

No. 823,904.

PATENTED JUNE 19, 1906.

P. TIDICK.
STOVE, FURNACE, AND THE LIKE.
APPLICATION FILED NOV. 21, 1904.

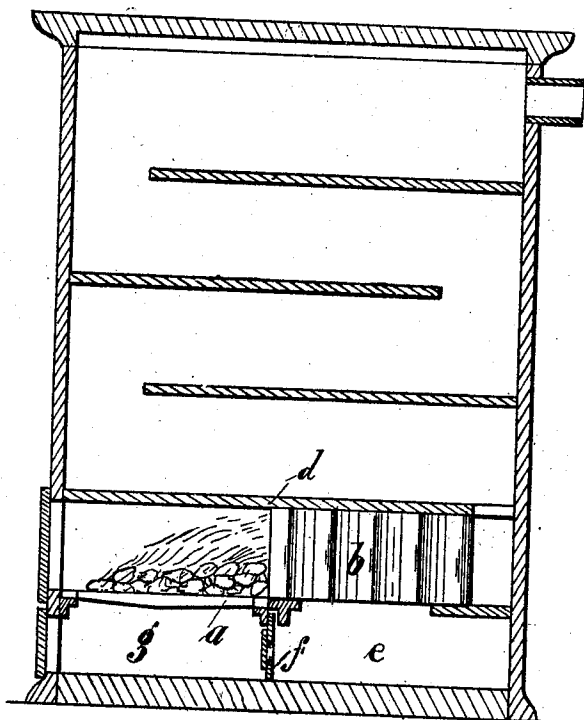


Fig. 1.

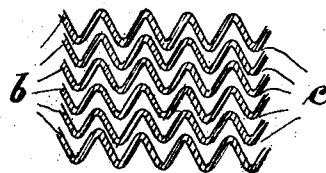
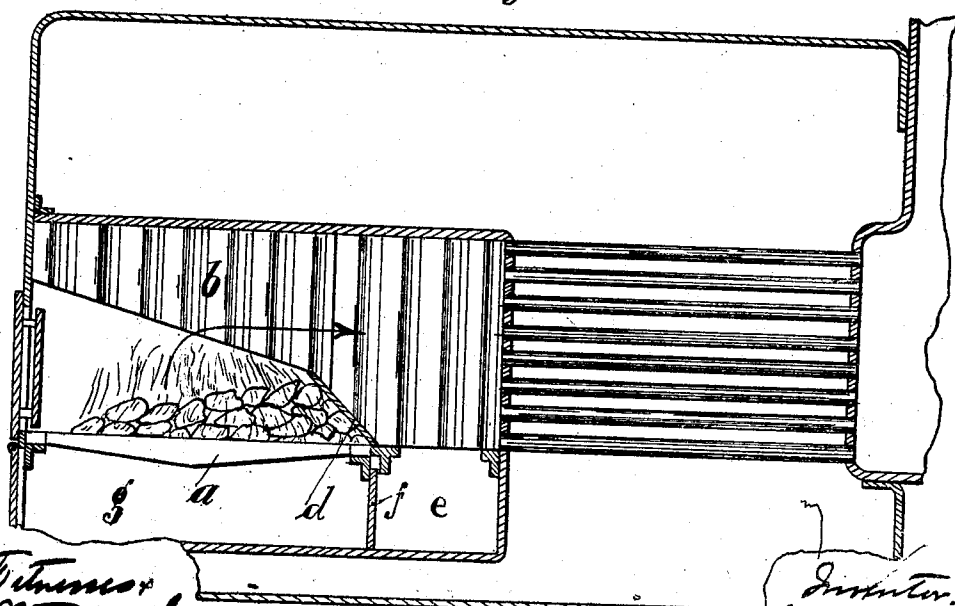


Fig. 2.

Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

PAUL TIDICK, OF NIEDERHOF, NEAR BISCHDORF, GERMANY.

STOVE, FURNACE, AND THE LIKE.

No. 823,904.

Specification of Letters Patent.

Patented June 19, 1906.

Application filed November 21, 1904. Serial No. 233,746.

To all whom it may concern:

Be it known that I, PAUL TIDICK, proprietor, a subject of the German Emperor, residing in Niederhof, near Bischdorf, Prussia, Germany, have invented new and useful Improvements in Stoves, Furnaces, and the Like, of which the following is a specification.

The present invention relates to stoves, boiler-furnaces, and furnaces of all kinds, and has especially for its object to turn the fuel to the best account in conjunction with absolutely smokeless stoking.

According to the present invention a structure is arranged in direct contact with the flames, said structure consisting of material as refractory as possible—for example, brick-work or fire-clay—and possessing a large number of channels. The furnace-gases are consequently compelled to pass through channels in which they become intimately mixed and in which they consequently have ample opportunity to burn completely. For this purpose the channels are especially given a wavy form, so that the path followed by the furnace-gases is increased and so that said gases can be repeatedly diverted from the direct direction of the draft. It is advantageous for the channels to be open below, so that the light ash deposited in said channels can fall out below into a space especially arranged for the same.

The present invention is illustrated diagrammatically in the accompanying drawings; in which—

Figure 1 is a sectional elevation of a chamber-stove constructed according to the present invention. Fig. 2 is a horizontal section through the structure composed of the plates *b*, Fig. 1, hereinafter described. Fig. 3 is a part-sectional longitudinal elevation of a steam-boiler provided with the structure according to the present invention.

Referring to Figs. 1 and 2, the gases evolved on the grate *a* must first of all pass through the structure according to the present invention. Said structure consists of vertical plates *b*, which are bent in an undulatory form, Fig. 2. In this manner channels *c* of a wave-like form are produced, through which the gases must pass. These channels may be covered up above by a plate *d*. Nevertheless they are open below, so that the light ash disengaged in said channels falls directly into a chamber *e* for light ashes. Said space

is separated from the ash-space *g* by a door or shutter *f*, so that after said door has been opened the ashes in the chamber *e* can be removed into the ash-space *g*. The door or shutter *f* may be fitted with regulating devices which render it possible for a certain amount of fresh air to pass into the channels *c* of the structure, so that, according to the kind of fuel employed, sufficient air can be admitted in case of need in order to cause the combustion of any combustible gases present.

Referring now to Fig. 3, the walls or plates *b* possess the form shown in the figure, so that they lie only in the latter part of the fire-box. In order that the gases produced in the combustion-chamber may not directly pass to the boiler-tubes or outlet-channels, the entrance to the lower part of the plates is covered up by a plate *d*, so that the gases must travel in the direction indicated by arrows. In this case also the plates can be corrugated, so that a certain and reliable mixing is brought about.

The new arrangement can be readily fitted to existing furnaces and renders possible not only smokeless combustion and a better utilization of the fuel, but in many cases permits fuels of inferior value, such as culm and coal-dust, to be burned.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a heating apparatus, the combination of a fire-box, an ash-chamber below said fire-box, a removable division-wall within said ash-chamber dividing the same into two compartments, a grate, a series of vertically-arranged corrugated plates disposed to the rear of said grate and in the path of the products of combustion of said fire-box, said plates being spaced apart and open to said fire-box and to the rear compartment of said ash-chamber, and means whereby air is admitted between said plates through said removable division-wall, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PAUL TIDICK.

Witnesses:

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