

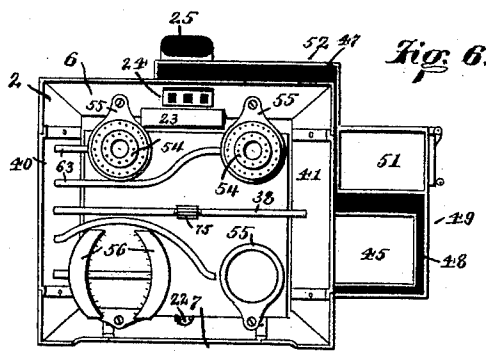
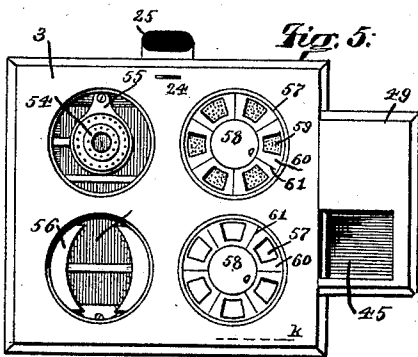
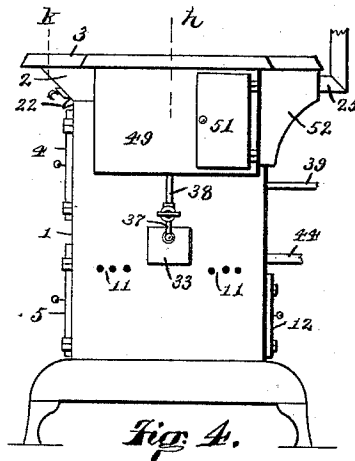
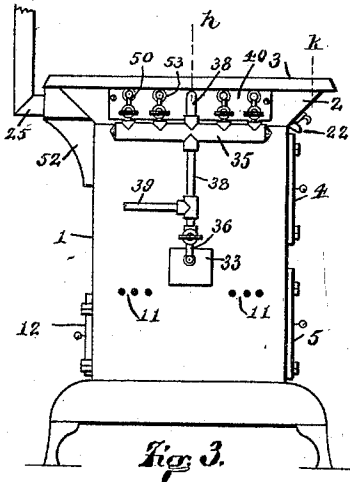
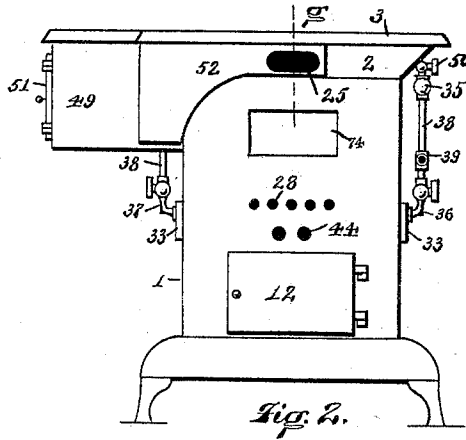
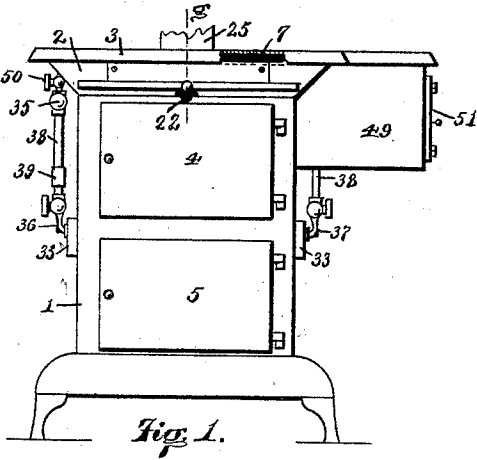
(No Model.)

3 Sheets—Sheet 1.

L. KAHN.
GAS STOVE.

No. 465,023.

Patented Dec. 15, 1891.



