W. FEICKS.

OVEN DOOR.

APPLICATION FILED DEC. 15, 1911.

1,056,270. Patented Mar. 18, 1913.

FIG. 1.

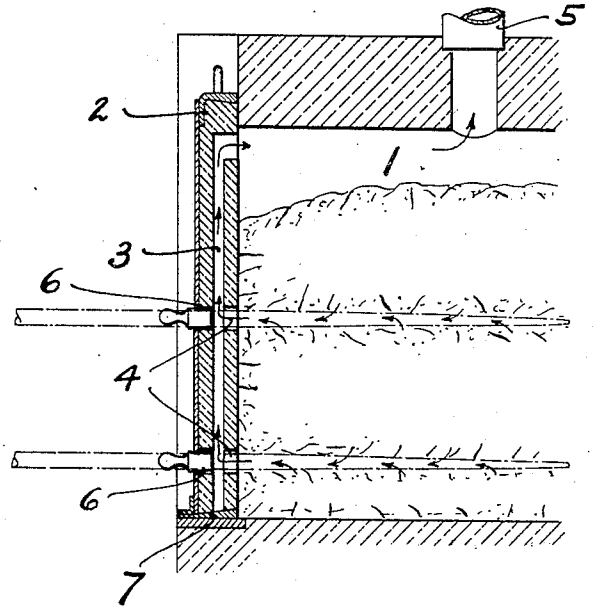


FIG. 2.

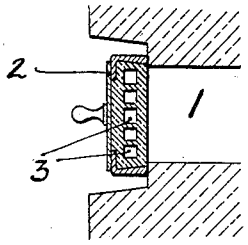
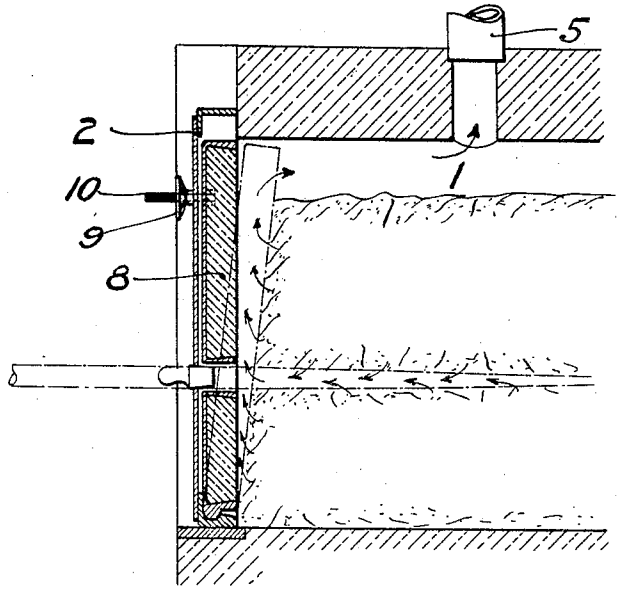


FIG. 3.



WITNESSES:

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WILLIAM FEICKS, OF BLOOMFIELD, NEW JERSEY.

OVEN-DOOR.

1,056,270. Specification of Letters Patent. Patented Mar. 18, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM FEICKS, a subject of the German Emperor, residing at Bloomfield, in the county of Essex and State of New Jersey, have invented new and useful Improvements in or Relating to Doors for Coke-Ovens, Gas-Retorts, and other Furnaces for Gasifying Organic Substances, of which the following is a specification.

The object of the present invention is an improved oven door for furnaces of the kind as above stated, and by application of which better facilities are created for withdrawing the gases resulting from distillation from within the oven charge so as to prevent decomposition of same, and furthermore to reduce the cooling of the ends of the charge nearest the doors, so that a more uniform distillation of the oven charge over the entire length is effected.

The accompanying drawing illustrates the application of my improved door to a horizontal coke oven.

On the drawing Figure 1 is a longitudinal vertical section through a portion of an oven and the oven door, while Fig. 2 is a horizontal section according to Fig. 1, and Fig. 3 illustrates in a longitudinal vertical section through a portion of an oven and door a different method of carrying the present invention into effect.

