

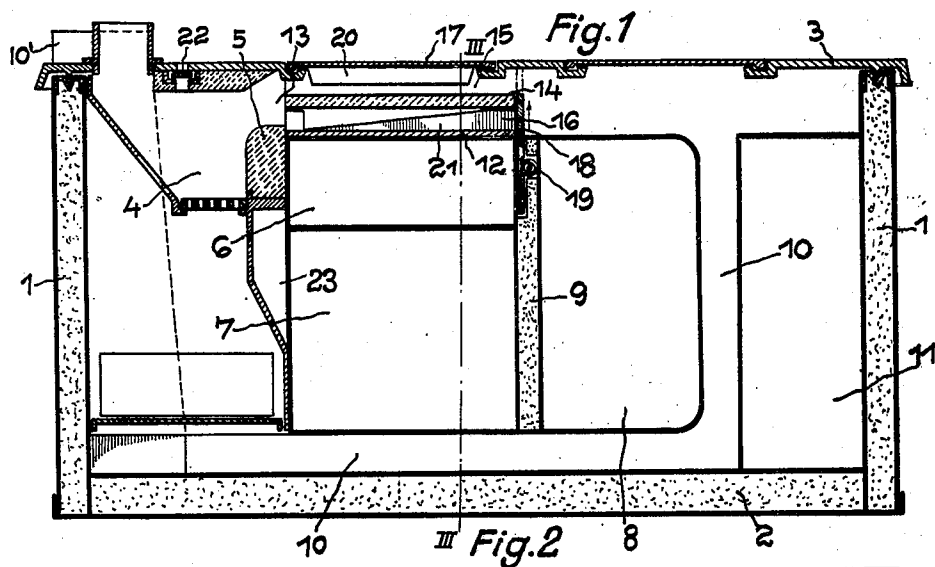
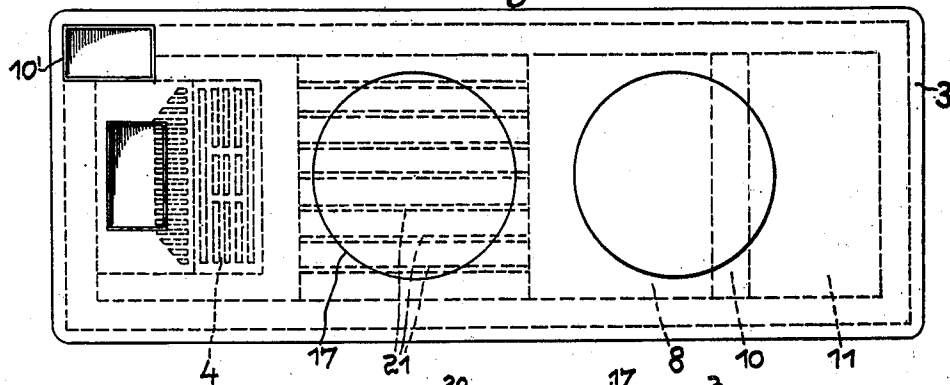
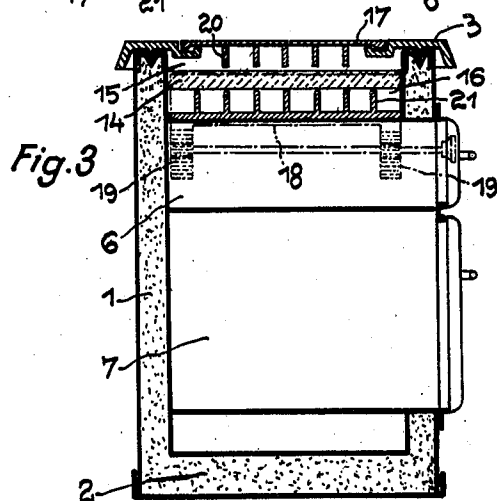
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KITCHEN STOVE

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## UNITED STATES PATENT OFFICE

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## KITCHEN STOVE

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6 Claims. (Cl. 126—1)

This invention relates to a kitchen stove, more particularly for solid fuels, and consists in the fact that for utilising the heat radiated by the combustion gases proceeding from a laterally disposed fire box there is provided between the stove plate and a radiating plate, which forms for example the top of a grilling chamber, a passage having an insulating wall, which if desired may divide the passage into two separate flues and transmits the heat of the combustion gases to the radiating plate.

The partition provided between the two flues, which can be opened or closed alternately, faces on the one side the radiating plate of the grilling chamber and on the other side a boiling plate adapted to provide a high thermal output.