Witnesses:
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L. B. Owsenick,

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Attorney

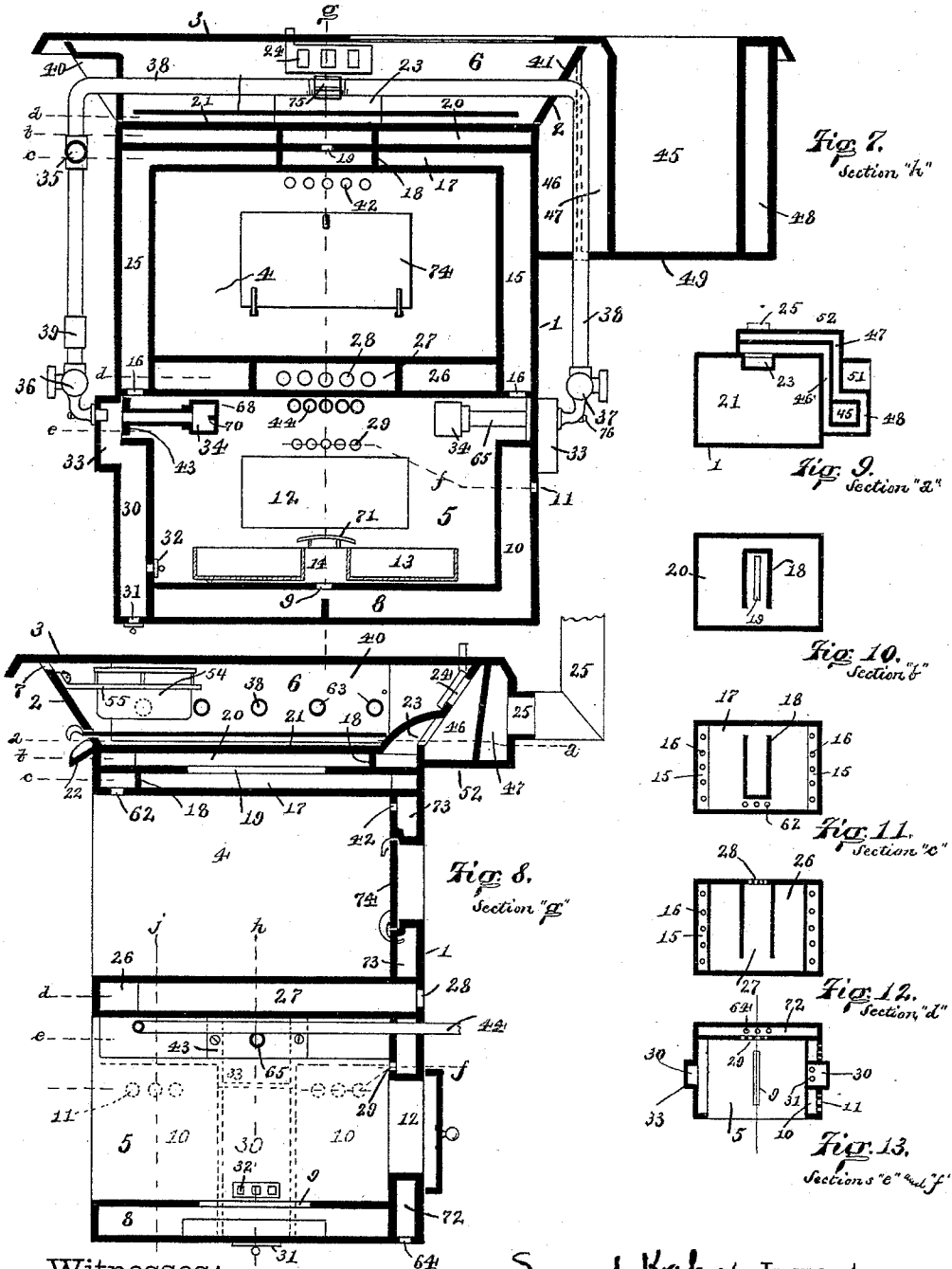
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3 Sheets—Sheet 2.

L. KAHN.
GAS STOVE.

No. 465,023.

Patented Dec. 15, 1891.



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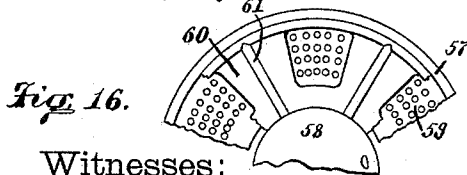
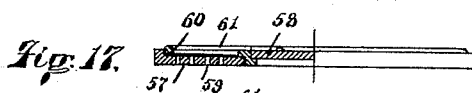
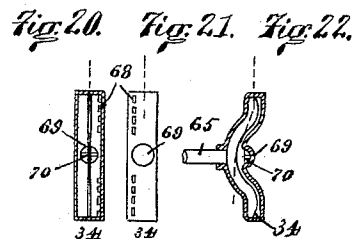
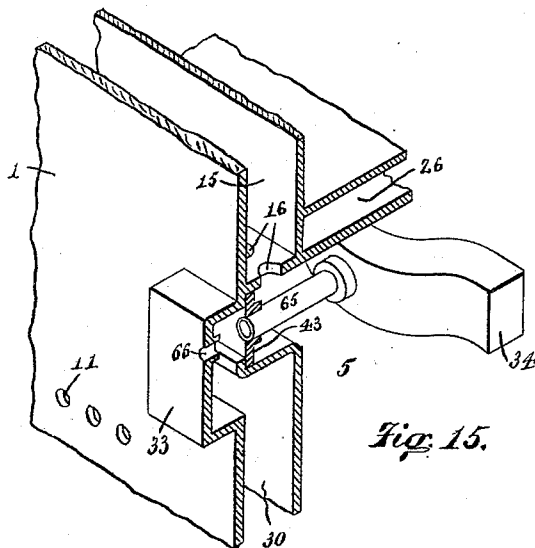
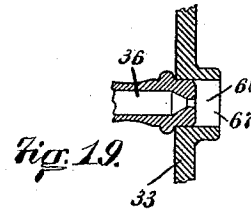
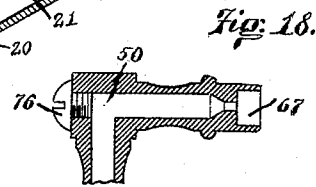
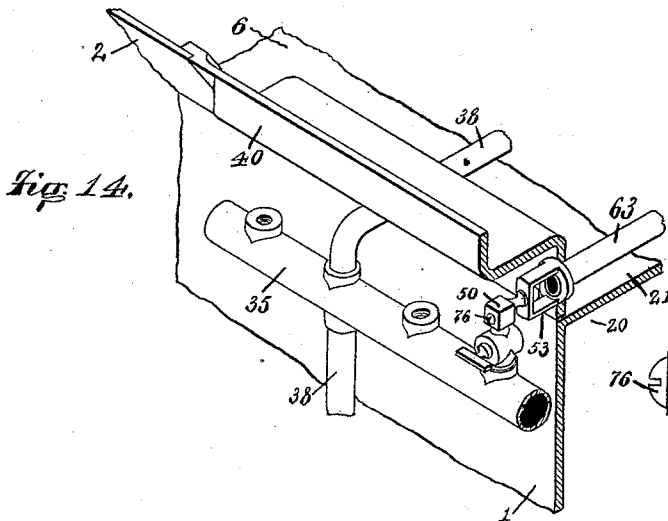
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3 Sheets—Sheet 3.

