

F. FIEBEGER.
STOVE OR FURNACE RADIATOR.
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970,483.

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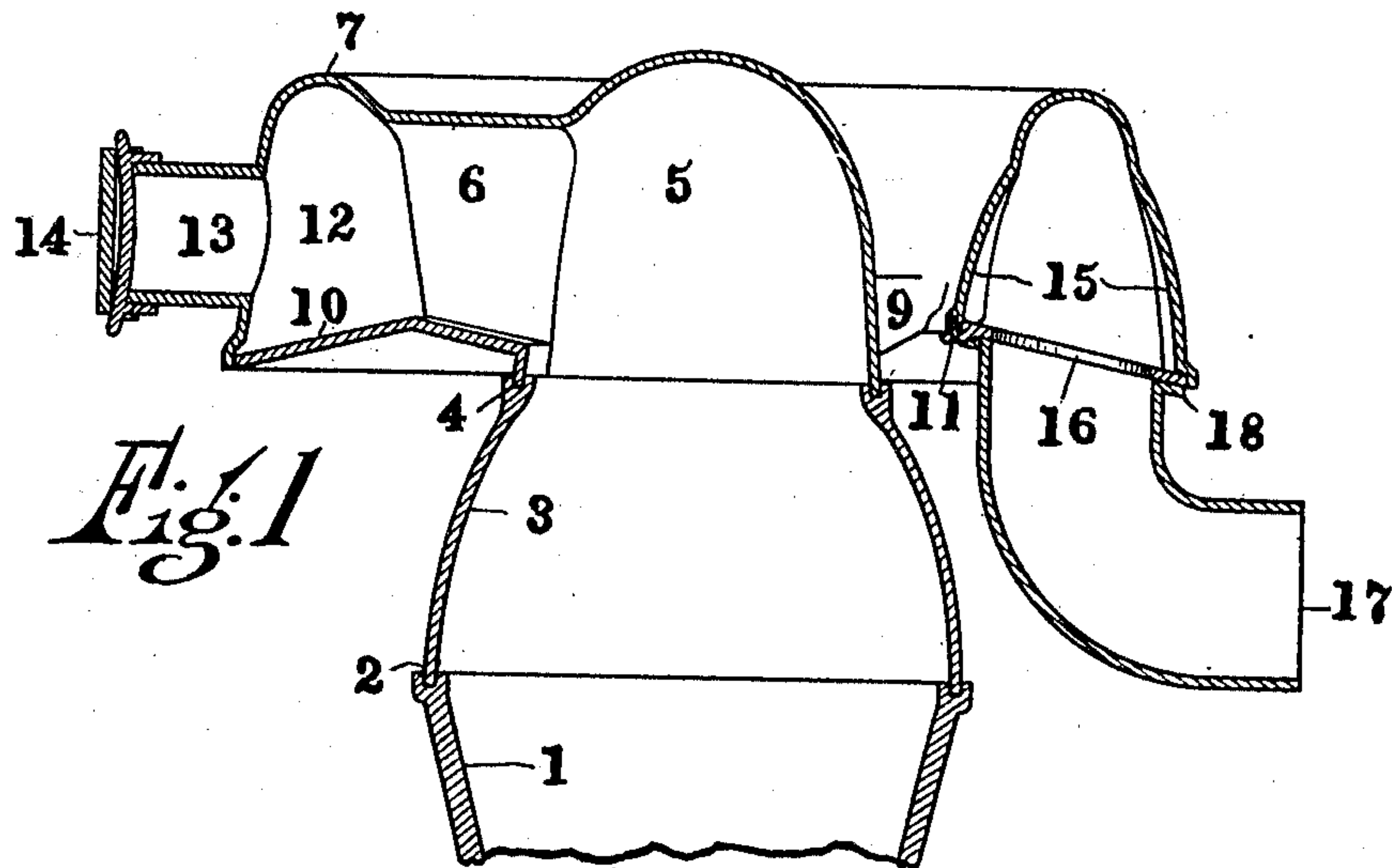


