R. G. BOONE.

HEATER.

APPLICATION FILED JULY 2, 1920.

1,416,255. Patented May 16, 1922.

Fig. 1.

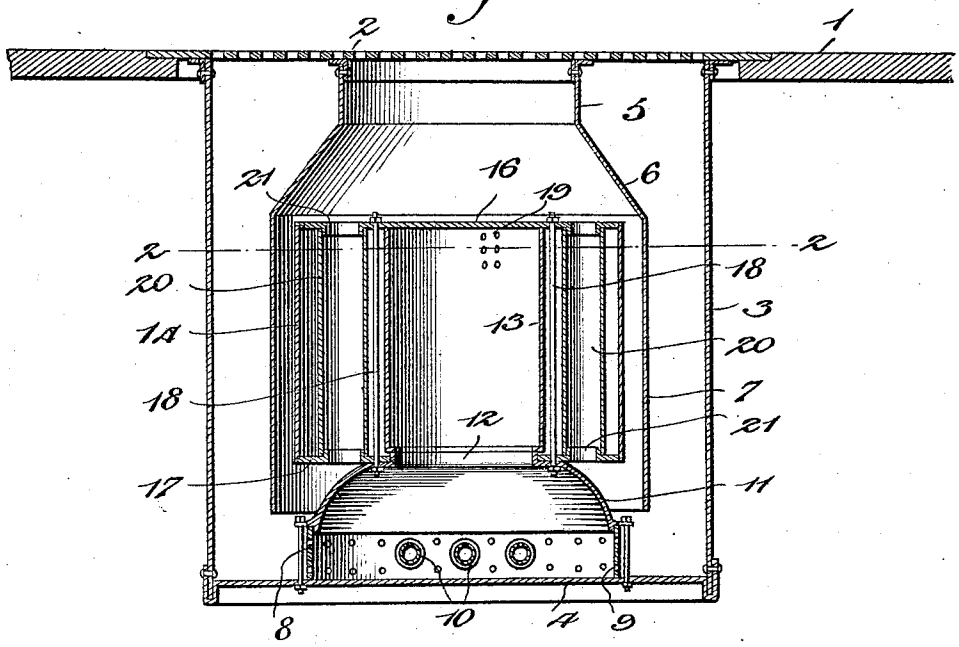


Fig. 2.

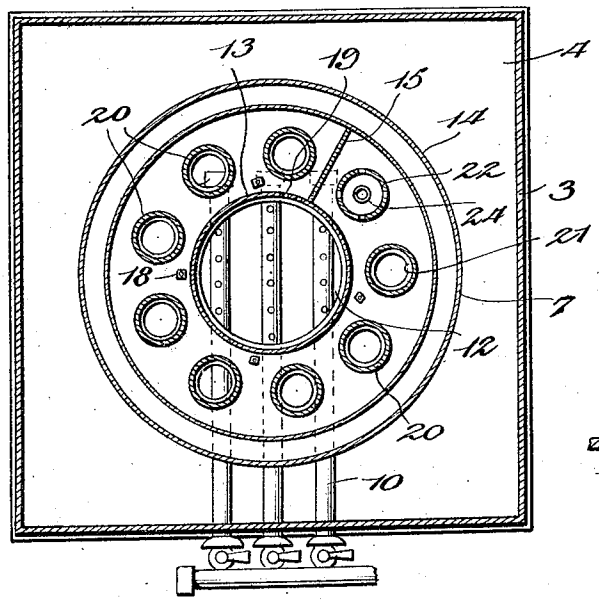
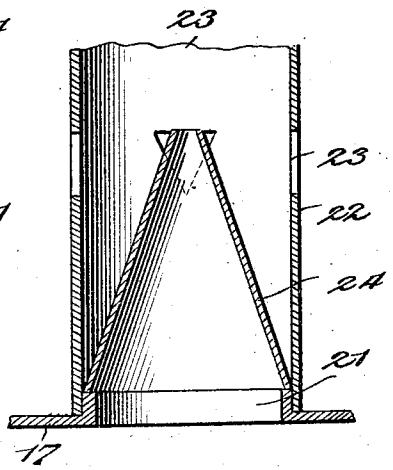


Fig. 3.



WITNESS:

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UNITED STATES PATENT OFFICE.

ROBERT G. BOONE, OF ASBURY PARK, NEW JERSEY, ASSIGNOR TO RICHARD STOCKTON AND GEORGE G. BOURNE, BOTH OF NEW YORK, N. Y., AND JAMES KERNEY, OF TRENTON, NEW JERSEY.

HEATER.

1,416,255. Specification of Letters Patent. **Patented May 16, 1922.**

Application filed July 2, 1920. Serial No. 393,531.