L. KAHN.
GAS STOVE.

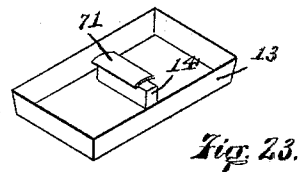
No. 465,023.

Patented Dec. 15, 1891.



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UNITED STATES PATENT OFFICE.

LAZARD KAHN, OF HAMILTON, OHIO.

GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 465,023, dated December 15, 1891.

Application filed August 18, 1888. Serial No. 283,152. (No model.)

To all whom it may concern:

Be it known that I, LAZARD KAHN, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Gas-Stoves, of which the following is a specification.

This invention relates to gas-stoves intended for cooking purposes, and, incidentally, for heating, and the improvement will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a front elevation of gas-stove embodying my improvements, a portion of the top of the stove appearing in section in plane of lines *k* of Fig. 5; Fig. 2, a rear elevation of the same; Fig. 3, a side elevation of the same, showing the left-hand side—that is to say, the side at the left of Fig. 1; Fig. 4, a side elevation of the right-hand side; Fig. 5, a plan of the stove, showing two of the pot-hole covers removed and two in place, one of the latter two being open and one closed; Fig. 6, a plan of the stove with the entire top plate removed; Fig. 7, a vertical section of the stove on an enlarged scale, the base and leg-work being omitted, the left-hand portion of the section being in the plane of line *h* of Figs. 3, 4, and 8, while the right-hand portion is in a plane of line *j* of Fig. 8; Fig. 8, a vertical section, on same scale as Fig. 7, in the plane of line *g* of Figs. 1, 2, and 7, the front oven-doors being omitted; Fig. 9, a horizontal section, on reduced scale, in plane of line *a* of Figs. 7 and 8; Fig. 10, a similar horizontal section in plane of line *b*; Fig. 11, a similar horizontal section in plane of line *c*; Fig. 12, a similar horizontal section, the left-hand portion being in the plane of line *e* and the right-hand portion in the plane of line *f*; Fig. 14, a perspective view of the upper left-hand portion of the stove, exposing a vertical section in a plane corresponding with the center of one of the top burner-pipes and exhibiting the manifold thereto; Fig. 15, a perspective view of a portion of the left-hand side of the stove at the general level of the burners, this view exposing a vertical section in the plane of line *h* of Figs. 3, 4, and 8; Fig. 16, a plan of a portion of one of the pot-hole covers shown in open

position; Fig. 17, a side elevation of the same, part vertical diametrical section; Fig. 18, a vertical section of the gas-nozzle for one of the top burners; Fig. 19, a vertical section of the gas-nozzle for one of the oven-burners, shown in conjunction with the aperture in the stove-wall through which it discharges; Fig. 20, a vertical longitudinal section of one of the oven-burners; Fig. 21, a face view of one of the oven-burners; Fig. 22, a central horizontal section of the same; and Fig. 23 a perspective view of a drip-pan for use in the lower oven, the hood appearing in vertical transverse section.

In the drawings, 1 represents the body of the stove, which is shown as being generally of a rectangular or box form; 2, the outwardly and upwardly projecting cornice thereof; 3, the top plate, provided with the usual pot-holes and resting on the top of the cornice; 4, the closed top oven, whose walls are multiple, to furnish spaces and conduits; 5, the closed lower oven, having also multiple walls; 6, the cornice-space, being that space within the cornice and between the top plate and the horizontal plate at the foot of the cornice, this cornice-space containing, as usual, the top burners; 7, Figs. 6 and 8, a depression at the top of the front of the cornice forming a slot or passage from the outer atmosphere into the cornice-space at the front of the stove, the top plate 3 closing down neatly upon the top of the cornice, except at this depression; 8, a passage formed by the double floor of the lower oven; 9, a slot in the upper floor of the lower oven, placing the lower oven in communication with the passage 8; 10, vertical passages formed between the double side walls of the lower oven, these passages forming vertical prolongations of the passage 8 and extending upwardly to near but not to the top of the lower oven, the tops of these vertical passages being closed; 11, holes through the outer side walls of the lower oven, placing the vertical passage 10 in communication with the outer atmosphere; 12, a doored opening through the double back wall of the lower oven; 13, a drip-pan in the lower oven; 14, a central opening through the drip-pan over the slot 9 in the oven-floor, this opening in the drip-pan having a rim the height of the general rim of the pan; 15, vertical pas-

