Feb. 20, 1923. 1,445,984.

G. D. WILKINSON.

GAS RANGE.

FILED AUG. 15, 1921. 3 SHEETS—SHEET 1.

Fig. 1.

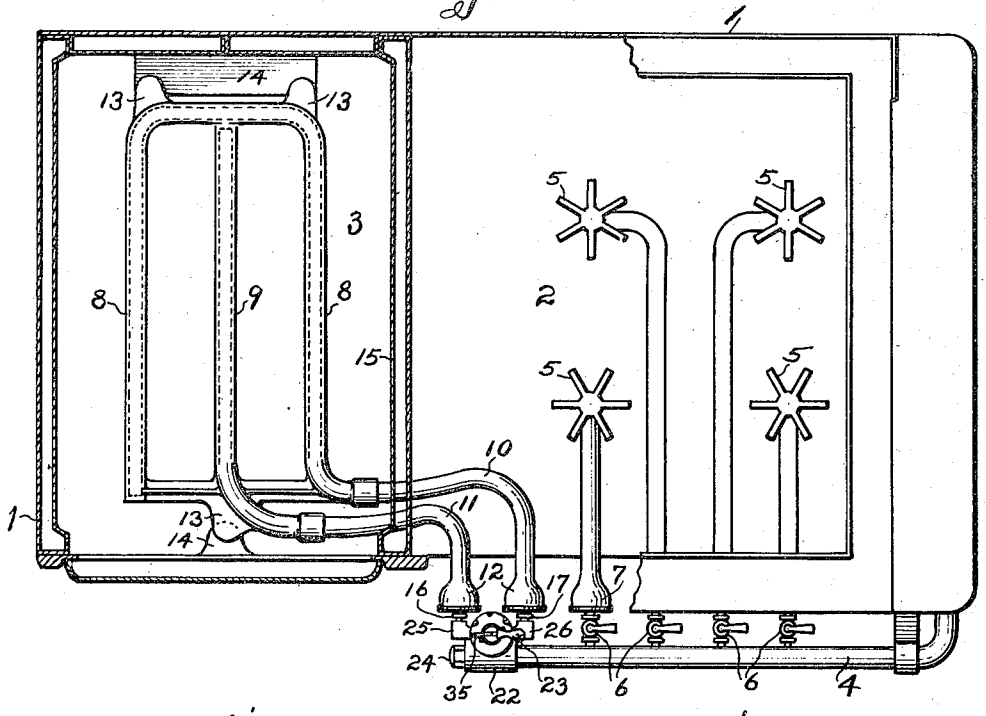


Fig. 2.

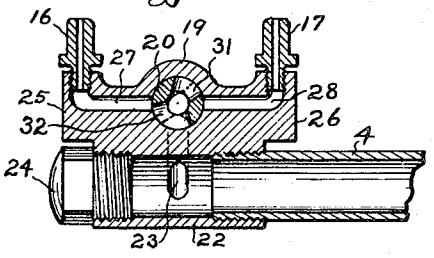


Fig. 3.

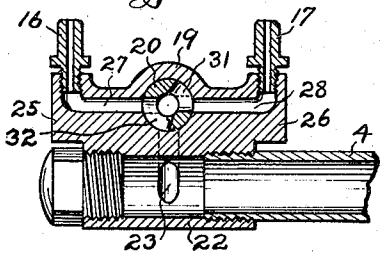


Fig. 4.

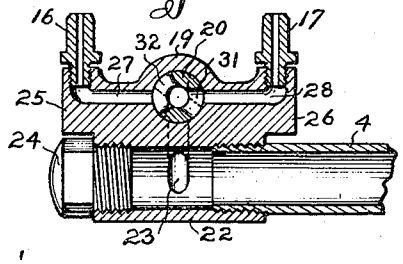
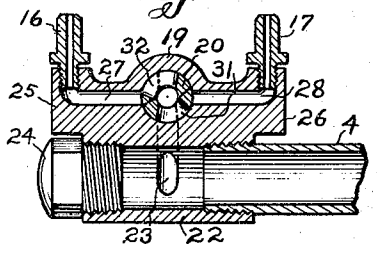


Fig. 5.



