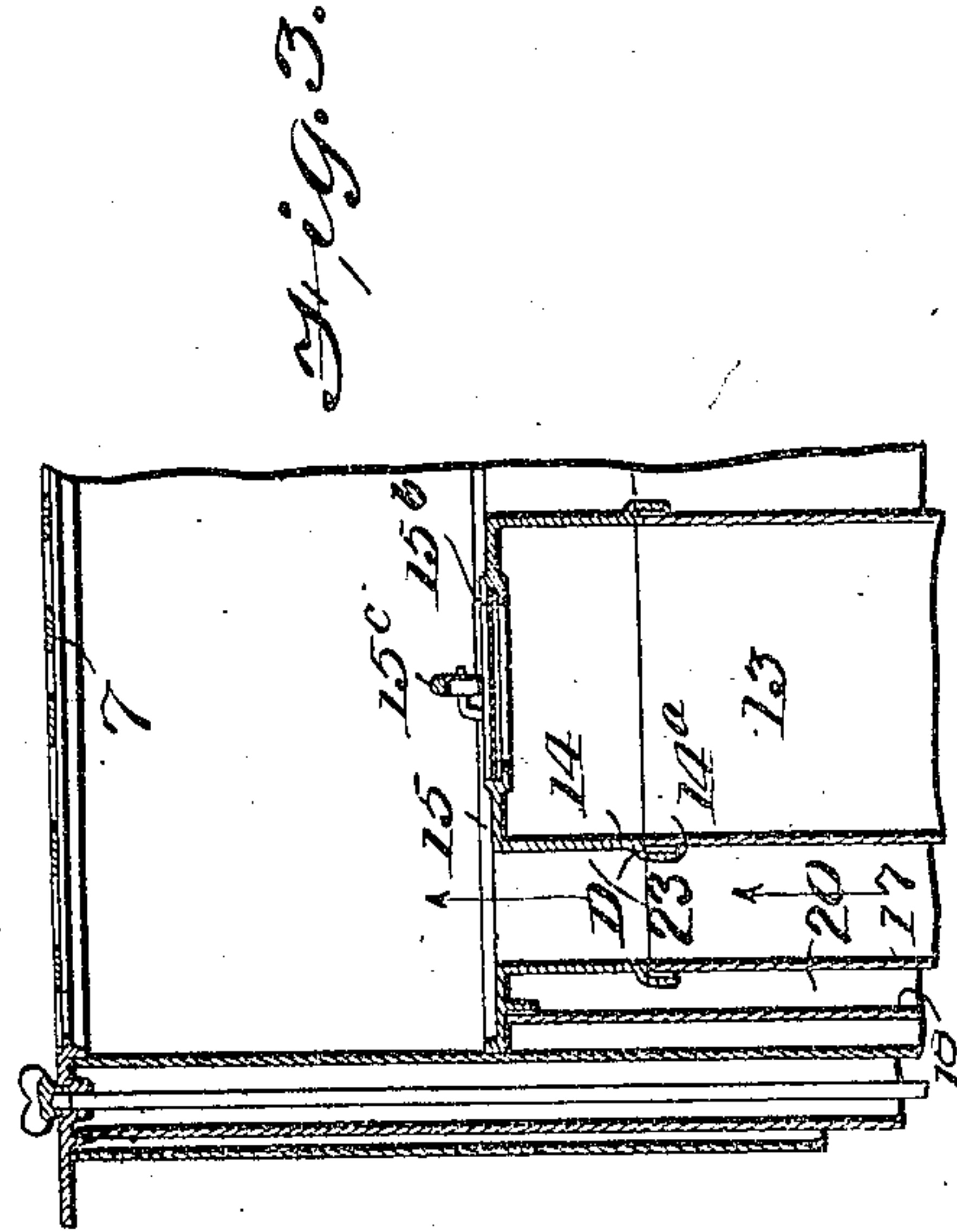
