

(No Model.)

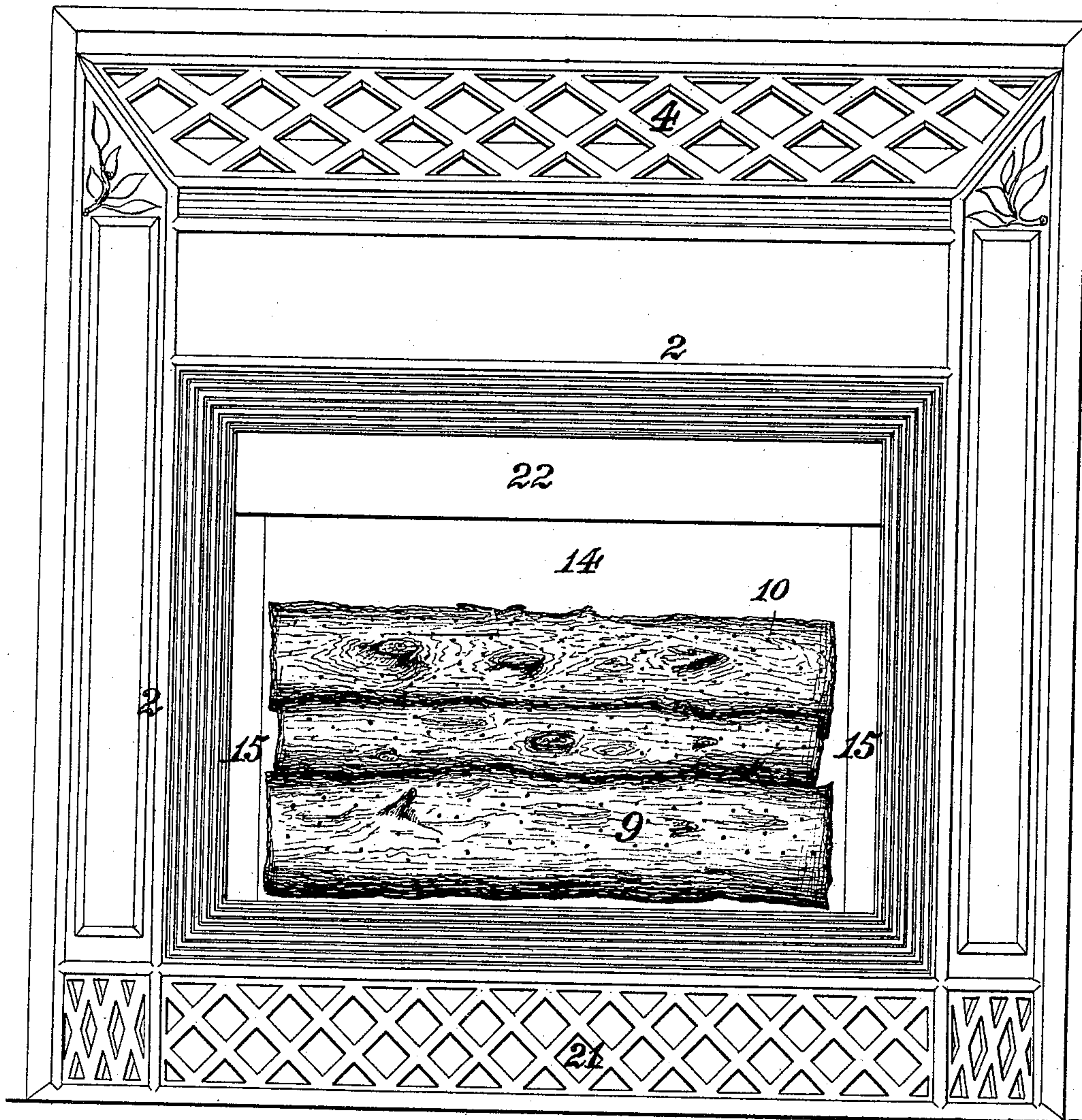
G. W. GOETZ & E. RUUD. 3 Sheets—Sheet 1.

GAS STOVE.

No. 464,457.

Patented Dec. 1, 1891.

FIG. 1.



WITNESSES:

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(No Model.)

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GAS STOVE.

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FIG. 2.

