

No. 767,636.

PATENTED AUG. 16, 1904.

L. DIETZ.
FURNACE.

APPLICATION FILED JAN. 5, 1904.

NO MODEL.

Fig. 1.

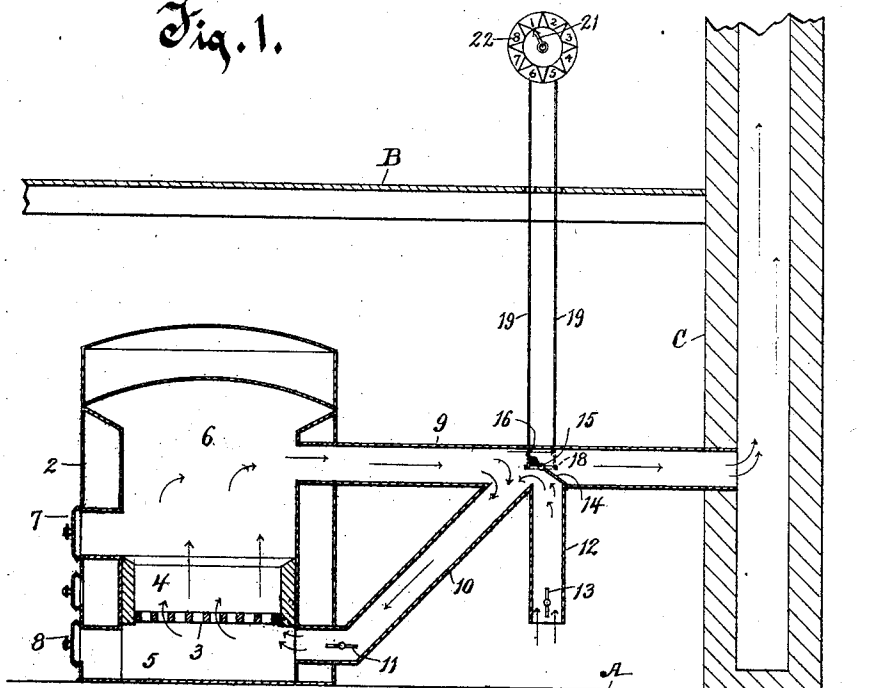


Fig. 2.

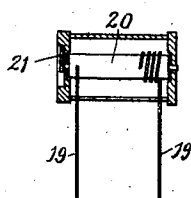
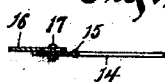


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

LOUIS DIETZ, OF HORICON, WISCONSIN, ASSIGNOR OF ONE-HALF TO
F. WILL MENKEY, OF PORTAGE, WISCONSIN.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 767,636, dated August 16, 1904.

Application filed January 5, 1904. Serial No. 187,760. (No model.)

To all whom it may concern:

Be it known that I, LOUIS DIETZ, of Horicon, in the county of Dodge and State of Wisconsin, have invented new and useful Improvements in Furnaces, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention relates to improvements in furnaces or analogous devices, and is especially adapted to be employed with furnaces set in buildings for heating the building or rooms therein.

The object of the invention is to provide improved and better means by reason of their simplicity, inexpensiveness, and successful operation than have heretofore been employed for such purposes, and especially adapted for saving fuel, with increased heating capacity.

The invention consists of the construction herein described and claimed or the equivalents thereof.

In the drawings, Figure 1 is a diagrammatical representation of my improved furnace set in the basement or cellar of a building and in connection with a fragment of a chimney and floor of the building. Fig. 2 is a sectional representation of a device for regulating the smoke and gas deflecting gate, and Fig. 3 is a longitudinal representation of the smoke and gas deflecting gate, partly in section.

In the drawings, A represents the basement-floor of a building, and B the floor of the first story of the building, while C represents a chimney.

The furnace 2 is provided with a grate 3 at the bottom of a fire-pot 4 and above an ash-pit 5. Above the fire-pot 4 there is a combustion-chamber 6, provided with a door 7 for furnishing fuel to the fire-pot, and there is a door 8, opening into the ash-pit. This door 8 is provided with openings having a closing-slide adapted to admit air for a draft to the furnace below the grate, as is common in such furnaces, though not shown in the drawings. From the upper part of the combustion-chamber 6 a smoke-pipe 9 leads into the chimney

