S. KOBE.

GAS STOVE.

APPLICATION FILED MAY 2, 1919.

1,344,136.

Patented June 22, 1920.

3 SHEETS—SHEET 1.

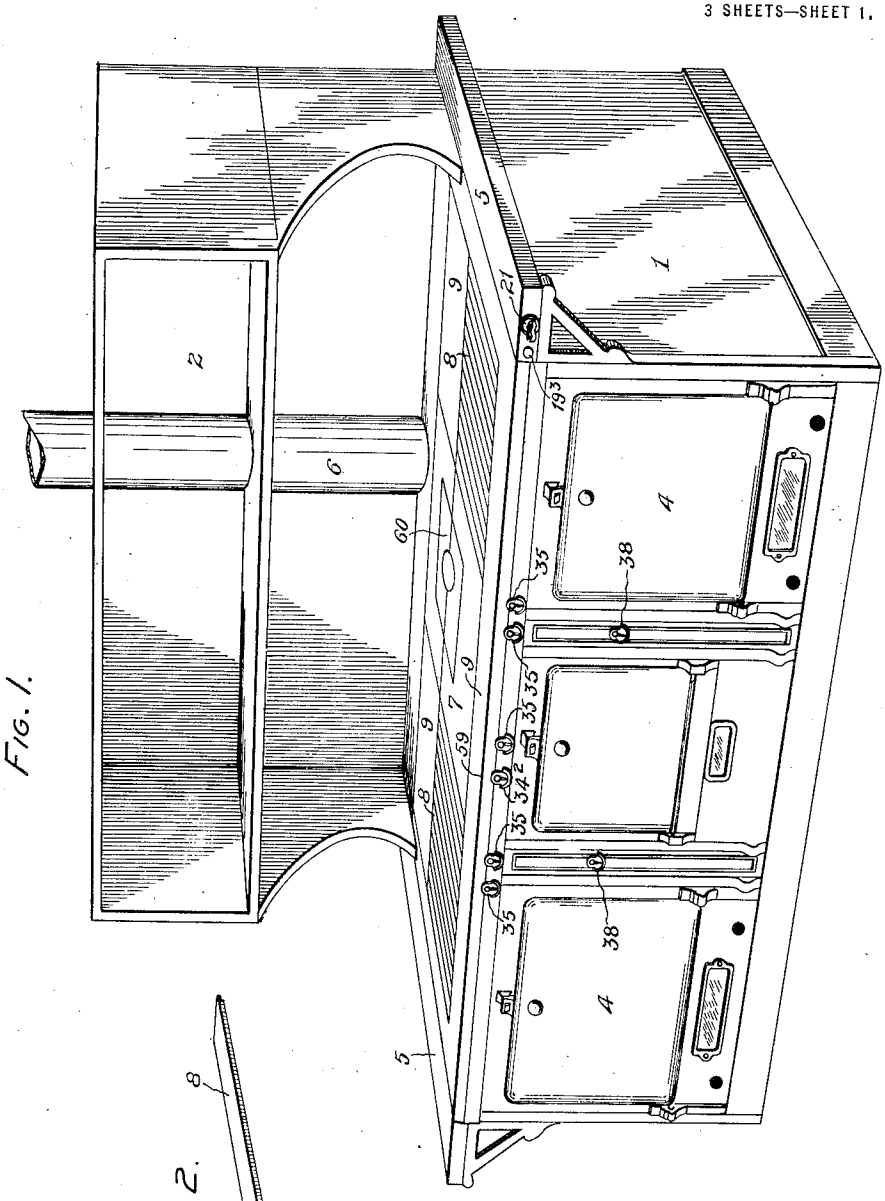

FIG. 1.

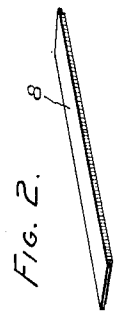

FIG. 2.

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3 SHEETS—SHEET 2.