In the direction of the current of heating gas there are provided on the radiating plate and/or on the boiling plate guide ribs, which preferably increase in size in the direction of the draft.

The current of heating gas passes into a passage conducted about the remaining sections of the stove, such as the baking oven, plate warming section and the like.

The grilling chamber, which may be situated, for example, above the baking oven, is separated from the fire by a fire bridge.

Above the fire box, which is preferably lined with a heat-insulating material, there is provided in front of the flues a damper for secondary air.

A method of operating stoves of the kind in question consists in so greatly heating the radiating plate bounding the grilling chamber by the heat generated by solid fuels and transmitted by the insulating partition that in the chamber bounded by the said radiating plate there is obtained an even grilling temperature without the entry of fire gases.

The insulating partition is so spaced from the radiating plate that there is always ensured a proper transfer of the heat to the radiating plate and a sufficient draft. For the alternate opening or closing of the two flues formed by the insulating partition there can be employed a damper which is movable, for example, by means of a toothed rack, or also any other suitable regulating device. The radiating plate which serves to heat the grilling chamber can consist, for example, of cast iron. The ribs provided thereon also serve at the same time to guide the combustion gases.

The stove according to the invention is intended primarily for use in railroad restaurant cars, in ships' kitchens and the like. Since when the car or other conveyance is stationary there is

no natural chimney draft, a fan is provided, which if desired may be actuated automatically, to enable the stove to be lighted or maintained in operation.

In place of a grate for solid fuels there can also be employed in the fire box disposed laterally of the grilling chamber gas burners, burners for liquid fuels and the like.

An embodiment of the stove according to the invention is illustrated by way of example in the accompanying drawing.

Fig. 1 is a longitudinal section through a stove adapted to burn solid fuels.

Fig. 2 is a plan view of the stove according to Fig. 1.

Fig. 3 is a section taken along the line III—III in Fig. 1.

The body of the stove comprising the insulating walls 1 and the bottom 2 is covered in the usual fashion at the top by the stove plate 3. Laterally of the fire box 4, separated therefrom by a fire bridge 5, is the grilling chamber 6. This grilling chamber is situated, for example, above a baking oven of similar width. In the embodiment shown in the drawing there is also provided to the side of the compartments 6 and 7 a second oven 8, from which they are separated by an insulating partition 9. The heating gases proceeding from the fire box 4 are conducted about the compartments 6, 8 and 7 through a passage 10, from 30 where they pass through the outlet 10' into the chimney. In association with the passage 10 there can also be provided other stove sections, such as a plate-warming compartment 11.

The top 12 of the grilling chamber 6 represents the only heated surface of this chamber, but owing to its position and form it is enabled to generate and maintain a constant grilling temperature in this chamber.

This is accomplished by the fact that the top 12, which consists, for example, of cast iron and is designed as a radiating plate, forms together with the stove plate 3 located in certain spaced relation thereto a fire passage 13, which is traversed by the hot gases proceeding from the laterally disposed fire box 4 when these gases are at their maximum temperature. The passage 13 is divided by a partition 14 composed of a poor heat-conductive material into two separate flues 15 and 16, so that the heat of the gases traversing the lower flue 16 is supplied in direct fashion to the plate 12 and is also transmitted to this plate by the partition 14. A similar transmission of the heat can also take place with respect to the stove plate 3, or a boiling plate 17 provided in 55

association with the plate 3, dependent on the position of the damper 18, which is adapted to shut off the one or the other of the flues 15 and 16 against the draft in the passage 10. The damper 18 can be actuated, for example, from the front of the stove by means of a toothed rack gear 19 (indicated in dash-dotted lines in Fig. 3). The radiating plate 12 and, if desired, the plate 17 are furnished with ribs 20, 21, which project into the flues 15, 16. Ribs 21 preferably increase in size in the direction of the draft. These ribs 20 and 21 extend in the direction of the current of hot gas and assist at the same time to guide the current.

For the purpose of complete combustion within the fire box 4 there is provided in front of the flues 15, 16 at the top of the fire box, all parts of which, with the exception of the grate, are lined with a heat-insulating material, a damper 22 for secondary air, which damper can be actuated, for example, from the top of the stove.

After the stove has been set into operation, dependent on the position of the damper 18, the plate 17 can be used for boiling purposes or grilling can be carried out in the grilling chamber 6 or, in the midway position of the damper 18 boiling and grilling can be performed simultaneously. In addition the compartments 7 and 8 can be used for baking purposes, and plates or other crockery can be heated in the compartment 11. The space 23 can be utilised for heating water, for example by the provision of a suitable container, circulation heater or the like.

