

No. 722,982.

PATENTED MAR. 17, 1903.

L. J. HIRT.  
COOKING OVEN.

APPLICATION FILED JAN. 3, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

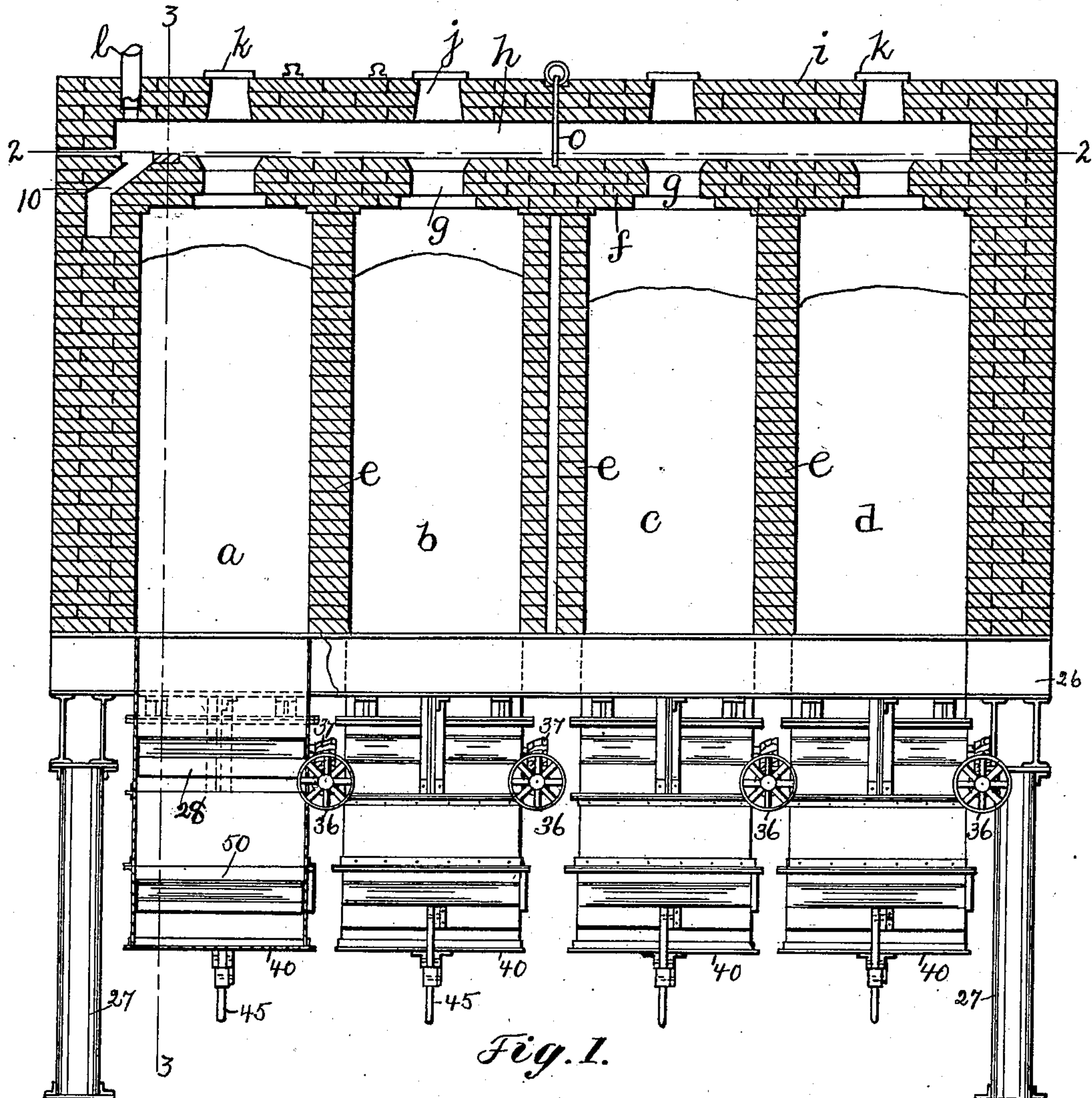


Fig. 1.

