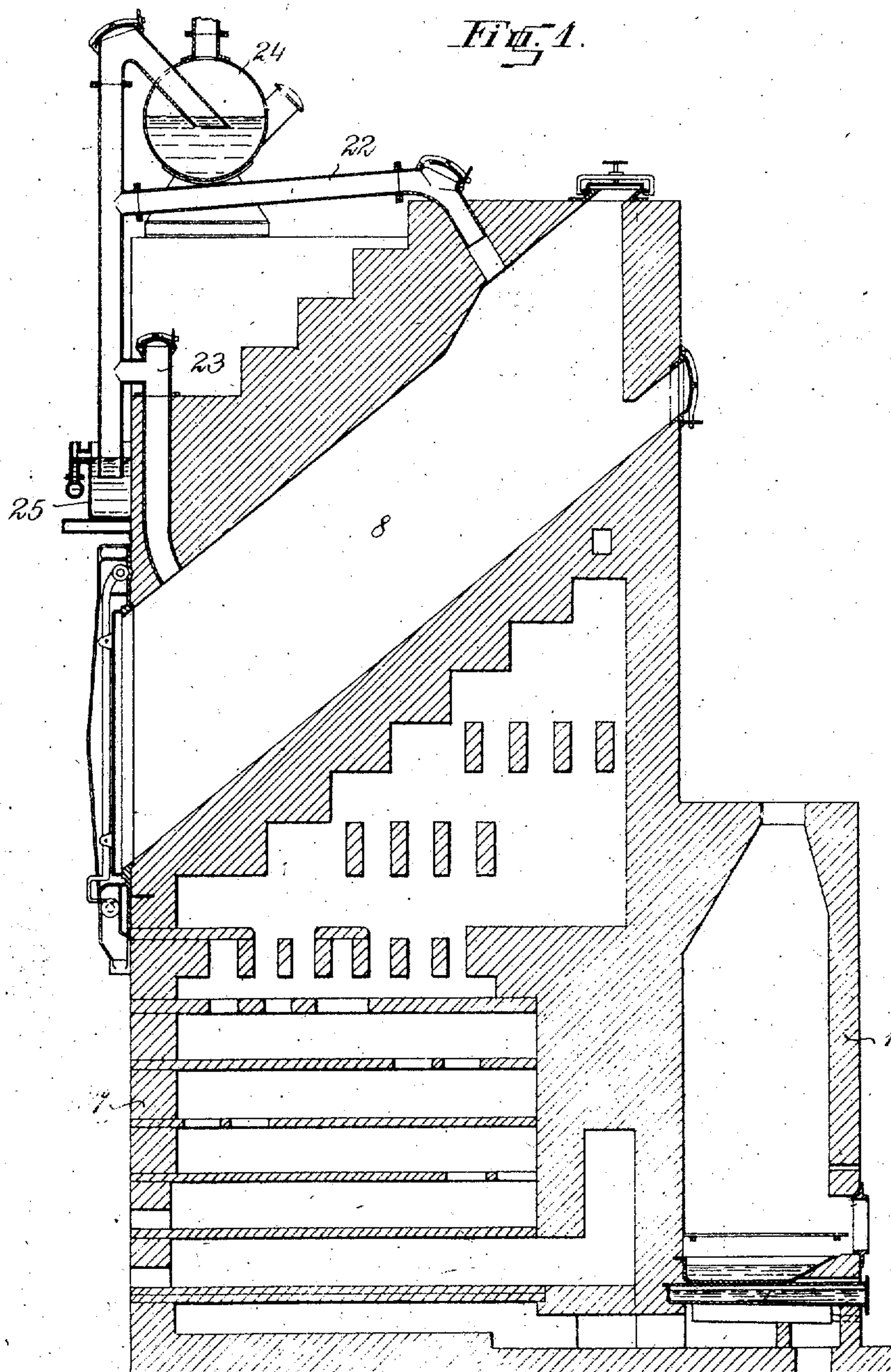


978,354.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.



Witnesses:

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H. A. R. BRÖKER.
GAS PRODUCING OVEN.

APPLICATION FILED SEPT. 20, 1909.

978,354.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 2.

