

1,069,657.

P. G. FAHERTY.
METHOD OF CLEANING REVERSING FURNACES.
APPLICATION FILED OCT. 16, 1912.

Patented Aug. 5, 1913.

2 SHEETS—SHEET 1.

Fig.1. III

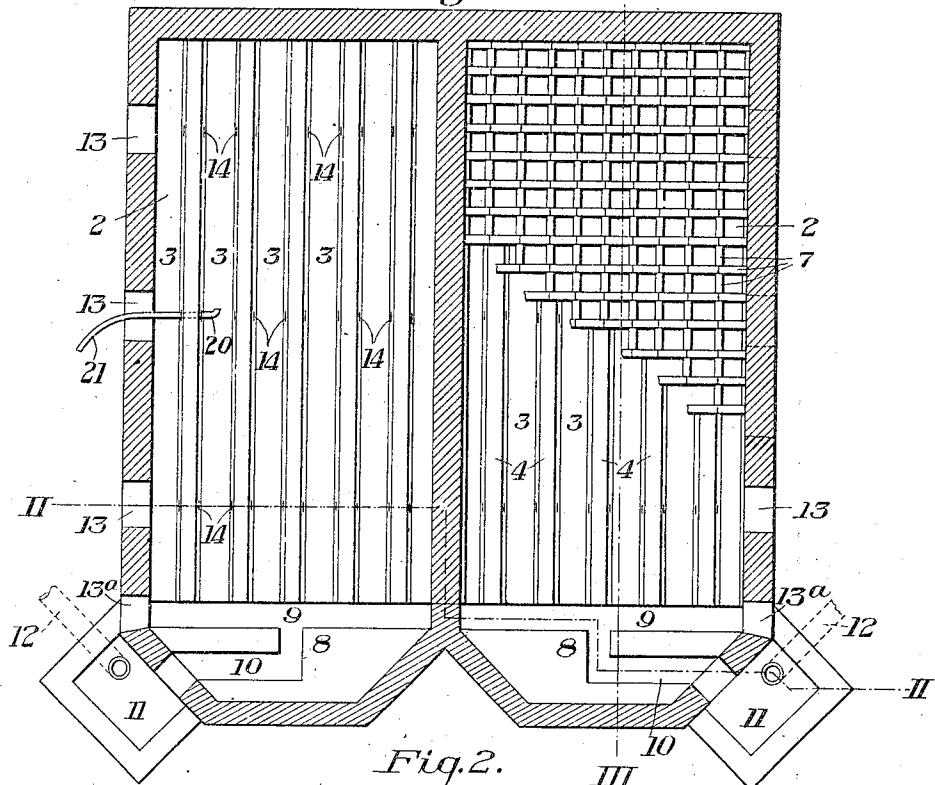
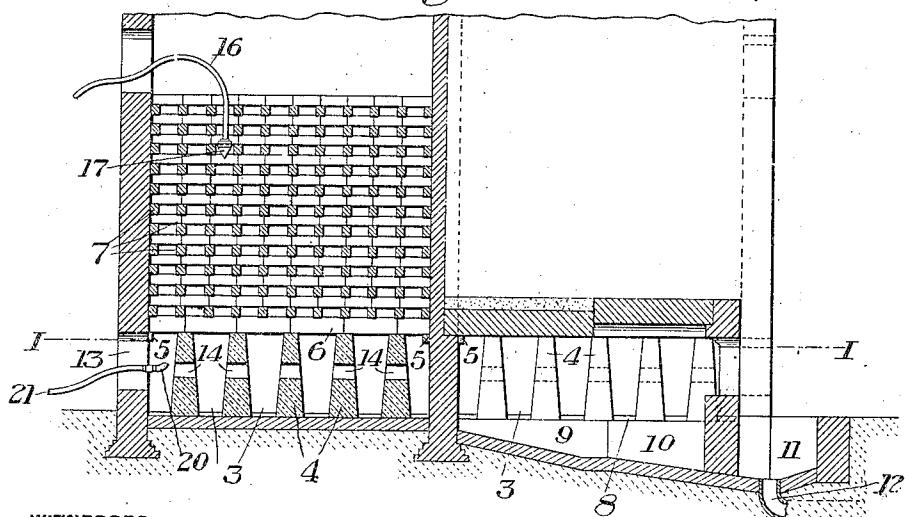


