No. 688,005.

Patented Dec. 3, 1901.

J. RAUBER.

HEATING FURNACE.

(Application filed Feb. 12, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

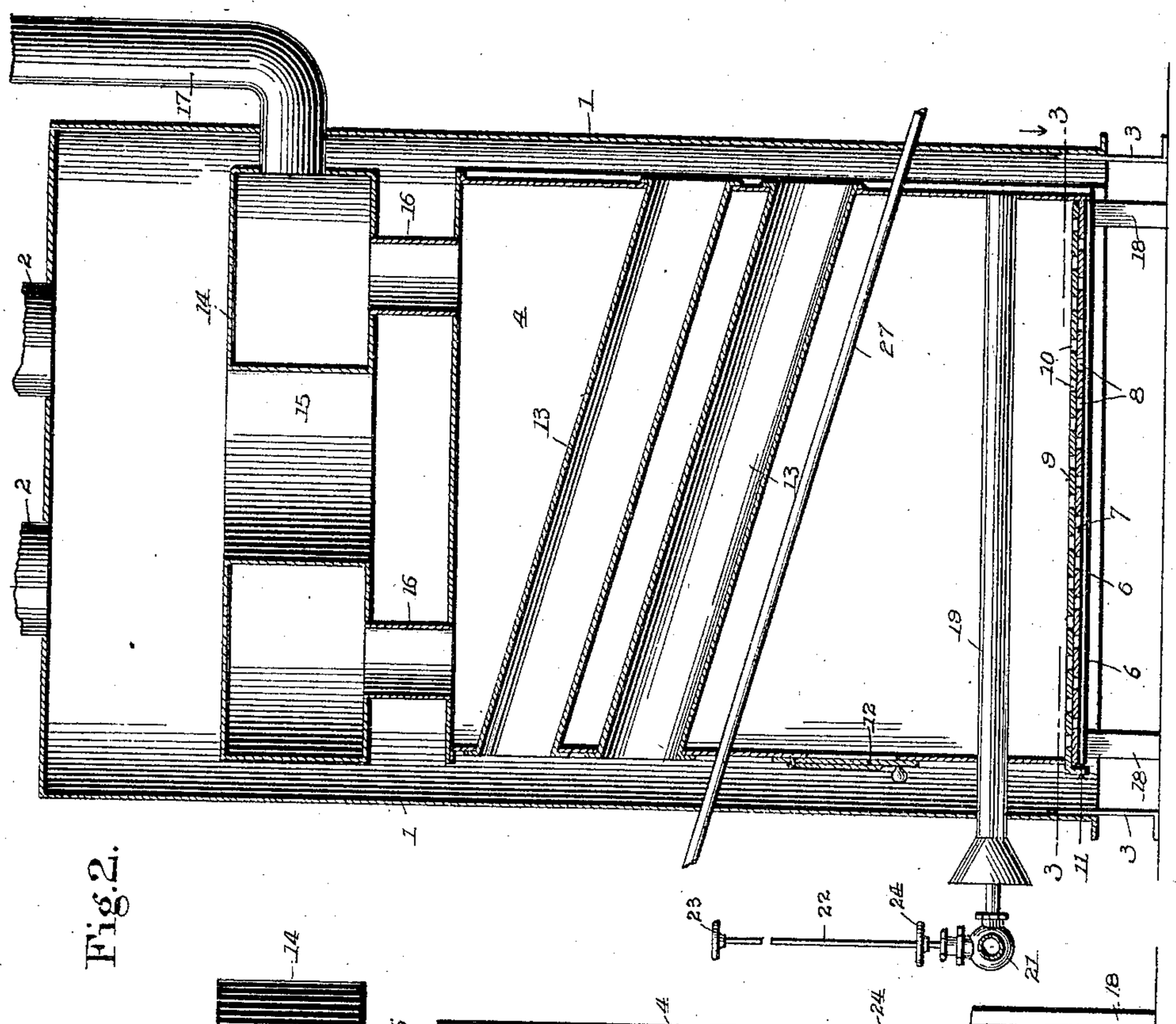

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

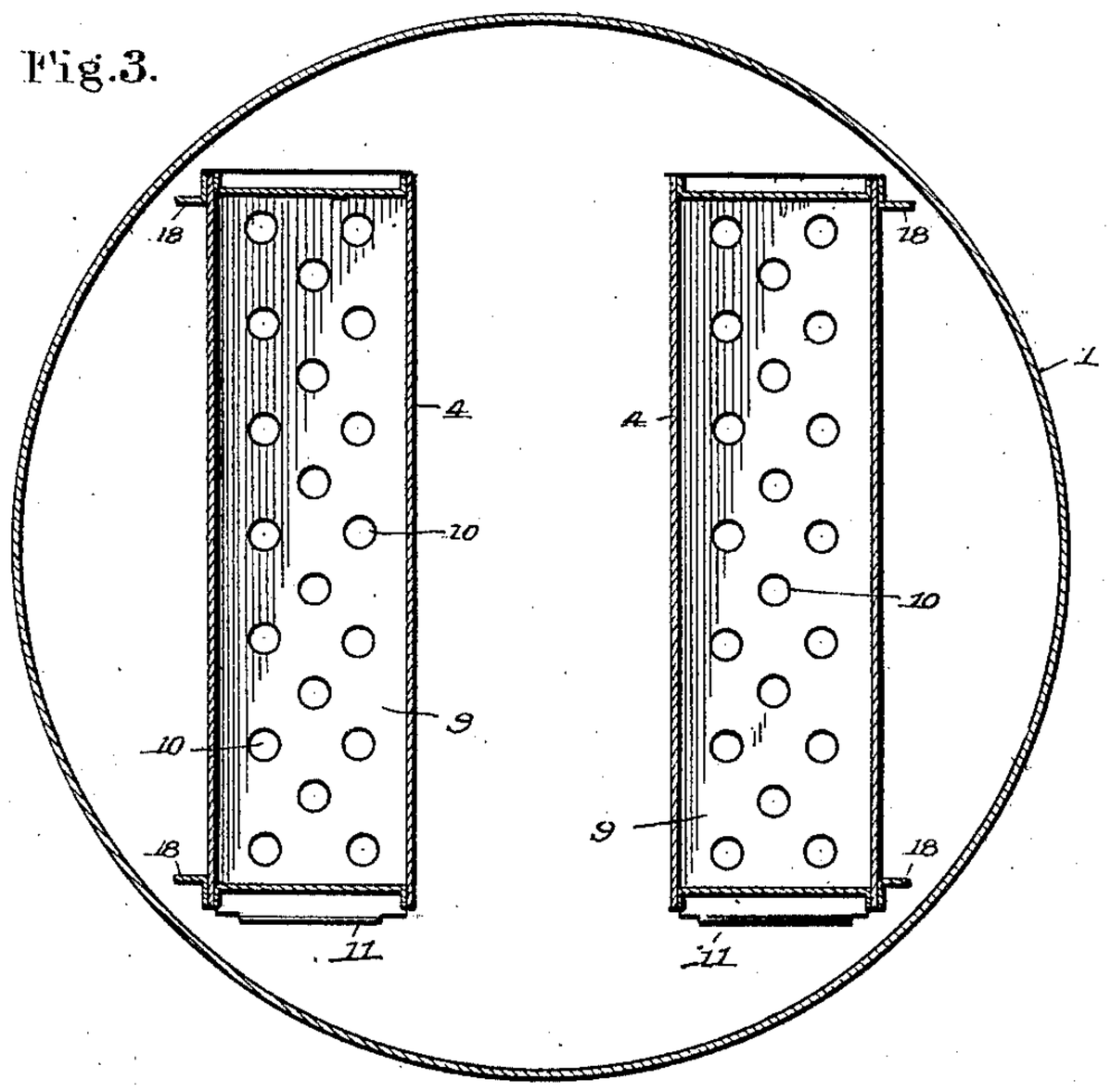


Fig 4.