sages formed between the double side walls of the top oven, these passages extending from the lower oven to the passage over the top oven; 16, apertures in the floor of these vertical passages, placing the passages in communication with the lower oven; 17, a passage over the top oven immediately over the roof-plate of that oven, this passage being in free communication with the vertical passages 15; 18, Figs. 7 and 11, vertical partition-work in the passage 17, dividing that passage into a central chamber and two side chambers, which latter two chambers communicate with each other at the front, and all of which chambers are in free communication at the rear of the partitions; 19, a central slot through the roof of passage 17 from the central chamber thereof; 20, Figs. 7 and 10, a second passage immediately over passage 17 and, like it, extending over the whole top of the top oven, this passage having also the vertical partition-work 18, dividing it into three chambers, the three chambers in these spaces, however, communicating with each other at the front of the partition-work, while the two side chambers communicate with each other at the rear thereof; 21, a horizontal plate forming the roof of passage 20 and the floor of the cornice-space; 22, a spout projecting from plate 21 out through a hole in the front cornice; 23, a central passage leading outwardly from passage 20 through the rear cornice and ultimately to the stove-pipe; 24, a register in the rear cornice, placing the cornice-space in communication with the same rear passage to which passage 23 leads, said rear passage leading ultimately to the stove-pipe; 25, the stove-pipe connection at the rear of the cornice communicating, as hereinafter explained, with the passage 23 and the register 24; 26, Fig. 12, passages in the floor which intervene between the top and bottom ovens; 27, a central portion of this passage, divided from the side portions thereof by vertical partitions, which reach forwardly from the back wall of the stove to near the front wall, the three portions of the passage being in free communication at the front of the partitions; 28, apertures through the back wall of the stove leading from the outer atmosphere into the central portion of this passage; 29, apertures through the back inner wall of the lower oven, near the top of the oven, leading from the oven into a wall-passage 72 at the rear thereof; 30, vertical passages in the side walls of the lower oven leading from the extreme bottom of the stove upwardly the same height as passages 10, these passages being formed by vertical partitions in the passage 10, thus causing the side spaces to form at each side of the stove the central passage 30 and the two passages 10 flanking it; 31, registers at the foot of the passages 30, placing these passages in communication with the outer atmosphere under the stove; 32, registers near the foot of passages 30, placing these passages in

communication with the lower oven near the bottom of the lower oven; 33, hollow projections at the sides of the stove opening inwardly, the lower portions opening into passages 30, while the upper portions open into the bottom oven at the foot of passages 15, the passages 30 thus being continuous from the extreme bottom of the oven upwardly to the oven just below the roof thereof; 34, the oven-burners disposed in the lower oven just below the roof thereof at some little distance inwardly from the sides of the oven, the construction and connection being hereinafter explained; 35, Fig. 3, a manifold at the left-hand side of the stove at the foot of the cornice, this manifold being arranged at its top and bottom for various gas connections, as hereinafter explained; 36, the gas-nozzle for the left-hand oven-burners, discharging into the appropriate one of projections 33 and provided with a cock; 37, the similar gas-nozzle for the right-hand-oven burner; 38, the oven-burner pipe extending across the cornice-space and down to both oven-burner gas-nozzles, this pipe connecting immediately with the manifold; 39, the gas-supply pipe communicating with the manifold through the medium of the left-hand vertical part of pipe 38, this gas-supply pipe being intended for proper connection with the source of gas-supply; 40, a section of the cornice at the left-hand side of the stove in the exemplification attached to the cornice and separable therefrom and forming a part thereof, this cornice-section having apertures for the connection of the burner-pipes, four in number in the exemplification, and also for the passage of the horizontal part of pipe 38; 41, a similar separable cornice-section at the right-hand side of the stove, having a single aperture for the passage of the horizontal portion of pipe 38, the two cornice-sections 40 and 41 and another at the front of the stove, if desired, being interchangeable in their connections with the main cornice—that is to say, the main cornice has gaps, and either of the removable cornice-sections will fit in either of these gaps; 42, apertures in the inner back wall of the top oven, near the top of the oven, leading from the oven into a passage 73, extending over the entire back of that oven; 43, a flange separably secured against the inner face of the outer wall of the stove where this wall presents itself inwardly near the top of the bottom oven by reason of the fact that the inner wall of the passages 10 and 30 does not extend entirely to the top of that oven, these flanges serving to receive and support the oven-burners, and to place these burners in communication with the upper portion of passages 30, formed by the inwardly-open cavities 33, and to close the inner fronts of cavities 33, except in so far as they communicate with the burners through the flanges; 44, a flat coil of water-pipes disposed in the lower oven just below the roof thereof and centrally between the

two oven-burners, these pipes extending out of the back of the stove for proper connection with the usual kitchen-boiler; 45, a hot-water reservoir arranged, in the exemplification, at the right-hand side of the stove in a projection therefrom, and arranged to be encircled by the hot products of combustion on their way from passage 23 or register 24, or both, to the stove-pipe connections; 46, Fig. 9, a passage leading from passage 23 and register 24 along back of the back cornice, thence forwardly between the right-hand side of the stove and the hot-water reservoir, and thence along the front of the hot-water reservoir; 47, a passage parallel with passage 46 and leading from the stove-pipe connection 25 to the right, thence forwardly, thence to the right to the rear of the hot-water reservoir; 48, a passage along the right of the hot-water reservoir joining the passages 46 and 47, up into one continuous passage encircling the hot-water reservoir in its route; 49, the general structure containing the hot-water reservoir and the passages surrounding it, this structure being rectangular in form and forming a projection from the upper right-hand portion of the stove, the cornice forming in the exemplification the inner wall of the passage 46, while these passages generally are roofed by the top plate 3 of the structure; 50, Fig. 14, gas-nozzles attached to the manifold and provided each with a cock and arranged to deliver gas to the pipes for the top burners, the nozzles rising vertically from the manifold and turning thence horizontally to the burner-pipes, the cocks being in the vertical portions of the nozzles, thus permitting the location of the nozzle-work closely and neatly up under the cornice, as indicated in Figs. 1 and 2; 51, a hot closet arranged in the structure 49 to the rear of the hot-water reservoir and having its door opening to the right of the stove, this hot closet being traversed to the left and front by the passage 47; 52, a double flue structure containing the rear portions of passages 46 and 47, this structure being secured against the rear cornice of the stove, so that the rear cornice forms the front wall of the flue structure, the stove-pipe connection 25 being formed upon the rear portion of this structure at the rear termination of passage 47; 53, Fig. 14, the mixer for the top burners, the same being the usual skeleton casting secured upon the end of the burner-pipe just outside the cornice and receiving the gas-nozzles 50; 54, the top burners located within the cornice space centrally below the pot-holes, these burners being of any of the usual forms, but preferably of a special construction, for which I have filed separate application for Letters Patent; 55, burner-holders consisting each of a ring with a shank, the rings being each adapted to receive and support a top burner, while the shank reaches radially outward into engagement, as by screw or bolt, with the cornice,

