(No Model.) 2 Sheets—Sheet 1.

J. A. ROE.

GAS STOVE.

No. 588,532. Patented Aug. 17, 1897.

FIG. 1.

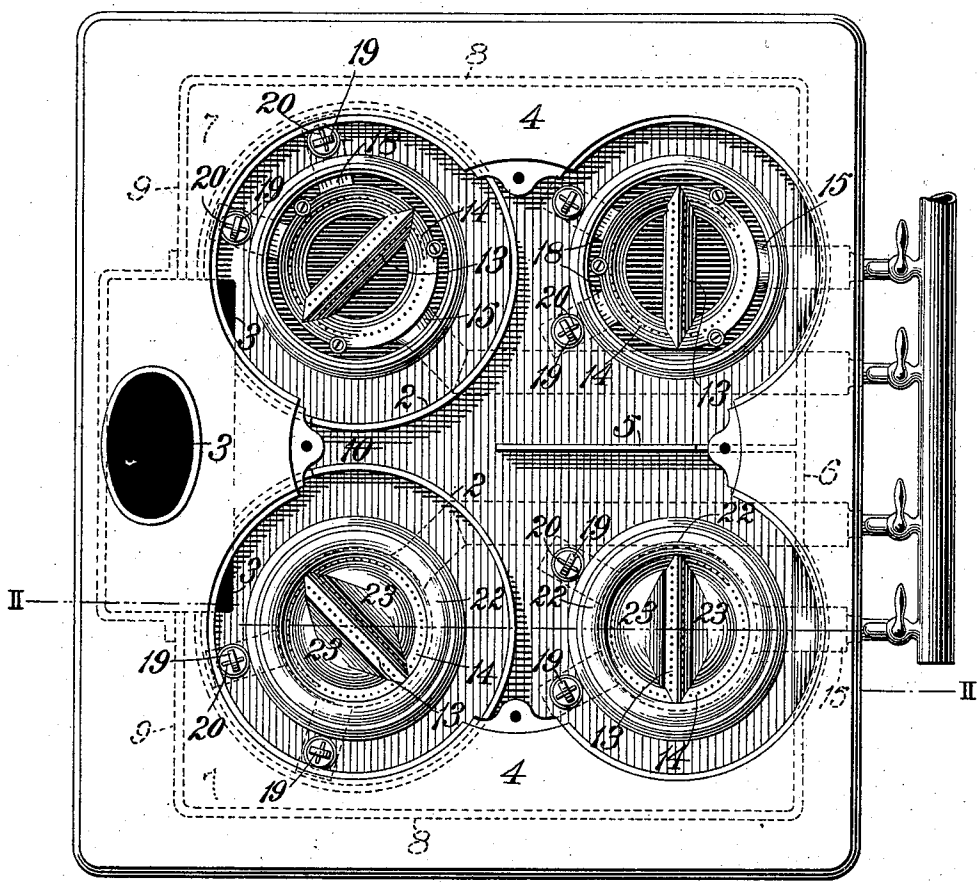
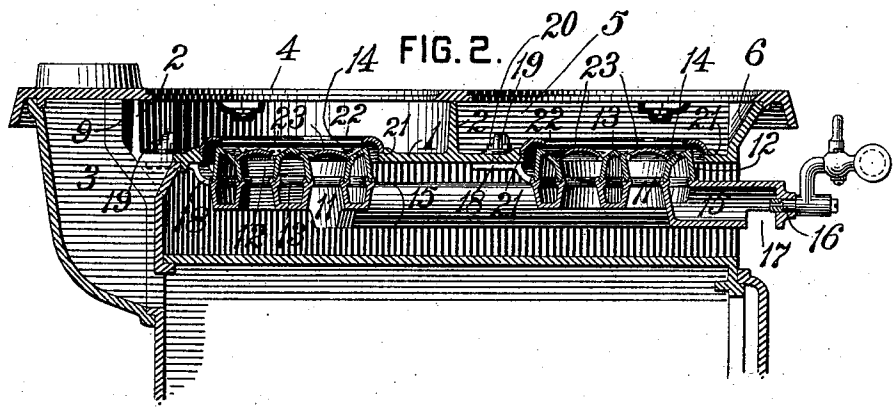


FIG. 2.



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(No Model.) 2 Sheets—Sheet 2.

J. A. ROE.

GAS STOVE.