Fig. 3.

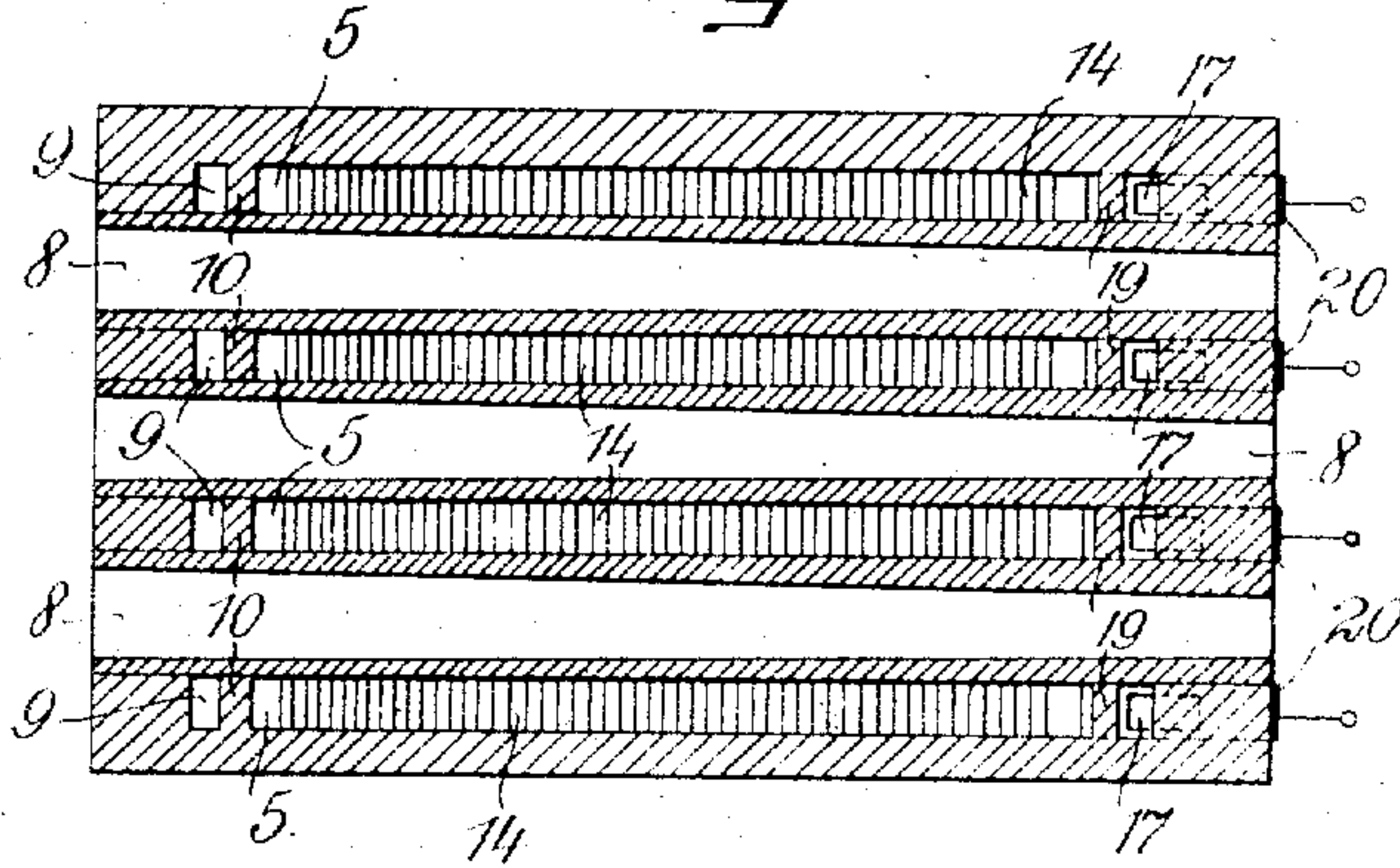