as clearly exhibited in Figs. 6 and 8; 56, a special top burner applied at one of the pot-holes only, this burner consisting of a pair of tubes facing each other and provided with gas-ajutages upon their inner faces, so that the jets of gas shoot toward each other and form a sheet of flame; 57, Figs. 5, 16, and 17, the main pot-hole covers fitting the pot-holes; 58, small removable covers, one at the center of each of the main pot-hole covers; 59, circumferentially-arranged groups of perforations in the main pot-hole covers; 60, a rotary supercover or register over the outer portion of the main pot-hole covers and provided with register-openings, one opening for each group of perforations in the main cover; 61, radial ribs upon the upper surface of the supercovers, these ribs projecting upwardly beyond the upper surface of the supercovers; 62, Figs. 8 and 11, apertures centrally arranged in the upper roof of the top oven at the front thereof and placing the top oven in communication with passage 17, which passage is subject to chimney-draft, the location of the apertures 62 being such that cold air leaking inward at the door-joints promptly leaves the oven without diffusing therein; 63, the pipes for the top burners, these pipes being rigidly connected at their inner ends to the burners and at their outer ends to the mixers 53; 64, Figs. 8 and 13, apertures in the extreme bottom of the stove at the rear, admitting atmospheric air to the passage 72, extending from the back of the lower oven; 65, Figs. 15 and 22, the pipes of the oven-burners rigidly secured at their inner ends to the oven-burners and at their outer ends to the flanges 43; 66, Figs. 15 and 19, apertures in the outer walls of projection 33 to receive the gas-nozzles for the oven-burners; 67, Figs. 18 and 19, counterbores at the ajutages of the gas-nozzles, these counterbores being formed alternately by counterboring the nozzle itself, as in Fig. 18, or by projecting the nozzle but a portion of the way through the aperture which receives it, as in Fig. 19; 68, jet-holes in the upper front face of the oven-burners; 69, a cup-shaped depression in the interior surface of the front wall of the oven-burner in the line of the axis of the pipe of the burner; 70, cross-ribs within this depression, the horizontal ones of which extend along the inner face-wall of the burner; 71, Figs. 7 and 23, a hood disposed above the central opening of the drip-pan, this hood completely roofing said opening, but leaving a free outlet from the opening under the roof; 72, Figs. 8 and 13, the passage or space at the back of the lower oven in communication with apertures 29 and 64; 73, Fig. 8, a much similar passage or space at the back of the top oven, the bottom of this passage being in free communication with the passage 26; 74, a door in the back wall of the top oven opening downwardly and inwardly and limited in its opening by stops to a horizontal position, whereby when open it serves

as a supporting-shelf within the oven; 75, a coupling in the horizontal part of pipe 38, and 76 an axial screw at the rear of each nozzle.

The structure 49 and its immediate accessories, containing the hot-water reservoir and the hot closet, may be looked upon as a refinement which may or may not be provided as an attachment to the stove. All of the hot products of combustion pass from the stove proper through passage 23 and register 24. They pass thence through passages 46, 48, and 47, which carry them entirely around the hot-water reservoir and along two sides of the hot closet, and they pass thence to the chimney. In the absence of these appliances for absorbing the wasted heat from the hot products of combustion on their way to the chimney the hot products will of course escape directly from passage 23 and register 24, and the entire structure containing the water-reservoir and hot closet will be absent and leave the two sides of the stove symmetrical.

Fresh air enters the front cornice-depression 7 and ventilates the cornice-space and supplies the top burners with air for combustion after ignition, and the resulting products of combustion escape through register 24. If the pot-hole covers are off, or if all of the draft of the chimney connection is desired for oven purposes, then this register may be closed.

The top burners are supported entirely clear of plate 21, which forms the floor proper of the cornice-space, and the spout 22 permits discharge of sweepings.

All of the top-burner cocks and nozzles are, it will be noticed, upon the left-hand side of the stove, neatly up under the cornice. This leaves the right-hand side of the stove clear and permits the presence of the water-reservoir and hot closet, if they are desired, and in their absence it permits the stove to be set closely up into the corner of the room, with its right-hand side against the wall, room enough only being required to manipulate the oven-burner cock 37. This arrangement of pipage requires, in the exemplification, five pipe-holes through the left-hand cornice and but one through the right-hand cornice and none in front. It may be that the given situation of stove is such that it is desirable that the stove set with its left-hand side closely against the wall. In such case the manifold and the top burner, nozzles, &c., will need to be located upon the right-hand side of the stove. The change is readily permitted by transposing the cornice-sections 40 and 41, whereby the right-hand side of the cornice becomes provided with the five pipe-holes and the left-hand cornice with the single pipe-hole; or the pipage may, in similar manner, be at the front. The supply-pipe 39 may obviously be connected upon either side of the stove, either on pipe 38 or elsewhere, in communication with the manifold.

