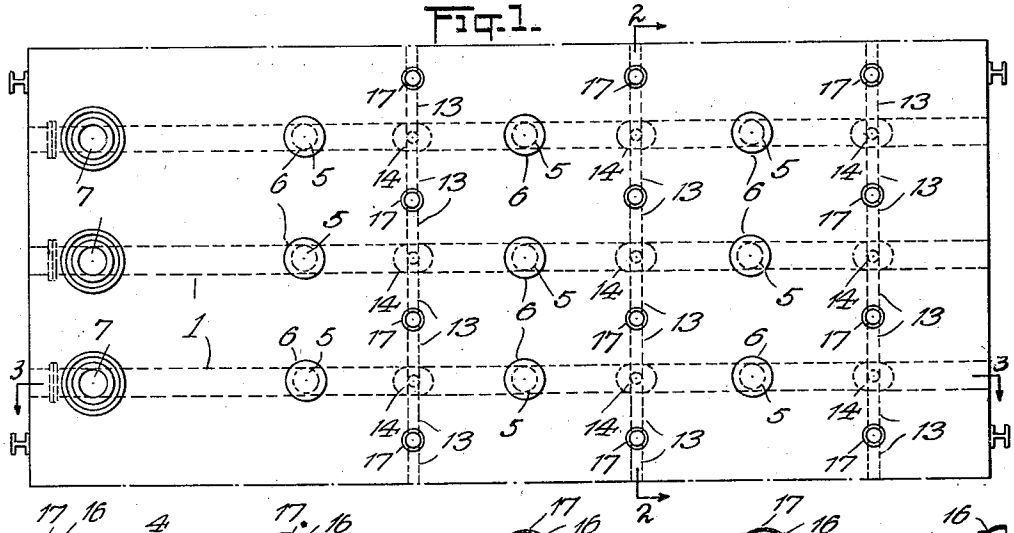
June 27, 1933. J. W. GREENE 1,915,360

COKE OVEN BATTERY

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Fig. 1.



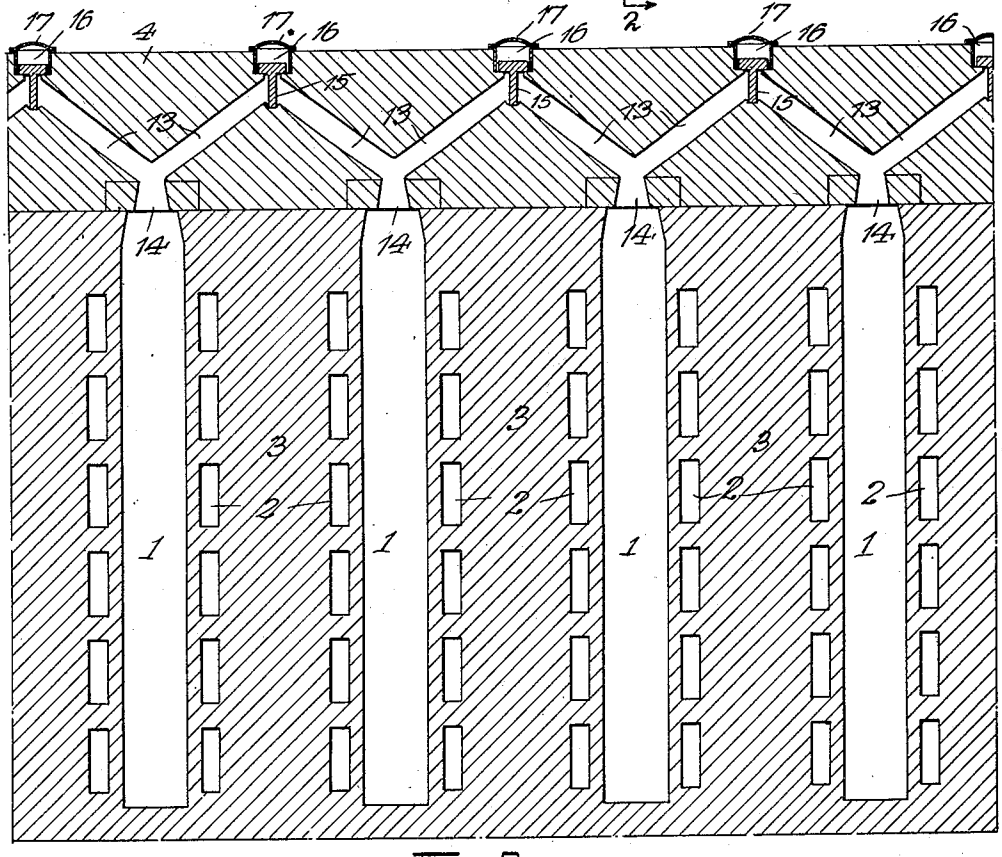


Fig. 2.