Fig. 1

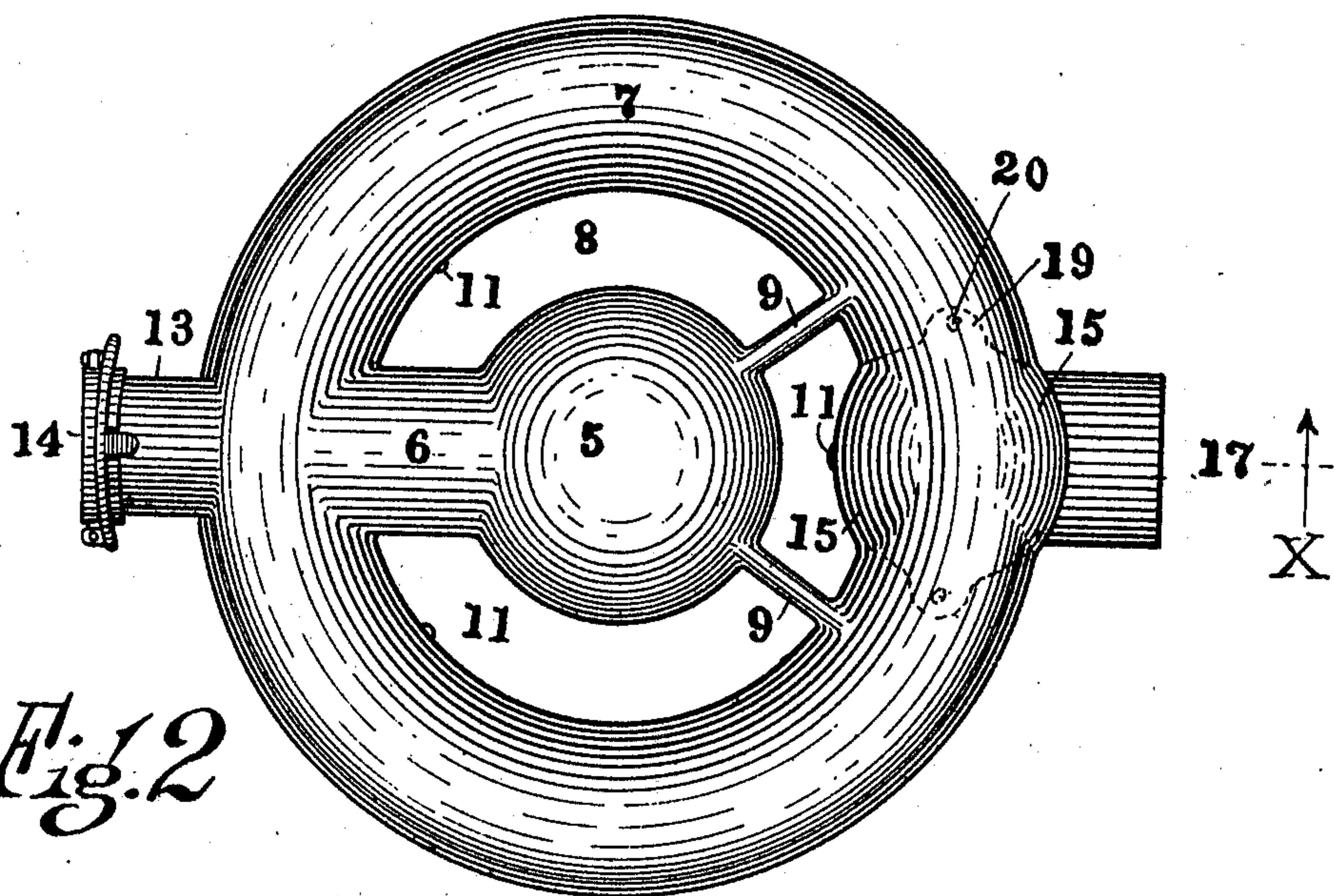


Fig. 2

Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK FIEBEGER, OF AKRON, OHIO.