The pot-hole covers are arranged to either close the entire pot-hole or to close all but a small central portion directly over a top

burner or to close all but the perforations 59. With the central cover 58 in place and the register 60 closed the entire pot-hole is closed. Turning the register opens the perforations 59 only. Closing the register and removing the central cover 58 opens the center only. Upon the top of the supercover or register there are radial ribs 61, projecting above its upper surface. A kettle placed upon the pot-hole cover rests upon these ribs, and when the register is open the currents of heated air flowing from the perforations 59 pass under the kettle-bottom and escape readily, the ribs 61 supporting the kettle-bottom above the surface of the supercover. The supercover has a central inner rim projecting downwardly into the main cover, as clearly shown in Fig. 17, the main portion of the supercover resting upon the top of the main cover; but the supercover bears directly upon the upper surface of the main cover only at a narrow rim immediately around that portion of the supercover which projects downwardly into the main cover. This permits the free rotation of the supercover and guards against the sticking or clogging of the supercover by reason of the presence of drippings upon the top surface of the main cover.

The special top burner 56, consisting of two tubes directing the gas-jets horizontally toward each other, produces a horizontal sheet flame adapted for special cooking operations—such, for instance, as broiling—and also provides a burner of extraordinary heating power for hurried work. This burner should be applied to but one hole only, as it is for occasional use.

The mixer 53, Fig. 14, is of the ordinary construction. The nozzles 50 receive gas from the manifold into which they are connected, and discharge this gas in jet form into the burner-pipes 63, across the opening of the mixer, the injector-like action of the gas drawing into the mixer a supply of air, whereby there is forced into the top burners a combustible mixture of air and gas. A jet-orifice of the nozzle is always very small and much liable to become clogged and interfere with the proper action of the burner. This clogging is largely due to dirt which gets into the jet hole presenting itself in the face of an unobstructed vertical surface. To guard against this clogging I provide the counterbore 67 at the face of the jet-hole, the projecting rim thus formed furnishing a protection for the jet-hole. The counterbore may be formed directly in the nozzle structure, as in Fig. 18, or the socket in which the nozzle seats may be made much deeper than the inner projection of the nozzle, as in Fig. 19. If the back wall of the mixer forming such socket is so thin that the nozzle projects through the wall, then the plan shown in Fig. 18 may be followed. If the mixer-wall is sufficiently thick, then the plan shown in Fig. 19 may be followed. At the oven-burners nozzles engage the sockets 66, formed in the walls

of projection 33, which are parts of the side walls of the stove. Either plan of securing the counterbore at the nozzle can be followed at these sockets—that is to say, the wall at the socket may be thin and the counterbore formed in the nozzle proper, or the wall may be thick at the socket, so that the socket itself forms the counterbore. By removing the screw 76 a cleaning-wire may be passed rearwardly into the nozzle-hole.

The oven-burners 34 are long hollow castings set across the lower oven near its roof. The faces of these burners are curves presenting a central concavity, and the jet-holes 68 in these faces are radial to the facial curves of the burner, and there are no jet-holes directly at the center of the burner. The innermost jet-holes, therefore, discharge radially and commingle their flames, the unconsumed gases from the inner jet-holes at one side of the center crossing and commingling with the gases from the jet-holes at the other side, thus greatly improving the combustion. The pipe 65, which supplies an oven-burner, enters its back at the center, and the absence of jet-holes at the center of the burner prevents the direct flow of gas from the pipe outward through jet-holes which, if present, would be too much favored in the flow. The jet of gas entering the burner dashes into the cup 69, and the rib-work 70 breaks up the stream and prevents a smooth reflection of the stream. The broken and disorganized stream thus receives a tumbling motion and becomes thoroughly mixed and finds its way to the ends of the burner, which form reservoirs of mixed gas discharging through the jet-holes.

The oven-burner is rigidly secured to one end of the pipe 65, and the flange 43 is rigidly secured to the other end, the burner, pipe, and flange thus forming one rigid structure, readily attached to and removed from its position in the stove.

The quality of gas varies in localities, as does also the pressure of gas, and the manner of burning the gas is a matter of selection with cooks. The general custom in America is to first mix the air and gas and produce a combustible mixture, the mixture being effected before the ignition, as is the case with the top burners above described. In many cases, however, especially in Europe, it is desired to discharge from the burners a non-combustible gas-like illuminating-gas which gets its power of combustion from air which is received at the point of combustion after the gas leaves the burner. I provide for either method of burning gas.

The passages 30, prolonged upwardly by the cavities 33, form conduits leading from under the stove to the burner-flanges 43, which entirely close the upper ends of these passages and give them free outlets only to the oven-burners. The nozzles 36 and 37 jet the gas across the cavities 33 into the burner-pipes precisely as the nozzles of the top

