

H. WAGNER.  
STOVE.

APPLICATION FILED JAN. 28, 1921.

1,431,494.

Patented Oct. 10, 1922.

3 SHEETS—SHEET 1.

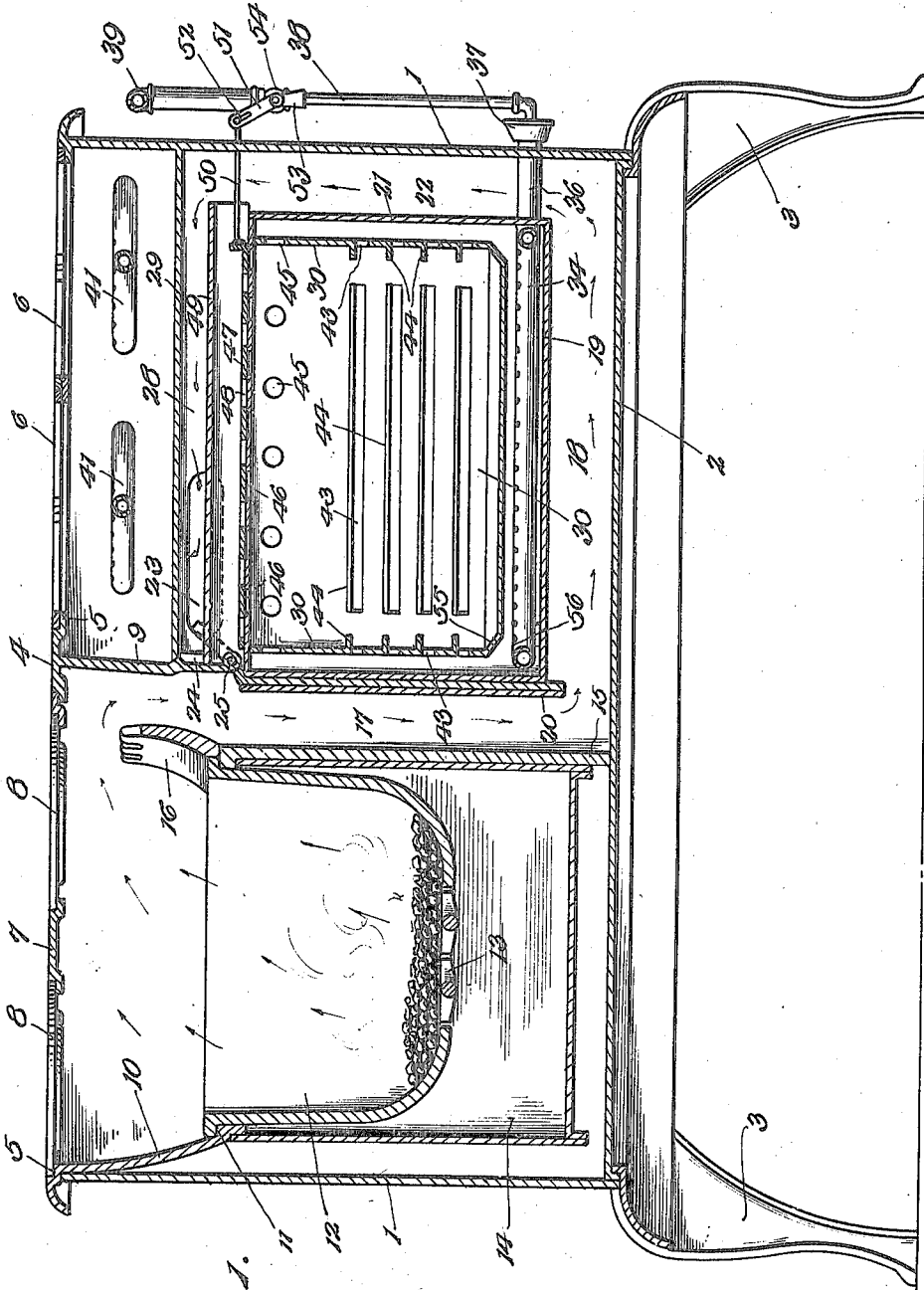


Fig. 1.

