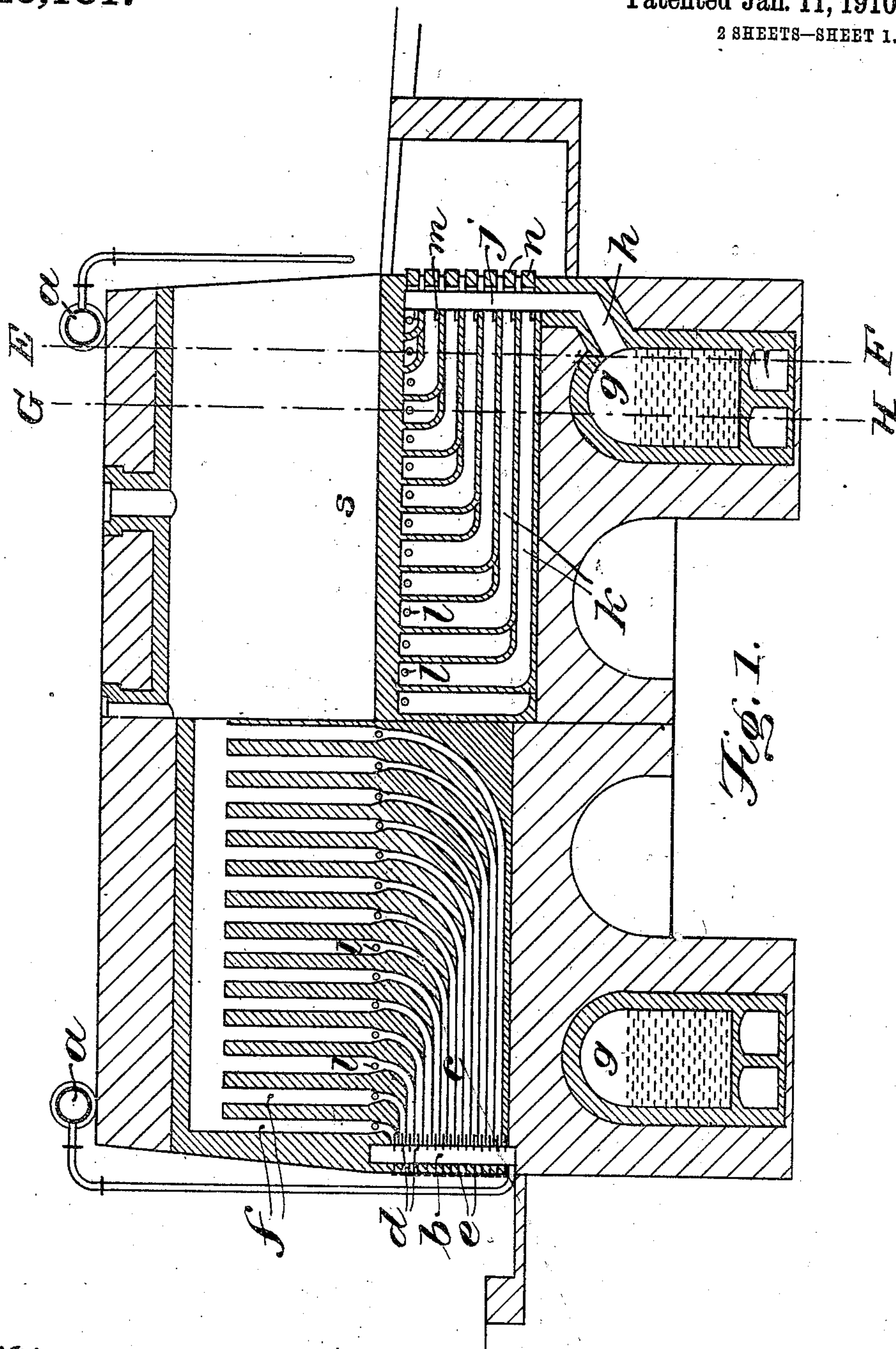


946,181.

2 SHEETS—SHEET 1.



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VERTICAL FLUE COKE OVEN.
APPLICATION FILED NOV. 27, 1908.

946,181.

Patented Jan. 11, 1910.