burners throw their jets across the mixer-space. If the registers 31 be opened, then the injector-like action of the oven-burner nozzles in jetting gas into the oven-burners will draw in a supply of fresh air through the passages 30 and will carry to the oven-burners a mixture of combustible gases, the register 32 being closed. This gas burns in the lower oven, and there is liable to be discharged into this lower oven unconsumed products of combustion capable of being thrown into combustion by proper readmixture. By closing registers 31 and opening registers 32 it is evident that the passages 30 can receive their supply only from the oven, in which case the oven-burners become supplied with a mixture of gas from the nozzles and of products from the oven. The registers 31 and 32 may all be opened more or less, so as to proportion the gas, as desired. If the registers 31 and 32 all be closed, then it is evident that passages 30 can furnish no supply to the burners, which will then discharge, not a combustible mixed gas, but the simple gas from the gas-supply. In such case the air for combustion is furnished to the gas-jets as they leave the burner, the air being taken directly from the oven. The back passage 72 receives fresh air from under the stove through hole 64, and discharges this air into the lower oven near its top through holes 29, the air in its route becoming heated. By this means air for combustion is supplied to the oven-burners. In the last-mentioned plan of the burning of gas this is the only air of combustion received by the oven-burners. When the first-mentioned plan is followed, the combustion may be more or less imperfect, and an added quantity of hot air after combustion improves it. This inflow of hot fresh air serves, also, in the ventilation of the oven. Where the stove is to be used in heating the room, the back door 12, through the wall-space 72, may be opened, thus permitting a flow of air through the oven, supplying the oven-burners with air of combustion and carrying the heat outwardly into the room. When the lower oven is being used for roasting, still further means are provided for its ventilation by an inflow of heated air to the bottom of the oven at its center. Fresh air enters apertures 11, goes down passages 10, goes under the oven through passage 8, and discharges into the oven through slot 9. A dripping-pan set upon the oven-bottom would close this slot, and under ordinary circumstance would require that the slot be placed elsewhere than at the center of the oven, where it is most desirable. I obviate this necessity by constructing the dripping-pan, as clearly shown in Fig. 23, with a central opening 14, up through which the air from the slot may pass, the hood 71 preventing drippings from reaching the slot. The roast may be laid directly upon the dripping-pan; but I always recommend that the oven be provided with a roasting-spit, as shown in my Patent No. 371,892, of October

18, 1887, which supports the roast in mid-air and permits its ready rotation and inspection.

The hot-waste products of combustion and the steam, &c., pass from the lower oven through holes 16 into side passages 15, thence into top passage 17, thence rearwardly therein, (see Fig. 11,) thence forwardly into the central portion of that passage, thence upwardly through hole 19 (see Fig. 10) into the central portion of passage 20, thence forwardly therein, thence rearwardly through the side portions of that passage, and out of the stove through passage 23. In this manner the hot matters from the lower oven are drawn away and in their route impart their heat to the sides and top of the top oven.

The ventilation of the top oven is as follows: Fresh air enters holes 28, (see Fig. 12,) passes forwardly in chamber 27 in the floor between the two ovens, thence turns and goes rearwardly through passages 26, thence upwardly through passage 73 (see Fig. 8) at the back of the oven, and thence discharges into the oven near its top through holes 42, this air in its route having become highly heated by the lower oven-burners located directly under passages 26. Foul air from the upper oven leaves it at the top and front through holes 62, and thence reaches the passage 17, and thence escapes through the same route as was taken by the gases, &c., from the lower oven, as heretofore explained. By this means the oven-burners are caused to heat the top oven, and the top oven is ventilated. The concentration of heat under the center of the top oven would, under ordinary circumstances, be much liable to overheat the central lower part of the top oven and cause scorching. This is provided against, partly, by admitting cold air through holes 28 to pass under the center of the top oven before the air becomes highly heated, and partly by the location of the water-coils 44 under the center of the top oven, the air thus admitted absorbing much of the surplus heat and giving it back to the oven at a later period, and the water in the coils absorbing much of the surplus heat at this point and delivering it to the kitchen-boiler.

It will be noticed that in the exemplification the manifold 35 is not bolted or otherwise rigidly secured to the stove. The nozzles 50 engage the sockets of the mixers and the pipe 38 reaches downwardly to the oven-nozzles, engaging the sockets 66, and the horizontal part of the pipe 38 passes through the holes in the stove-cornice. Thus it will be seen that this pipe system is held in its position mostly by the engagement of the gas-nozzles connected with it. By separating the coupling 75 this pipe system may be readily withdrawn from the stove.

I claim as my invention--

1. In a gas-stove, the combination, substantially as set forth, of top plate 3, burners below said top plate, cornice 2 at the top of the stove provided with inlet-passage 7 immedi-

ately below the top plate and above the burners, and outlet-opening 24, leading from the space within the cornice.

2. In a gas-stove, the combination, substantially as set forth, of plates 3 and 21, cornice 2, having depression 7, and register-opening 24, placing the cornice-space 6 in communication with a chimney connection.

3. In a gas-stove, the combination, substantially as set forth, of oven 4, and inwardly and downwardly opening door 74 in the back thereof.

4. In a gas-stove, the combination, substantially as set forth, of cornice 2, projecting above the stove-body, plate 21, forming the floor of the cornice-space, burners disposed within the cornice-space above plate 21, and spout 22, leading outwardly from the cornice-space through the cornice.

5. In a gas-stove, the combination, substantially as set forth, of a cornice provided with gaps and interchangeable cornice-sections secured at said gaps.

6. In a gas-stove, the combination, substantially as set forth, of a top oven, a lower oven provided with a front door, burners in the lower oven at the top thereof, passages from the lower oven extending along a portion of the walls of the top oven, and a door in the back wall of the lower oven.

7. In a gas-stove, the combination, substantially as set forth, of a cornice provided with a series of holes for receiving burner-pipes, a top plate projecting beyond the cornice, a manifold 35, disposed below said cornice, a gas-supply pipe connected with said manifold, burner-pipes engaging said openings, and gas-nozzles provided with vertical and horizontal portions and secured to said manifold and arranged to discharge into said burner-pipes.

8. In a gas-stove, the combination, substantially as set forth, with the body of the stove and a chimney-outlet therefrom, of structure 49, disposed against one side of the stove-body, water-reservoir 45, contained therein and surrounded by a passage part of whose walls are formed by the stove-wall, and double-flue structure 52 at the back of the stove in communication with said chimney-outlet from the stove with said passage and with a chimney connection.

9. In a gas-stove, the combination, substantially as set forth, with the body of the stove and a chimney-outlet therefrom, of structure 49, disposed against one side of the stove-body, hot closet 51, contained therein, and flues leading from said chimney-outlet to said structure around a portion of said closet and to a chimney connection.