To all whom it may concern:

Be it known that I, ROBERT G. BOONE, a citizen of the United States, residing at Asbury Park, in the county of Monmouth and State of New Jersey, have invented new and useful Improvements in Heaters, of which the following is a specification.

This invention relates to improvements in heaters, and the principal object is to provide a heater which will draw the cold air from the floor of a room, heat it, and then return it to the room through a baffled passage for obtaining great efficiency.

Another object is to construct a heater of this nature which may be attached to and supported by a grating of a floor register.

Another object is to provide a device of this character which will be simple of construction and efficient for the purpose intended.

Other objects will appear from the following description and claim.

All of these objects are accomplished by means shown in accompanying drawing consisting of one sheet, in which:—

Figure 1 is a vertical sectional view of my improved heater.

Figure 2 is a horizontal sectional view taken substantially in line 2—2 of Figure 1.

Figure 3 is a detail view of the draft pipe.

Like characters of reference refer to like parts in all views.

Referring to the drawing in detail, 1 represents a portion of the floor of a room in which the heater is installed, and 2 represents a register which may be of any desired construction so long as it provides means for supporting the various parts hereinafter set forth.

An outer shell 3 is secured to a flange of the register 2 and supports a base plate 4. Depending from the register 2 is a cylindrical member 5 which is flared into a frusto-conical portion 6 having a depending cylindrical apron 7 which extends nearly to the base 4.

On the base 4, is a circular member 8 which is provided with a plurality of apertures 9 for permitting the passage of cold-air. These apertures are in two rows for a purpose which will be presently set forth. The burner is shown at 10 and may be of any desirable type. As shown in the drawing the burner is in three sections so as to regulate the heat produced in accordance with weather requirements.

Seated upon the member 8 is a dome like member 11 provided with an aperture 12 at its top, through which the heat from the burner passes to the interior of an inner drum 13. An outer drum is shown at 14, and connecting the two drums is a radially disposed baffle 15 which extends from top to bottom of said drums. Top and bottom plates 16 and 17 are drawn into intimate engagement with drums 13 and 14 and with baffle 15 by rods 18, which rods pass down through the dome member 11 and connect all of these members rigidly together.

Formed in the drum 13 near the baffle plate 15 is a plurality of apertures 19 for the passage of heated air from the drum 13 into the space between the two drums. Extending through this space between the drums are several tubes 20 which are held in place by circular flanges 21 formed on the plates 16 and 17.

At the opposite side of the baffle from the apertures 19 is provided a tube 22 similar to tubes 20 but provided near its lower end with a plurality of apertures 23 and with a frusto-conical member 24 having its top open.

In operation, air is drawn down between members 3 and 7 and through the holes 9. That portion of the air which passes through the lower row of holes 9 will pass to the burner and be combined with the gas in a combustion which is not complete. The air from the upper row of holes 9 will pass over the burner and combine above it with the products of the incomplete combustion and complete combustion here takes place. The heated air and products of combustion now pass up through drum 13 and escape through apertures 19 into the chamber between drums 13 and 14. Baffle 15 prevents the heated air from moving directly to pipe 22 and so the air is forced to pass around between the drums thereby heating the pipes 20, and is finally drawn out through apertures 23. The air passing up through the conical member 24 causes a certain amount of induced suction at the openings 23 and has been found in practice to act as a regulator to prevent too rapid extraction of the air through apertures 23 and to prevent choking of the flame by too slow a draft.

While I have described what I consider to

be the desirable embodiment of my invention, it is obvious that many of the details may be varied without in any way departing from the spirit of my invention; and I therefore do not limit myself to the exact details of construction herein set forth nor to anything less than the whole of my invention limited only by the appended claim.

What I claim as new and desire to secure by Letters Patent is:

The combination with a register, of an outer shell secured to said register, a base plate carried by said shell, a cylindrical member extending from said register within said shell having a frusto-conical portion and provided with a depending cylindrical apron terminating short of said base plate, a circular member secured to said base plate and provided with a plurality of openings, a burner located upon said circular member, a dome like member seated upon said circular member and provided with an aperture in the top thereof, an inner drum engaging said dome like member and provided with a plurality of openings, an outer drum, a plate engaging the top of said drums having a series of openings formed therein and provided with depending circular flanges, a plate surrounding the upper end of said dome like member and engaging said drums, the last mentioned plate having a plurality of openings formed therein and provided with upstanding flanges, a plurality of tubes located between said drums and surrounding the flanges aforesaid, one of said tubes having a plurality of openings formed therein, a frusto-conical shaped member located in the last mentioned tube and a partition disposed between said drums and adjacent to the last mentioned tube.

In testimony whereof I have affixed my signature.

ROBERT G. BOONE.