Mar. 3, 1925. 1,528,522

J. BARBECK

HEATER

Filed Dec. 14, 1923 2 Sheets-Sheet 1

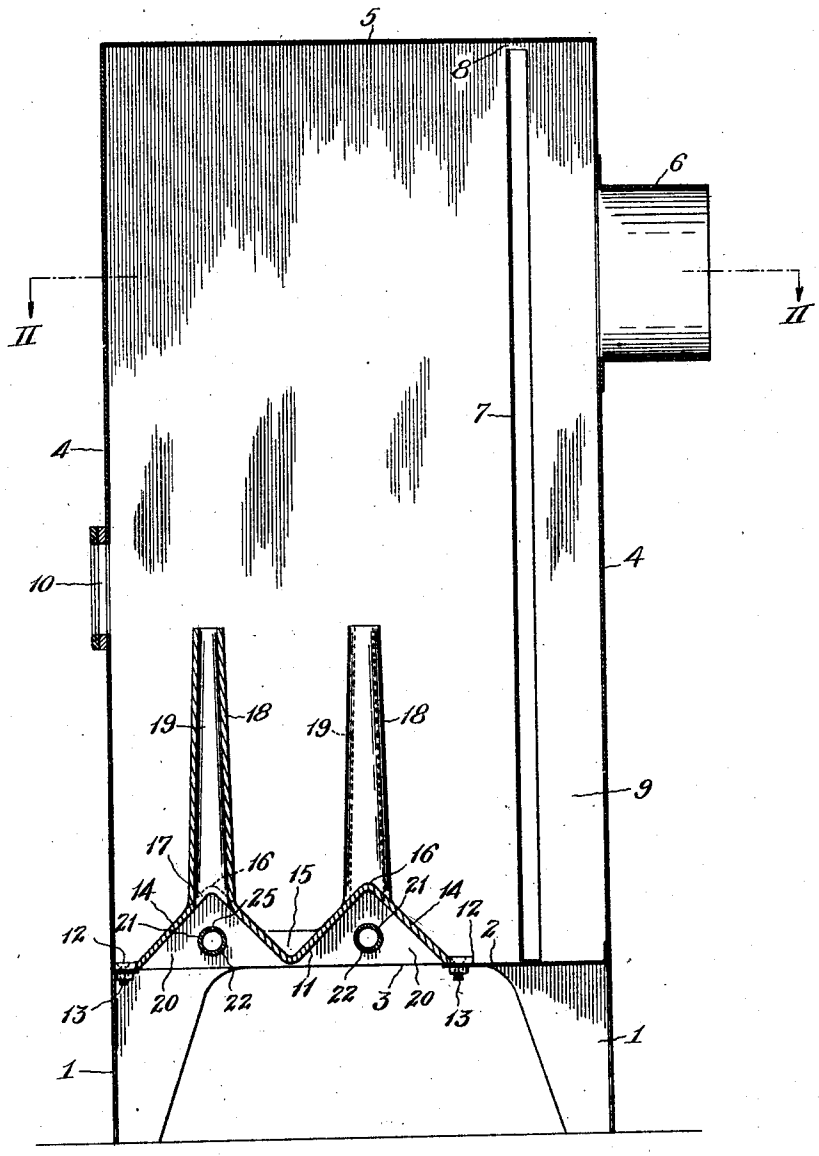


FIG. 1.

INVENTOR:
JOSEPH BARBECK

by his att'y Ernest B. Mueller.