STOVE OR FURNACE RADIATOR.

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To all whom it may concern:

Be it known that I, FRANK FIEBEGER, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented new and useful Improvements in Stove or Furnace Radiators, of which the following is a specification.

This invention relates to radiators for stoves or furnaces adapted to be seated upon the combustion chamber of the fuel section thereof.

The object of the invention is to provide an improved radiator through which the products of combustion from the combustion chamber are arranged to pass in their passage to an uptake flue or chimney, said radiator comprising a dome arranged to be positioned on the fuel section or combustion chamber of the stove or furnace and provided with an annularly-formed drum surrounding said dome and spaced therefrom to permit the air circulating within the furnace-casing to pass between the dome and drum for causing more effectual radiation of the heat from the heater portion of the furnace, said dome and drum connected by a hollow neck portion for establishing communication between the two, the products of combustion passing from said dome through said neck portion to said drum and adapted to approximately equally divide and pass around through the annular passages within said drum to the opposite side thereof from that which is connected with said neck portion, the floor of the drum on the opposite side of said furnace provided with an opening from which depends an offtake pipe for conducting the products of combustion to a chimney or offtake flue.

The invention further contemplates providing an annular drum with an enlarged hollow space adjacent to and immediately about the opening in the bottom of the drum through which the products of combustion pass to the offtake pipe, said enlarged space in the drum at this point affording a larger area for the commingling of the products of combustion passing around both sides of the drum to produce reverberatory action of the currents before passing downwardly to the offtake pipe, thus retarding or damming the egress of the current immediately preceding their departure from the drum and thereby causing the entire drum to be constantly and completely filled with a volume of heated air so as to make all the surface

portions thereof approximately equally efficient in the diffusion of heat.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts constituting the invention to be hereinafter specifically described and illustrated in the accompanying drawings which form a part hereof wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings, in which similar reference numerals indicate like parts in the different figures: Figure 1 is a vertical, central, sectional view of a furnace radiator on line X of Fig. 2 and showing in section the upper part of the heater portion of a stove or furnace; and, Fig. 2 is a plan of the radiator shown in Fig. 1.

Referring to the drawings, the reference numeral 1 denotes a fire-pot adapted for either a stove or furnace, provided with an annular groove 2 in its upper portion to constitute a seat for a fuel section 3 mounted thereon and which is preferably conoidal in cross-section. The upper portion of the section 3 is also preferably provided with an annular groove 4 to constitute a seat. Mounted on the seat 4 is a radiator embodying this invention and comprising a conoidally-formed dome 5 with a closed upper end and into which the products of combustion from the combustion chamber comprising the fire-pot 1 and fuel section 3 are designed to pass. Preferably formed integral with the dome 5 is a hollow neck 6 communicating with the interior of the dome 5 and extending radially therefrom. Surrounding the dome 5 and approximately concentric therewith is a hollow drum 7 preferably formed integral with the neck portion 6 and with the upper portion thereof conoidal in cross-section. The drum 7 is preferably separated from the dome 5 by an intervening space 8 through which the air to be heated by the stove or furnace is permitted to freely pass.

In order to effectually support that portion of the drum which is opposite to the neck portion 6, integral radial arms 9 are provided extending from the dome 5 to the drum 7. The bottom 10 of the drum 7 is customarily inclined so as to be frusto-conical in cross-section and is united to the upper

portion of the drum 7 by screws or holdfast devices 11 extending upwardly through the bottom 10 of the drum 7. The outer wall of the drum 7 opposite to the opening therein which communicates with the neck portion 6 is provided with an opening 12 from which extends laterally a clean out tube 13 adapted to be normally closed through the medium of a door 14. Either the inner or outer wall or both of the drum, preferably on the opposite side from the opening 12 is provided with an outwardly-bulging portion 15 to increase the area of the interior of the drum. The bottom 10 of the drum immediately adjacent to the enlarged or bulging portion 15 is provided with an opening 16 arranged to register with the upper end of an offtake pipe 17, the upper end of which is provided with a marginal flange 18 having lugs 19, indicated in dotted lines in Fig. 2, through which are passed holdfast devices 20 which secure the upper flanged portion of the offtake pipe 17 to the under face of the bottom 10 and in registering relation with the opening 16 to permit the products of combustion in the drum to escape therefrom to the chimney by the offtake pipe 17.

