(No Model.)

H. MÜLLER.

ART OF MANUFACTURING COKE.

No. 421,299. Patented Feb. 11, 1890.

Fig. 1.

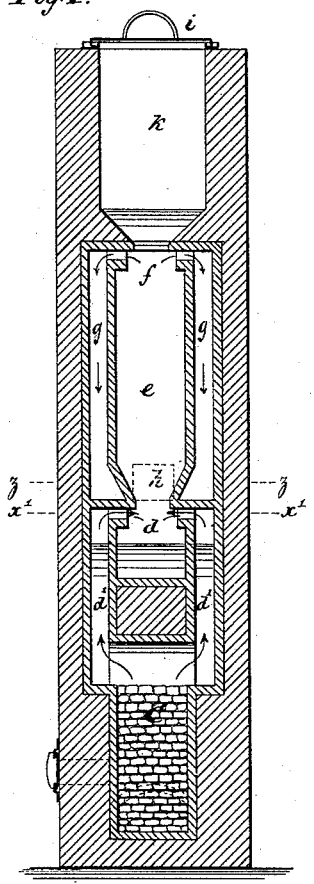


Fig. 2.

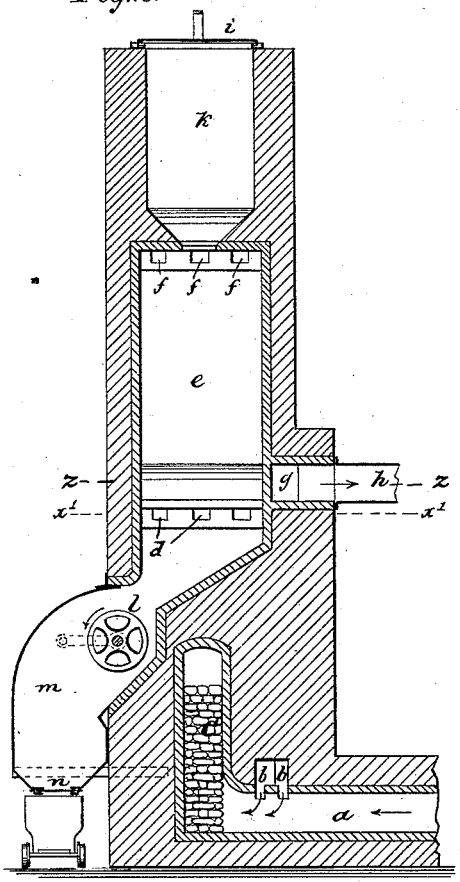


Fig. 3.

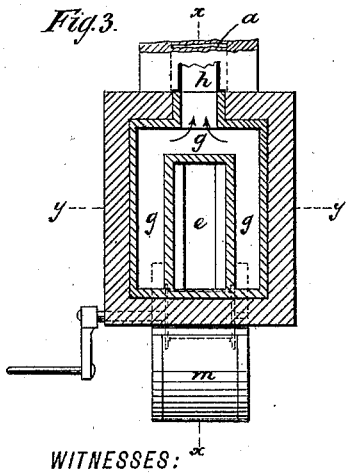
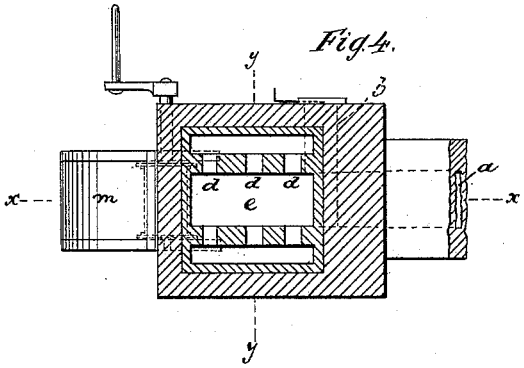


Fig. 4.



WITNESSES:

Eduard Wolff.

William Müller

INVENTOR:

Hugo Müller.

BY Van Santvoord & Hauff

ATTORNEY

UNITED STATES PATENT OFFICE.