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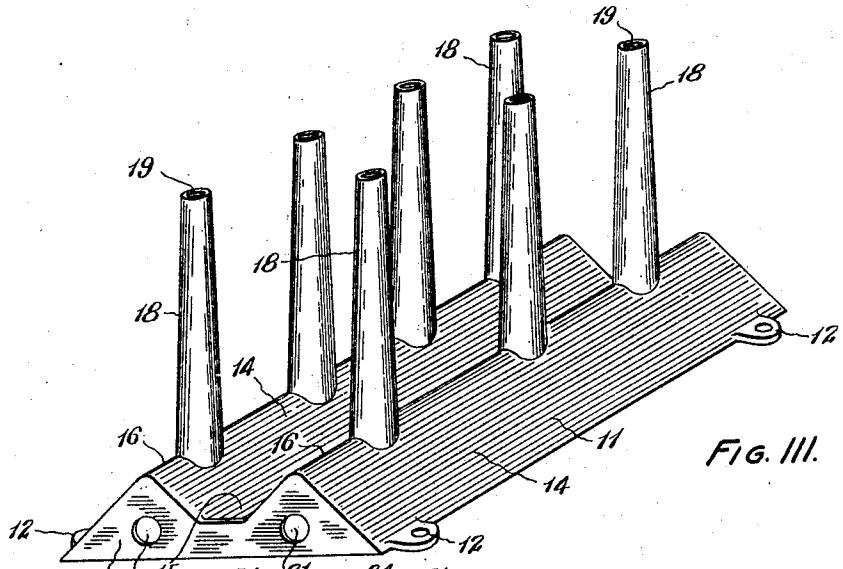


FIG. III.

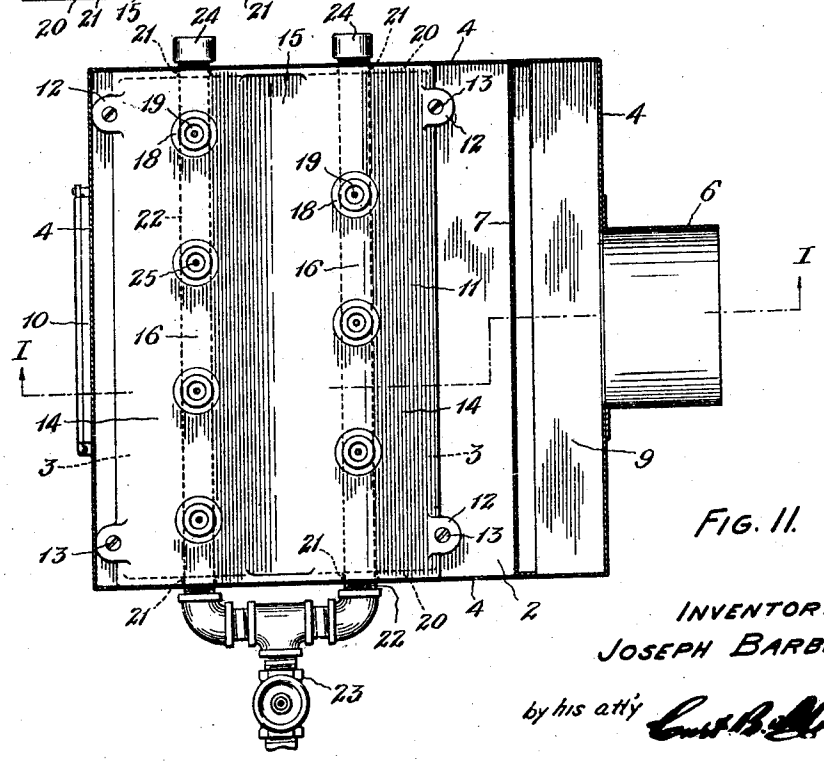


FIG. II.

INVENTOR:
JOSEPH BARBECK

by his atty

Patented Mar. 3, 1925. 1,528,522

UNITED STATES PATENT OFFICE.

JOSEPH BARBECK, OF CLEVELAND, OHIO.

HEATER.

Application filed December 14, 1923. Serial No. 680,631.

To all whom it may concern:

Be it known that I, JOSEPH BARBECK, a subject of the King of England, residing at 5109 Fenwick Ave., Cleveland, in the State of Ohio and county of Cuyahoga, have invented a new and useful Improvement in Heaters, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention pertains to a heater and more particularly to a gas heater for heating the living quarters of a home by direct radiation from the heater casing.

One of the objects of my invention is to obtain a high heating efficiency for a given flow of gas—hence economy of operation. A further object is a construction permitting the extraction of the maximum number of heating units—demonstrated by the comparatively cool (touchable) stove pipe. Another object is the attainment of substantially perfect combustion with little likelihood of carbon monoxide fumes. A further object is the provision of a draft construction which will prevent back draft forcing gases of combustion into the compartment where the heater is situated—accomplished by a sinuous draft passage having a deep pocket in communication therewith. A final object has been to design a heater combining unusual simplicity and economy of manufacture with successfully proven efficiency.