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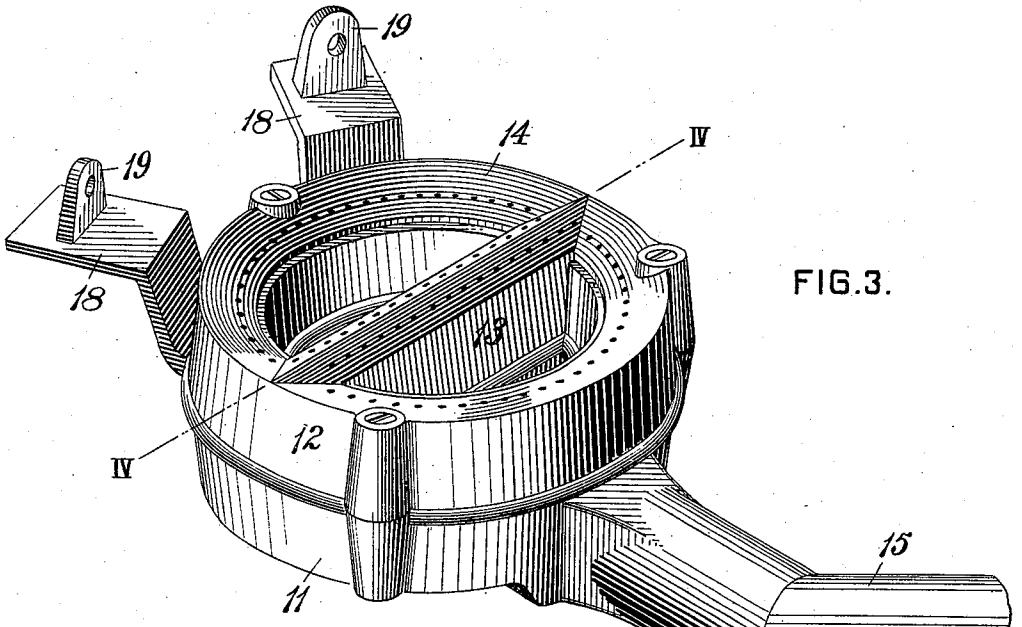


FIG. 3.

FIG. 5.

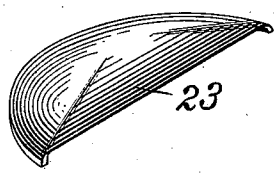
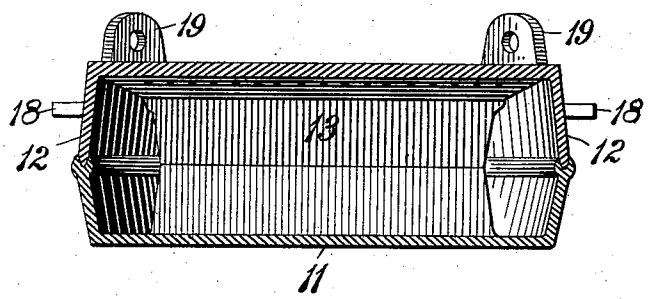


FIG. 4.



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UNITED STATES PATENT OFFICE.

JOHN A. ROE, OF SEWICKLEY, PENNSYLVANIA, ASSIGNOR TO DE HAVEN & CO., LIMITED, OF ALLEGHENY, PENNSYLVANIA.

GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 588,532, dated August 17, 1897.

Application filed April 4, 1896. Serial No. 586,169. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. ROE, a citizen of the United States, residing at Sewickley, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Gas-Stoves, of which improvements the following is a specification.

The invention described herein relates to certain improvements in gas cooking-stoves and burners therefor, and has for its object a construction of the stove-top whereby the several burners are isolated one from the other, so that the products of combustion from one burner will not affect the combustion at the other burners; and it is a further object of the invention to provide for the quick and easy removal of the burners and the substitution of others therefor.

The invention has also for its object a construction of burner whereby a practically-solid circular flame is produced, as distinguished from an annular flame.

In general terms the invention consists in the construction and combination substantially as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top plan of a stove having my improvement applied thereto, the central portion of the top-plate being removed. Fig. 2 is a sectional elevation, the plane of section being indicated by the line II II, Fig. 1. Fig. 3 is a perspective view, on an enlarged scale, of one of the burners. Fig. 4 is a sectional view, the plane of section being indicated by the line IV IV, Fig. 3; and Fig. 5 is a perspective view of one of the deflecting-plates.

In the practice of my invention the stove is of the usual rectangular shape, having ovens, only the upper portion of which is shown. Above the top of the oven is arranged a plate 1, for convenience termed a "burner-plate," provided with openings through which project the upper portions of the burners. Each of the openings for the back burners is surrounded by a partition 2, entirely inclosing the burner except at the side adjacent to the main flue 3, where the partitions unite with the walls of the flue. These partitions may be formed integral with the burner-plate or be attached thereto or simply rest upon them, being held in position by the top-plate 4 of the stove. The front burners are separated from each other by a straight partition 5, extending from the front wall 6 back a sufficient distance to prevent the products of combustion from one burner from flowing over the other burner.

