal object of the invention is the provision of a gas burner in the bottom flue and flush with the bottom surface of the oven in a combination gas and solid fuel stove, which will not interfere with the use of other fuels for heating the oven.

Another important object of the invention is the provision of such a burner which will form a part of the oven bottom when in inoperative position in order to eliminate extra parts and maintain a uniform section of material in the oven bottom.

A further important object of the invention is the provision of a cover for such a gas burner, which is flush with and forms a part of the oven bottom when the burner is not in use, thus closing the gas ports and cutting off the secondary air supply so that cold spots and uneven heating of the oven will not result when solid fuels are used, and which may be raised (when it is desired to use the gas burner) by imparting to it a partial rotation, in which position the cover acts as a deflector for the gas flame and causes the secondary air to be carried to the ports for combustion.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

On the drawings,

Figure 1 is a front elevation of a combination gas and solid fuel stove with parts broken away to show the position of a gas burner embodying my present invention;

Fig. 2 is a plan view of the gas burner, with part of the cover broken away;

Fig. 3 is a vertical section through the burner when in closed or inoperative position;

Fig. 4 is a view similar to Fig. 3, with the burner in open or operative position; and

Fig. 5 is an enlarged detail vertical section similar to Fig. 4.

Referring to the drawings, reference character 11 indicates a conventional form of combination gas and solid fuel stove or range, having the usual oven 12 provided with a bottom 13 under which a flue 14 extends for the passage of the products of combustion from the solid fuel, which are brought over and around the oven and through the bottom flue 14 to the outlet flue or pipe 15 in a well known manner.

In the center of the bottom plate 13 of the oven and cast integral therewith is a depressed ring portion 16 which has a cored neck portion or burner mixer tube 17 extending laterally or rearwardly therefrom, which may also be cast integral with the oven bottom or may be cast separately and bolted thereto. The mixer tube 17 is connected to the usual air mixer 18 and gas supply pipe 19 in any suitable manner.

The bottom portion of the depressed ring 16 is provided with a circular opening 21 having a diametrically disposed web 22 spanning it, the function of which will be later described.

The main stove bottom 23 is provided with a similar circular opening 24 which is disposed directly below the opening 21. Circumferential flanges 25 and 26 are provided adjacent the openings 21 and 24, respectively, which act as retaining means for a secondary air inlet pipe 27 of wrought iron or any other suitable material.

The bottom portion of the depressed ring 16 is provided with a raised flange 28, and the upper portion of the ring is provided with a circumferential groove forming a horizontal shoulder 29. The shoulder 29 and flange 28 comprise supporting surfaces for a cast burner ring 31 which is cemented thereto with any suitable iron cement, whereby the ring 31 and that portion of the ring 16 between the shoulder 29 and the flange 28 form a gas chamber 32 into which the gas flows from the mixer tube 17.

The upper portion of the burner ring 31 is provided with a plurality of upwardly and outwardly directed gas ports or outlet apertures 33, the ring 31 being so shaped that the discharge ends of the ports 33 are in a plane substantially below that of the oven bottom 13 and forming an angle thereto.

Projecting inwardly from and integral with the burner ring 31 are a plurality of circumferentially spaced vertical lugs or rib members 34, each of which has a horizontal bearing surface 35. Supported upon the rib members 34 is a cover plate 36 of cast iron or any other suitable material and having a plurality of segmental cam members 37 integral therewith and depending therefrom which rest upon the horizontal surfaces 35 of the rib members 34. The cam members 37 are substantially wedge-shaped, the bottom surfaces thereof slanting downwardly in a clockwise direction, viewed from above in Fig. 2, and adjacent its deeper or lower end each cam member is provided with a shoulder 38 and a

substantially horizontal portion 39. In its lower or closed position, i. e. with the upper ends of the cams 37 resting upon the ribs 34 (Fig. 3), the cover plate 36 is flush with the oven bottom 13, and a shallow depending circumferential flange 41 integral therewith rests in a complemental trough in the burner ring 31 to close the gas ports 33 and shut off the secondary air supply from the pipe 27.

The ribs 34 and the cams 37 are so positioned and proportioned that rotation of the cover 36 through an angle of 90 degrees in a counterclockwise direction (viewing Fig. 2) from its lower position of Fig. 3 to that of Fig. 4 will impart a vertical movement to the cover 36 as the cams 37 ride upon the ribs 34. It will be readily understood that the cams 37 may have their lower surfaces sloping downwardly in a counterclockwise direction so that clockwise rotation of the cover plate 36, as viewed in Fig. 2, will raise said plate, if such operation is desired. This rotational movement will be limited by the shoulders 38 contacting the ribs 34 and the cover plate 36 will not tend to slide back to its lower position from its upper position of Figs. 4 and 5 because in the latter position the horizontal portions 39 of the cams 37 will rest upon the horizontal bearing surfaces 35 of the ribs 34. The cover plate 36 will be guided for rotational and vertical movement only by the shoulders on the ribs 34 adjacent the bearing surfaces 35, and to some extent by a rod or bolt 42 extending therethrough, or which may be integral therewith and depending from the center thereof, and which extends through and is guided by the web 22 above described. The lower end of the rod or bolt 42 may be threaded and provided with a nut 43 to prevent removal of the cover plate 36 and assist in limiting its upward movement in conjunction with the shoulders 38.

As above described, when in its lower or closed position, the cover plate 36 comprises part of the oven bottom 13 and prevents use of the gas burner; and the several parts are so positioned as not to interfere with the use of the oven with solid fuel or cause any cold spots when it is so used. Upon rotating the cover plate 36 through an angle of 90° in a counterclockwise direction (Fig. 2), it will be raised to the position of Figs. 4 and 5. In this position the cover plate 36 acts as a gas flame deflector and as a guiding baffle for the secondary air coming up through the pipe 27.

It will be apparent that the height to which the cover plate is raised will depend upon the type of ports, size of burner, etc.; that any number of lifting cams and supporting ribs or lugs may be used; and that the degree of rotation necessary to raise the cover plate the desired amount may be varied by changing the dimensions of the cam members.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. In a combination gas and solid fuel stove having an oven and a gas burner located in a depressed portion of the bottom of the oven and having gas ports therein, a cover plate for said burner having a bottom surface shaped to substantially conform to the outer surface of the burner adjacent said gas ports, and means for vertically adjusting said cover plate relative to said burner, said cover plate being adapted in its lowermost position to rest on said burner flush with the bottom of said oven to close said gas ports to render said gas burner inoperative.

2. In a combination gas and solid fuel stove having an oven, a gas burner located in a depressed portion of the bottom of said oven and having a plurality of ports therein and a central opening therethrough for secondary air, a cover plate for said burner having a bottom surface shaped to substantially conform to the outer surface of the burner adjacent said ports, and means for vertically adjusting said cover plate to a plurality of positions relative to said burner, said cover plate being flush with said oven bottom and adapted to render said burner inoperative in one of said positions by closing said ports, and being raised from said oven bottom in its other positions above said central opening to function as a secondary air baffle.

HERMAN H. HEIDBREDER.