HUGO MÜLLER, OF MORSBACH, NEAR AACHEN, PRUSSIA, GERMANY.

ART OF MANUFACTURING COKE.

SPECIFICATION forming part of Letters Patent No. 421,299, dated February 11, 1890.

Application filed February 28, 1889. Serial No. 301,443. (No model.) Patented in Belgium November 30, 1888, No. 83,953.

To all whom it may concern:

Be it known that I, HUGO MÜLLER, a citizen of the German Empire, residing at Morsbach, near Aachen, in the Province of Rhenish Prussia, in the Kingdom of Prussia and German Empire, have invented new and useful Improvements in the Manufacture of Coke from Coal-Dust, (for which I have obtained Letters Patent in Belgium, dated November 30, 1888, No. 83,953,) of which the following is a specification.

This invention relates to a new process for producing coke from lumps formed of coal-dust, said process being pointed out in the following specification and claim.

The apparatus which can be used in carrying out my process is illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical section in the plane *y y*, Figs. 3 and 4. Fig. 2 is a similar section in the plane *x x*, Figs. 3 and 4. Fig. 3 is a longitudinal section in the plane *z z*, Figs. 1 and 2. Fig. 4 is a horizontal section in the plane *x' x'*, Figs. 1 and 2.

Similar letters indicate corresponding parts.

In carrying out my invention I first take coal-dust and aggregate the same into lumps or boulets of such a form that when the same are piled up in an oven or furnace open channels are left between them which extend from the bottom to the top of the pile. In preparing the boulets the coal-dust is compressed to such an extent that the same when exposed to a white heat will not lose their shape, and the channels extending through the pile from the bottom upward will not be clogged up. The coal-dust suited for my purpose is the dust from anthracite coal. I place these lumps into a vertical or strongly-inclined channel and pass through them a flame which is as much as possible neutral, or, in other words, which does not contain a perceptible quantity of free oxygen, until by the action of said flame the volatile constituents of the lumps of coal-dust have been driven out to the extent required. The gases requisite for such a neutral frame can be readily obtained by means of a gas-producer or by any other means suitable for the purpose. These gases are introduced into the coke-oven through the flue *a*, Fig. 2, and the air required for combustion is admitted through apertures *b*, the quantity of air thus admitted being regulated by slides, so that when the gases are ignited the flame does not contain any appreciable quantity of free oxygen. From the flue *a* the flame passes through the open brick-work C, and thence through flues *d'* and openings *d* into and through the receiver *e*, which contains the lumps of coal-dust, and which may be termed the "coking" reservoir. After having passed through a column of lumps of suitable height the cooled gases of combustion mixed with the volatile constituents taken from the lumps escape through the openings *f* and flues *g g h*, and they may be utilized for heating purposes.

The lumps which are to undergo the coking process are placed into the hopper *k*, the cover *i* of which closes tight by means of a liquid seal, and they drop down into the coking-reservoir *e* as fast as the finished coke is drawn off from the lower portion of this reservoir. In order to regulate and effect the discharge of coke from the coking-reservoir, a roller *l* may be used, which is turned by a hand-crank or by other means. The coke after having been allowed to cool off in the sheet-metal case *m* is dumped through the opening *n* (which is closed by a gate) into a car or vehicle.

From the foregoing description it will be seen that by my improvement anthracite coal-dust can be converted into a useful product with a good profit.

What I claim as new, and desire to secure by Letters Patent, is—

As an improvement in the art of manufacturing coke from anthracite coal-dust, the following process, which consists in aggregating the coal-dust into boulets, then piling the boulets up in an oven or furnace, leaving continuous air-channels from the bottom of the pile to its top, then passing through these channels a current of highly-heated or ignited gases free from oxygen, and finally withdrawing the ready-formed coke from beneath while fresh lumps are fed in from above.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

HUGO MÜLLER. [L. S.]

Witnesses:
ANDREW RINGERT,
JEAN HACKMANNS.