2 SHEETS—SHEET 2.

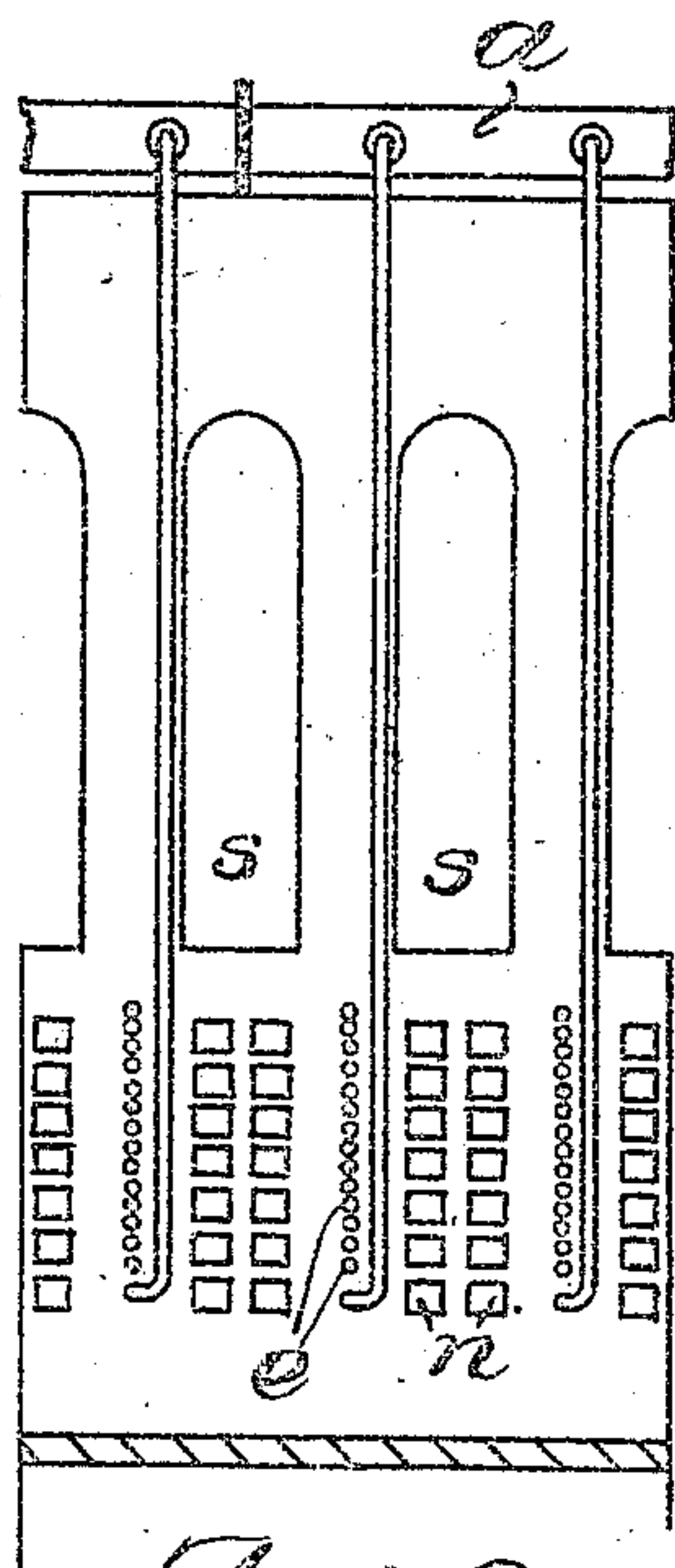


Fig. 2.