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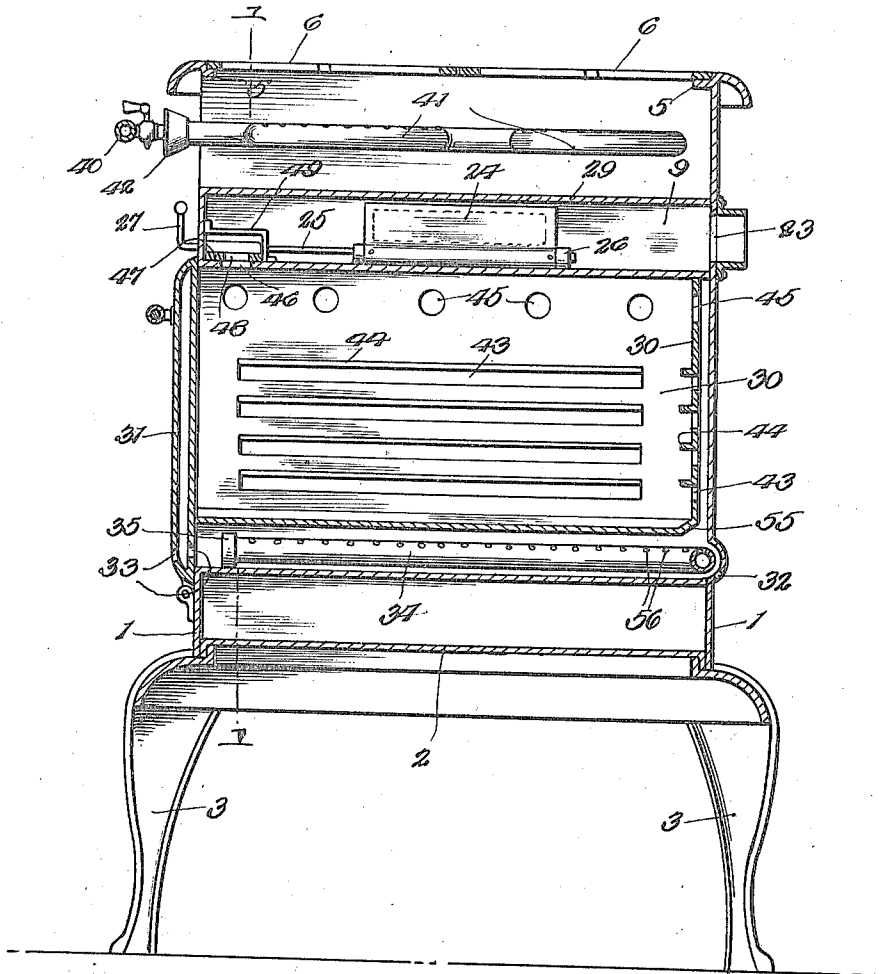
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3 SHEETS—SHEET 2.

FIG. 2.