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Fig. 6.

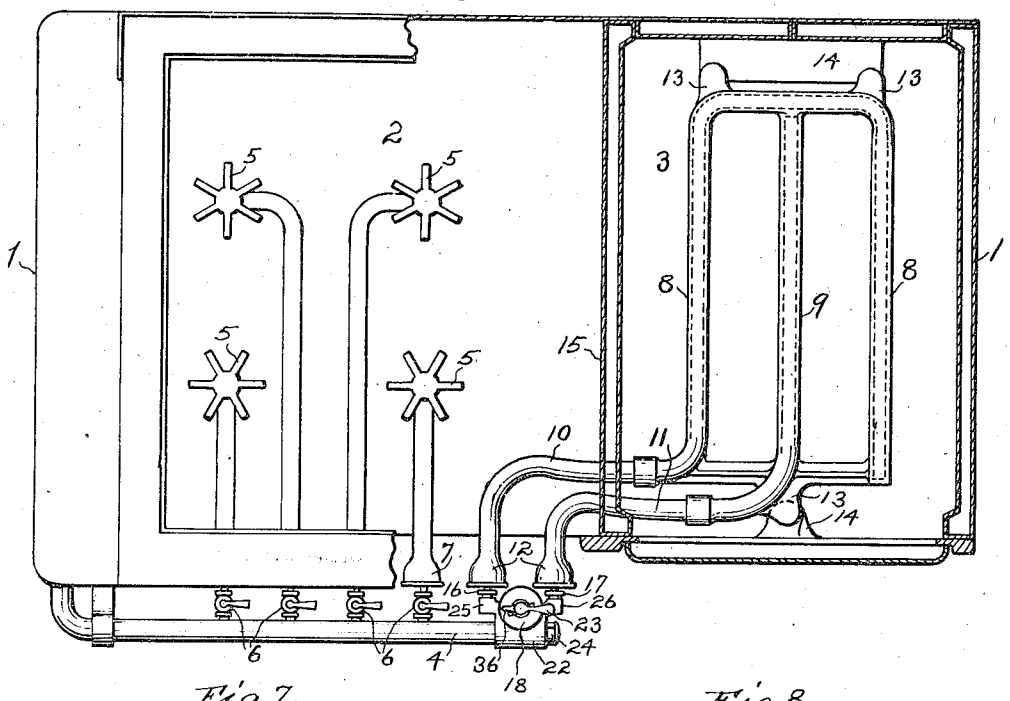


Fig. 7.

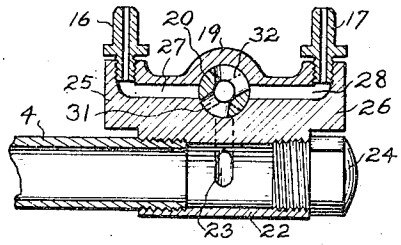


Fig. 8.

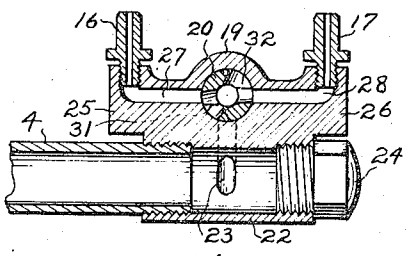


Fig. 9.

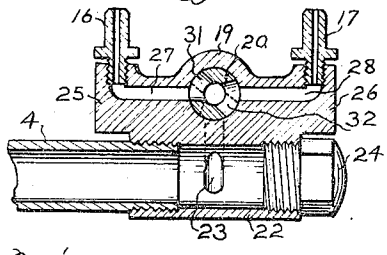
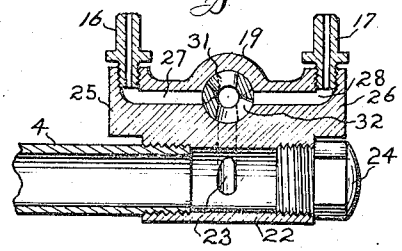


Fig. 10.



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GAS RANGE.

FILED AUG. 15, 1921. 3 SHEETS-SHEET 3.