10. In a gas-stove, the combination, substantially as set forth, with the stove-body having a chimney-outlet therefrom, of structure 49, reservoir 45, and hot closet 51, contained therein, and a passage connected with said chimney-outlet and passing entirely around the sides of said reservoir and around

two sides of said closet and thence to a chimney connection.

11. The combination, substantially as set forth, of a gas-stove provided with a space 6 below the top plate of the stove, one or more gas-burners disposed within such space, and a burner-holder 55, formed with a ring adapted to engage and support such burner free from the floor of said space and provided with a shank adapted for engagement with the side wall of said space.

12. The combination, substantially as set forth, of an oven provided with an air-inlet opening substantially in the center of its floor, and a drip-pan 13, provided with a central opening 14.

13. In a gas-stove, the combination, substantially as set forth, of a top oven with double side walls, a lower oven with double side walls, the outer one of which continues to the outer wall of the top oven and inner one of which extends to near but not to the top of the lower oven, and passages 15, communicating with a chimney connection and having foot-openings 16 leading from the lower oven.

14. In a gas-stove, the combination, substantially as set forth, of an oven formed with double side walls and double roof-walls, double floor-walls forming a passage under the oven communicating with the oven and the outer air, burners disposed below said oven, floor-passage, passages 15, formed between said side walls and leading upward from near said burners, passage 17, formed between said roof-walls and communicating with a chimney connection and with said side passages, cornice-space 6 over said oven, and register 24, placing said cornice-space in communication with such chimney connection.

15. In a gas-stove, the combination, substantially as set forth, of an oven with triple roof-walls forming passages 17 and 20, vertical partitions 18 in said passages, opening 19 through the center of one of said roof-walls, a passage 23 from passage 20 to a chimney connection, inlets to said passage 17, and one or more burners below said oven.

16. In a gas-stove, the combination, substantially as set forth, of an oven 4, an air-inlet 42 thereto, an outlet 62 therefrom, said outlet being disposed in the oven-roof contiguous to the oven-door, one or more burners under the oven, and a passage in the oven-floor between the oven and burner and communicating with the outer air and with said inlet 42.

17. In a gas-stove, the combination, substantially as set forth, of oven 4, floor-passages 26 27 thereunder, holes 28, leading thereto, back passage 73, openings 42 from said back passage to the oven, and one or more burners below said oven.

18. In a gas-stove, the combination, substantially as set forth, of a conduit 30, a burner 34, communicating with one end there-

of, a gas-nozzle discharging to said burner across said conduit, and a fresh-air register 31 in the opposite end of said conduit.

19. In a gas-stove, the combination, substantially as set forth, of an oven with double walls, a conduit 30, formed between said walls, a burner 34 and nozzle 36, communicating with said conduit at its top, and a fresh-air opening 31 at the base of said conduit.

20. In a gas-stove, the combination, substantially as set forth, of an oven, a conduit 30, a burner 34, and gas-nozzle 36, communicating with said conduit at its top, and opening 32, placing the bottom of said conduit in communication with the interior of said oven.

21. In a gas-stove, the combination, substantially as set forth, of an oven, a conduit 30, a burner 34, and gas-nozzle 36, communicating with said conduit at its top, a fresh-air opening 31 at the foot of said conduit, and opening 32, placing said conduit in communication with the interior of said oven.

22. In a gas-stove, the combination, substantially as set forth, of an oven with double walls, a conduit 30, formed between said walls, a burner 34, and gas-nozzle 36, in communication with said conduit at its top, fresh-air opening 31 at the foot of said conduit, and opening 32, placing the foot of said conduit in communication with the interior of said oven.

23. In a gas-stove, the combination, substantially as set forth, of an oven with double walls forming a passage 30, extending to near the top of the oven and there roofed, an inlet at the foot of said passage, two openings in the outer wall, one above the roof of said passage and leading to the oven and the other below the roof of the passage and leading to the passage, a flange 43, secured against the walls and closing said first opening, a burner 34, connected to such flange, a hollow projection 33, open inwardly to both said openings, and a gas connection to said hollow projection.

24. In a gas-stove, the combination, substantially as set forth, of a burner, an air-conduit leading thereto, a gas-nozzle provided with a jet-hole arranged to discharge to said burner across said conduit and projecting partially through the wall of said conduit.

25. In a gas-stove, the combination, substantially as set forth, of a closed oven, one or more oven-burners disposed therein near the top, an outlet from said oven, and a hot-air inlet to said oven at the back thereof.

26. In a gas-stove, the combination, substantially as set forth, of an oven 4, a pair of opposed burners 34 thereunder, a double floor to said oven, forming an air-passage 27 across the center of the same, and cold-air inlet 28 to said passage.

27. In a gas-stove, the combination, substantially as set forth, of oven 4, having a double floor forming passages 26 and 27, a pair of opposed burners 34, disposed thereun-

der, outlet communications with said passages 27, and a cold-air inlet 28 to said passage 26.

28. In a gas-stove, the combination, substantially as set forth, of oven 4, a pair of opposed burners 34 thereunder, water-pipes 44 disposed under said oven between said burners.

29. In a gas-stove, the combination, substantially as set forth, of cornice 2, projecting

above the stove-body, oven-burners 34, nozzles 36 and 37, discharging to said burners, pipe 38, connecting to said nozzles and to a source of gas-supply and extending horizontally across the cornice-space, and coupling 75 in the horizontal portion of said pipe.

LAZARD KAHN.

Witnesses:

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W. A. SEWARD.