

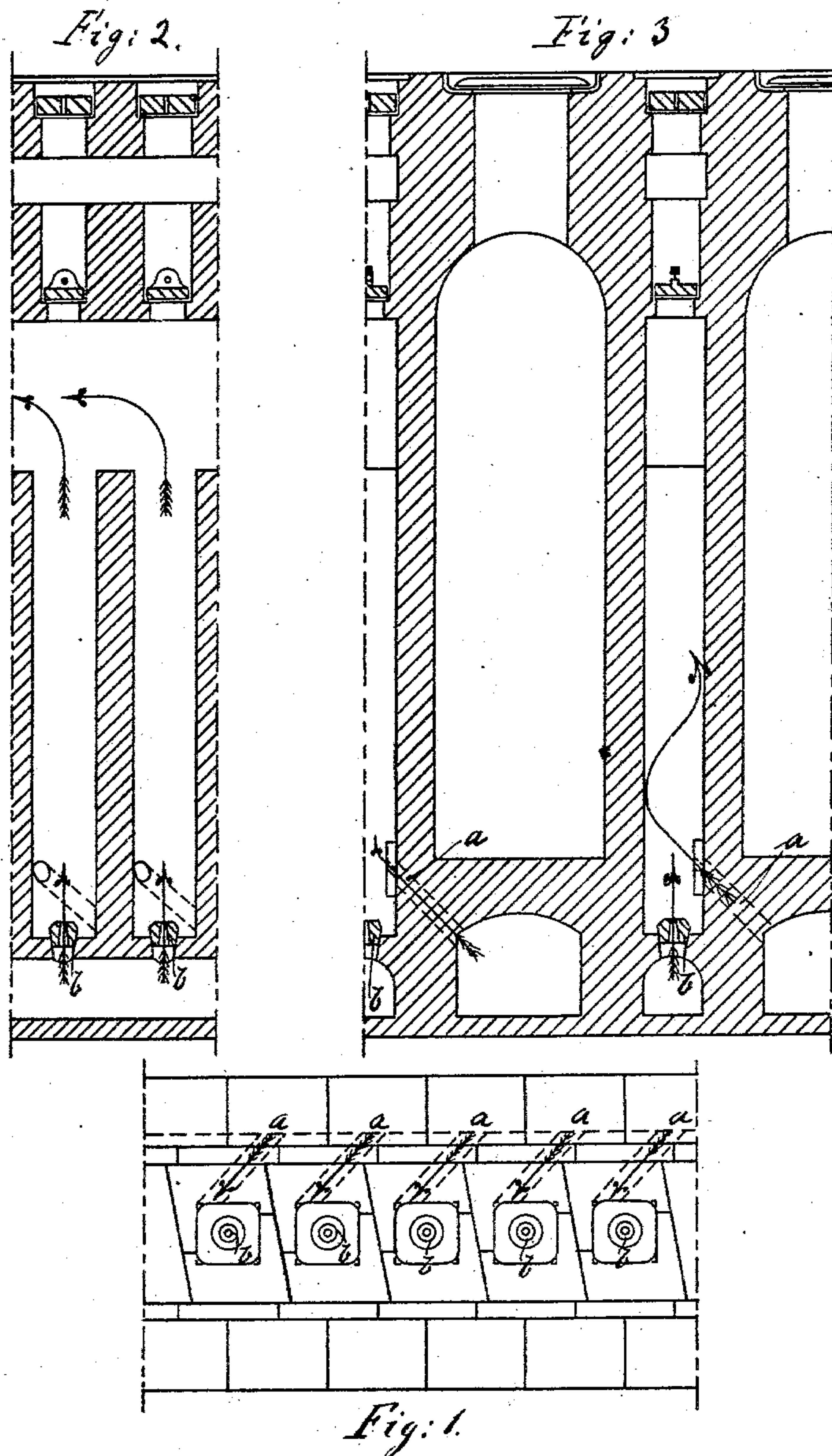
No. 753,146.

PATENTED FEB. 23, 1904.

H. KOPPERS.
COKE OVEN.

APPLICATION FILED AUG. 27, 1903.

NO MODEL.



Witnesses:
1. *Geo. Heinicke*
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Inventor,
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UNITED STATES PATENT OFFICE.

HEINRICH KOPPERS, OF ESSEN-ON-THE-RUHR, GERMANY.

COKE-OVEN.

SPECIFICATION forming part of Letters Patent No. 753,146, dated February 23, 1904.

Application filed August 27, 1903. Serial No. 170,926. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH KOPPERS, a citizen of the German Empire, residing at Essen-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Coke-Ovens, of which the following is a specification.

In the manufacture of coke it has been shown by practice that in coke-kilns with vertical flues the hot gases can be utilized to better advantage and at the same time the fireproof material of the kiln be less exposed to destruction by melting if the hot gases and the air introduced from outside are kept apart, not being permitted to get in touch with each other at a level lower than that of the surface of the coal undergoing the coking process.

My invention relates to improvements in such kilns with a view of securing the aforementioned advantages. I attain this object by the construction described herein and illustrated in the drawings, forming part of this specification, in which—

Figure 1 is a plan view of the lower part of the ovens, and Figs. 2 and 3 are vertical sections of my device.

As shown, the coke-kiln is provided with vertical flues, under which is a channel for the distribution of the hot gases, the latter passing into the several flues through nozzles *b*, one in the bottom of each flue. A conduit, serving as or fitted to receive a nozzle *a*, passes through the abutment of the structure below from the air-channels under the coking-chambers into each of the aforesaid flues, preferably under an angle, so that the air is forced into the flues in such a way that it surrounds the hot gases ascending vertically from the nozzle *b* without disturbing the ascending column of gas and following the same in its upward motion, inclosing the gas and floating around it in a helical or screw-thread line. The effect obtained thereby is that the process of combustion will go on in

the middle, and the wall or lining of the flue being separated from the hot gases by the circulating air around it will be protected by such air against the destructive effects of the said hot gases. Air preheated to even a very high degree may thus be used in the kilns without any danger of destruction by heat, which would inevitably occur when the burning gases were in direct contact with the walls without the protection offered by the circulating air.

Under date of December 28, 1901, (Serial No. 87,641,) I have applied for Letters Patent on a construction and combination similar to the above described, a patent having been issued to me September 15, 1903, No. 738,918. The main difference between the invention described in said patent and the present invention is in the direction in which the air is admitted into the gas-flues. According to my former invention, the air enters the flues in a right angle, mixing with the gases at once, while this is carefully avoided in the present invention.

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

A coke-oven comprising in combination with the usual coking-chambers and the heating-flues, provided with nozzles at the bottom for the admission of a vertically-ascending gas-column, inclined channels connecting the air-conduits with the base part of the heating-flues, the inclination being out of line with the ascending gas-column in order to leave it undisturbed, and to circulate around it, substantially as described and for the purpose set forth.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

HEINRICH KOPPERS.

Witnesses:

PETER LIEBER,
WILLIAM ESSENWEIN.