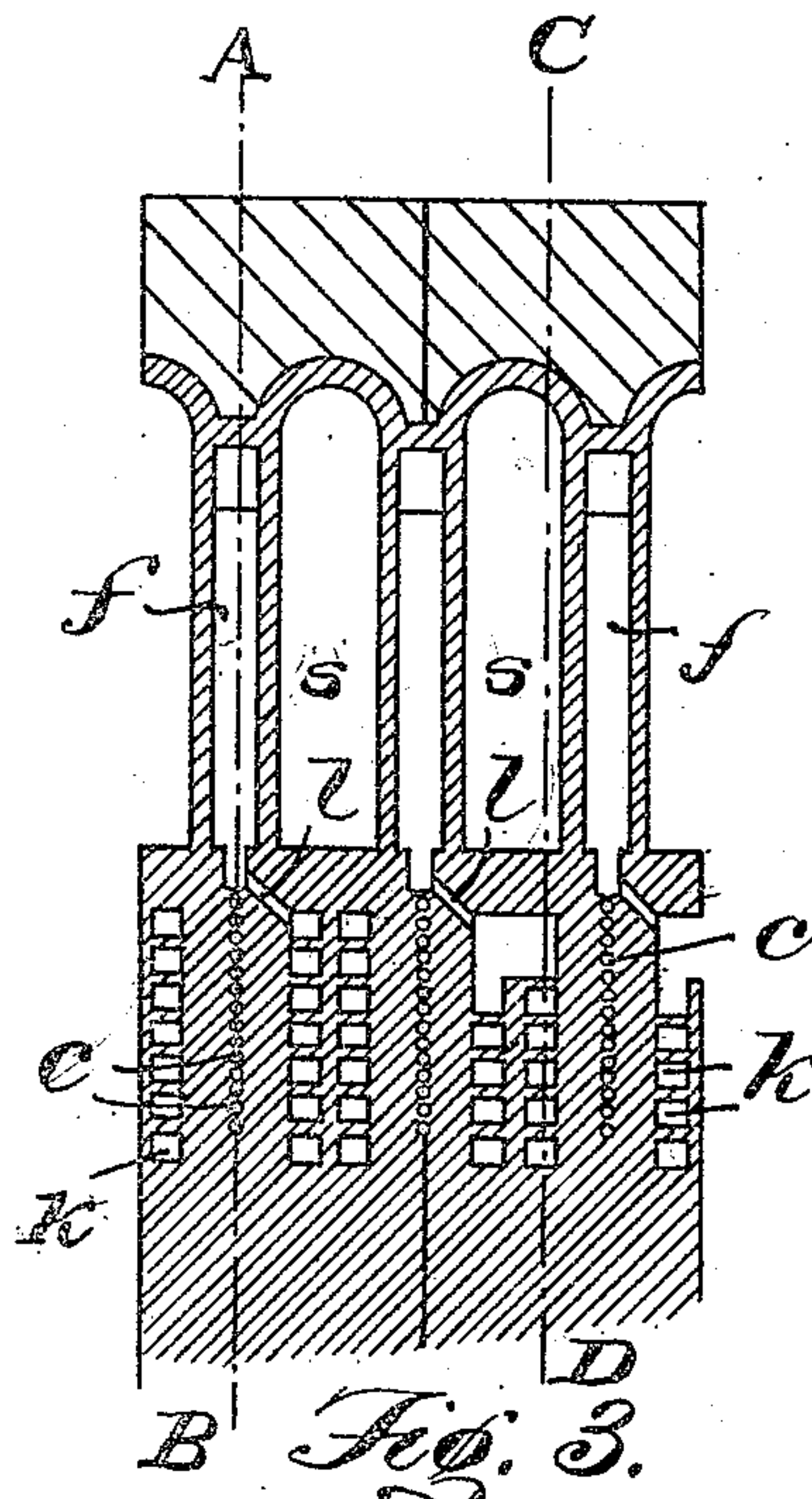


Fig. 3.

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UNITED STATES PATENT OFFICE.

CARL WILKE, OF SHEFFIELD, ENGLAND, ASSIGNOR TO SIMON-CARVES BYE-PRODUCT COKE OVEN CONSTRUCTION AND WORKING COMPANY LIMITED, OF MANGHESTER, ENGLAND.

VERTICAL-FLUE COKE-OVEN.

946,181.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed November 27, 1906. Serial No. 345,356.

To all whom it may concern:

Be it known that I, CARL WILKE, a subject of the German Emperor, and a resident of Sheffield, England, have invented new and useful Improvements in and Relating to Vertical-Flue Coke-Ovens, of which the following is a specification.

These improvements relate to a horizontal coking oven or battery of ovens of that type which is furnished with vertical heating flues, alternating with coking chambers, and their object is to enable the supply of air and gas to the bottom of each flue or to each group of flues to be separately regulated at or from a position which is situated at some distance from the point of combustion and is therefore not exposed to any great heat, and without necessitating the cooling down of the ovens to permit such regulation. It has up to now been customary to effect the regulation of the air and gas inlets to such ovens by means of dampers or nozzles arranged within or closely adjacent to the flues or point of combustion, and these dampers have been moved by rods inserted through openings at either the top, bottom or sides of the vertical heating flues or from the ends of the ovens, but such regulation has been extremely inconvenient in practice.