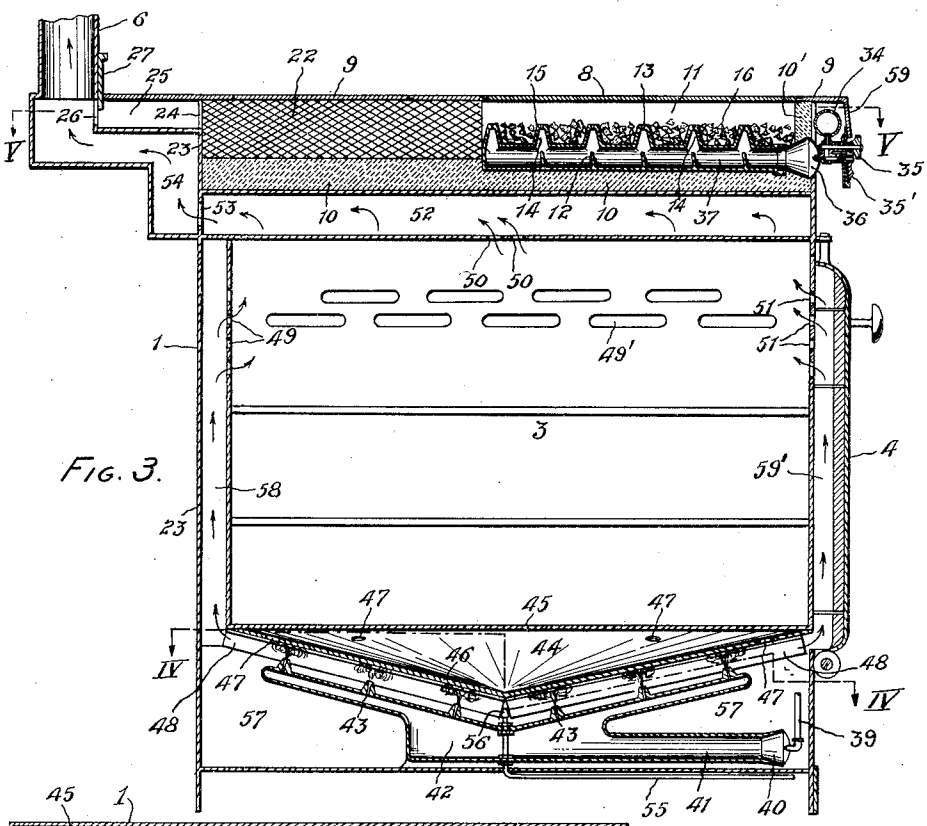

FIG. 3.

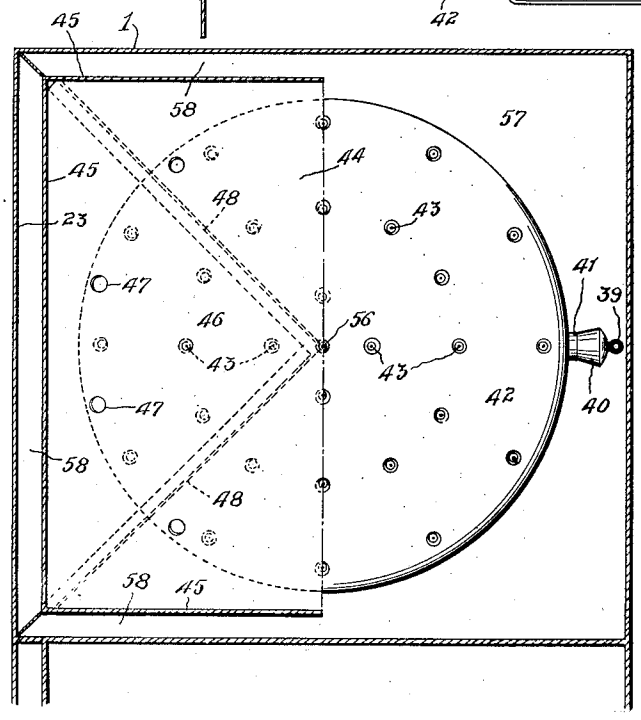

FIG. 4.

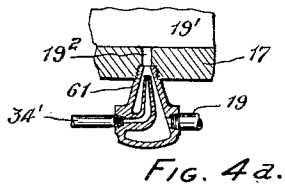

FIG. 4a.