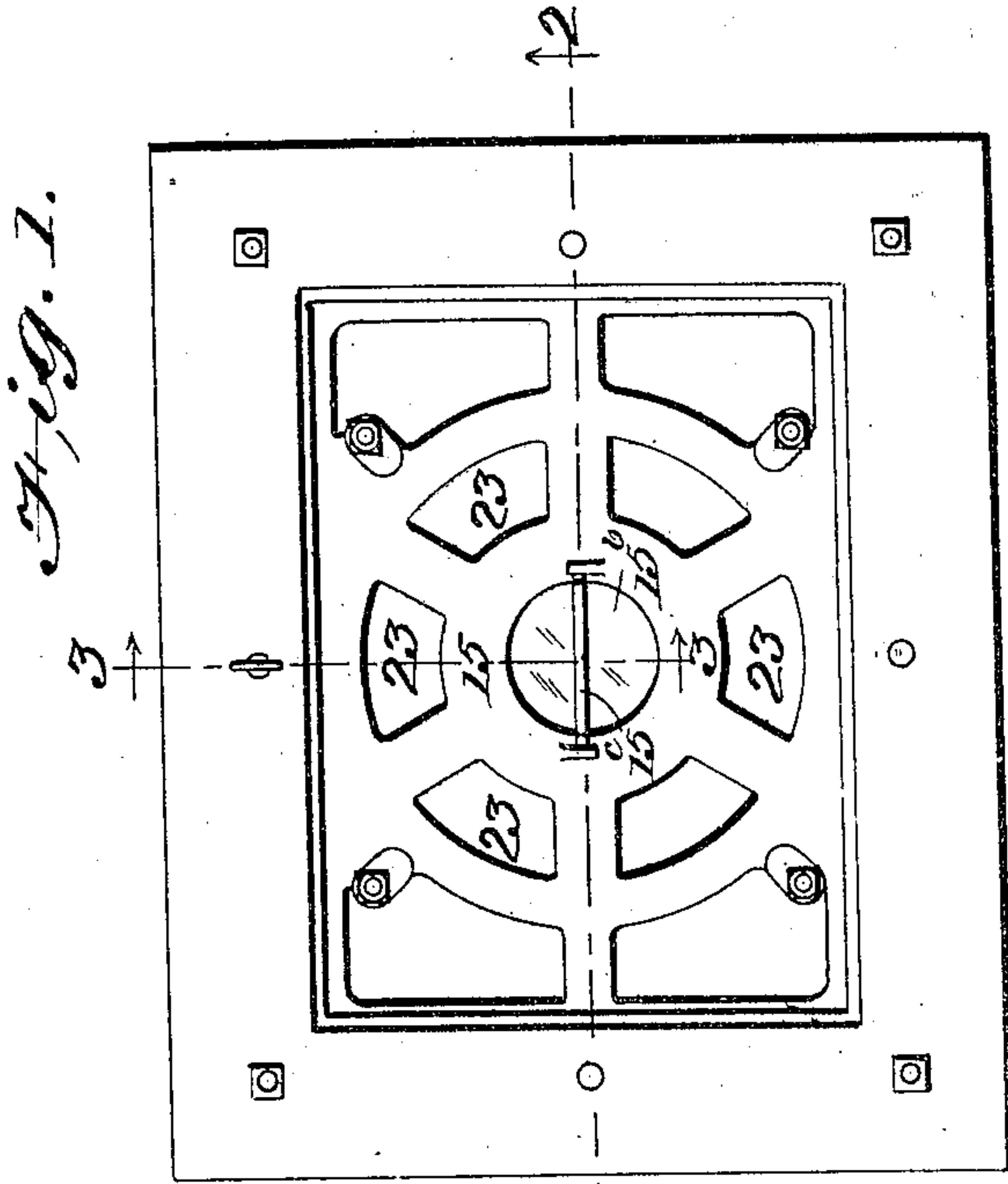


