L. B. DE LAITTE.

COOK STOVE.

APPLICATION FILED APR. 21, 1920.

1,420,688. Patented June 27, 1922.

2 SHEETS—SHEET 1.

FIG. 1.

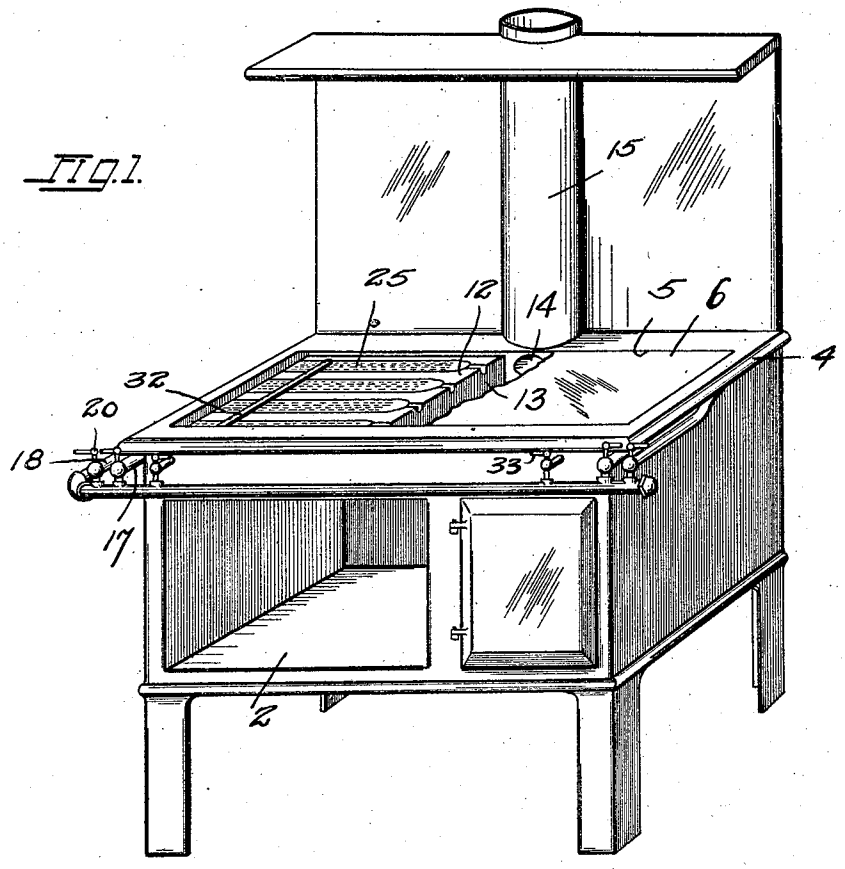
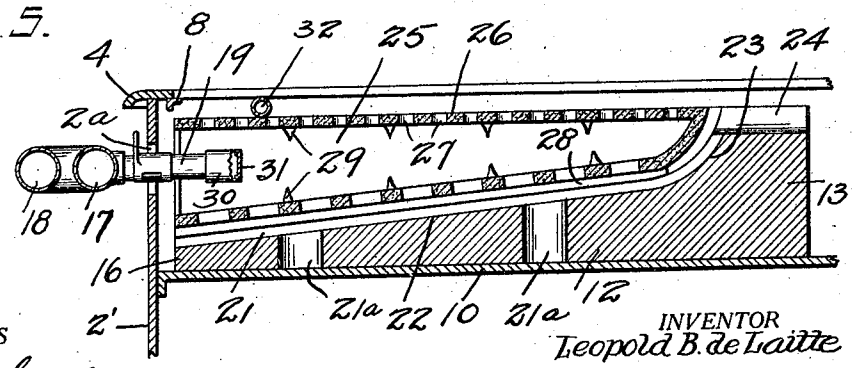


FIG. 5.



WITNESS

H. A. Sherburne.

INVENTOR

Leopold B. de Laitte

BY

White, Prentiss & Evans

his ATTORNEYS

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2 SHEETS—SHEET 2.

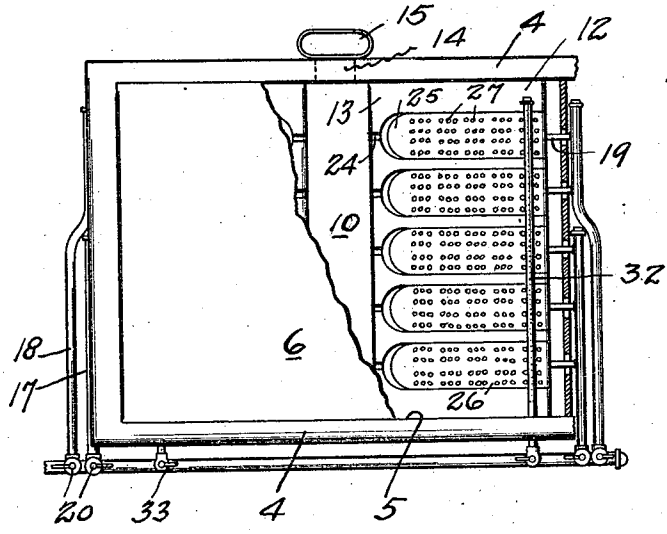


FIG. 2.