The stove as described accordingly combines within a comparatively small space a boiling surface, a grilling chamber, two baking ovens and a heating or drying oven. The fuel is accordingly utilised to the fullest possible extent, this effect also being assisted by the provision of the secondary air damper.

The essential advantage of the stove according to the invention consists in the fact that it permits of the proper grilling of foods by means of solid fuels without the food entering into contact with the heating gases or without the air in the grilling chamber being called upon in any way to assist in maintaining naked gas flames or the like.

Whereas in the known stoves the heat is generated in the same chamber in which there is located the food being grilled the grill chamber according to the invention is completely shut off from the fire box or the like consuming solid, liquid or gaseous fuel. Owing to the novel form and arrangement of the radiating and insulating plates it is possible to generate without difficulty the temperature necessary for grilling purposes. Apart from the fact that when using solid fuels the stove according to the invention is cheaper to run than a gas stove or electric stove on account of the greater convenience in obtaining the fuel, the heat-concentrating radiating and insulating plates necessitate a smaller amount of heat than heretofore.

Moreover, restaurant cars or the like, the kitchens of which in view of the number of persons requiring to be served must provide the possibility of preparing grilled foods, are rendered more secure against the possible outcome of accidents by elimination of the gas fuel hitherto employed. The flavour of the food is not impaired by the fact that the generation of the heat does not take place within the grilling chamber.

What I claim as new and desire to secure by Letters Patent is:

1. In a kitchen stove, a grilling chamber, a fire box disposed laterally of the said grilling chamber, stove fittings for heating and baking purposes, a stove plate extending over the top of the stove, a radiating plate constituting the top of the said grilling chamber and forming in conjunction with the said stove plate a passage for the heating gases emanating from the said fire box, and an insulating partition dividing the said passage into two separate flues, valve means adjacent the partition to control the heating of said stove plate and said radiating plate from outside the stove, the said flues merging into a draft passage conducted about the said fittings for heating and baking purposes and leading to the chimney of the stove.

2. In a kitchen stove, a grilling chamber, a fire box disposed laterally of the said grilling chamber and lined with a heat-insulating material, a stove plate extending over the top of the stove, a radiating plate constituting the top of the said grilling chamber and forming in conjunction with the said stove plate a passage for the heating gases emanating from the said fire box, an insulating partition dividing the said passage into two separate flues, and a secondary air damper provided in the top of the said fire box in front of the said flues.

3. In a kitchen stove, a grilling chamber, a fire box disposed laterally of said grilling chamber, a stove plate extending over the top of the stove, a radiating plate constituting the top of said grilling chamber and forming in conjunction with the said stove plate a passage for the heating gases emanating from the said fire box, a boiling plate in the said stove plate having elongated fins thereon to guide the heated gases, an insulating partition dividing the said passage into two separate flues, the said partition facing on the one side the said radiating plate, and on the other side the said boiling plate, and a regulating valve at one end of the insulating partition to substantially completely prevent circulation of heated gases past either the boiling plate or the radiating plate.

4. In a kitchen stove, a grilling chamber, a firebox disposed laterally of the said grilling chamber, a stove plate extending over the top of the stove, a radiating plate constituting the top of the said grilling chamber and forming in conjunction with the said stove plate a passage for the heating gases emanating from the said firebox, guide ribs on the top of the said radiating plate extending longitudinally of the said passage, a boiling plate in the said stove plate, and an insulating partition dividing the said passage into two separate flues, the said partition facing on the one side the said radiating plate and on the other side the said boiling plate.

5. In a kitchen stove, a grilling chamber, a firebox disposed laterally of the said grilling chamber, a stove plate extending over the top of the stove, a radiating plate constituting the top of the said grilling chamber and forming in conjunction with the said stove plate a passage for the heating gases emanating from the said firebox, guide ribs on the top of the said radiating plate extending longitudinally of the said passage and gradually increasing in size in the direction away from the said fire box, a boiling plate in the said stove plate, and an insulating partition dividing the said passage into two separate flues, the said partition facing on the one side the said radiating plate and on the other side the said boiling plate.

6. In a kitchen stove, a grilling chamber, a firebox disposed laterally of the said grilling chamber, a stove plate extending over the top of the stove, a radiating plate constituting the top of the said grilling chamber and forming in conjunction with the said stove plate a passage for the heating gases emanating from the said firebox, a boiling plate in the said stove plate, an insulating partition dividing the said passage into two separate flues, the said partition facing on the one side the said radiating plate and on the other side the said boiling plate, and guide ribs on the lower side of the said boiling plate extending longitudinally of the said passage and having the ends of the guide ribs definitely inclined inwardly from said boiling plate.

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