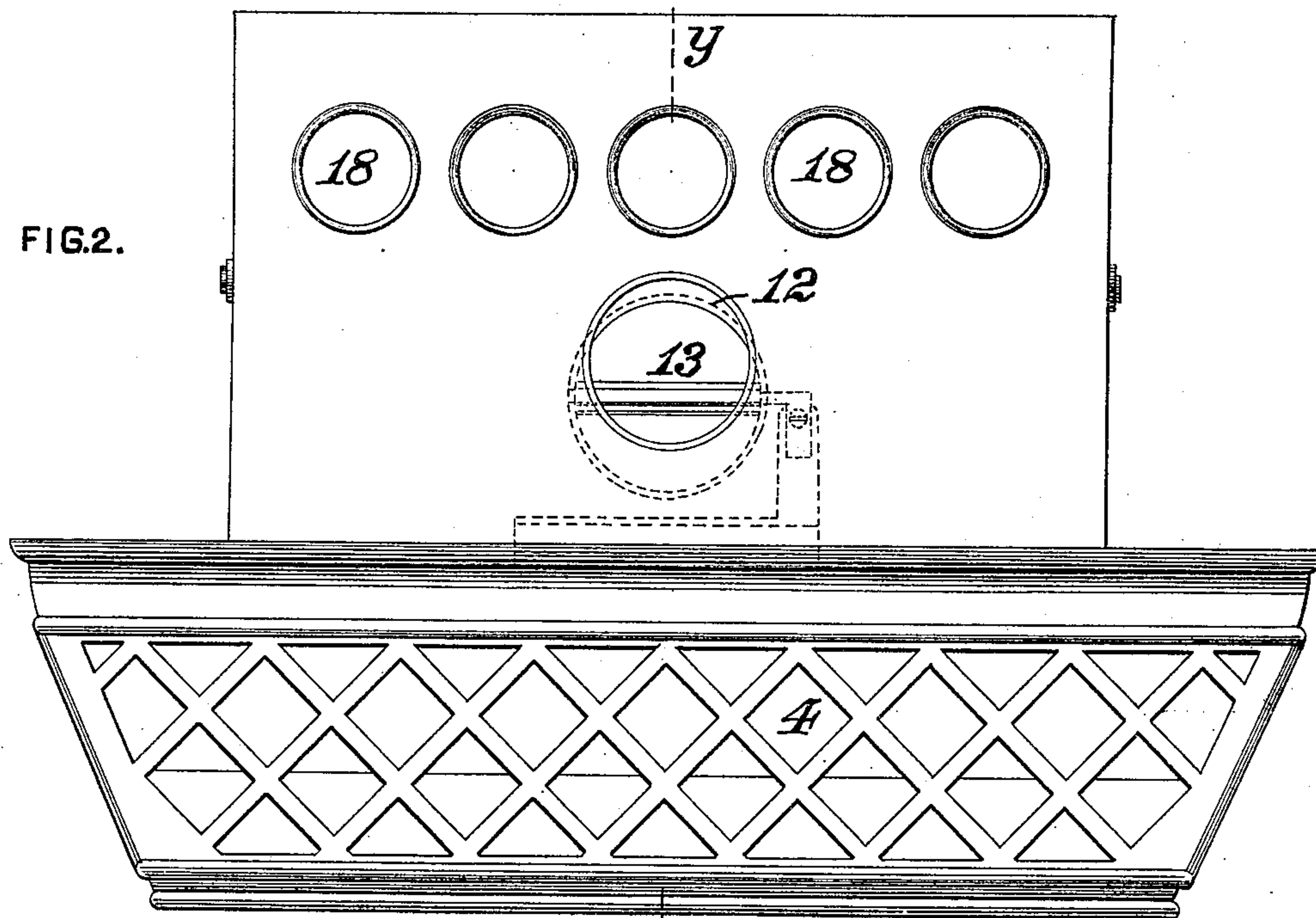