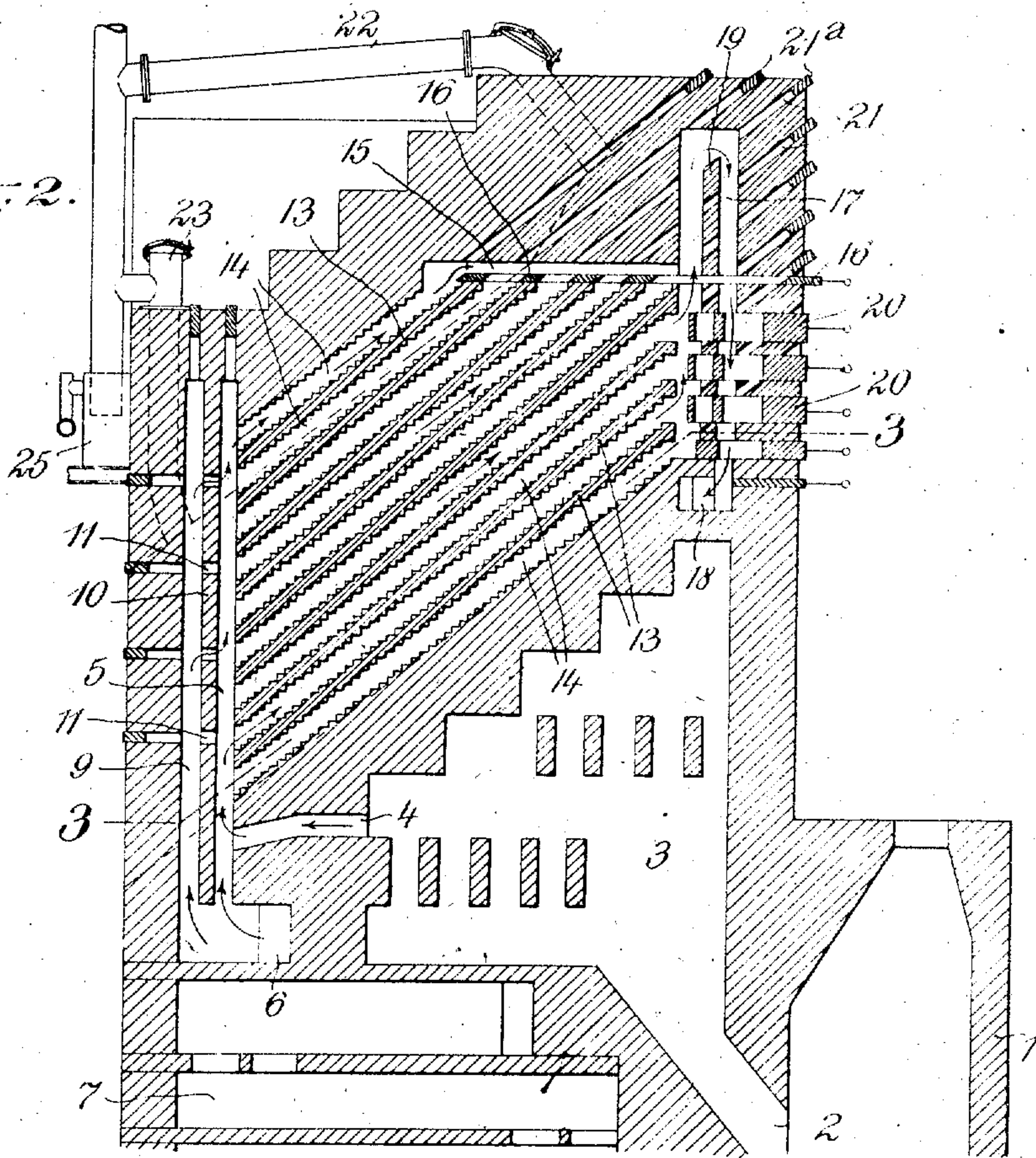