Fig. 11.

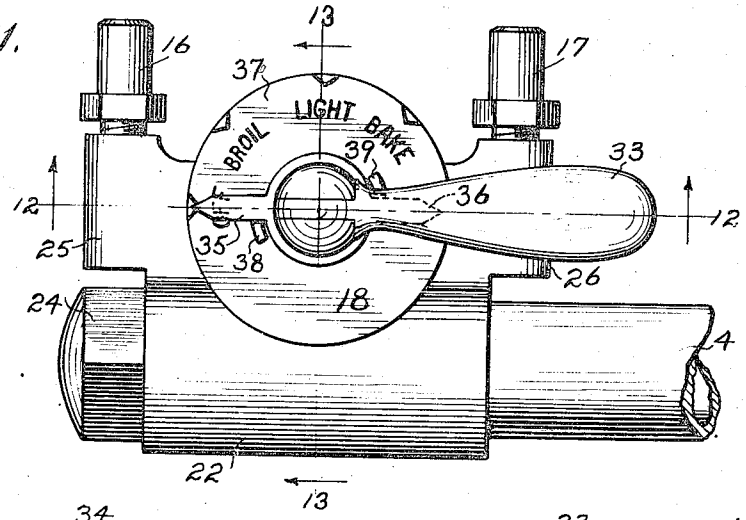


Fig. 12.

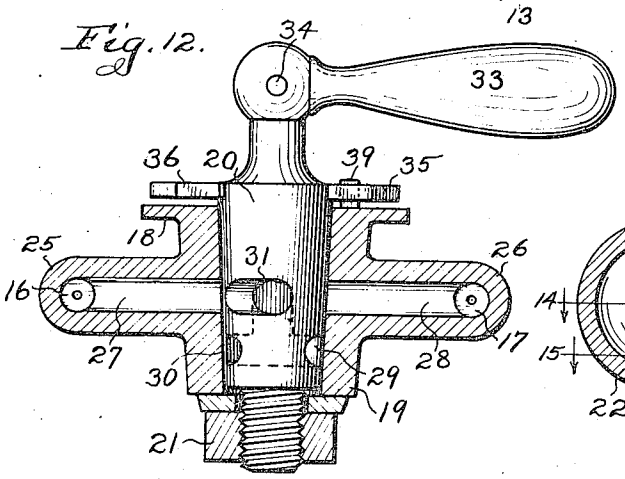


Fig. 13.

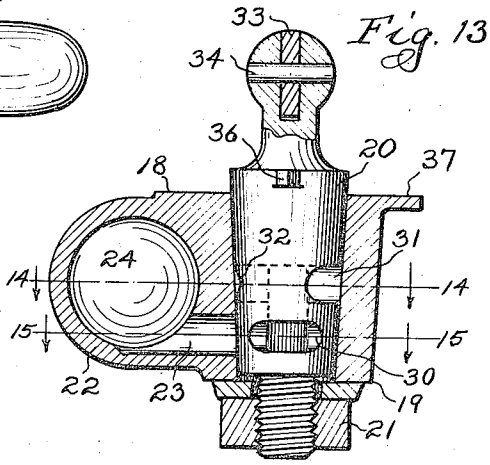


Fig. 14.

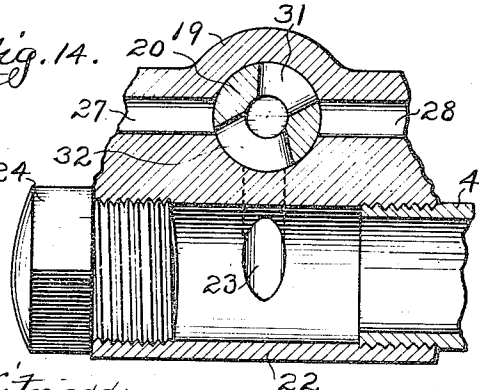
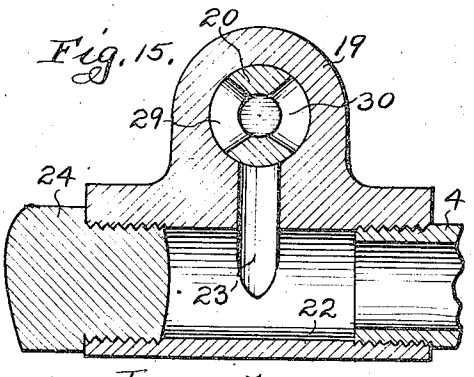


Fig. 15.