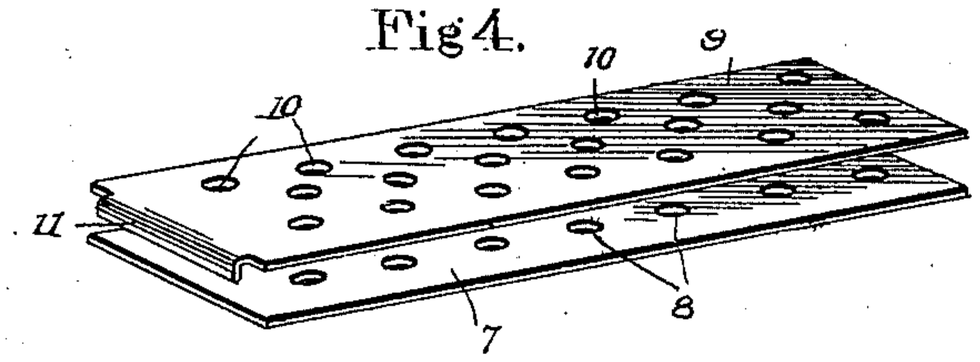
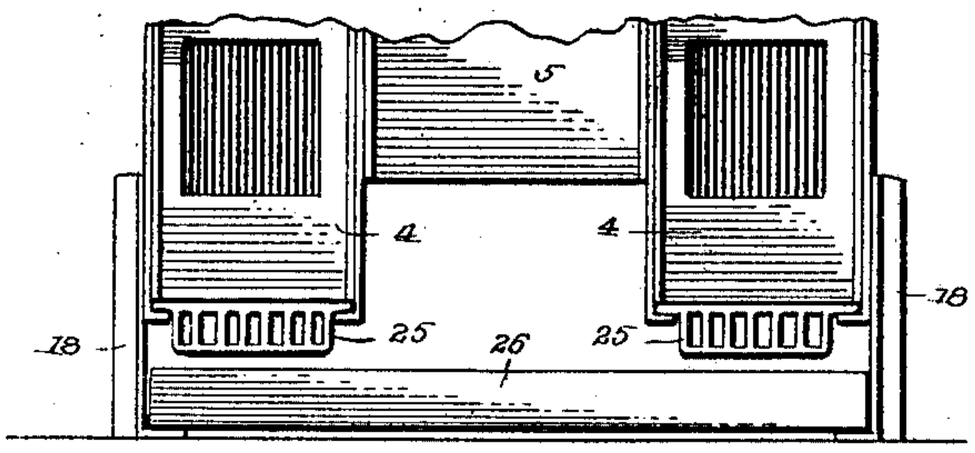


Fig. 5.



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UNITED STATES PATENT OFFICE.

JACOB RAUBER, OF WELLSVILLE, NEW YORK.

HEATING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 688,005, dated December 3, 1901.

Application filed February 12, 1901. Serial No. 47,014. (No model.)

To all whom it may concern:

Be it known that I, JACOB RAUBER, a citizen of the United States, residing at Wellsville, in the county of Allegany and State of New York, have invented certain new and useful Improvements in Heating-Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in heating-furnaces; and its primary object is to provide a device of this character which is simple and durable in construction, which rapidly heats the air supplied thereto, and which consumes the minimum quantity of fuel.

A further object is to employ heating-chambers of novel construction which may be operated independently of each other.

With these and other objects in view the invention consists in the novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a front elevation of the heater removed from its casing. Fig. 2 is a vertical longitudinal section through the center of one of the heating-compartments and through the drum. Fig. 3 is a section on line 3 3, Fig. 2. Fig. 4 is a detail view of the bottom of one of the heating-compartments, and Fig. 5 is an elevation of the lower portion of a modified form of heater.