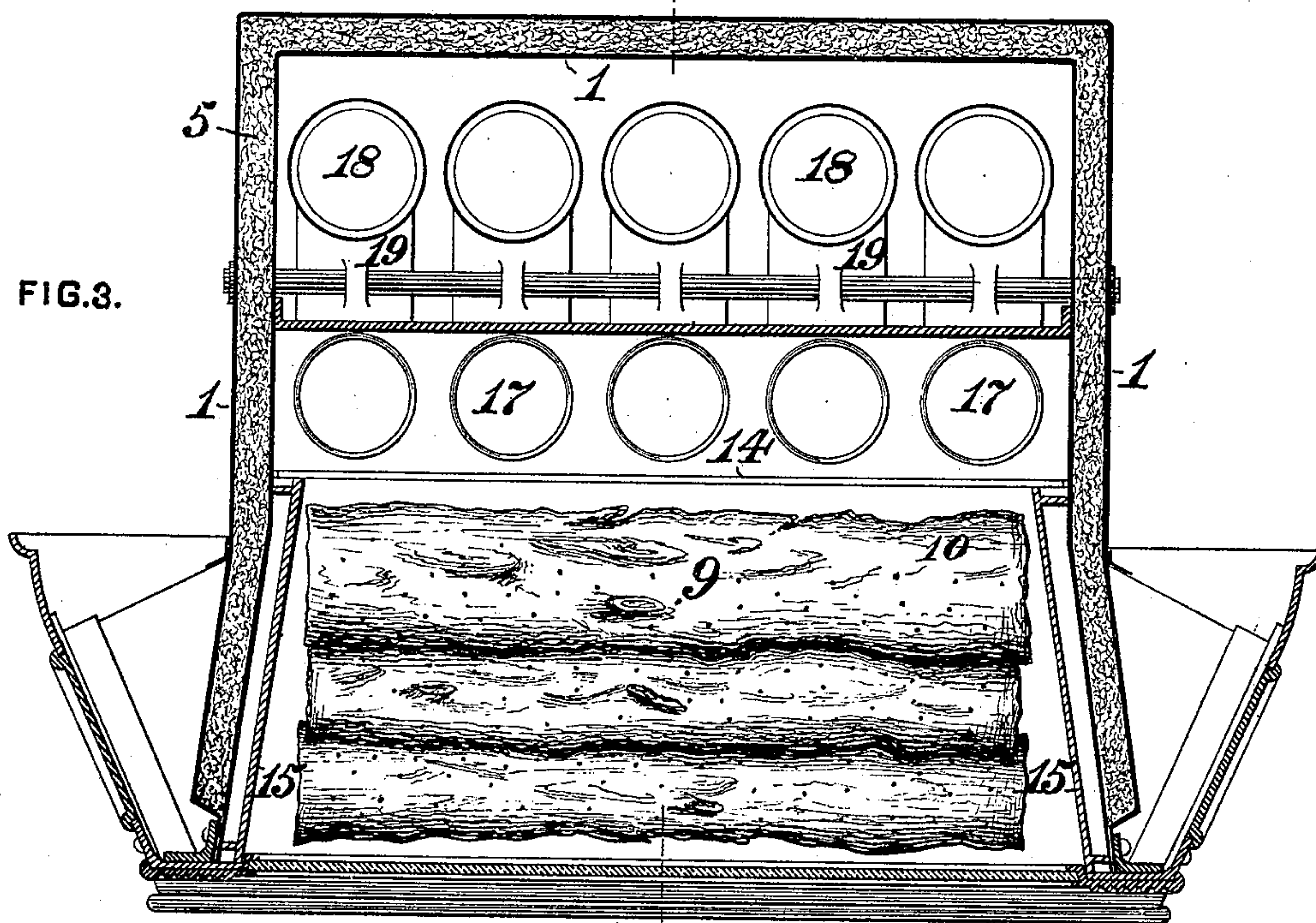