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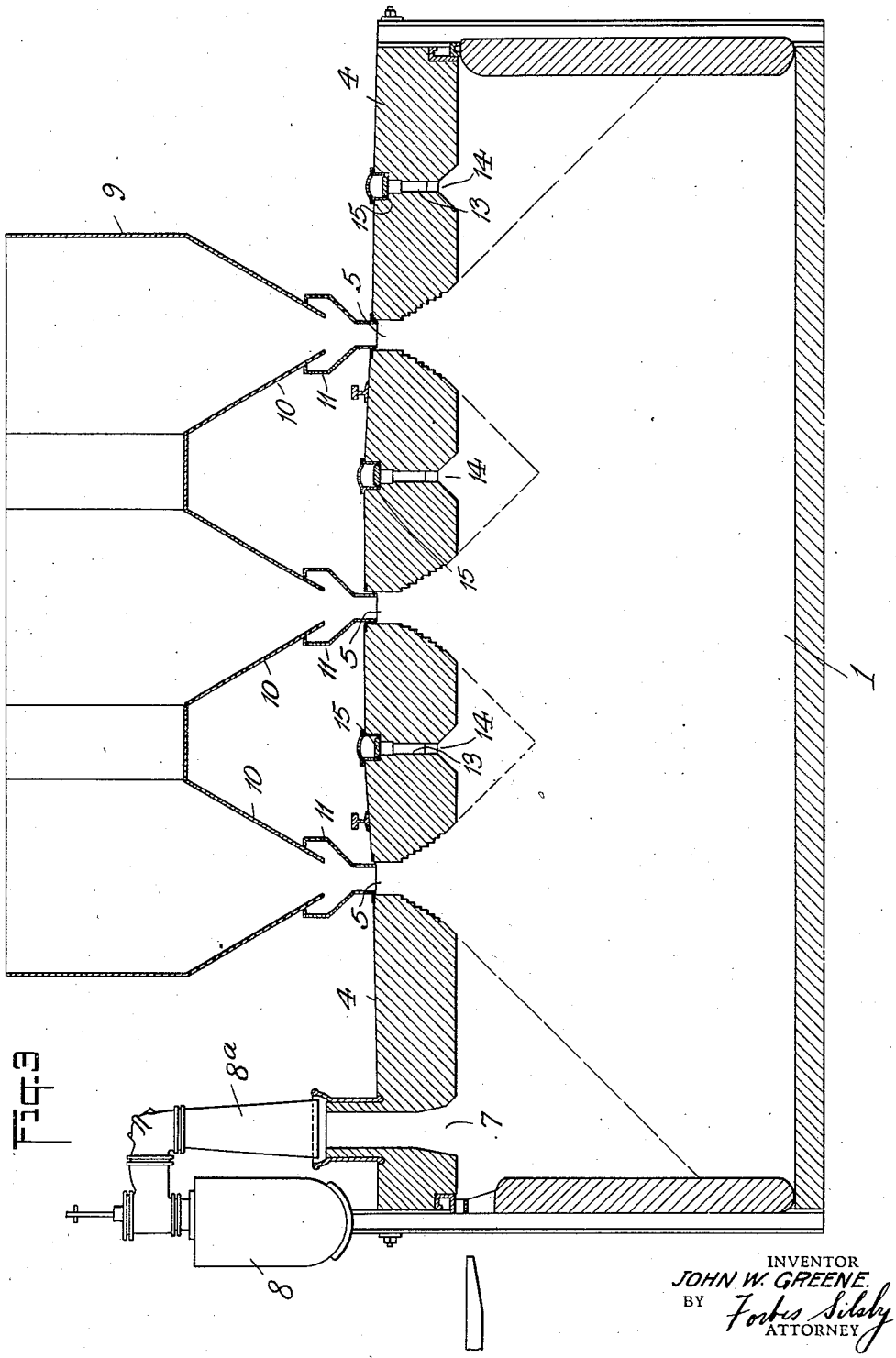


Fig. 3

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UNITED STATES PATENT OFFICE

JOHN W. GREENE, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO SEMET-SOLVAY ENGINEERING CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

COKE OVEN BATTERY

Application filed October 9, 1928. Serial No. 311,360.

My invention relates to coke ovens and more particularly to means for controlling the discharge of smoke and gases from coke ovens when being recharged and is an improvement upon the subject matter of my Patent No. 1,485,914, issued March 4, 1924.

As stated in my prior patent the charging of a hot oven with raw coal causes great volumes of gases to be given off during the charging operation. Large amounts of these gases, which are rich in valuable by-products, escape at the charging openings during the charging operation. In my prior patent I have disclosed a method of preventing the loss of these gases and have shown one means of carrying out the method in which I employ portable connections to by-pass the gases into adjoining ovens. This method has been found very successful and it is the purpose of my present invention to provide an improved means for carrying out this method.

In accordance with my present method I provide permanent ducts leading from each coking chamber to adjacent chambers with suitable valves therein for controlling the ducts. Such ducts may conveniently and preferably are formed in the upper wall or roof of the oven. These ducts preferably connect to the chambers at points between the charging openings as it is at these points that the gases evolved during the charging operation collect.