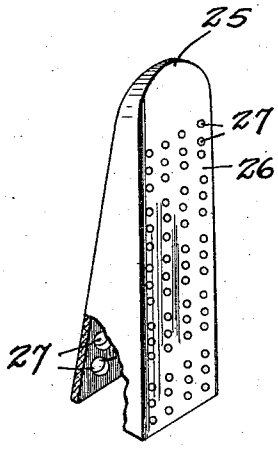


FIG. 6.

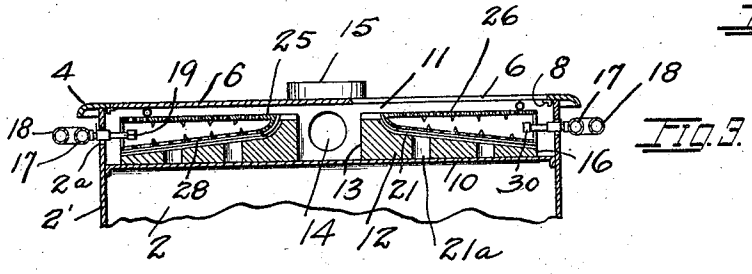
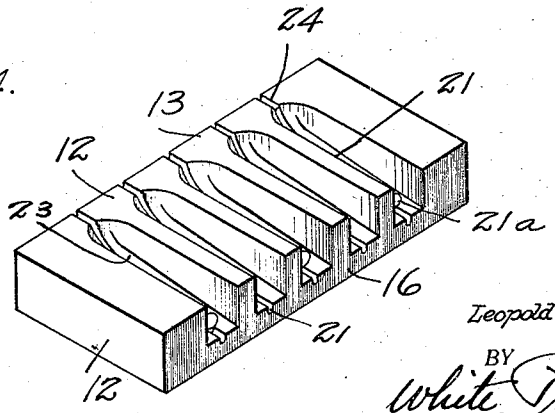


FIG. 3.

FIG. 4.



WITNESS

H. A. Sherburne.

INVENTOR

Leopold B. de Laitte.

BY

White, Pratt & Evans

his ATTORNEYS

UNITED STATES PATENT OFFICE.

LEOPOLD B. DE LAITTE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MAY ERDIN, OF SAN FRANCISCO, CALIFORNIA.

COOK STOVE.

1,420,688. Specification of Letters Patent. **Patented June 27, 1922.**

Application filed April 21, 1920. Serial No. 375,427.

To all whom it may concern:

Be it known that I, LEOPOLD B. DE LAITTE, a citizen of the Republic of France, and a resident of the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Cook Stoves, of which the following is a specification.

This invention relates to cook stoves and particularly to gas ranges and ovens.

One of the objects of the present invention is to provide an improved gas stove having a heating unit, or system of heating units, disposed so as to become incandescent with the heat of combustion of fuel at a contiguous burner tip or outlet and a further object of the invention is to provide a heating unit of highly refractory material and which is constructed and arranged to become incandescent for the efficient heating of a top plate of the range.

A further object of the invention is to provide in combination with an incandescent heating unit, or set of such units, a refractory bed or block member to receive heat of combustion and in which the heating unit or units may be compactly arranged.

A further object of the invention is to improve the heating efficiency of gas ranges by the provision of refractory bed or block members arranged below the top plane of the range and to provide a top plate; and to arrange such block members to facilitate the combustion of fuel at the burners and to conduct the consumed and waste gases readily from the fire or combustion space formed at and by the blocks.

A further object of the invention is to provide means for the ready ignition of a unit, or set of heating units, and to provide for the heating of any particular portion of the top plate of the range or the entire body of the top plate.

A further object of the invention is to provide an improved gas range with heating units that may be rendered incandescent and that may be easily installed and as easily replaced for renewals and repairs and which provide a gas range that is not only practicable but that is also ornate in appearance and of such construction that its several parts may be kept in clean and sanitary condition.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be made manifest in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that it is not intended to limit the invention to the embodiment shown by the said drawings and description as variations may be adopted within the scope of the invention as set forth in the claims.

Referring to the drawings:

Figure 1 is a perspective of one type of range or stove in which the invention is incorporated, the top plate of the range being broken away to show the subjacent parts.

Figure 2 is a plan view of the improved range partly in horizontal section to show the air admission ports.

Figure 3 is a vertical section on line 3—3 of Fig. 2.