FIG. 3.



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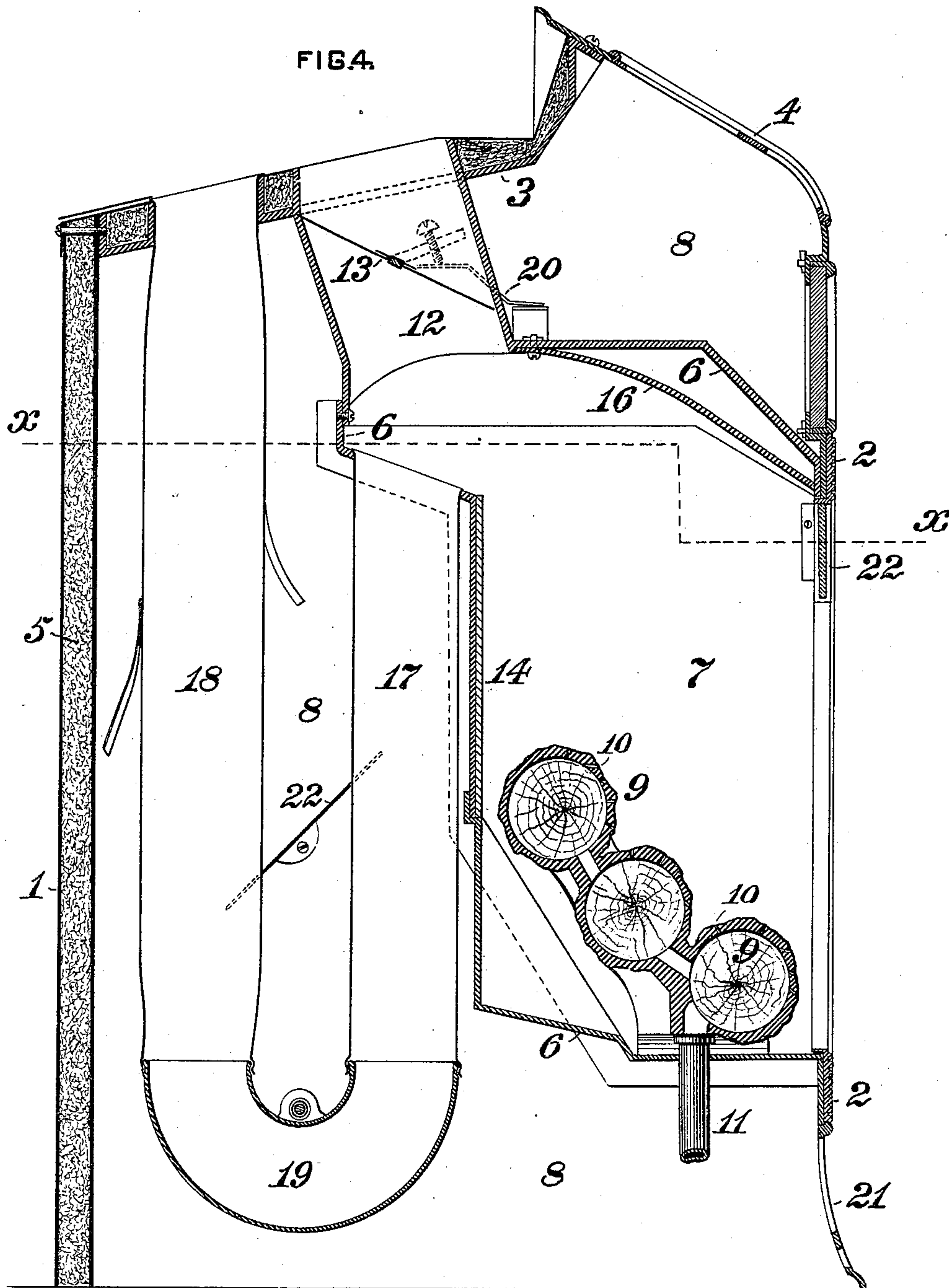
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

GEORGE W. GOETZ AND EDWIN RUUD, OF PITTSBURG, PENNSYLVANIA,
ASSIGNORS TO THE FUEL GAS AND MANUFACTURING COMPANY, OF
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GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 464,457, dated December 1, 1891.

Application filed October 19, 1889. Serial No. 327,545. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. GOETZ and EDWIN RUUD, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Gas-Stoves, of which improvement the following is a specification.

The object of our invention is to provide a heating-stove for the employment of gaseous fuel which shall be of simple, compact, and comparatively inexpensive construction, and in which the calorific effect of the fuel may be exerted as fully as practicable in the evolution of heat by reflection, convection, and radiation.

To this end our invention consists in certain novel devices and combinations herein-after fully set forth.

In the accompanying drawings, Figure 1 is a front view in elevation of a gas-stove embodying our invention; Fig. 2, a plan or top view of the same; Fig. 3, a horizontal section at the line *x x* of Fig. 4, and Fig. 4 a vertical section at the line *y y* of Figs. 2 and 3.

In the practice of our invention we provide a double-walled casing 1, which in section forms substantially three sides of a rectangle, being open at front. An ornamental metal frame 2, the central portion of which is open, surrounds the front of the casing and the casing is closed at top by a cap-plate 3 and by a grated plate 4, extending from the cap-plate to the front frame 2. The casing 1 may either be closed at its lower end by a plain bottom plate or rest upon a plate of sheet metal or other suitable base fixed to a floor. The space between the walls of the casing is packed with a filling 5, of asbestos or other suitable non-conducting and refractory material, so as to prevent the radiation of heat from its outer walls. The cap-plate 3 is also covered with non-conducting material, which is held in position by an outer sheet-metal plate.