A better understanding will be had of my invention from the following description given in connection with the drawings in which—

Fig. 1 is a plan of a section of a battery of coking ovens constructed in accordance with my invention.

Fig. 2 is a section on the line 2—2 of Fig. 1, the regenerator structure beneath the coking chamber being omitted for the sake of clearness and

Fig. 3 is a fragmentary section taken on line 3—3 of Fig. 1 showing a coal larry in charging position, the regenerators under the coking chamber being likewise omitted.

In the illustrated form of my invention I have shown a portion of a battery of coke ovens of the Semet-Solvay type, having coking chambers 1 and heating walls arranged side by side in alternate relation, each of the heating walls containing a partition wall 3 and horizontal zig-zag combustion flues 2 which define the sides of the coking chambers. The battery is covered by a roof or upper wall 4 and the coking chambers are provided with the usual end wall closures (not shown). Each coking chamber has a plurality of charging openings 5 in the top thereof sealed by covers 6 and an outlet 7 leading to a common collector main 8 (Fig. 3) through the usual uptake pipe 8a. The coking chambers are adapted to be filled with fuel from a larry car 9 having funnel-like portions 10 and connections 11 constructed and arranged to fit the charging openings 5. The larry car is usually carried upon tracks (not shown) extending across the tops of the ovens. The oven construction thus far described is standard construction and consequently is not described in great detail.

In the standard type oven when fuel, as for example coal and the like, is charged into the coking chamber a considerable volume of gases are immediately evolved, some of which pass up the uptake pipe into the collector main. Most of the gas thus evolved, however, collects in the spaces formed between the charging openings by the piles of fuel dumped into the coking chamber (indicated by dotted lines Fig. 3) and builds up a considerable pressure which causes the distillate gases to escape through the charging openings and through the floor and sides of the coking chamber, creating a smoke nuisance and causing a considerable loss of gas and the valuable by-products contained therein.

In accordance with the present invention, gas discharge ducts or conduits 13 are formed in the roof or upper wall of the oven and extend between and establish direct communication between adjoining coking chambers. The ducts are inclined and extend upwardly from a common opening 14 in the upper end of each of the coking chambers to a point near the top of the roof midway between the coking chambers where the ducts

are provided with suitable valves 15 operable through ports 16 in the roof of the oven by any suitable means (not shown). The ports 16 may be sealed by covers 17 if desired. In this manner permanent passage is provided directly connecting adjacent coking chambers without weakening the upper structure of the oven.

During the charging period the valves 15 between the ovens adjacent to the one being charged may be raised or as many others raised as found necessary to permit the discharge of gases evolved in the coking chamber being charged from that chamber into other chambers of the oven battery. As the gases are discharged as evolved, no back pressure is built up in the oven so that the tendency for the gases to leak out through the charging openings is eliminated and the pressure maintained in all the coking chambers is equalized and maintained substantially constant through the operation including the charging period. It is to be noted that by my present invention I accomplish the desired results such as eliminating smoke and saving by-products, without the necessity of making and breaking external connections involving considerable loss of time and without the loss of heat occasioned by passing the gases through external exposed conduits.

It is obvious that minor changes may be made in the details of structure without departing from the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. In a coke oven, alternate coking chambers and heating walls therefor arranged side by side in a row, charging openings for the material to be coked in the top of each coking chamber, gas discharge openings in the top of each of said coking chambers arranged in alternate relation to said charging openings, a roof covering said coking chambers and heating walls and conduits in said roof between the charging openings communicably connecting the gas discharge openings of adjacent coking chambers, said conduits being adapted to conduct the gases discharged from a hot coking chamber being charged with the material to be coked to adjacent coking chambers.

2. In a coke oven, alternate coking chambers and heating walls therefor arranged side by side in a row, charging openings for the material to be coked in the top of each coking chamber, gas discharge openings in the top of each of said coking chambers arranged in alternate relation to said charging openings, a roof covering said coking chambers and heating walls and conduits in said roof between the charging openings communicably connecting the gas discharge openings of adjacent coking chambers, said conduits being inclined upwardly from said coking chambers to points adjacent the outer surface of said roof between said chambers, the conduits being adapted to conduct the gases discharged from a hot coking chamber being charged with the material to be coked to adjacent coking chambers.

3. In a coke oven, alternate coking chambers and heating walls therefor arranged side by side in a row, charging openings for the material to be coked in the top of each coking chamber, gas discharge openings in the top of each of said coking chambers arranged in alternate relation to said charging openings, a roof covering said coking chambers and heating walls and conduits in said roof between the charging openings communicably connecting the gas discharge openings of adjacent coking chambers, said conduits being inclined upwardly from said coking chambers to points adjacent the outer surface of said roof between said chambers, and valves in said conduits at their highest points.

In witness whereof, I have hereunto set my hand.

JOHN W. GREENE.