Figure 4 is a perspective of one of the detached refractory body members or blocks.

Figure 5 is a perspective of one of the detached heating units.

Fig. 6 is a perspective of one of the mantles.

The improved features of the present construction may be readily adapted to various types of ranges, stoves and ovens, a form of which is indicated as comprising a lower casing and shelf forming part 2 that may be supported on suitable legs at the corners, this casing preferably being of sheet metal for economy in cost of construction and in weight, although it may be of other suitable method of construction. The upper portion of the casing or box 2 is provided with a top and surrounding flange or plate 4 provided with a central opening 5 of suitable dimensions, according to the size of the stove, and this opening is preferably closed by a top plate or cover 6 of suitable material and which, while shown imperforate, may have apertures forming windows through which may be observed the state or absence of combustion of the burner means and heating units hereinafter described. The plate 6 is preferably removably arranged so that it may be renewed, if necessary, and may rest, when applied, upon any suitable supporting means, as small brackets or inwardly turned seat forming flange 8 appropriately provided around the edge of the opening 5.

At a suitable distance below this top flange 4 and the top plate 6 there is provided a bottom plate or shelf 10 forming, with the

cover plate 6, a fire or combustion chamber or space 11.

For the purpose of securing a high degree of efficiency of the combustion of fuel such as gas as commonly supplied to ranges of this type, suitable refractory means and heating units are introduced into the fire or combustion space or chamber 11, such means comprising one or more blocks or bed members 12 preferably made of material such as fire clay and these blocks are shown as approximately oblong in plan and are adapted to be disposed in horizontal position on bottom 10 with their adjacent edges or faces 13 spaced sufficiently to form a passage way for the products of combustion rearwardly toward an outlet 14 to which may be connected the usual vent pipe indicated at 15. The parallel edges 16 of the blocks or refractory members 12 are disposed adjacent the side walls 2′ which are shown as provided with ports or openings 2ª for burners. Fuel is supplied to the burners by gas pipes 17 and 18 arranged in sets adjacent the sides of the range and each of which pipes has a plurality of laterally directed burners 19 and the forward ends of which pipes are provided with respective valves 20 which, when open, permit the entrance of fuel into the pipes 17—18 to supply fuel for combustion.

Each of the blocks 16 is provided with a series of pockets or recesses 21 extending substantially transversely from one edge 13 to the opposite parallel edge 16 of a given block and these pockets 21 have an upwardly, inwardly inclining bottom 22 terminating near the inner edge 13 of the block in an end wall 23 which is shown as extending up to the top surface of the block, the latter being provided with an escape duct or channel 24, one for each pocket 21. While the blocks 16 are here shown as provided with five recesses or pockets 21, it is obvious that any number more or less may be provided as desired as, for instance, according to the size of the range to be constructed and in combination with which the improved heating means is to be utilized, and the block may have apertures 21ª.

Associated with the refractory blocks 12 is a set of heating units 25, one of which is shown in Fig. 5, and such heating unit will be hereinafter termed a mantle without any intended limitation as to the character and function of such device. The mantle is preferably made of highly refractory material such, for instance, as fire clay, and is given a form approximating the form of a recess or pocket 21 so that there may be placed in each of these pockets one of the heating units or mantles 25 which are made of hollow structure tapering in conformity with the inclination of the bottom 22 of a pocket 21 so that the outer or top face 26 of each mantle 25 will lie substantially flush with the top plane of its bed or block member 12. The top face 26 of the mantle is shown as perforated at 27 and the back is also made foraminous and may be provided with outwardly extending projecting portions such as ribs 28 so as to provide a passage way between the bottom surface of the applied mantle 25 and the surface of the bottom 22, and the sides of the mantle 25 may also be spaced from the adjacent side walls of the recess 21. If desired, the inner surface of the mantle may be provided with heat absorbing protuberances or projections 29. The mantles are of such length that when they are disposed in their respective recesses or pockets 21 in the blocks 12 the open, larger ends of the mantles substantially aline with the edge or face 16 of the block, and the pockets 21 are so placed that when the block is applied in the space 11, and supported on the bottom or shelf portion 10, the mouths in the larger ends of the mantles are respectively disposed opposite to the fuel supply tips or nozzles 19. Therefore, when fuel is admitted, for instance, to one of the pipes 17 or 18, one of which is shown as extending inwardly so as to serve the first three mantles in their recesses, then the fuel from the pipe nozzles or tips 19 is directed toward and into the adjacent mouths of the mantles 25. Each pipe 18 is shown arranged to serve the rearmost two units or mantles 25 in the respective side blocks 12.

Preferably the open mouth of each burner is provided with a thimble-like burner part 30 and the inner end of this member 30 is provided with a foraminous portion 31 in the form of a wire gauze, or other device.