The interior of the casing is divided by a partition 6 into two compartments 7 and 8, one of which 7 may be termed the "reflecting" compartment, is located immediately within and in rear of the open central portion of the front frame 2, and the other 8, which may be termed the "radiating" and "convect-

ing" compartment, extends below in rear of and above the compartment 7. A log-burner 9 consisting of a series of superposed communicating chambers of refractory material, perforated in front with numerous small burner-openings 10, so as to present a considerable area, over which at intervals combustion is maintained, is supported on the partition 6 and extends across the lower portion of the compartment 7, gas being supplied to the burner by a pipe 11. A direct-connection pipe 12, for the escape of products of combustion from the burner to a chimney-pipe or discharge-flue, leads from the top of the compartment 7 through the partition 6, the pipe 12 being governed by a damper 13. A rear reflector 14 is fixed to the partition 6 and extends across the compartment 7, above and in rear of the burner 9, and a lateral reflector 15 is connected to the casing 1 on each side of the compartment 7 opposite the adjacent end of the burner. An inclined top reflector 16 is also located in the compartment 7, and is connected at the upper portion thereof to the partition 6 and front frame 2. A glass plate 22 extends across the front of the compartment 7 below the top of the front frame 2, its function being to prevent the passage of products of combustion into the apartment in which the stove is placed, as well as to decrease the area of the fire-front opening, and therefore reduce the amount of air unnecessarily drawn through the stove without impairing the effect of the reflectors.

A series of vertical radiating and convecting pipes 17 18 is located in the rear portion of the compartment 8, the front row of pipes 17 being fixed at their upper ends in the partition 6 and opening into the upper portion of the compartment 7, and being connected at their lower ends by elbows 19 to the rear row of pipes 18, which open at their upper ends into a suitable connection with a chimney pipe or flue. The pipes 17 and 18 serve for the indirect discharge of the products of combustion from the burner when the damper 13 of the direct-connection pipe 12 is closed, the closure of said damper being effected, upon a determined elevation of temperature, by a suitable thermal regulator 20, connected to the shaft of the damper. The application of the

thermal regulator and its relation to a damper and direct and indirect passages for the discharge of products of combustion are structurally and operatively similar to the corresponding devices set forth in the application of Joseph Wybauw, filed March 25, 1889, Serial No. 304,660, and not being claimed as of our present invention need not be at length described. Air is admitted to the compartment 8 through a grated front plate 21, between its bottom and the front frame 2, and, after passing around the pipes 17 and 18 and being deflected from a direct course by an inclined baffle-plate 22, escapes through the grated front plate 4 at the top of the compartment. In operation, gas being supplied to the burner 9 and ignited burns at the numerous openings 10 thereof, the heated products of combustion rising and passing through the direct-connection pipe 12 to the chimney, the heat of the flames at the burner-openings and of the heated surface of the log or chambered burner being radiated into the apartment as well as reflected from the series of reflectors with which the compartment 7 is lined. A strong draft is created in the chimney-flue, and as the temperature rises the thermal-regulator proportionately closes the damper of the direct connection, and thereby compels the products of combustion to pass off through the indirect discharge-pipes 17 and 18. The heat imparted to said pipes by the products of combustion in their traverse through the same to the chimney-pipe or discharge-flue is imparted to the air in the compartment 8, which, as it becomes heated, rises and passes off through the upper grated plate 4 into the apartment in which the stove is located, its place being sup-

plied by cold air, which enters through the lower grated plate 21 and is in turn similarly heated. The non-conducting lining or packing of the back, sides, and top of the casing of the stove prevents the radiation of heat from these portions of the compartment 8, and thus act to insure the thorough heating of the air which is delivered at the front and top of the stove.

We claim as our invention and desire to secure by Letters Patent—

In a gas-stove, the combination of a casing having an open front, a centrally-open front frame connected thereto, a partition connected to said frame and dividing the casing into a front compartment, and a rear compartment which extends to the front frame above and below the front compartment, grated air receiving and delivery plates located at the bottom and the top, respectively, of the rear compartment, a gas log-burner located in the lower portion of the front compartment, a series of reflectors fixed to the rear, sides, and top of the front compartment, and a series of indirect-heating discharge-pipes leading out of the front compartment and extending downwardly and upwardly through the rear compartment, substantially as set forth.

In testimony whereof we have hereunto set our hands.

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EDWIN RUUD.

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