

GOBIET'S COKE-OVEN.

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Within a few years coke has become a leading fuel for blast furnaces. As this country is favored with an abundance of good quality of coal, great indifference has been shown in the making of coke; it is generally made in the open air, by simply firing a heap of coal, or in coke ovens constructed on very primitive plans. The value of coke oven is confined rigidly to the economy of labor in the process of coking, in saving of carbon, and in production of a dense and pure coke.

By his constructing a great number of coke ovens in Belgium, Prussia and Austria, the inventor has been in a position to study and appreciate the defects inherent to each system, and he has invented a coke oven wherein the imperfections recognized in the other systems are avoided, and to which he has given the improvements discovered by a long practice in this line of business. His invention has entirely succeeded, and his coke ovens are in general use in Europe. This year they were introduced in this country, and a small row was erected for the Kemble Coal and Iron Company, at Riddlesburg, Bedford County, Pa. The Broad Top coal used there is semi-bituminous, (very dry) and yielded in these ovens 80 per cent. of silver gray, dense, pure and sonorous coke, equal to the best coke in this country. In the same ovens, several charges of Clearfield County coal (bituminous) and Jefferson County coal (highly bituminous) have been coked, and gave a beautiful coke.

The following is a resumé of the advantages of these coke ovens:

1. Regular and complete combustion of the gases of carbonization.
2. Highly bituminous, as well as dry coal, can be coked with advantage and economy.
3. Each oven heats itself by its own gases; no reheating is necessary after started once, and is entirely independent of the adjoining ovens. The repairing of one or several ovens does not cause the others to be stopped.
4. Diminution of the duration of the coking process.
5. Produce 65 to 80 per cent. and more coke, according to the quality of coal.
6. Production of a fine silver gray, dense and sonorous coke.
7. Very great durability of coke ovens, proved by the existing ones.
8. The attendance is easy and cheap.
9. The time for charging and discharging is from 8 to 10 minutes only.

This invention consists in combining with a coke oven generally 24 feet long, 2 to 6 feet wide, and 4 to 7 feet high, a series of flues, these flues being made to communicate with the interior of the oven in such a manner that the heated gases which escape from the oven envelope in burning condition said oven from all sides, and thereby a uniform heat is produced and the formation of coke is materially facilitated.

The ovens are generally arranged in single groups from 10 to 25, connected to a common chimney. In front of them the discharging machine is placed. These ovens are entirely independent, one from the other, and have nothing in common except the main flue and the partition wall between each other, so that each oven can be worked separately, if desired.

Each oven is provided with two supply funnels (charging holes), which extend down through the top, and which are covered with cast-iron shutters, lined with fire-clay, so that they can be closed immediately after the oven has been charged. Previous to introducing the coal the ovens are heated to a white heat, and as the coals are passing to these heated ovens they evolve a quantity of gas which is immediately ignited by its entry in the upper side flue, and passes in a burning condition all around each oven, so as to envelope the same in a complete sheet of fire and heat it uniformly at all points. The gases which rise in one of the ovens escape through the lateral channels into the upper side flues, which extend along one side of the oven, and which communicate through channels at their outer ends with the lower flues. From these lower flues the burning gases pass through channels into the bottom flues, the channels being situated at the inner ends of the side flues, so that the burning gases must travel through the flues in a zig-zag course. The bottom flues are situated beneath the sole of the oven, and they extend from the centre towards the outside of the walls enclosing the ovens, where said flues connect by channels with the return bottom flues, which communicate at their inner ends by ascending channels with the lower side flues of the other side of the oven.

From the outer end of these lower side flues the burning gases ascend through channels into the upper side flues, which communicate at their inner ends through ascending channels with the main flue. By forcing the gases through all these above described flues it will be seen that the burning gases, in passing through these flues, will heat each oven uniformly from all sides and no additional fuel is required to keep up the necessary heat in the ovens.

From each junction of the ascending channels with the main flue extends a lateral flue towards the outside of the brick wall enclosing the ovens, where the same is closed by suitable covers. Through these lateral flues access can be had to the ascending channels, and the circulation of the burning gases can be regulated by suitable dampers, which can be operated through the lateral flues.