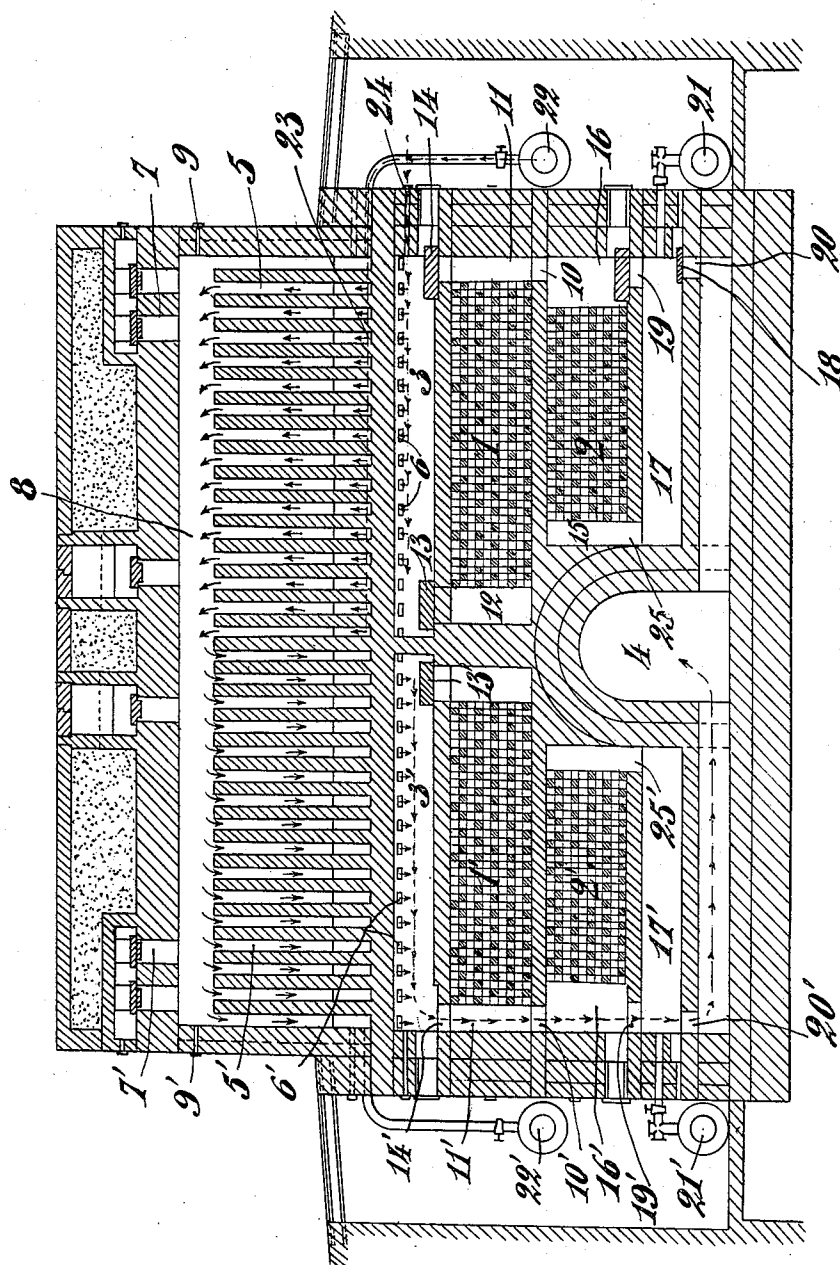


COKE OVEN.

987,941.

Patented Mar. 28, 1911



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COKE-OVEN.

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To all whom it may concern:

Be it known that I, LOUIS BANSART, a subject of the Kingdom of Belgium, residing in Johmont, near Haine St. Pierre, Belgium, have invented certain new and useful Improvements in Coke-Ovens, and do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to a coke oven of the type in which two regenerators separated by a partition are arranged under each oven and parallel thereto. In coke ovens of this type when regenerators are employed the air is heated in one of these regenerators while the products of combustion heat the second regenerator.

This invention relates especially to an arrangement of the said coke ovens which, by the simple manipulation of dampers, permits of utilizing them in any one of the following methods of operation: A, without recovery and without regeneration; B, with recovery but without regeneration; C, with recovery and with regeneration.

The annexed figure shows a transverse sectional view of the battery of the ovens through the heating flues, corresponding to a longitudinal section of one oven. In this figure the dampers occupy the position corresponding to method B.