Adverting to the drawings:

Figure I is a vertical cross section taken through my heater from front to rear.

Figure II is a plan section on line II—II of Figure I.

Figure III is a perspective view of my burner element.

My heater is supported on four legs 1 and comprises a bottom 2 provided with an opening 3 the size and shape of which will be hereinafter explained, together with side walls 4 and a closed top 5. A stack 6 communicates through the rear wall 4 at a point somewhat nearer the top than the bottom thereof. An upright partition 7 is spaced a suitable distance from the rear wall 4 and a comparatively smaller distance from the top 5 to provide between the top of the partition 7 and the top 5 of the heater a narrow passage 8 through which all the gases of combustion will be drawn and thereafter downwardly toward the stack 6. It should be understood that the partition 7 completely divides the heating casing into two compartments except for the small communicating passage 8 at the top, and it will be observed that the arrangement just described provides a deep pocket 9 at the rear of the heater. A lighting door 10 is provided in the front wall of the heater.

Preferably, I build my burner element as an integral casting 11 and of the general shape shown in Figure III. The casting is hollow and has its lower edges lying in substantially the same plane. It is provided at its four corners with perforate ears 12 by means of which it may be secured through the agency of stove bolts 13 to the bottom 2 of the heater and directly over the opening 3 therein, which latter has the general shape and size of the bottom of the burner element so that the only air supply to the latter is had through the opening 3. The burner element, as exemplified, includes two longitudinally extending inverted V shape portions 14 separated by an interjacent concavity 15, the bottom of which is somewhat elevated with respect to the ears 12. The ridges 16 of the pair of hollow roof-like sections of the burner element are each provided with a plurality of openings 17 (see Figure I) with each of which a long upright and tapering burner proper 18 communicates through its upwardly converging bore 19. As shown, one side of the burner element carries three burners whereas the opposite side carries four burners and the burners in one row are staggered with reference to those of the other row. The ends of the burner casting are closed by walls 20 except for a pair of openings 21 each pair of which is in line with one row of burners. Fuel pipes 22 extend through the openings 21 from end to end and at one end communicate through suitable connections with a common source of fuel 23 whereas their opposite ends are closed exteriorly of the heater by caps 24. Each pipe 22 has its top fashioned with an orifice 25 directly underneath one of the openings 17. Practical tests have established that the size of these orifices may be satisfactory if made by a number 57 drill. They are comparatively minute as compared with the size of the opening 17 and the diameter of the gas passages 19 of the burners. I have also

learned that the orifices 25 are effectively spaced about three-quarters of an inch from inlets of the burners which latter are made about six inches long with the sizes of their bores at their inlet end about three-quarters of an inch and at their outlet or top ends about three-eighths of an inch. The distance between the partition 7 and the rear wall 4 I have established as about two inches whereas the height of the passage 8 is only about an eighth of an inch.

In operation, after the fuel is turned on and the burners ignited through the door 10, the gases of combustion are necessarily drawn through the passage 8 and thence downwardly toward the stack 6. The pocket 9 serves temporarily to retain any collection of combustion gases due to momentary down drafts in the chimney and thus preclude their issuing out into the room.

I claim:—

1. A new article of manufacture comprising a pair of adjacent and separated mixing chambers each having a top formed of upwardly converging surfaces and a series of burners communicating through the peaks of said chambers, the series of burners of one chamber being staggered with reference to those of the other series.

2. A new article of manufacture comprising as an integral structure a pair of adjacent and separated mixing chambers each of inverted V shaped cross section and a row of upwardly projected burners communicating through the peaks of said chambers, the row of burners of one chamber being staggered with reference to the row of the other series.

3. A new article of manufacture comprising as an integral structure a mixing chamber having a top formed of upwardly converging sections and a row of upwardly projected burners communicating through the peak of said chamber, and a gas supply connection leading into said chamber and fashioned with outlet orifices under said burners respectively.

Signed by me, this 1st day of December, 1923.

JOSEPH BARBECK.