It will be observed by reference to Fig. 1 that passages 7 are left between the circular partitions 2 and the side and back walls 8 and 9, which support the top-plate, and that these passages, as well as the passage 10 between the circular partitions, connect with the main flue 3 and form flues for the products of combustion from the front burners.

It will be observed that as each of the upper portions of the burners is entirely inclosed the flames will not be subjected to any disturbing side drafts, all the air for supporting combustion passing up around the burners from the open space below the burner-plate 1.

The burner is divided horizontally for two sections 11 and 12, which, when placed together, form a hollow annulus, and across this annulus is formed a hollow cross-bar 13. The top wall 14 of the annulus is inclined inwardly, and perforations are formed through this inclined surface, preferably at right angles thereto, so that the flame will be directed inwardly toward the axis of the annulus. The top of the cross-bar is formed by oppositely-inclined walls, and the perforations through these walls are preferably at right angles thereto, so that the flames from the two sets of perforations will be directed outwardly in opposite directions and at an angle to the flame from the annulus.

The burner is connected to the supply-pipe by a tube 15, preferably formed integral with the lower portion of the burner, as shown in Figs. 2, 3, and 4. The length of this tube varies in accordance with the position of the burner in the stove, but in any case it should be of such a length that its outer end will project a short distance beyond the front of the stove, as shown in Figs. 1 and 2. The nipples 16 are inserted in the ends of these tubes, and through the side of the tubes, near the outer ends thereof, are formed openings

17 for the inflow of air, so that the tubes serve as a double function of a mixer and a conductor for the gas and air to the burner.

The burners are made of a somewhat smaller diameter than the openings in the burner-plate, and are supported in proper position in the opening by means of lugs 18, formed integral with the burners and provided with ears 19, adapted to project up through holes in the burner-plate, where they are held by pins 20. Around the edges of the openings in the burner-plate are formed ledges 21 for the reception of the annular plates 22, which are made of sufficient width to project over the burners nearly to the line of perforations in the top wall 14 of the burners. These plates serve to deflect the air passing up around the burners inwardly against the ring of flame from the burner. In order to increase the combustion of the flames from the cross-tube, plates 23 are placed in the openings between the cross-tube and the hollow annulus. The plates fit their seats closely except along the edge adjacent to the cross-tube, where narrow slits are left for the flow of air up into the flames from the cross-tube, as shown in Fig. 2. The plates 22 and 23 rest loosely on their seats and can be removed in order that any dirt on the burner-plate may be swept down through the openings which the plates cover.

It will be observed that all the air which is supplied to the flame from the burners must come up from the space below the burner-plate and is caused to flow by the deflecting-plates directly into the flames. The addition of the flames from the cross-tube to that from the annulus and the direction imparted to said flames by reason of the relative directions of the perforations and the influence of the air-currents results in the production of a solid flame of great heating capacity.

I claim herein as my invention—

1. In a gas-stove, the combination of a top-plate, a burner-plate having openings therethrough and arranged in such relation to the other parts of the stove as to provide an air-space below it, burners so arranged in the space below the burner-plate as to direct the flames and products of combustion through said openings, and partitions extending from the burner-plate to the top-plate and arranged to isolate each burner and provide an independent flue or passage for each burner to a common flue, substantially as set forth.

2. In a gas-stove, the combination of a top-plate, a burner-plate having openings therethrough and arranged in such relation to the other portions of the stove as to form an air-space below it, the space below the burner-plate being connected to a discharge-flue, a circular partition surrounding the opening adjacent to the discharge-flue, burners arranged in the space below the burner-plate so as to direct the flames and the products of combustion through said openings, and passages surrounding the circular partition and extending to the discharge-flue for the escape of products of combustion from the burner distant from the discharge-flue, substantially as set forth.

3. In a gas-stove, the combination of a top-plate, a burner-plate having four or more openings therethrough and located in such relation to the other parts of the stove as to provide an air-space below it, the space below the burner-plate being connected to a discharge-flue, circular partitions surrounding the openings adjacent to the discharge-flue or uptake, a straight partition between the openings distant from the common flue and extending toward the same, and burners arranged in the space below the burner-plate to direct the flames and products of combustion through the openings therein, substantially as set forth.

4. In a gas-stove, the combination of a top-plate, a burner-plate having openings therethrough and located in such relation to the other parts of the stove as to provide an air-space below it, burners arranged in the space below the burner-plate in line with the openings therein, and lugs attached to the burners and adapted to be detachably connected to the burner-plate for supporting the burner in position and permit of the independent removal of any one of the burners from position, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JOHN A. ROE.

Witnesses:
DARWIN S. WOLCOTT,
F. E. GAITHER.