Referring to Figs. 1 and 2, numeral 1 denotes the oven or retort chamber and 2 the oven door. The lining of the door forms a number of passages 3 extending from the lower to the upper end of the door, and communicating with the oven chamber by means of ducts 4. It will be seen that the gases evolved in that part of the oven charge near the door will be drawn through the lower ducts, up the vertical passages and out by the upper ducts into the upper part of the retort, from whence they escape in the usual manner into the ascension pipes 5. To increase the quantity of gases withdrawn from within the charge through the oven door, openings 6 are provided in the oven door opposite the lower ducts 4, which are kept closed by stoppers. When the oven is charged a rod is inserted through these openings and pushed into the oven charge as indicated in dot and dash lines, after withdrawal of which, due to the moisture contained in the coal and the fine state to which the latter is crushed, a permanent passage or channel will be left in the oven charge which serves to collect the gases and conduct them to the passages in the oven door. By means of the detachable bottom plate 7 the passages in the oven are made easily accessible for cleaning, etc. It is evident that instead of conducting the gases flowing through the passages in the oven door back into the oven chamber, they may of course, be withdrawn in any other suitable manner.

Fig. 3 illustrates an oven door according to this invention but differing from the one before described. 1 again denotes the oven chamber and 2 the door. As will be seen the door proper 2 is provided with a second inner door or shield 8, which by suitable means, in this case by the hand-wheel 9 and screw 10, can be moved a little distance into the oven chamber. The object of this is to form the vertical passages 3 in Figs. 1 and 2 and which serve for conducting the gases above the coal charge, by the charge itself, or rather by charge and oven door, which is accomplished by stowing the coal charge away from the door during coking. In this case the inner door 8 can during charging of the oven be held in the position indicated in dot and dash lines, so that the coal will fill up against it, and afterward be brought back in the original position; or the inner door during charging may be kept in its original position and after charging is completed pressed into the oven, thereby forming the charge, after which it is brought back into place. In this construction as before openings provided with stoppers are arranged in the door, through which a rod can be rammed into the charge so as to form additional collecting passages.

Instead of swinging the inner door into the furnace around a fixed point as in the example given, it may of course, also be moved into the oven laterally and withdrawn in the same manner.

Having now described my invention I declare that what I claim is:

1. The combination with an oven or furnace of the kind described of a door, the interior of which forms a passage for gases of distillation, and connections between the said passage and the lower and upper part of the oven chamber.

2. The combination with an oven or furnace of the kind described of a door, the interior of which forms an upright passage.

an inlet opening for introducing gases from the oven chamber into the lower part of the said passage, and an outlet opening for withdrawing such gases at the upper part of said passage.

3. A door for ovens or furnaces of the kind described comprising a chambered door body equipped with a refractory lining, a gas passage formed by said lining, a connection between said passage and the charge containing part of the oven chamber for introducing gases from the charge into the said passage, and a discharge opening for withdrawing such gases from said passage.

4. The combination with an oven or furnace of the kind described of a door forming a passage within for gases, a connection between the said passage and the charge containing part of the oven chamber, and a closable opening in the door structure opposite aforesaid connection, for passing a channeling ram into the oven charge.

5. The combination with an oven or furnace of the kind described of a door, a closable opening in said door, for introducing a means into the oven charge for channeling the latter, and a passage for withdrawing gases from said channel at the door end thereof.

6. The combination with an oven or furnace of the kind described of a door having a passage for gases formed within, and a series of connections along the height of the door between said passage and the oven interior.

7. The combination with an oven or furnace of the kind described of a door having a channel formed within extending approximately over the whole door area, a connection between said channel and the charge containing part of the oven chamber to allow gases to escape from within the charge and pass into said channel, and an outlet for withdrawing such gases from said channel after passing through the same.

8. The combination with an oven or furnace of the kind described of a door forming a series of upright channels within, extending approximately over the whole door area, a connection between said channels and the charge containing part of the oven chamber to allow gases to escape from within the oven charge and pass into said channels, and an outlet for withdrawing such gases from said channels after passing through the same.

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