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Patented Feb. 20, 1923. 1,445,984

UNITED STATES PATENT OFFICE.

GEORGE D. WILKINSON, OF OAK PARK, ILLINOIS, ASSIGNOR TO CRIBBEN & SEXTON COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GAS RANGE.

Application filed August 15, 1921. Serial No. 492,232.

To all whom it may concern:

Be it known that I, GEORGE D. WILKINSON, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, having invented certain new and useful Improvements in Gas Ranges, do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

The invention relates to gas ranges used for cooking purposes, and its primary object is to provide a construction comprising an oven burner having a plurality of independent sections and a single control valve or cock for both sections which may assume different positions to cut-off both the burner sections, to turn on all sections less than their full capacity as for broiling purposes, to turn on all sections to their full capacity to heat up the oven or maintain a maximum fire, and to turn on only a single section to its full or less capacity when a low fire is desired for a slow oven. Also, in its preferred form the construction is such that the valve may be reversed to accomplish the above results when the burner is used in an oven located at either the right or left side of the stove, so that the same valve may be used on either a right-hand or a left-hand oven stove. Other objects and advantages will be apparent from the disclosure.

The invention consists in the matters hereinafter described and then pointed out in the appended claims.

In the accompanying drawings which illustrate embodiments of the features of my invention and in which the same reference numerals indicate the same or corresponding parts, Fig. 1 is a view partly in plan and partly in section of a gas range containing my invention organized with a left-hand oven, parts being omitted or broken away for convenience of illustration; Figs. 2, 3, 4 and 5 are detail horizontal sectional views showing the valve plug in its four different positions in the organization of Fig. 1; Fig. 6 is a view similar to Fig. 1 organzied with a right-hand oven; Figs. 7, 8, 9 and 10 are detail horizontal sectional views showing the valve plug in its four different positions in the organization of Fig. 6; Fig. 11 is a detail top plan view of the valve as mounted for a left-hand oven as in Fig. 1; Fig. 12 is a view showing the valve plug in side elevation and the shell in vertical section on the line 12—12 in Fig. 11 as mounted for a right-hand oven as in Fig. 6; Fig. 13 is a vertical sectional view on the line 13—13 in Fig. 11 with the valve plug in elevation, and Figs. 14 and 15 are horizontal sectional views on the lines 14—14 and 15—15 respectively in Fig. 13.

As shown in the drawings the reference numeral 1 indicates the frame of the stove, 2 the open-top section, and 3 the oven-section comprising the baking oven arranged at one side of the open-top and the broiling or toasting oven below the baking oven and at the side of the burner-box of the open-top, a sheet metal partition being removably arranged between the ovens and above the oven gas-burner in the conventional manner. The gas-supply manifold 4 is arranged in front of the burner-box and is connected by suitable pipes to the usual series of burners 5 in the burner-box controlled by the usual valves 6 and having the usual air-mixers 7.

The oven burner is composed of the sections 8 and 9, the former being U-shape in horizontal outline or contour and the latter being a straight tube arranged between the parallel arms of the section 8; the sections 8 and 9 are preferably cast-integral but are independently supplied with the fuel mixture through their respective supply pipes 10 and 11 having the usual air-mixers 12. The burner is supported in the oven by its lugs 13 detachably mounted on brackets 14 on the oven walls, and is arranged with the sections extending from front to rear of the oven as shown so that whether both sections are lighted or only the center section 9 is lighted a center-heat burner is provided for the oven. The supply pipes 10 and 11 are curved or bent laterally at the front ends of the burner sections to pass to one side of the burners and through an opening in the lining and side wall 15 of the oven adjacent the burner-box and are then bent or curved forwardly at the inner side of the burner-box to bring their air-mixers 12 at the front thereof opposite the inner end of the gas-manifold 4 and in line with the gas jets 16 and 17 of their common gas valve or cock designated generally by the numeral 18.