Fig.2. III



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

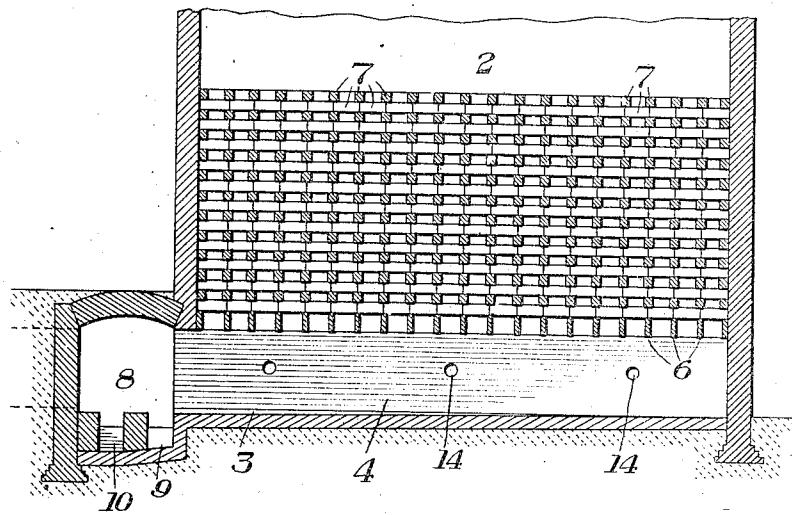


Fig. 4.

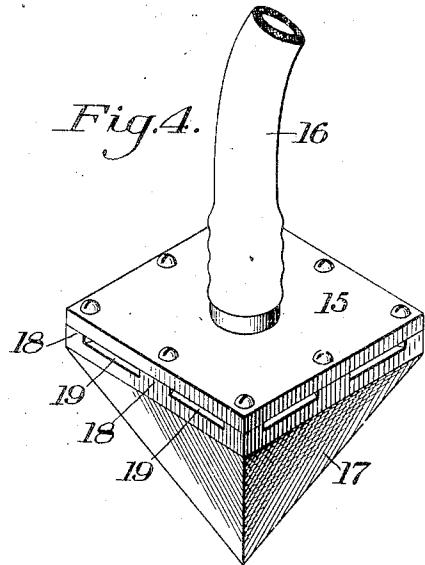
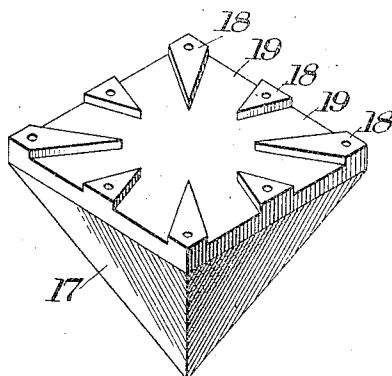


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

PATRICK G. FAHERTY, OF MUNHALL, PENNSYLVANIA.

METHOD OF CLEANING REVERSING-FURNACES.

1,069,657.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed October 16, 1912. Serial No. 726,096.

To all whom it may concern:

Be it known that I, PATRICK G. FAHERTY, a resident of Munhall, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Method of Cleaning Reversing-Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

10 Figure 1 is a sectional plan view of a portion of a reversing furnace, showing one form of my improved furnace, in which my method can be carried out, said section being taken on the line I—I of Fig. 2. Fig. 2 is a partial sectional view on the line II—II of Fig. 1; Fig. 3 is also a partial sectional view on the line III—III of Fig. 1; Fig. 4 is a perspective view of one form of cleaning tool for blowing out the material deposited 20 on the checker work; and Fig. 5 is a perspective view of a portion of the tool shown in Fig. 4.

This invention relates to an improved method of cleaning the checker work of a reversing furnace and of removing the material from the furnace without tearing down any portion thereof.

It is well known to those familiar with the art that the life of a furnace of this character is dependent upon the checker work, and as soon as the checker work becomes clogged or filled up the furnace must practically be rebuilt, which is not only expensive, but also takes considerable time to reconstruct the same, and after it has been reconstructed the furnace must be fired for considerable time before it can be used for melting metal. It is also well known to those familiar with the art that as soon as any amount of material is deposited on the checker work, the furnace will not work properly, as it has a tendency to work too hot and consequently burn out the furnace, as well as the bath.