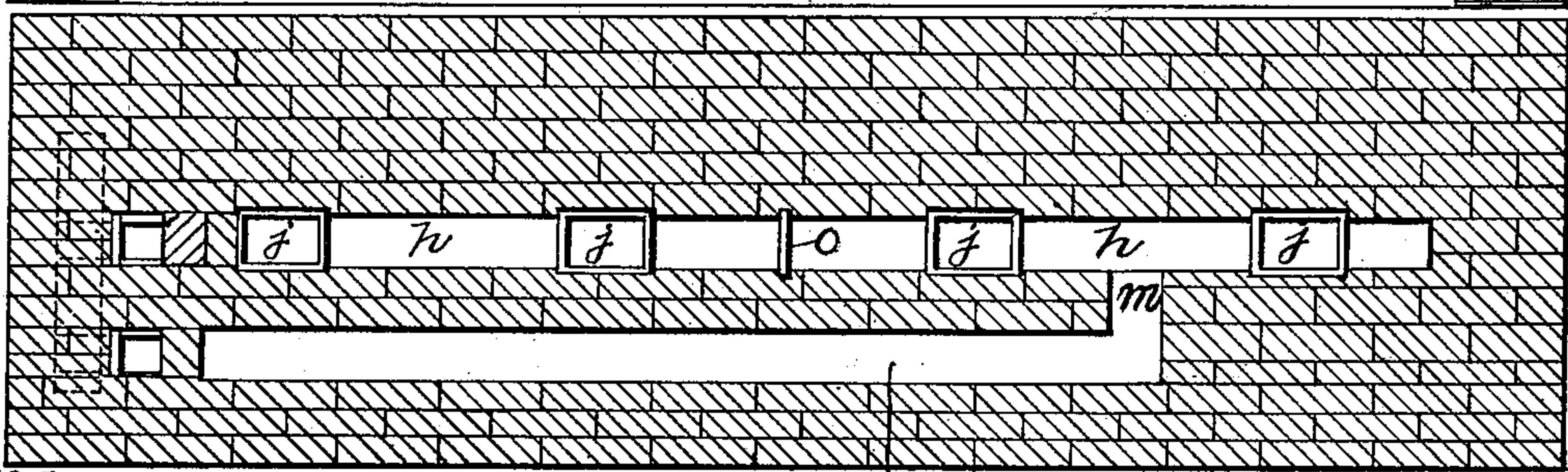


Fig. 2.

Witnesses.