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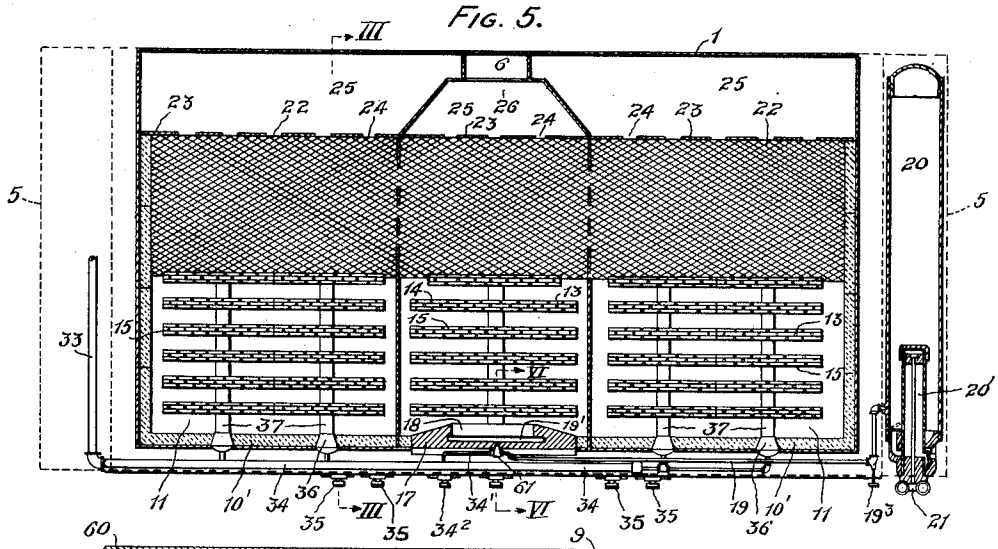
3 SHEETS—SHEET 3.

FIG. 5.



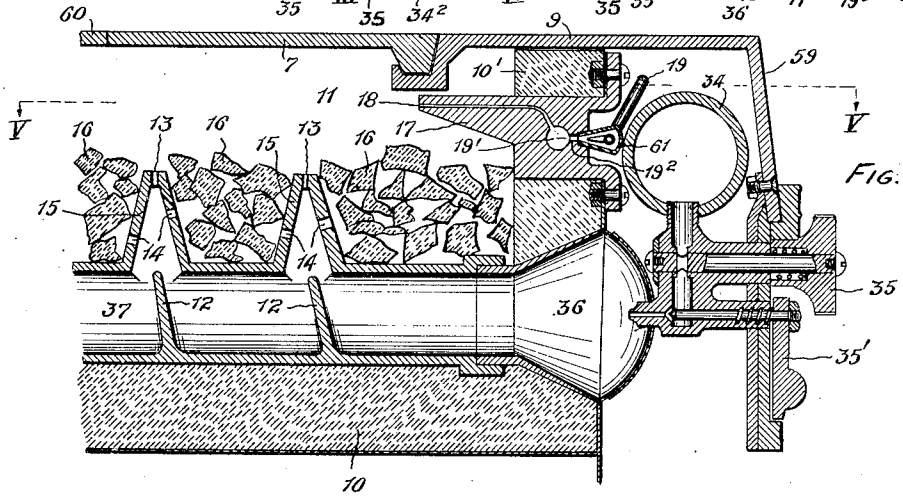


FIG. 6.

FIG. 8.

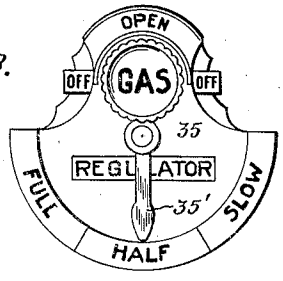
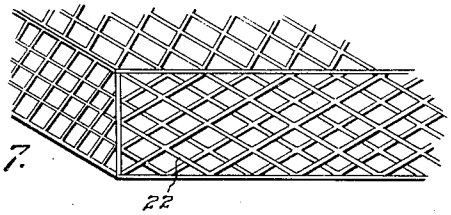


FIG. 7.



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UNITED STATES PATENT OFFICE.

SHIZUO KOBE, OF CLEVELAND, OHIO.

GAS-STOVE.

1,344,136. Specification of Letters Patent. Patented June 22, 1920.

Application filed May 2, 1919. Serial No. 294,213.