The oven burners are made in rights and lefts, and by reference to Figs. 1 and 6 it will be clear that the burners with their supply pipes are arranged in the oven in corresponding relation with respect to the inner end of the gas-manifold and its valve or cock 18 in both right and left hand oven stoves.

The shell 19 of the gas-cock is bored to form a seat for the tapered plug 20 which is provided with an interior hollow way or chamber and is detachably held in the shell by a nut 21. The shell 19 is preferably formed integral with a coupling-pipe 22 having an inlet port 23 establishing communication between the interiors of the pipe and shell; the coupling 22 is threaded at each end so that either end may be detachably mounted on the correspondingly threaded free end of the gas-manifold 4 according as the burner is used with either a right or left hand oven, and a threaded closure cap 24 is provided to close the free or unoccupied end of the coupling in either case. The shell is formed with opposite lateral extensions 25 and 26 having bores 27 and 28, respectively, above the plane of the port 23 and respectively establishing communication between the bore of the shell and the inwardly directed gas jets or nipples 16 and 17. The plug is provided with a lower pair of opposite inlet ports 29 and 30 in the horizontal plane of the port 23; when the valve is associated with a left-hand oven as in Figs. 1 and 11 the port 30 is in operative relation to the port 23, and when the valve is associated with a right-hand burner as in Figs. 6 and 12 the port 29 is in operative relation to the port 23. The plug is also provided with an upper pair or opposite outlet ports 31 and 32 disposed at a quarter turn from its inlet ports and in the horizontal plane of the passages 27 and 28. The inlet and outlet ports of the plug communicate with its interior hollow way or chamber and are elongated circumferentially of the plug; each of the inlet ports 29 and 30 is of sufficient width to register with the port 23 while the plug in its corresponding right or left hand relation is in its three operative or gas-supplying positions; the outlet ports 31 and 32 are of sufficient width to keep both burner sections in communication with the plug-chamber when the plug is turned in its intermediate positions, and the port 32 is sufficiently wider than port 31 to keep its associated burner section 9 in communication with the plug-chamber when the plug is further turned to the slow fire position. The plug is provided at its upper end with a reversible handle 33 pivoted on its pin 34, and also with an opposite pair of pointers 35 and 36 in vertical alinement respectively with the inlet ports 29 and 30, while the upper end of the shell is provided with a suitable dial or indicator 37 marked with four points to indicate the positions of the operative pointer to cause the valve to assume the four positions above described, and also carries opposite plug-stops 38 and 39.

When a left-hand oven is used the parts are assembled as shown in Figs. 1 and 11, with the coupling mounted on the gas-manifold with the jets 16 and 17 in alinement with the supply pipes 11 and 10, respectively, and with the plug positioned with its pointer 25 at "Off" and with its inlet port 30 in operative relation with respect to the port 23 and with the outlet-port 32 in position to co-operate with the left-hand port 27 leading to the central section 9 when the valve is thrown to its "Bake" position. The valve-handle 33 is turned to the right-hand side of the stem. When the pointer 35 stands at "Off" position the plug closes the port 23 as shown in Figs. 2 and 13, and no gas flows to the oven burner; when the pointer is moved to "Broil" the port 30 partly registers with port 23, and the ports 31 and 32 are in initial communication with the bores 28 and 27, respectively, as shown in Fig. 3, so that gas in reduced quantity for broiling flows to both sections of the burner; when the pointer is turned to "Light" the ports 23 and 30 fully register and the ports 31 and 32 remain in communication with the bores 28 and 27 as shown in Fig. 4, so that the full volume of gas flows to light both sections of the burner to full capacity to heat up the oven or maintain maximum heat; and when the pointer is turned to "Bake" the ports 23 and 30 still register and the elongated port 32 also registers with the bore 27, but the port 31 is out of register with the bore 28 as shown in Fig. 5, so that gas flows to the burner-section 9 but not to the section 8 to turn down the heat or provide a low or slow fire when desired, as, for example, when a slow fire is required in the baking oven to prevent burning the food.