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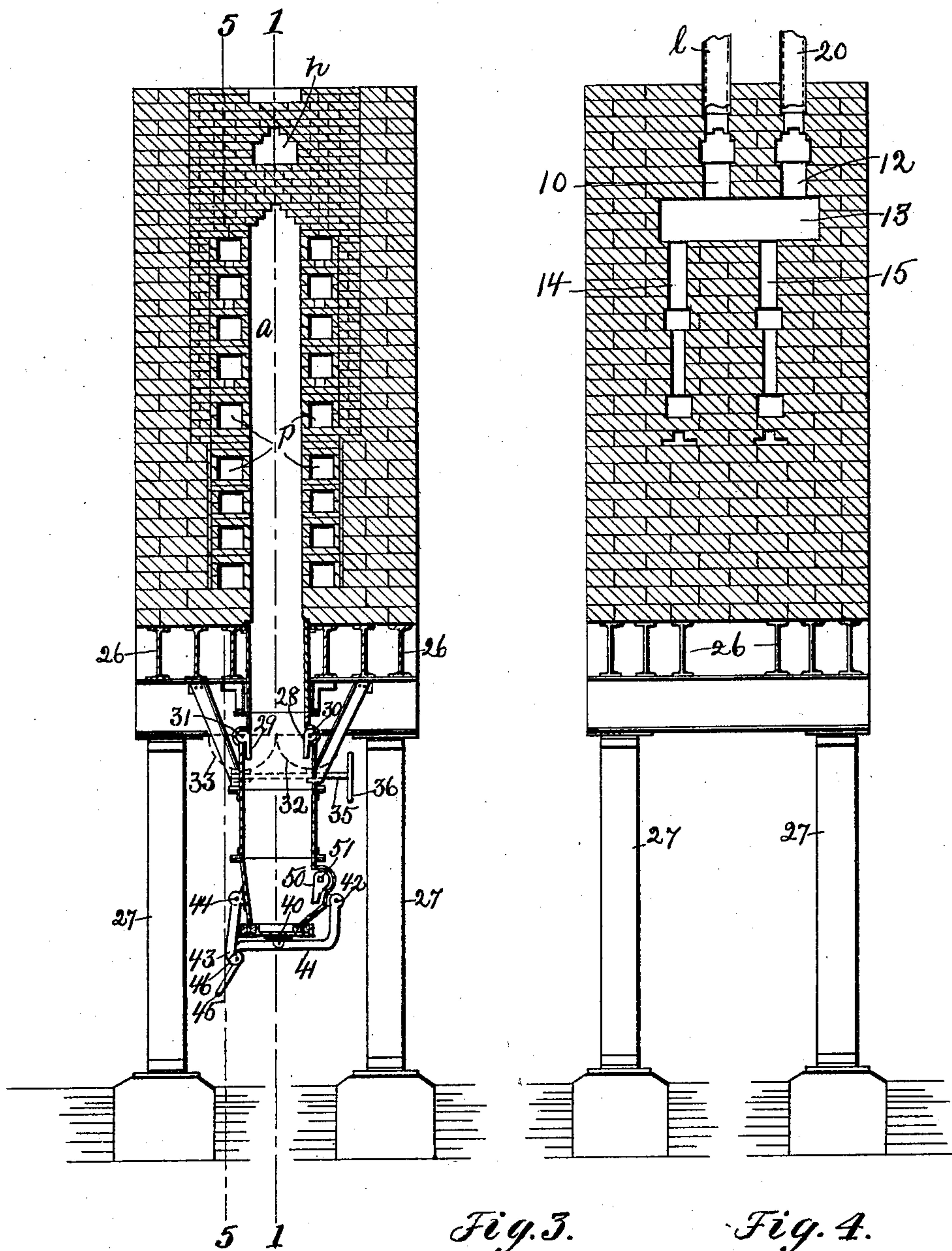
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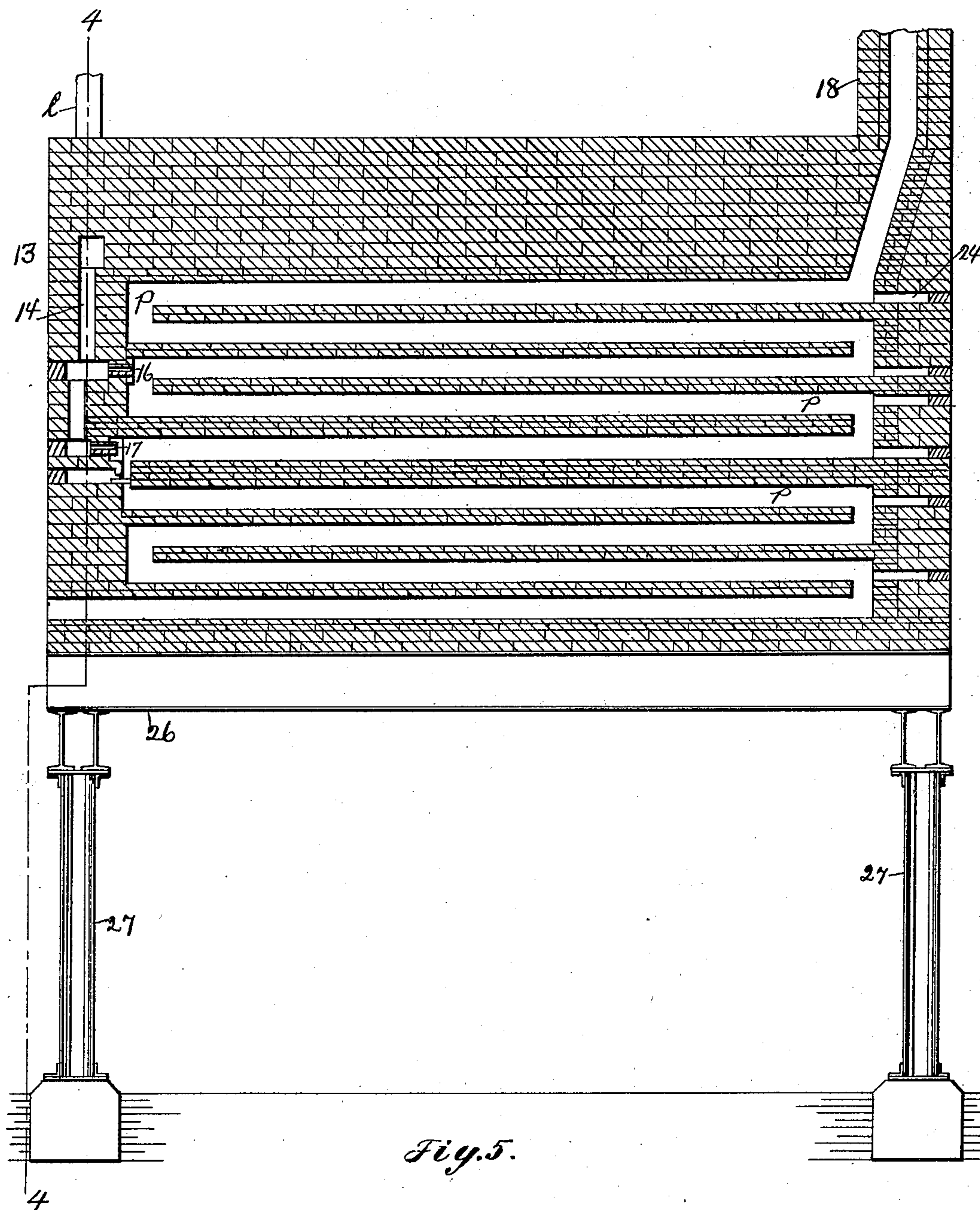
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3 SHEETS—SHEET 3.