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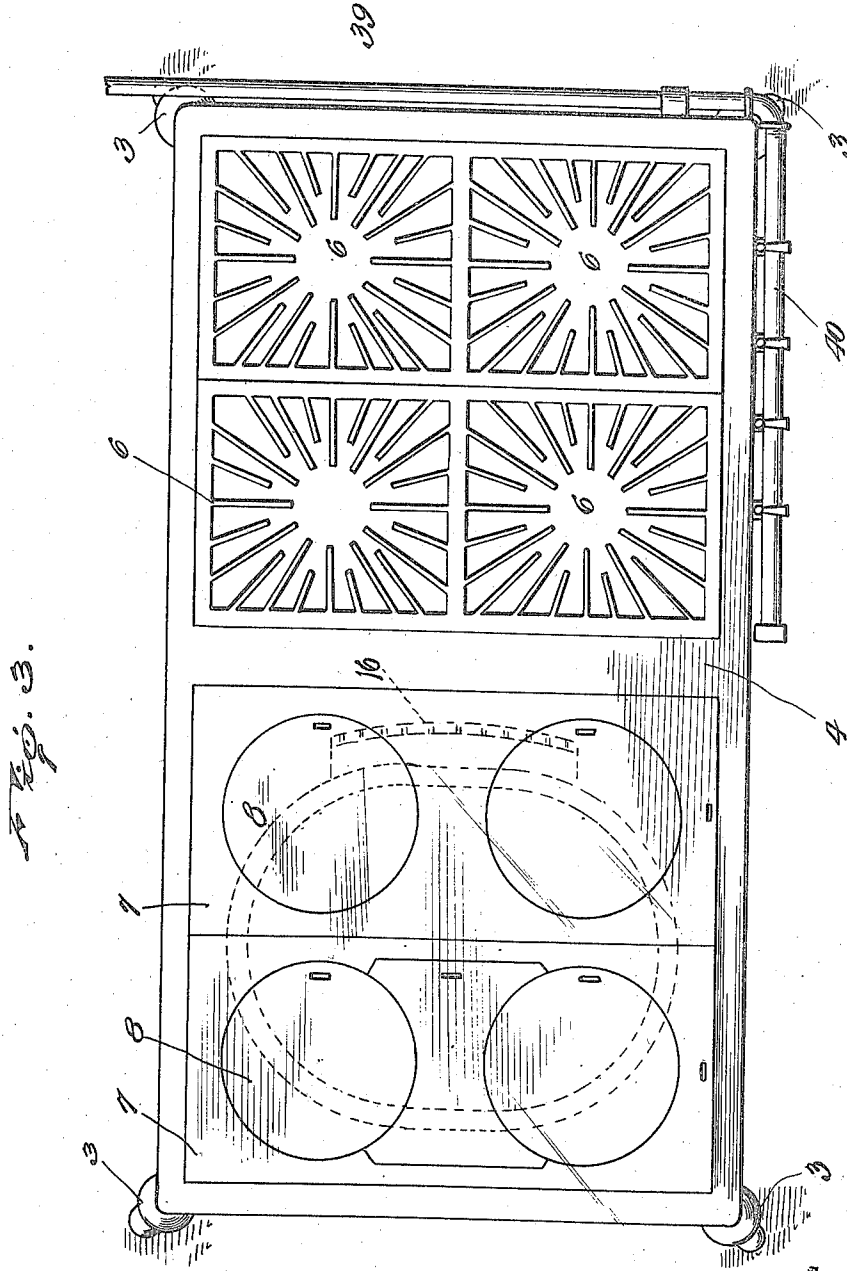
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## UNITED STATES PATENT OFFICE.

HARRY WAGNER, OF ST. LOUIS, MISSOURI.

STOVE

Application filed January 23, 1921. Serial No. 440,675.

*To all whom it may concern:*

Be it known that I, HARRY WAGNER, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Stoves, of which the following is a specification.

This invention relates to stoves and seeks to provide a cooking stove which may utilize either solid or fluid fuel and in which the heat from either fuel will be most advantageously utilized. An object of the invention is to provide an improved circulation of the heat so that it will act upon the bottom of the oven while at its greatest intensity and before being chilled through a tortuous circulation. Another object of the invention is to provide efficient ventilation for the oven and a further object of the invention is to provide novel means whereby the oven may be heated by fluid fuel, and the deposit in the oven of soot and other waste products from the combustion of solid fuel will be prevented. Other objects of the invention will appear in the course of the following description and the invention consists in certain novel features which will be hereinafter first fully described and then more particularly pointed out in the appended claims.

## In the drawings—

Figure 1 is a longitudinal vertical section of a cooking stove having my improvements embodied therein;

Fig. 2 is a transverse section; the section line 1—1 in this figure indicating the plane upon which the section shown in Fig. 1 is taken;

Fig. 3 is a plan view.

The outer walls 1 of the stove may be of any well-known or preferred type and together with the bottom plate 2 are supported upon legs 3 in the usual manner. The top plate 4 of the stove presents an outer substantially rectangular frame with an intermediate transverse connecting bar and is provided around the openings defined by the frame with shoulders or flanges 5 to support the usual utensil-carrying plates. At one end of the frame, I provide the grids 6 of the usual design employed in oil or gas stoves and at the other end of the top frame I provide the stove plates 7 having openings formed therein which are adapted to be closed by the lids 8 in the usual manner. A partition 9 depends from the intermediate connecting bar of the top frame and at one