Under the forward part of the ovens are provided the regenerators 1 and 2, communicating at their upper part with the chamber 3 and at their lower part with the chimney 4. Similar regenerators 1' and 2' are provided at the rear part of the oven. Between the ovens heating flues 5 and 5' are arranged in familiar manner communicating through the openings 6 and 6', with the chambers 3 and 3'.

At the extremities of the regenerator 1 are arranged vertical conduits 11 and 12 communicating with the chamber 3. This communication can be interrupted by dampers closing the communicating openings 13 and 14. Similar vertical conduits 15 and 16 are arranged at the extremities of the regenerator 2 and communicate through the base with a conduit 17 in turn communicating with the chimney through an opening 18.

A damper permits of interrupting the communication between the conduit 16 and the conduit 17. Another damper 20 permits of interrupting the communication between the conduit 17 and the chimney.

The device is completed by several air and gas inlet conduits which are specified in the course of the description given below of the three methods of operation.

In the case of method A, that is to say, without regeneration and without recovery, the openings 13 and 13' are closed, the openings 14, 16, 20, 14', 16', and 20' are open. The combustible gases arising from the distillation of the coal are conducted by the conduits 7 and 7' into the chamber 8 surmounting the flues 5 and 5'. Air is introduced into this chamber through the apertures 9 and 9'. The gaseous mixture thus obtained burns and being divided into two parts descends through the two series of flues 5 and 5'. The part of the mixture which has traversed the flues 5, for example, enters by the apertures 6 into the chamber 3, being then delivered directly to the chimney by traversing the conduits 11 and 16.

In the case of method of operation B, with recovery and without regeneration, the openings 20, 19, 14, 13 and 13' are closed, the openings 14', 16' and 20' are opened. The gases proceeding from the recovery works through the conduit 22 are conducted to the foot of the flues 5. They there encounter the air introduced through 24 into the chamber 3 and having traversed the apertures 6, the mixture thus effected burns and ascends through the flues 5, penetrates into the chamber 8, redescends by the flues 5', enters through the openings 6' into the chamber 3' and is delivered to the chimney 4 by the conduits 11' and 16'.

In the case of the recovery and regeneration method C the openings 20, 19, 14, 14', 19' are closed, the openings 13, 13' and 20' are open. The air delivered through the conduit 21 into the conduit 17 penetrates through the opening 25 into the regenerator 2, is partially heated there, passes through the opening 10, traverses the regenerator 1 in which it continues to be heated and penetrates through the opening 13 into the chamber 3. It then traverses the openings 6 and, as in the preceding method it encounters in 23 the gas delivered by the conduit 22. The gaseous mixture succe-

sively traverses the flues 5, the chamber 8, the flues 5', the openings 6 and the chamber 3. The products of the combustion are then delivered through the opening 13 into the
5 regenerator 1 and are delivered through the opening 10 into the second regenerator 2, then through the opening 19' into the conduit 17', which conducts them through the opening 20' to the chimney.

10 Claims:—

1. In a device of the class described, in combination, an oven, a heating chamber, regenerating means associated with said oven at each end thereof, an air inlet asso-
15 ciated with said regenerating means, and dampers adapted in one position to cause the air to pass through said regenerating means to said heating chamber, and in their other position to cause the air to pass into said
20 heating chamber without traversing said regenerating means.

2. In a device of the class described, in combination, an oven, a heating chamber associated therewith, regenerating means oper-
25 atively associated with said oven adjacent each end thereof, said means being positioned below said oven, a lower air passage below said regenerating means, an upper air passage between said means and said oven
30 and communicating with said heating cham-

ber, an air inlet associated with said first mentioned passage, and dampers adapted in one position to cause the air to pass through said regenerating means in passing from one to the other of said air passages, and in the
35 other position to cause the air to pass to one side of said regenerating means in passing from one of said passages to the other.

3. In a device of the class described, in combination, an oven, a heating chamber 40 associated therewith, regenerating means associated with said oven adjacent each end thereof, said means being positioned below said oven, a lower air passage, an air inlet associated therewith, an upper air passage 45 communicating with said heating chamber, said parts being so positioned that air admitted into the lower passage may be caused to pass through said regenerating means into said upper passage, and means for caus-
50 ing the air to pass directly from the lower to the upper passage.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

LOUIS BANSART.

Witnesses:

GEORGES VANDER HAEGHEN,
EUGÈNE VANDENPLAT.