In carrying my improvements into effect the gas and air passages or channels to the vertical flues run to the flues from the front end or back end of a battery of ovens. The outer ends or inlets of the gas channels, which are preferably horizontal or approximately horizontal, open into and through the back of a common chamber which is supplied with gas and is situated at the ends of the ovens, and the outer end or inlets of the air channels which are similarly disposed, open into and through the back of a common chamber which is supplied with air for combustion and is situated at the end of the ovens. These chambers are easily accessible. The front wall of each chamber is provided with a closable opening or with a number of closable openings opposite to the inlets of the air and gas channels and through such opening or openings various sized dampers, nozzles, or equivalents may be placed within the horizontally disposed inlets or be removed therefrom as desired. Other devices than dampers or nozzles may be employed to regulate the sizes of the inlets.

Instead of each vertical flue having a separate air and a separate gas inlet a group of such flues may have a common air inlet and a common gas inlet or independent air inlets and a common gas inlet, or a common air inlet and independent gas inlets, such inlets being led to the front end or the back end of the battery in the same manner as those previously described and being there similarly regulatable. The air inlets may be arranged all at one end of the ovens and the gas inlets at the other, or air and gas inlets or groups of such inlets may alternate with each other on the same end of the oven.

My improved devices are illustrated in one arrangement in the accompanying drawings to which reference is hereinafter made as applied to a reversible or regenerative battery.

Figure 1 shows such a battery of ovens in vertical longitudinal section, the left half of the drawing being a section along the line A—B Fig. 3, and showing channels or passages leading to the gas flues, and the right half being a section along the line C—D Fig. 3, and illustrating the disposition and arrangement of air channels. Fig. 2 is an elevation of part of the oven showing how the air and gas channels may alternate with each other. Fig. 3 shows on the left hand side a vertical cross section of part of the range of ovens along the line E—F, Fig. 1, and on the right hand side a similar section along the line G—H Fig. 1.

Referring to the drawings, *a a* indicate gas mains arranged at opposite ends of the ovens and communicating through suitable branches with a number of chambers *b* disposed at suitable distances apart on the ends of the ovens to correspond to the flues in each oven. One such chamber is shown in section, Fig. 1.

From the chamber *b* to its corresponding range of heating flues *f* of the oven are led passages or channels *c* as is clearly shown in the drawings. The mouth of each channel in the back wall of the chamber *b* is furnished with a plug or damper *d* and this plug or damper is easily movable or removable through openings in the front wall of the chamber, which openings are closable by plugs *e*. Through these openings any of the dampers may be moved or have dampers of different sizes substituted for them, so that the free area of the channel, and conse-

quently, the supply of gas can be varied as desired. In the arrangement shown, each heating flue *f* has a separate controllable gas channel *e*, but it is evident that a single
 5 channel may be used to supply gas to two or more flues and thus control at one and the same time the gas supply to its connected flues.

g g indicate canals running the whole
 10 length of the battery of ovens, each of which, in the type illustrated, is alternately used to carry air to the flues and to convey waste gases. At interval along its length each canal opens through suitable branches
 15 *h* into chambers *j* at each end of the oven one under the sole of each coking chamber or oven *s*. From the air chambers, *j*, air passages *k* lead to convey air to the heating
 20 flues *f*, communication with the different flues being established through lateral openings *l*. The passages are illustrated as being disposed in two parallel vertical rows from each chamber *j*. The chambers *j* and the air passages *k* are alternately used for
 25 the conveyance of air and waste gases as are the canals to which they are connected. The passages are regulatable by dampers *m* which can be operated from the front of the chamber through closable openings *n* in the
 30 same manner as has already been described in connection with the gas chambers. A separate air channel may be used for each

flue, but if desired, one such channel may convey air to two or more flues.

The outer face of the chambers *b* and *j* 35 may be in the open as shown on the left hand side of the drawing, Fig. 1, or they may be in a covered gallery as shown on the right hand side. The channels may be differently
 40 disposed than as illustrated.

By the arrangement described and illustrated it is possible to lead the gas and air separately in required proportions to each
 45 flue or to a group of flues, so that combustion can always take place to the greatest advantage. Apart from gas and air regulation, the battery of ovens is operated in the usual manner.

I claim:—

In a coke oven, air and gas chambers dis- 50 posed along the ends of the oven, and so formed with openings through their front faces as to permit the easy control from the front of such chambers of the air and gas
 55 channels leading respectively from the backs of such chambers to the flues, substantially as and in the manner hereinbefore described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL WILKE.

Witnesses:

CHAS. N. DANIEL,
 LUTHER J. PARR.