To all whom it may concern:

Be it known that I, SHIZUO KOBE, a subject of the Emperor of Japan, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented new and useful Improvements in Gas-Stoves, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to stoves and particularly to gas stoves. It is designed to provide apparatus of this character which shall be economically manufactured and assembled, economically operated, and also embody certain assembly and detail constructions heretofore unknown.

The annexed drawings and the following description set forth in detail certain means embodying my invention, the disclosed means, however, constituting but one of the various mechanical forms in which the principle of the invention may be applied.

In said annexed drawings:

Figure 1 represents a perspective view of my improved stove;

Fig. 2 represents a perspective view of an individual grid forming one of a plurality of such structures, of which the two ends of the stove cover are comprised;

Fig. 3 represents a transverse vertical section, taken in the planes indicated by the lines III—III, Fig. 5;

Fig. 4 represents a horizontal section taken in the planes indicated by the lines IV—IV, Fig. 3;

Fig. 4ª represents a horizontal section, upon an enlarged scale, of a mixer for fuel and compressed air;

Fig. 5 represents a horizontal section taken in the planes indicated by the lines V—V, Fig. 3;

Fig. 6 represents a vertical transverse section, upon an enlarged scale, taken in the plane indicated by the lines VI—VI, Fig. 5;

Fig. 7 represents a fragmentary perspective view of a regenerator formed of earthy material, the same being one of the improved features of my invention; and

Fig. 8 represents a front elevation of one of several gas valves employed, formed with auxiliary regulating means.

Referring to the annexed drawings, I have provided a body portion 1 formed with the usual warming closet 2, oven chambers 3, oven doors 4, side plates 5, and waste pipe 6. The cover of the stove is formed of a plurality of members consisting of a peripheral member 9 formed with a deep overhanging front flange 59, for a purpose hereinafter fully explained, a central plain portion 7 formed with a rearwardly disposed recess covered by a grid 60, and at each end, a plurality of comparatively narrow transversely disposed plain grids 8, Fig. 2, supported in the peripheral member 9. This cover construction is one which is easily and economically manufactured, assembled, and removed for repair or replacement of the several parts, and the special service rendered by the opening and the cover 60 therefor in the member 7, will be hereinafter fully explained. Intermediately the oven chambers 3 and the top is disposed a partition member 10 of earthy material lying adjacently below a burner chamber 11 supplied with fuel through transverse conduits 37 formed with baffle members 12 for the usual purpose. Formed adjacently above said conduits 37 are longitudinally disposed burners 15 having a plurality of gas openings 13 and 14, plainly shown in Fig. 6, said burners being formed with chambers severally filled with the clay coal 16 of the usual construction for this purpose.

Supported in a front portion 10′ of the insulating partition 10 and adjacent the front of the stove, is a metallic supporting member 17 formed with an air conduit 18 communicating with an enlarged conduit 19′ in turn communicating through a restricted conduit portion 19^2 with a mixer 61. This mixer 61 receives fuel through a branch conduit 34′, from a main supply pipe 34, hereinafter more fully mentioned, and compressed air, through a conduit 19, from a suitable compressed air chamber 20 provided with a pump 20′ actuated by a hand lever 21. This chamber 20 and pump 20′ are disposed beneath one of the side plates 5, as plainly shown in Fig. 5. This last described apparatus is for the purpose of furnishing a blue flame intermediately the central portion of the stove cover and the burners 15. This apparatus is controlled by valves 34^2 and 19^3, is used particularly when broiling meat, and is designed to keep the normal flame from the meat, the blanketing flame from the mixer 61 resulting in a blue flame being produced

adjacently below the special broiling area, which is immediately below the cover section 60, the broiling utensil being supported by the walls of the opening created by removing the cover section 60.

The burners 15 are disposed in only a portion of the chamber defined by the partition 10 and the stove top, and the balance of said chamber is filled by a regenerator 22, of the construction plainly shown in Figs. 3, 5 and 7, and comprised of baked clay or any other suitable earthy material. This regenerator 22 is of material depth, as plainly shown in Figs. 3 and 7, and fills the entire area intermediately the rear of the burners 15 and the rear wall of the stove which is indicated by the ordinal 23, as plainly shown in Fig. 3. This rear wall 23 is provided with outlets 24 communicating with a chamber 25 which in turn, through an opening 26, controlled by a damper 27, communicates with the waste pipe 6. The regenerator 22 is designed to be used as storage means for heat and, after the same has been thoroughly heated, a gas regulator 35′, hereinafter described, is adjusted to an extent controlled by the necessities of the service required from the stove and the stored heat of the regenerator 22 used to furnish in part the necessary heating.