Witnesses.

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# UNITED STATES PATENT OFFICE.

LOUIS J. HIRT, OF BROOKLINE, MASSACHUSETTS.

## COKING-OVEN.

SPECIFICATION forming part of Letters Patent No. 722,982, dated March 17, 1903.

Application filed January 3, 1903. Serial No. 137,631. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS J. HIRT, a citizen of the United States, residing in Brookline, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Coking-Ovens, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 This invention relates to a coking-oven wherein the process of coking a plurality of grades or kinds of coal may be simultaneously carried on without interfering one with the other or wherein a single grade or kind of  
15 coal may be coked. For this purpose the coking-oven is provided with a plurality of retorts or chambers which communicate at their upper ends with a gas-outlet passage or flue separated from the coking-chambers, except as to the gas-outlet ports, by a wall of  
20 refractory material, which serves to prevent the gas in the passage from being influenced by the heat of the coking-chambers to such extent as would destroy the light hydrocarbons. The gas-outlet passage or flue referred  
25 to may be designated the "main" outlet-passage and has communicating with it a second gas-outlet flue or passage, which may be placed in communication with one or more of the  
30 coking-chambers by means of one or more valves in the main outlet-passage, so that a rich kind or grade of coal in one or more of the coking-chambers and a poorer grade or  
35 kind in the other of said coking-chambers may be coked simultaneously, and the richer gases may be carried off through the main flue or passage and utilized for illuminating  
40 or for other purposes and the poorer gases may be carried off through the second outlet-passage and utilized for heating the ovens or coking-chambers or for other purposes. These and other features of this invention  
45 will be pointed out in the claims at the end of this specification.

50 Figure 1 represents in vertical longitudinal section a coking-oven embodying this invention, the section being taken on the line 1 1, Fig. 3; Fig. 2, a horizontal section on the line 2 2, Fig. 1; Fig. 3, a vertical transverse section on the line 3 3, Fig. 1; Fig. 4, a vertical  
55 transverse section on the line 4 4, Fig. 5,

through the front wall of the coking-oven; and Fig. 5, a vertical longitudinal section on the line 5 5, Fig. 3.

In the present instance the invention is 55 shown as embodied in a coking-oven provided with four vertically-arranged coking-chambers *a b c d*, (see Fig. 1,) formed by transverse vertically-arranged partitions *e*, of fire-brick  
60 or other refractory material. The coking-chambers *a b c d* are provided with a top wall *f* of fire-brick or other refractory material, which has suitable ports or openings *g* for the passage of coal or other fuel into the chambers  
65 and for the passage of the gases created in the coking process out of the coking-chambers and into a main gas passage or flue *h*, extended longitudinally of the oven above the coking-chambers and below the top wall *i* of the oven.  
70 The top wall *i* is provided with suitable openings *j* for the passage of coal or material to be coked into the coking-chambers, which openings are normally closed by suitable covers *k*. The flue or passage *h* communicates at one  
75 end with a gas-outlet pipe *l*, leading to the outside of the coking-oven, and also is connected near its other end by a passage *m* (see Fig. 2) with a secondary or companion flue *n* within the oven and herein shown as substantially parallel to the flue or passage *h*. The  
80 flue or passage *h* is provided with one or more dampers or valves *o*, which are accessible from outside the oven and are adapted to cut off communication between one or more of the  
85 coking-chambers and the main flue or passage *h*. In the present instance the flue *h* is represented as provided with a single valve *o*, located between the chambers *b c*, so that when closed the chambers *a b* communicate  
90 with the flue *h* and the chambers *c d* communicate with the flue *n*. It will thus be seen that a rich grade of coal or other material may be coked in the chambers *a b*, and the rich gases driven off may be conducted outside of  
95 the oven through the pipe *l* to the usual receptacles and utilized for illuminating or other purposes, while at the same time a poorer grade or kind of coal or other material may be coked in the chambers *c d*, and the  
100 gases driven off may be conducted through a portion of the flue *h* and passage *m* into the flue *n*, from which the said gases may be led