When a right-hand oven is used the parts are assembled as shown in Figs. 6 and 12; the coupling 22 is now mounted at its opposite end on the gas-manifold with the jets 16 and 17 in alinement with the supply-pipes 10 and 11, respectively, and the plug of the valve is positioned in the shell to bring its pointer 36 to the "Off" position, and the valve-handle is turned to the right-hand side as shown in these figures. In the form of valve shown this is done by merely mounting the coupling at its left end on the gas-manifold and closing its open end by the cap 24, and by removing the valve plug, rotating it on its axis bodily through a half-circle, re-seating it in the shell, and throwing the handle to the right of its pivot 34. This

brings the other inlet port 29 of the plug into operative relatiton to the port 23, and the outlet port 32 in position to co-operate with the right-hand port 28 leading to the central section 9 when the valve is thrown to its "Bake" position. When the pointer stands at "Off" position the plug closes the port 23 as shown in Figs. 7 and 12 and no gas flows to the burner; when the pointer is moved to "Broil" the port 29 partly registers with port 23, and the ports 31 and 32 are in initial communication with the bores 27 and 28, respectively, as shown in Fig. 8, so that gas in reduced quantity flows to both branches of the burner as for broiling purposes; when the pointer is turned to "Light" the ports 23 and 29 fully register, and the ports 31 and 32 remain in communication with bores 27 and 28, respectively, as shown in Fig. 9 for maximum flame purposes; and when the pointer is turned to "Bake" the ports 23 and 29 still register and the elongated port 32 also registers with the bore 28, but the port 31 is out of register with the bore 27 as shown in Fig. 10, so that gas flows to the section 9 but not to the section 8 to provide low heat for slow oven purposes, as, for example, when a slow fire is required in the baking oven to prevent burning the food.

In either arrangement of the valve the amount of gas flowing through the port 32 to provide the low fire may be varied by turning the valve plug more or less in this range toward the stop 39; it is obvious that as the port 32 registers more or less with the bore 27 in Fig. 5 or bore 28 in Fig. 10 the amount of gas flowing to the central arm 9 of the burner will be regulated. The stop 39 is so located that it stops the rotation of the valve plug before the operator can turn it far enough through this range to extinguish the middle burner 9, as for example when it reaches the position of Figs. 5 and 10, so that the plug must be turned back to its "Off" position to extinguish the flame of the central arm 9 and the operator cannot accidentally extinguish it.

By my invention the two sections of the central-heat oven burner are controlled by a single valve; in prior devices using a single oven burner, such as the single loop or U-shape burner, it was necessary to provide its single tube with the large number of flame ports, usually from 120 to 150, required to adequately heat up the oven, and when the burner was turned down to provide a low fire for slow heat purposes the flame was lowered in all its ports and the single line of reduced gas supply to so many ports provided a very weak flame which frequently was easily extinguished or snuffed-out by the closing of the oven door, especially as the turning down of the gas necessarily entailed a reduction of the secondary-air at the air-mixing valve which produced poor combustion, while in such oven burners having independently-controlled sections separate valves were employed so that it was necessary for the operator to use care in selecting the right valve for turning off the main section when it was desired to use the other section for a low fire, and also in turning on both valves when full-burner capacity or heat was desired. By my invention a single valve controls both sections of the center-heat oven burner, so that the operator is not required to exercise any care in choosing the right valve to get a low fire in the oven or in adjusting two valves to their corresponding full capacities to obtain the maximum fire or heat when desired, while the low-fire flame is confined to the relatively fewer gas ports or apertures in the section 9 so that the flame is strong and not easily extinguished and burns no more gas than did the old single burner when turned down to its low fire condititon. Also, the low-fire flame cannot be accidentally extinguished by the operator turning the valve beyond its point of supply to the low-heat branch; this branch remains in communication with the gas-supply when the plug reaches its limit of movement in the turning-on direction and can only be extinguished by the operator intentionally turning the plug back to its "Off" position, while in all manipulations of the valve any supply of gas to the main section 8 is instantly ignited by the flame from the section 9. The valve housing or body, being attachable to the gas-manifold of either a right or left oven and having its free end closed in either case, is uniform or standard for both forms of stoves, and by making the plug reversible the same valve may be used whether the oven is at one side or the other, or the plugs may be made in rights or lefts for right and left hand ovens respectively by having only a single inlet 29 or 30 as the case may be; in all these arrangements the parts in their assembled operative positions form a three-way valve for the purposes described. The burner composed of the loop-section or side branches 8 and the center branch 9 being disposed longitudinally from front to rear of the oven provides a central-heat oven burner for both maximum heat and low heat purposes; in either case the flame is central of the oven and is uniformly distributed to all its parts, and by using the single valve in combination with a burner affording such central oven heat the operator can provide heat in all branches or cut-off the side branches, and also regulate the size of the flame at the center branch to give more or less low heat by merely turning the valve stem to different positions in the same direction. When the plug is made reversible its pointer may be