By the use of my improved method of cleaning furnaces, I am enabled to overcome all of the former objections, without keeping the furnace out of commission for any length of time.

The precise nature of my invention will be best understood by reference to the accompanying drawings, which will now be described, it being premised, however, that various changes may be made in the details 55 of construction of the apparatus without de-

parting from the spirit and scope of my invention, as defined in the appended claims.

Referring to the accompanying drawings, the numeral 2 designates regenerative chambers of the furnace. The lower portion of each of these chambers is divided into a plurality of gutters 3 by means of longitudinal piers 4. Supported on the tops of these piers 4 and projections 5, extending inwardly from the walls of the chambers are tiles 6, and 7 are checker work tiles of the usual shape and size, which are supported on the tiles 6. Extending along the front of each of the chambers 2 is a catch basin 8, which is provided with a sloping gutter 9, and adjacent to the front end of each of the gutters 3, which slope from the rear end of the chamber toward the gutter 9. 10 designates a gutter in each catch basin 8 leading from the central portion of the gutter 9 to a drain 11 on the outside of the walls forming the chambers 8, and leading from these drains 11 are pipes 12 which extend to any suitable point to which the material removed from the checker work is to be deposited. Extending through the outer walls of the regenerative chambers are openings 13, which are closed by means of bricks or tiles when the furnace is in operation, and 14 are openings through the walls 4 in alignment with the openings 13. 13^a are clean out openings extending through the walls of the chambers forming the drains 11, which are also closed when the furnace is in operation.

In Figs. 4 and 5, I have shown a tool for cleaning the checker work which comprises a nozzle having a top plate 15, to which is connected a flexible tube 16 leading from any source of air pressure supply. Connected to the plate 15 is a weighted member 17, which is provided with a plurality of projections 18, and formed between these projections 18 are radially extending recesses 19, which form outlet openings for the air between the top plate 15 and the weighted member 17. When it is desired to clean the checker work, the nozzle is dropped down between the bricks forming the checker work, and as the air is blown outwardly in a horizontal line in radial directions, the material deposited on the tops of the tiles forming the checker work will be blown therefrom and will fall into the gutters 4 in the bottom of the chambers. After the material has all been blown from

the checker work, the bricks in the opening 13 are removed and a nozzle, such as shown at 20 in Figs. 1 and 2, and which nozzle is connected to a water supply pipe 21, connected to a suitable water supply. This nozzle is first inserted in the opening 13 adjacent to the catch basin, and all of the material in the first gutter 3 between the opening 13 and the gutter 9 is washed into the 10 catch basin. The nozzle is then inserted through the first opening 14 in the first division wall 3 and the material in this gutter between the opening 14 and the gutter 9 is washed into the catch basin, and this operation 15 is repeated until all of the material lying in the gutters 3 at the fronts thereof is washed into the catch basin. The nozzle is then inserted through the next series of holes to wash the material between them 20 and the catch basin into the catch basin, and so on until all of the material has been washed from the gutters below the checker work, the material being carried from the gutter 9 to the point where it is to be deposited through the gutters 10, drains 11 and outlet pipes 12.

The advantages of my invention result from the provision of a method for cleaning the checker work of a reversing furnace 25 by means of an air blast and for moving the refuse therefrom without tearing down any portion of the furnace.

The furnace structure disclosed in this application forms the subject matter of a divisional application Serial No. 757,759, filed 30 March 31, 1913.

I claim:

1. The method of cleaning the checker work of a regenerative open-hearth furnace, which consists in directing a blast of air 40 against the deposit on the tops of the bricks of the checker work to dislodge it and permit it to fall to the bottom of the checker work chamber, and then flushing the bottom of the checker work chamber with water to 45 wash out said deposit, substantially as described.

2. The method of cleaning the checker work of a regenerative furnace, which consists in directing blasts of air in horizontal 50 directions over the tops of the bricks of the checker work to blow the deposit to the bottom of the checker work chamber, and then flushing the bottom of the chamber with water to wash out the deposit; substantially 55 as described.

3. The method of cleaning the checker work of a regenerative open hearth furnace, which consists in blowing the deposit from the checker work by means of a horizontally 60 directed blast of air and permitting it to fall to the bottom of the checker work chamber, and then removing it from the bottom of the checker work chamber, substantially 65 as described.

In testimony whereof, I have hereunto set my hand.

PATRICK G. FAHERTY.

Witnesses:

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