A conduit portion 33 is connected to the source of gas supply, said conduit portion 33 being disposed beneath one of the side plates 5 and communicating with a front conduit 34 provided with gas valves 35 provided with regulators 35′, whereby gas is admitted to the mixers 36 of the transversely disposed branch conduits 37 feeding the burners 15 through the lateral openings 14 and the top openings 13. The valves proper 35 may be left fully open and the fuel adjusted through the regulators 35′. This front conduit 34 is disposed beneath the overhanging flange 59, as plainly shown in Fig. 6. Gas valves 38 control the passage of fuel down vertical conduits 39, Fig. 3, to mixers 40 of transversely disposed conduit portions 41, opening into a chamber 42 formed in its upper wall with gas passages 43. This last described apparatus is for the purpose of heating the oven chambers 3. The bottom of the ovens 3 is a double wall inclosing a chamber 44, said walls being indicated by a flat upper member 45 and the concave floor member 46. In order that means may be provided for the escape of heated air from the chamber 44, holes 47 are formed in the floor 46 adjacent the upper edge thereof, Figs. 3 and 4, whence said heated air escapes to a chamber 57 communicating with conduits 58 and 59 surrounding the oven 3. The space immediately below the floor 46 also communicates with the chamber 57 and, in order that the flame created at the openings 43 may not be swept in a mass to the conduits 58 and 59′ baffle members 48, plainly shown in Figs. 3 and 4, are fastened to the under surface of said floor 46 for the purpose of evenly distributing the heat. The waste products and heated air escape from the chambers 58 and 59 through the openings 49 and 49′ and 51, respectively, into the oven 3 and thence through upper openings 50 in said oven into a transverse conduit 52 communicating by means of openings 53 in the back wall 23 of the stove with a conduit portion 54 leading to the waste pipe 6. A small conduit portion 55 communicating with conduit 33 (by means not shown) is formed at its outer end with a burner 56 for furnishing a pilot flame adjacently below the center of the concave floor 46.

What I claim is:

1. In a gas stove, the combination with a suitable body member provided with a gas conduit including a burner and a waste pipe; of separate means located above the burner adapted to furnish a blanketing blue flame intermediately the central portion of the stove cover and said burner.

2. In a gas stove, the combination with a suitable body member provided with a gas conduit including a burner and a waste pipe; of a compressed air tank, a pump, means forming an air conduit communicating with said tank, a mixer located above the burner into which said air conduit discharges, and means furnishing gas to said mixer, the latter discharging between the stove cover and said burner.

3. In a gas stove, the combination with a suitable body member provided with a gas conduit including a burner and a waste pipe; of a mixer located above the burner, means adapted to furnish compressed air to said mixer, a branch conduit communicating with said gas conduit and discharging into said mixer centrally of said air furnishing means, said mixer discharging between the stove cover and said burner, and means for controlling said branch conduit and said air furnishing means.

4. In a gas stove, the combination with a suitable body member provided with a gas conduit including a burner and a waste pipe; of a chamber formed at the rear of the burner and a regenerator formed of earthy material disposed in said chamber in horizontal alinement with the said burner.

5. In a gas stove, the combination with a suitable body member provided with a gas conduit including a burner and a waste pipe; of a chamber formed parallel with the burner, and a regenerator formed of reticulated earthy material entirely filling said chamber and disposed in horizontal alinement between the said burner and rear wall of the stove.

6. In a gas stove, the combination with a

suitable body member provided with a gas conduit including a burner and a waste pipe; of means forming an oven with double walls entirely surrounding said oven adjacently said burner, and baffles secured to the lower surface of the bottom wall adapted to evenly distribute the heat to the four sides of said oven.

7. In a gas stove, the combination with a suitable body member provided with a gas conduit including a burner and a waste pipe; of an oven formed with double walls on all of its four sides and a funnel shaped double bottom, and baffle plates secured to the lower surface of said bottom adapted to evenly direct the heat to the four sides of said oven.

Signed by me, this 26" day of April, 1919.

SHIZUO KOBE.