into the heating flues or passages *p* at the sides of the chambers and extended longitudinally of the oven. The flue or passage *h* may also be connected at its front end with the heating flues or passages *p*. In the present instance both flues *h* *n* are shown as connected by downwardly-extended passages 10 12 in the front wall of the oven with a transversely-extended passage 13, from which lead substantially vertical flues or passages 14 15, which communicate at one or more points with the heating flues or passages *p* on opposite sides of the coking-chambers. As represented herein, the vertical flues 14 15 communicate at two points 16 17 (see Fig. 5) with the heating-flues *p*, each of which, as shown, is composed of a series of superimposed passages connected at their opposite ends to form a continuous passage which communicates at its lower end with the atmosphere and at its upper end with the chimney or stack 18.

The secondary outlet flue or passage *n* may and preferably will be provided with an outlet-pipe 20, which leads to the outside of the oven and to the gasometer or other receptacle, so that if desired the ovens *c* *d* may be used for coking rich coal or other fuel while, for instance, the chambers *a* *b* are not in use, or, if desired, while they are in use.

Communication between the flues *h* *n* and the heating-flues *p* may be effected by suitable valves or dampers, (not shown,) which are accessible from outside the oven. The heating-flues *p* may be provided with suitable peek holes or openings 24, which may be normally closed by a brick or in any other suitable manner.

In the present instance the oven proper is shown as supported upon I-beams 26, which rest upon metal columns 27.

The lower part of each coking-chamber may be made of metal, and this metal portion projects below the side walls of the oven and is provided with rocking fingers or bars 28 29, which are fast on shafts 30 31, having on them worm-gears 32 33, (indicated by dotted lines, Fig. 3,) which gears mesh with suitable worms on a shaft 35, provided with a hand-wheel 36, by which the worm-shaft may be turned to cause the rocking fingers to occupy a substantially horizontal position across the lower portion of the coking-chamber, and thereby support the portion of the material above them while the portion of the coke below them is being discharged through the outlet in the bottom of the metal extension of the coking-chamber, which outlet is normally closed by a door or valve 40, attached to a lever 41, pivoted at 42 and having its free end adapted to engage a hook or latch 43, which is pivoted at 44. The latch has pivoted to it a handle 45, provided with a cam 46, by which

the latch may be quickly and easily disengaged from the lever 41.

The extension of the coking-chamber may and preferably will be provided with one or more fingers 50, mounted on a shaft 51, which is provided outside the extension with a suitable wheel or handle by which the shaft 51 may be rocked, so as to cause the fingers or arms 50 to pinch the coke and support it while a small portion is being discharged, so as to afford opportunity for the coke to expand.

The particular mechanism for supporting the partially-coked material while the portion which is coked and cooled is not herein claimed, as it forms the subject-matter of another application, Serial No. 137,630, filed by me January 3, 1903.

I claim—

1. In a coking-oven, in combination, a plurality of vertically-arranged coking-chambers, a main flue or passage located above said coking-chambers and communicating therewith, an auxiliary flue or passage communicating with the said main flue, and means to close the main flue intermediate said coking-chambers, for the purpose specified.

2. In a coking-oven, in combination, a plurality of vertically-arranged coking-chambers, a main flue or passage located above said coking-chambers, ports connecting said flue with said chambers, fuel-inlets in the top of the oven substantially in line with said ports, an auxiliary flue communicating with said main flue, and a valve to close the main flue intermediate said coking-chambers, substantially as described.

3. In a coking-oven, in combination, a plurality of vertically-arranged coking-chambers, heating flues or passages on opposite sides of said coking-chambers, a main flue communicating with the said coking-chambers, and with the exterior of said oven, an auxiliary flue or passage connected with said main flue or passage and with said heating-flues, and a valve to close said main flue intermediate said coking-chambers, substantially as described.

4. In a coking-oven, in combination, a plurality of coking-chambers, a main gas-outlet flue or passage communicating with said coking-chambers, an auxiliary gas-outlet flue connected to said main gas-outlet flue, and a valve to close said main flue intermediate said coking-chambers, substantially as described.

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

LOUIS J. HIRT.

Witnesses:

JAS. H. CHURCHILL,  
J. MURPHY.