arranged in any suitable manner to co-operate with the scale when the plug is in either its right or left position.

I claim:

1. In a gas range, an oven, a center-heat burner therein comprising independent sections, a gas-manifold, supply pipes extending from the burner sections and terminating in mixing-chambers in alinement with the manifold, and a single valve on the manifold constructed to cut-off both burner sections and to supply gas to both sections simultaneously.

2. In a gas range, an oven, a center-heat burner therein comprising independent sections, a gas-manifold, supply pipes extending from the burner sections and terminating in mixing-chambers in alinement with the manifold, and a single valve on the manifold constructed to cut-off both burner sections and to supply gas to both sections simultaneously in different quantities.

3. In a gas range, an oven, a center-heat burner therein comprising independent burner sections, a gas-manifold, supply pipes extending from the burner sections and terminating in mixing-chambers in alinement with the manifold, and a single valve on the manifold constructed to cut-off both burner sections and to supply gas to both sections simultaneously in different quantities and to supply gas to only one of the sections.

4. In a gas range, an oven, a burner therein comprising independent sections, a gas-manifold, supply pipes extending from the sections and terminating in mixing-chambers in alinement with the manifold, and a single valve mounted on the manifold and constructed to cut-off both sections and to supply gas to both sections in different quantities and to supply gas to only one of the sections in different quantities.

5. In a gas range, an open-top section, an oven, a burner therein comprising independent sections arranged centrally of the depth of the oven, a gas-manifold terminating in front of the open-top, supply pipes extending from the burner sections and terminating in mixing-chambers in alinement with the manifold, a valve-shell mounted on the manifold and having gas-jets in alinement with the mixing chambers, and a three-way plug communicating with the manifold and constructed to cut-off both jets and to open either jet independently and both jets simultaneously.

6. In a gas range, an open-top section, an oven, a burner therein comprising independent sections, arranged centrally of the depth of the oven, a gas-manifold terminating in front of the open-top, supply pipes extending from the burner-sections and terminating in mixing-chambers in alinement with the manifold, a valve-shell mounted on the manifold and having gas-jets in alinement with the mixing chambers, and a reversible three-way plug communicating with the manifold and controlling the jets in either of its positions.

7. In a gas range, an open-top section, an oven at one side thereof, an oven burner, a gas-manifold in front of the open-top, a burner-supply pipe terminating in front of the open-top connections between the manifold and supply pipe including a valve and a reversible coupling pipe constructed to interchangeably connect to the manifold at either side of the open-top and having a seat for the valve and a port leading to the valve-seat, and a closure for the free end of the pipe.

8. In a gas range, an open-top section, an oven at one side thereof, independent burners in the oven, a gas-manifold in front of the open-top, burner-supply pipes terminating in front of the open-top, connections between the manifold and supply pipes including a reversible three-way valve and a reversible coupling pipe constructed to interchangeably engage the manifold at either side of the open-top and having a seat for the valve and independent gas-jets for the supply pipes and a port leading to the valve-seat, and a closure for the free end of the pipe.