C. In the drawings this smoke-pipe is represented in a horizontal position; but this is not the necessary position of the smoke-pipe, though it is a common one, since furnaces are usually located near a chimney, and a horizontal pipe from the furnace to the chimney is entirely satisfactory. From the smoke-pipe 9, at a point a little distance from the furnace, a branch smoke and gas pipe 10 leads downwardly into the furnace below the grate 3 and as shown in the drawings. This branch pipe leads into the ash-pit below the grate 3, but above the floor of the ash-pit. This pipe 10 is provided with a tiltable damper 11 at its lower end near the furnace, which being closed prevents the passage of gas or smoke inwardly through this pipe and also prevents ashes from entering the pipe from the ash-pit. An air-supply pipe 12, open at its lower or free end, opens into the smoke-pipe 9 just at the rear of the entrance therefrom to the branch pipe 10. This air-supply pipe 12 is also provided with a damper 13, adapted to close it when desired against the inflow of air or the passage of gas or smoke improperly therethrough.

In the smoke-pipe 9, directly in front of the opening of the air-supply pipe 12 thereto, an air, gas, and smoke deflecting gate 14 is provided, which consists of a plate or blade hung by a horizontally-disposed pivot in the smoke-pipe 9, the pivot or pin 15 passing about centrally through the pipe, the lower portion of the gate being of such size as to extend in oblique direction downwardly to the bottom of the smoke-pipe at the rear of the air-supply pipe and laterally against the side walls of the smoke-pipe. The portion of the gate above the pin is made in two parts one of which, 16, is fitted on the blade of the gate, and is made adjustable thereon by a bolt 17 through the body of the gate and through an elongated slot in the adjustable part 16. By means of this construction the part or member 16 can be adjusted toward or away from the pivot 15, thereby increasing or diminishing the radial length of the gate above the pivot, and thus increasing or diminishing the

space above the gate in the pipe for the passage of smoke and gases therethrough above the gate. When the member 16 is adjusted outwardly to its full extent, it is adapted to substantially close the smoke-pipe when the gate is in the position shown in Fig. 1, and when the member 16 is adjusted inwardly toward the pin the space above the gate is correspondingly increased. To enable the occupants of the building to regulate the position of this gate 14 in the smoke-pipe, the pivot 15 is provided with a transverse bar 18 on the outside of the smoke-pipe, and this is connected at its respective ends by cords 19 19 to a small winch or windlass 20, mounted in the building in the room above, and to this an index-finger 21 is attached, which may be swung around in connection with an index 22 to indicate the position to which the gate 14 is turned.

In use when the gate 14 is in the position shown in Fig. 1 and the dampers 11 and 13 are open the smoke and gas escaping from the combustion-chamber 6 is mostly checked by the gate 14 and deflected downwardly into and through the branch pipe 10 and into the furnace below the grate, in connection with fresh air supplied through the air-supply pipe 12, thus carrying the smoke and unconsumed gases back into the furnace below the fire to be completely consumed in the fire thereof. When this method of operation is being employed, the slide in the door 8 will need to be entirely or nearly closed. When it is not desired to return the smoke and gases that pass out from the combustion-chamber 6 into the smoke-pipe 9 back to the furnace, the gate 14 is shifted into a horizontal position, thus permitting free passage from the combustion-chamber of the furnace into the chimney through the pipe 9. In such cases the dampers 11 and 13 should be closed.

What I claim as my invention is—

1. In combination, a furnace or analogous heating device having a grate above the bottom and a combustion-chamber above the grate, a smoke-pipe leading from the combustion-chamber adapted to discharge into a chimney at a distance from the furnace, a branch smoke and gas pipe leading from said smoke-pipe into the furnace below the grate, an air-supply pipe independent of the smoke-pipe and of a chimney opening into the smoke-pipe close to and just at the rear of the opening of the branch smoke and gas pipe therefrom, and a deflecting-gate in the smoke-pipe just at the rear of the opening of the air-supply pipe thereto, the deflecting-gate being adapted to partially or entirely close the smoke-pipe and to turn and lead the air entering the smoke-pipe through the air-supply pipe together with the smoke and gases coming from the combustion-chamber through the smoke-pipe into the branch smoke and gas pipe closely adjacent to the discharge of the air into the smoke-pipe.

2. In combination, a furnace or analogous device, a grate therein, a smoke-pipe leading from the furnace above the grate, a branch pipe leading from the smoke-pipe to the furnace below the grate, an air-supply pipe leading into the smoke-pipe just at the rear of the junction of the branch pipe, a tiltable gate in the smoke-pipe at the rear of the air-pipe, and an adjustable member on the gate adapted to increase or diminish the size of the opening in the smoke-pipe past the gate.

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

LOUIS DIETZ.

Witnesses:

F. W. MENKEY,
H. MARSH.