No. 870,322.

PATENTED NOV. 5, 1907.

H. STRAND.
FURNACE.

APPLICATION FILED MAY 9, 1907.



UNITED STATES PATENT OFFICE.

HENRY STRAND, OF CLEVELAND, OHIO, ASSIGNOR TO STRAND HEATER COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

FURNACE

No. 870,322.

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed May 9, 1907. Serial No. 372,742.

To all whom it may concern:

Be it known that I, HENRY STRAND, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Furnaces, of which the following is a specification.

This invention relates to gas heating furnaces; and is particularly an improvement on the furnace shown and described in my U. S. Patent No. 845,828, dated March 5, 1907.

The object of the present invention is to improve the construction of the furnace with respect to the casting which forms the head of some of the drums, the intent being to prevent any possible leak of gas or product of combustion, from the flue or passage through which said products pass, into the passages through which the air is supplied to the apartment or room in the floor of which the furnace is placed.

A further object of the invention is to improve the construction of the furnace with respect to the chamber in which the furnace is located, to prevent any downward or back flow of the products of combustion to the cellar or space below the floor.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is a top plan view with the register plate removed. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a detail in section on the line 3—3 of Figs. 1 and 2.

The general construction of the present furnace, with respect to the passages for the products of combustion in the heated air, is not substantially different from that shown in my former patent, and therefore needs no extended description, further than to say that the products of combustion pass from the burner 11 up through the drum 13 and out between pipes 23 to the space 20 between the drums 17 and 18, down which space said products pass to the outlet pipe 22 which leads through the jackets 6 and 6^a to the smoke flue.

The pipes 23 are segmental in horizontal cross section, as illustrated in the top view, Fig. 1, and they are cast integral with the plates 14 and 15, being cored in between said plates so that there is no joint apt to become loose and allow the products of combustion to pass into said pipes 23 and thus into the space above the same which communicates with the rooms to be heated, through the register 7. The plate 14 has depending ring flanges 14^a and 14^b within which the drums 13 and 17 are fixed with joints closed by asbestos putty as indicated at D. The upper plate 15 also has a depending ring flange 15^a to which the drum 18 is joined, with putty, as indicated.

The advantage of having a perfectly tight and unbreakable joint between the plates 14 and 15 and the

pipes 23, is that the heat or hottest part of the products of combustion collect and remain in between said plates, and hence the expansion is quite apt to open a made joint, whereas by having all said parts formed in one piece danger of leak is avoided, and consequently the gas and products of combustion cannot escape into the air passage.

The top plate 15 may have an opening at the center to receive a mica window 15^b, held in place by a clamp 15^c. The fire below can be seen from above through this window, and its condition observed. This is convenient for proper regulation of the flame.

The drums 13, 17 and 18 are fixed at the bottom to ring plate 49 provided with flanges 49^a to which the drums 17 and 18 are puttied, and said ring plate rests around the neck of the fire pot 12, with a puttied joint at 12^a. This fire pot is contracted above the burner and is supported by and made integral with a plate 8 which is connected by long rods 8^a to the top plate of the furnace, all of the parts being thus clamped together by said rods. The fire pot also has an inwardly-extending portion B which projects under the burner 11 and forms a contracted mouth thereunder, to which tapers an inverted funnel or frusto-conical part C, giving a tapering passage through which air is admitted from the outside to the burner. The advantage of this construction is that the contracted or tapering inlet to the fire pot, directly under the burner, prevents any back flow of the products of combustion, through the bottom of the furnace, and consequently prevents the escape of said products into the cellar. The tapering passage causes a strong current to enter directly under the burner, the air becoming more dense as it nears the burner, when it expands around said burner causing a draft which prevents back flow, even when the damper in the smoke pipe is partly closed. These improvements or modifications are attended with decided advantages in actual construction and operation of a furnace of the kind stated.

I claim:

In a gas furnace, the combination of a burner extended laterally to form an overhanging portion at the edge thereof, a fire pot surrounding the same, the fire pot being of less diameter than the burner at the top and expanded outwardly and downwardly to form an enlarged chamber around the burner, and having a lower inwardly extended portion which projects under the burner and forms a contracted opening at the center of less diameter than said burner.

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

HENRY STRAND.

Witnesses:

JOHN A. BOMMARDT,
EDITH D. COMER.