end of the frame a wall 10 depends therefrom and presents a shoulder 11 to partly support the fire-box or basket 12. The said fire-box or basket is provided with the usual grate 13 in its bottom and a receptacle 14 is disposed within the stove around the said fire-box or basket to receive the ashes from the grate. The rear side or wall of this ash receptacle fits against a transverse wall 15 which is disposed in parallel spaced relation to the partition 9 and at its upper end supports one side of the fire basket, as clearly shown in Fig. 1. Upon the said upper end of the wall 15, I also provide a deflector 16 which rises above the fire basket and terminates short of the top frame of the stove, the ends of the said deflector being in spaced relation to the front and rear walls of the stove, as will be readily understood on reference to Fig. 3. The said deflector prevents the heat rising from the fire basket 12 passing directly into the flue 17 defined by the wall 15 and the partition 9 and causes the said heat to play upon the under side of the plates 7, the lids 8 or upon the bottoms of the cooking utensils which are at times substituted for the lids. The partition 9 terminates short of the bottom plate 2 of the stove so that a flue 18 is defined between the bottom plate 2 and the bottom 19 of the oven, the partition 9 having one end wall of the oven bearing against one face and having a shield 20 of asbestos or similar material upon its other face so that the oven will be protected from the intense heat of the currents flowing from the fire basket 12 through the flue 17. The flue 17 will be comparatively short and, consequently, the hot currents flowing therethrough will not be lowered perceptibly in temperature before they reach the flue 18, and in flowing through the latter flue they will play upon the bottom of the oven so that the oven will be most advantageously heated. The end wall 21 of the oven which is more remote from the partition 9 is spaced from the adjacent end wall of the stove so that a flue 22 is provided rising from the flue 18 to the space above the oven and the products of combustion are thereby given a thorough circulation around the three sides of the oven. In the rear wall of the stove, an exit opening 23 is provided to lead the products of combustion into a smoke flue and thence to the chimney. In order that a fire may be readily kindled and a direct draft

from the basket 12 to the opening 23 obtained, I provide an opening or passage through the partition 9 and also provide a damper 24 which is adapted to close said opening. This damper may be a plate secured to and carried by a rock shaft 25 which is journaled in lugs 26 upon the partition and extends through the front wall of the stove where it is equipped with a handle 27, as will be readily understood. It will be readily noted that the flue 22 leads into a flue 28 which is defined by the front and back walls of the shell of the stove the top of the oven, and a horizontal partition or shelf 29 arranged above and parallel with the top of the oven, the exit opening 23 being located in the back wall of the stove adjacent the damper 24 so that before the heated currents are permitted to escape they circulate completely around the oven. In starting the fire, the damper 24 is, of course, moved to open position and the products of combustion flow directly from the fire basket to the exit 23.

The oven is provided with an inner wall 30 on its back and two sides spaced from its outer walls, and the oven door 31, which, in its closed position, constitutes the front wall of the oven, is hollow, as clearly shown in Fig. 2. Openings 32 are formed through the back wall of the stove and similar openings 33 are formed through the door 31 adjacent the lower hinged edge thereof so as to admit fresh air to the space between the two walls of the oven to mingle with the flames from the burner 34 and thereby promote combustion of fluid fuel and also set up a draft or circulation through the oven which will prevent an accumulation of obnoxious fumes or gases therein. The burner 34 is arranged at the bottom of the oven across the back thereof and along the two sides, the innermost end of the burner being closed by a cap 35 or other convenient device. The fluid fuel is admitted to the burner through a branch or supply pipe 36 leading through the side of the stove and equipped with an air mixer 37 in the usual manner. The fluid is brought to the said air mixer and supply pipe 36 through a pipe 38 leading from the main supply pipe 39 which may be connected in a well-known manner with a gas main or an oil reservoir. The main supply pipe 39 is carried across the front of the stove near the top thereof, as shown at 40, to feed burners 41 disposed between the partition or shelf 29 and the top of the stove, each of said burners being equipped with an air mixer 42 in the usual manner.