To facilitate ignition of the fuel, a suitable igniting means is utilized comprising, in the present case, a small tube 32 connected to the gas service and which is provided with a valve 33, there being one of these ignition tubes along the top face of the blocks 12, and these tubes are provided with apertures commencing at a point in that portion of the pipe which projects beyond the front wall of the casing 2 and thence being disposed in such juxtaposition, and extending inwardly along the upper surface of the ignition tube, that when the valve 33 is opened, and a match or other means applied to ignite the fuel, the latter as it issues from the series of apertures will be quickly ignited by a train-like travel of the flame along the top of the pipe in the line of apertures.

It is to be understood that the improved heating combination may be positioned as desired in a stove or heater in which it may be utilized.

What is claimed is:

1. A gas cook stove having a combustion

chamber, a heat-insulating bed arranged in said chamber, and an incandesceent heating body disposed upon the bed below the top plane of the stove.

2. A gas cook stove having a combustion chamber, a refractory bed arranged in said chamber, and a set of heating units disposed upon the bed below the top plane of the stove.

3. A gas cook stove having a combustion chamber, a refractory bed arranged in said chamber, and a set of heating units disposed upon the bed below the top plane of the stove, and means for igniting fuel at different sections of the set of units.

4. A gas cook stove having a combustion chamber, a refractory bed arranged in said chamber, a set of refractory mantles disposed on the bed, and means for supplying fuel to the mantles.

5. A gas cook stove having a combustion chamber, a refractory bed arranged in said chamber, refractory bodies disposed on the bed, and means for supplying fuel to the bodies, the bodies being sunk in the top face of the bed.

6. A gas cook stove having a combustion chamber, a refractory bed arranged in said chamber, a set of refractory mantles disposed on the bed, means for supplying fuel to the mantles, the mantles being sunk in the top face of the bed, and a top plate arranged just above the plane of the top faces of the bed and mantles.

7. A gas cook stove having a combustion chamber, a refractory bed arranged in said chamber, a set of refractory mantles disposed on the bed, and means for supplying fuel to the mantles, the refractory bed provided with passages for radiation of heat therethrough.

8. A gas cook stove having a combustion chamber, a sectional refractory bed arranged in said chamber, a set of refractory mantles disposed on the bed, and means for supplying fuel to the mantles, the refractory bed sections providing an intermediate escape passage for products of combustion and having grooves or channels in its top surface leading to said passage and from the mantles.

9. A gas cook stove having a combustion chamber, a bed-forming block of refractory material disposed in said chamber and having a series of recesses or pockets opening at one of its side faces; a series of refractory, heating units arranged in said pockets and having open ends at the said side faces, and means for introducing fuel mixture into the units to render the latter incandescent by combustion of fuel therein.

10. A gas cook stove having a combustion chamber, a bed-forming block of refractory material disposed in said chamber and having a plurality of series of parallel recesses or pockets opening at one of its side faces; refractory bodies arranged in said pockets and an intermediate passage between the series of recesses for escape of gases of combustion, and means for introducing fuel mixture into the recesses to render the bodies incandescent by combustion of fuel therein.

11. A gas cook stove having a combustion chamber, a bed-forming block of heating insulating material disposed in said chamber and having a series of recesses or pockets opening at one of its side faces; refractory heating bodies supported in said pockets and exposed at their top faces to radiate heat, and means for introducing fuel mixture into the recesses to render the bodies incandescent by combustion of fuel therein.

12. A gas cook stove having a combustion chamber; a set of bed-forming blocks of insulating material arranged in spaced relation to each other and to the side walls of the said chamber and having pockets in their top faces; refractory heating bodies disposed in said pockets, and means for introducing fuel mixture into the pockets so that the bodies are rendered incandescent by fuel combustion.

13. A gas cook stove having a combustion chamber with an escape opening for gaseous products of combustion; a set of bed-forming blocks of refractory material arranged in spaced relation to each other and to the side walls of the said chamber and having elongated pockets in their top faces; refractory heating bodies disposed in said pockets, and means for introducing fuel mixture into the pockets so that the bodies are rendered incandescent by fuel combustion.

14. A gas cook stove having a combustion chamber; a set of bed forming blocks of refractory material arranged in spaced relation to each other and to the side walls of the said chamber and having elongated pockets in their top faces; refractory heating units disposed in said pockets, means for introducing fuel mixture into the heating units so that they are rendered incandescent by fuel combustion, and a top plate covering the bed and units.

15. A gas cook stove having a combustion chamber; a bed forming block of refractory material arranged in said chamber and having elongated pockets; refractory heating units disposed in said pockets, means for introducing fuel mixture into the pockets so that the units are rendered incandescent by fuel combustion, and pilot or igniting means extending from an exposed position, for access, inwardly along the units to facilitate ignition of the fuel.

In testimony whereof, I have hereunto set my hand.

LEOPOLD B. DE LAITTE.