9. In a gas range, an open-top section, an oven at one side thereof having independent burner-sections, a gas-manifold in front of the open-top, burner-supply pipes terminating in front of the open-top, connections between the manifold and supply pipes including a reversible three-way valve and a reversible coupling pipe constructed to interchangeably connect at its ends to the manifold at either side of the open-top and having a seat for the valve and independent gas-jets for the supply pipes and a port leading to the valve-seat, a reversible pointer on the valve, and a closure for the free end of the pipe.

10. In a gas range, an oven, a gas-manifold, an oven-burner comprising connected side tubes and an independent center tube, independent supply pipes extending from the tubes and terminating in mixing-chambers adjacent the manifold, a valve-shell on the manifold having jets in alinement with the mixing-chambers and provided with an inlet port communicating with the manifold and with passages leading to the jets, and a valve plug having an elongated inlet port to register with the shell-port and outlet ports to register with the jet-passages.

11. In a gas range, an oven, a gas manifold, an oven-burner comprising connected side tubes and an independent center tube, independent supply pipes extending from the tubes and terminating in mixing-chambers adjacent the manifold, a valve-body

comprising a coupling constructed to connect to the manifold at either side of the range and a shell having jets in alinement with the mixing-chambers and provided with an inlet port communicating with the coupling and with passages leading to the jets, and a reversible valve plug having an elongated inlet port to register with the shell inlet and outlet ports to register with the jet-passages.

12. In a gas range, an open-top, an oven, a gas manifold terminating in front of the open-top, an oven-burner comprising independent sections, independent gas supply pipes extending from the burner-sections and terminating in mixing-chambers adjacent the manifold, a valve-body comprising a coupling constructed to engage the manifold at either side of the open-top and a shell having jets in alinement with the mixing-chambers and provided with an inlet port communicating with the coupling and with passages leading to the jets, and a reversible valve plug having an elongated inlet port to register with the shell port and outlet ports to register with jet-passages.

13. In a gas range, an oven, independent burner sections in the oven, independent supply pipes extending from the burner sections and terminating in mixing-chambers at one side of the oven front, a gas-manifold having its free end adjacent the chambers, a valve having a coupling constructed to engage the free end of the manifold at either side of the oven front and having jets in alinement with the mixing chambers, and a reversible three-way plug in the valve-body having opposite elongated inlet ports and outlet ports of different lengths.

14. In a gas range, an oven, independent burner sections in the oven, independent supply pipes extending from the burner sections and terminating in mixing-chambers at one side of the oven front, a gas-manifold having its free end adjacent the chambers, a valve having a coupling constructed to engage the free end of the manifold at either side of the oven front and having jets in alinement with the mixing chambers, a dial on the valve, a reversible three-way plug in the valve-body having opposite elongated inlet ports and outlet ports of different lengths, and a pointer on the plug co-operating with the dial when the plug is reversed.

15. In a gas range, an oven, independent burner sections in the oven, independent supply pipes extending from the burner sections and terminating in mixing-chambers at one side of the oven front, a gas-manifold having its free end adjacent the chambers, and a valve having a coupling constructed to engage the free end of the manifold at either side of the oven front and having jets in alinement with the mixing chambers, a dial on the valve, a reversible three-way plug in the valve-body having opposite elongated inlet ports and outlet ports of different lengths, and opposite pointers on the plug respectively associated with its inlet ports, and stops for the plug.

16. In a gas range, an open-top section, an oven at one side thereof, independent burners in the oven, a gas-manifold terminating in front of the open-top connections between the manifold and oven-burners including a three-way valve, a valve-coupling constructed to engage the end of the manifold at either side of the open-top, a dial, and a pointer on the plug co-operating with the dial.

17. In a gas range, an oven. independent burner sections in the oven, independent supply pipes extending from the burner sections and terminating in mixing-chambers at one side of the oven front, a gas-manifold having its free end adjacent the chambers, a valve having a coupling constructed to engage the free end of the manifold at either side of the oven front and having jets in alinement with the mixing chambers, a three-way plug in the valve-body having opposite elongated inlet ports and outlet ports of different lengths, a dial, and a pointer on the plug co-operating with the dial.

In testimony whereof I affix my signature.

GEORGE D. WILKINSON.