The inner wall 30 of the oven is provided with openings 43 therethrough at intervals and over each of said openings is a deflector 44 so that while the heat from the burner 34 may pass into the oven in an upward direction it will be turned toward the center of the oven and, therefore, most advantageously utilized. Larger openings 45 are provided in the inner wall of the oven adjacent the top thereof so that the excess heat may pass through the openings 46 in the top of the oven and thence enter the flue 28. Upon the top of the oven is a slide 47 having openings 48 therein adapted to register with the openings 46 and over the said slide I provide a hood or cover 49 which extends longitudinally of the flue 28 and abuts the partition 9 but is spaced from the wall 1 so that it offers no obstruction to the circulation through the flue 22 nor to the escape of the gases from the oven into said flue. This hood, however, does effectually prevent soot or other products of combustion from the fire basket 12 being deposited upon or in the oven. A link 50 is secured to the slide 47 and extends through the adjacent end wall of the stove and has a pin and slot engagement with the lever 51, as shown at 52, the said lever 51 being connected with the handle 53 of a stop cock 54 in the pipe 38 so that when the stop cock is opened to permit fluid to flow to the burner 34 the slide will be moved outwardly and the openings 48 therein caused to register with the openings 46, thereby establishing communication between the oven and the space below the hood 49. It will further be noted that the lower corners of the inner wall of the oven are disposed diagonally as indicated at 55, and the jet openings 56 of the burner 34 are so disposed that the flame therefrom will play directly upon this inclined or beveled portion of the oven.

Having thus described the invention, what is claimed as new is:

1. In a stove, the combination of an enclosing shell, a vertical transverse partition arranged intermediate the ends of the said shell and terminating short of the bottom thereof, a fire-box disposed within the shell at one side of said partition and spaced from the partition, an oven at the opposite side of the said partition spaced from the bottom and sides of the shell, a horizontal partition leading from the vertical partition to one end of the shell in spaced relation to the top of the oven, the said vertical partition having an opening there-through and the shell being provided with an exit opening between the top of the oven and the horizontal partition and adjacent the opening in the vertical partition, and a damper arranged to close the opening in the vertical partition.
2. In a stove, the combination of an enclosing shell, an oven mounted within the shell in spaced relation thereto and provided with openings in its top wall, a horizontal partition spaced from the top of the oven, means for effecting circulation under and around the oven and between the top

of the oven and the said horizontal partition, a slide mounted on the top of the oven and provided with openings adapted to register with the openings in the top of the oven, and a hood disposed over the said slide and spaced from the slide and the horizontal partition.

3. In a stove, the combination of an oven having inner and outer coterminous walls on all sides, the inner wall having openings therethrough, a burner disposed at the bottom of the oven between the inner and outer walls thereof, means for supplying fuel to said burner, means for admitting outside air through the outer wall at said burner, and means at the top of the oven for controlling the escape of air and heat therefrom.

4. In a stove, the combination of an oven having inner and outer coterminous walls on all sides, the inner walls being provided with openings therethrough and the outer walls having air inlet openings therethrough at the bottom of the oven, a door for the oven having air inlet openings therethrough near its lower edge, a burner disposed within the lower end of the oven between the inner and outer walls thereof, and means at the top of the oven for controlling the escape of heated air therefrom.

5. In a stove, the combination of an oven having inner and outer coterminous walls, the inner walls being provided with openings therethrough and having obliquely disposed portions connecting the sides and bot-

tom of said inner wall, a burner disposed between the bottoms of the inner and the outer walls along the sides of the outer walls and having jets arranged to play directly upon the said obliquely disposed portions, means for supplying fuel to said burner, and means at the top of the oven for controlling the escape therefrom.

6. A cooking stove comprising an outer shell, a transverse partition depending from the top of the shell and terminating short of the bottom thereof, a wall rising from the bottom of the shell in spaced relation to said partition and terminating short of the top of the shell, a fire-box supported by and between the upper end of said wall and the adjacent end of the shell, an oven at the side of the partition remote from the fire-box and supported in spaced relation to the shell, a horizontal partition extending from the transverse partition over the oven to the adjacent end of the shell and spaced from the oven, the transverse partition having an opening therethrough between the horizontal partition and the top of the oven and the back wall of the shell having an exit opening therethrough between the horizontal partition and the top of the oven, a damper controlling the opening in the transverse partition, and burners in the space between the horizontal partition and the top of the shell.

In testimony whereof I affix my signature.

HARRY WAGNER. [L. S.]