Experience has demonstrated that the heated products of combustion arising from the combustion chamber of the device after passing from the dome and through the neck portion 6 into the drum 7 can be maintained there longer and their egress therefrom retarded within reasonable limits and the entire drum constantly and completely filled with the heated products of combustion much more effectually by positioning the enlarged portion of the drum immediately adjacent to the outlet thereof, so as to set up reverberatory action of the currents of air immediately preceding their departure from the opening 16; and this function is more effectually carried out by positioning the outlet opening 16 in the bottom of the radiator which by reason of the well known characteristic of heated air to rise, causes a damming or retarding of the escape of the products of combustion thereby constantly maintaining the interior of the drum completely filled with a volume of heated air, the heated units of which are absorbed by all of the walls of the drum 7 to be by the latter communicated to the air circulating within the furnace casing; or in case of a stove, to the air in the immediate vicinity of the radiator.

Attention is directed to the fact that as the products of combustion pass from the dome 5 outwardly through the hollow neck 6 into the annularly-formed drum 7 and from thence in separate columns in both directions and in a circular path to the enlarged portion formed in the drum immediately adjacent to the opening 16 in the bot-

tom thereof and there intermingle, they set up reverberatory action by which the too rapid progress of the products of combustion outwardly through the opening 16 is retarded or partially dammed, thereby causing to a certain extent a backing up of the heated products of combustion so as to constantly and at all times keep the entire interior of the drum filled with the heated gaseous matter and thus heat all portions thereof approximately equally, thereby affording greater radiating surface for heating the air within the furnace-casing than is possible where only the upper portion of the drum is filled with heated air and the lower portion with cool air.

I claim:

1. A radiator comprising a dome adapted to be mounted on the heater portion of a stove or furnace, a hollow annular drum conoidal in cross-section embodying top, bottom and inner and outer walls, said drum surrounding said dome and spaced therefrom to provide an air space between the two, said drum having its inner wall provided with an inlet, a hollow neck for establishing communication between said dome and inlet, said drum having the bottom thereof provided with an outlet at a point remote from said inlet, and said drum at a point adjacent to said outlet laterally enlarged to increase the area thereof adjacent to the outlet thereof whereby reverberatory action of the heated products of combustion is established to cause the retarding of the escape of the same through said outlet.

2. A radiator comprising a dome adapted to be mounted on the heater portion of a stove or furnace, a hollow annular drum embodying top, bottom and inner and outer walls, said drum surrounding said dome and spaced therefrom to provide an air space between the two, said drum having its inner wall provided with an inlet, a hollow neck for establishing communication between said dome and inlet, said drum having the bottom thereof provided with an outlet at a point remote from said inlet, and said drum at a point adjacent to said outlet laterally enlarged to increase the area thereof adjacent to the outlet thereof whereby reverberatory action of the heated products of combustion is established to cause the retarding of the escape of the same through said outlet.

3. A radiator comprising a dome adapted to be mounted on the heater portion of a stove or furnace, a hollow annular drum conoidal in cross-section embodying top, bottom and inner and outer walls, said drum surrounding said dome and spaced therefrom to provide an air space between the two, said drum having its inner wall provided with an inlet, a hollow neck for establishing communication between said

dome and inlet, said drum having the bottom thereof provided with an outlet at a point remote from said inlet, and said drum at a point adjacent to the outlet thereof laterally enlarged to increase the area thereof whereby reverberatory action of the heated products of combustion is established to cause the retarding of the escape of same through said outlet by which the interior of

the drum is constantly and completely filled with said heated products of combustion. 10

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK FIEBEGGER.

Witnesses:

C. E. HUMPHREY,
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