Referring to the figures by numerals of reference, 1 is a cylindrical casing formed, preferably, of sheet metal and closed at the top, as shown in Fig. 2. Suitable hot-air-distributing pipes 2 extend from the top of the casing, and legs 3 serve to support the bottom of said casing above the ground.

The casing above described is adapted to receive the heater proper of the furnace. This heater comprises, preferably, two similar rectangular compartments 4, formed of sheet metal or other desired material and held apart, but rigidly secured together, by braces 5, formed of heavy sheet metal or castings. Each heating-compartment 4 is open at the bottom and provided with longitudinally-extending cleats 6, upon which is mounted a stationary, but removable, plate 7, having a series of perforations 8 therein. Mounted upon this plate is a slide 9, which is also perforated, as shown at 10, said perforations being adapted to register with the perforations 8 when the slide is in its innermost position. A downwardly-turned flange or handle 11 is arranged at the front end of each slide 9, whereby the same may be readily moved in and out in order to regulate the draft. A door 12 is hinged to the upper edge of an opening formed within the front wall of each heating-chamber, and the combustion of fuel takes place below this door, but above the slide 9, before mentioned. Preferably two inclined tubes are arranged within each chamber 4, these tubes being inclined downward from the front of the chamber and extending longitudinally thereof. These tubes 13 are arranged one above the other, although not in the same vertical plane, they being so located as to prevent the direct upward passage of the hot gases and products of combustion.

A circular drum 14 is arranged above the heating-chambers 4 and is provided with a central vertical passage 15 therethrough, which is located directly above the space between the chambers 4. This drum communicates with each of the heating-chambers through two pipes 16, one arranged at each end of each chamber, and an outlet-pipe or chimney extends from the rear of the drum. This outlet-pipe 17 is preferably detachably secured to the drum 14 and extends through the casing 1, as shown.

Legs 18 are provided at the lower ends of the heating-chambers, and these serve to support the heater proper within the casing 1 and above the lower end thereof.

In Figs. 1 and 2 I have illustrated the heater as employing gas-burners 19. A furnace of this character is especially adapted for use in natural-gas regions. A common supply 20 is provided for the two burners; but each burner employs a separate cock 21, whereby the flow of gas may be regulated. The stem 22 of the cock preferably extends to the floor above the furnace, a hand-wheel 23 being located at the end thereof, whereby the cock can be easily turned. A second hand-wheel 24 may be arranged upon the stem 22 adjacent

to the cock, so that said cock can be operated by a person adjacent to the furnace.

In Fig. 5 I have illustrated a form of heating-furnace which it is my intention to employ where it is desired to use wood or coal for fuel. In this construction the burners 19 are dispensed with and a grate 25 is substituted for the bottom plates 7 and 9. This grate is of any suitable construction, and an ash-pan 26 is placed below the grates to receive the ashes, &c.

The advantages of my construction of heating-furnace will be apparent. One or both of the heating-chambers may be employed, and the hot gases, &c., rising within said chambers and passing into the drum 14 will heat the air between the chambers 4 within the tubes 13 and inclosing the drum 14. This hot air will accumulate within the casing 1 above the drum, from which it may be distributed through the pipes 2.

If desired, a hot-water pipe 27 may be placed above each burner of the furnace. This pipe is inclined, as shown in Fig. 2, and extends from a suitable supply to an outlet.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a heater the combination, with standards, of similar non-communicating heating-chambers, braces connecting said chambers, a burner in each chamber, tubes extending from front to rear of each heating-chamber and arranged one partly over the other, said tubes serving to prevent the direct upward passage of products of combustion, a drum entirely above the two heating-chambers and having a passage therethrough, pipes connecting said drum with the top of each heating-chamber, an outlet from the drum, an open-bottom casing extending over the drum and heating-chambers and having outlets, and standards for holding the bottom of the casing above the ground.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB RAUBER.

Witnesses:
W. C. KENDALL,
E. W. GLAUCHE.