Fig. 2.



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UNITED STATES PATENT OFFICE.

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GAS-PRODUCING OVEN.

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Specification of Letters Patent.

Patented Dec. 13, 1910.

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To all whom it may concern:

Be it known that I, HERMANN ALBERT ROBERT BRÖKER, a subject of the German Emperor, and resident of Hamburg, Germany, have invented certain new and useful Improvements in Gas-Producing Ovens, of which the following is a specification.

My invention relates to chamber ovens in which gas is produced from coal or other material, and has for its object to so heat the walls of the individual gasifying chambers as to avoid an excessive heating of the gases gathering at the top or roof of the chamber, together with the deposition of graphite which would result from such excessive heating.

In the accompanying drawing I have shown the use of my invention in connection with an oven having inclined chambers, but I desire it to be understood that the invention is also applicable to chambers having a different arrangement.

Figure 1 is a vertical section through one of the gasifying chambers; Fig. 2 is a vertical section taken through the heating channels at one side of a gasifying chamber, and Fig. 3 is a cross section on line 3—3 of Fig. 2.

The oven shown in the drawings comprises a gas generator 1 from which gases pass upward through a channel 2, chamber 3 and duct 4, to the vertical channels 5 in which they become mixed with the heated air rising from the channel 6 of the regenerator 7. Combustion thus takes place in the channels 5 which are arranged at each side of each gasifying chamber 8 (see especially Fig. 3). In front of each channel 5 I provide an additional vertical channel 9, separated from the corresponding channel 5 by a partition 10 having perforations 11 at different levels. The channels 9 communicate with the air-supply channel 6 and feed additional air at different levels, to the heating gases rising in the channels 5. From the channels 5 longitudinal channels 14 conduct the heating gases along the side walls of the chambers 8. These channels 14 are disposed in groups as shown, the members of the same group being separated from each other by partitions 13.

In order that the course of the heating gases may be varied as required, I have provided means for cutting the channels 14 off either individually or in groups of two or more. In the particular construction shown a horizontal channel 15 is located at the top

of each group of channels 14, and the upper channels 14, which communicate with the said horizontal channel 15, may be cut off partly or entirely by means of a slide or damper 16 which affects all of said upper channels equally. The gases from the lower channels 14 first travel upward in a passage along a partition 19 and then downward through a channel 17 on the opposite side of the partition to the cross channel 18 connected with the stack or other outlet. The partition 19 is perforated in line with the discharge ends of the lower channels, to receive slides or dampers 20 by which these lower channels may be cut off or closed individually. Each slide 20 is perforated so that when it closes the respective channel 14 the gases from the other lower channels 14 may have an unobstructed passage to the channels 17 and 18. The partition 19 serves to equalize the draft, which otherwise would be stronger for the lower channels 14 than for the upper ones. The slides 16 and 20 are operated from the end of the oven at which the chambers 8 are charged, and are therefore readily accessible.

Sight channels 21 may be provided in line with the several channels 14, said channels 21 being normally closed by plugs 21^a made of firebrick or other suitable material. Upon removing these plugs, the channels 14 may be inspected during the operation of the oven.

It is advisable to make the chambers 8 narrower at the end toward which the heating gases flow in the channels 14, since the heat naturally decreases as the gases approach the outlet, and with the arrangement shown (Fig. 3) the cross section of the chamber 8 (and of the coal or other material therein) is greatest at the lower end of the chamber and decreases gradually toward the upper end, corresponding to the decrease in the temperature of the heating gases. A better utilization of the heat is thus obtained. Figs. 1 and 2 also show outlet pipes 22 and 23 connected with a liquid receptacle 24 and a tar collector 25, but this arrangement was not invented by me.

Various modifications may be made without departing from the nature of my invention as set forth in the claims.

I claim as my invention:

1. The combination of an oven having a gasifying chamber and superposed heating

channels laterally thereof, an upward passage connected with the delivery ends of said heating channels, a downward channel connected with the upper end of said upward passage, and a partition which separates said downward channel from the upward passage and from the delivery ends of the heating channels.

2. The combination of an oven having a gasifying chamber and superposed heating channels located at each side of said chamber, and movable means, located at different levels, for opening or obstructing said channels to vary the circulation of the heating gases.

3. The combination of an oven having a gasifying chamber and superposed heating channels located at each side of said chamber, an outlet channel, a vertical channel connected with said outlet channel, and a partition which separates said vertical channel from the discharge ends of the lower heating channels.

4. The combination of an oven having a gasifying chamber and superposed heating channels located at each side of said chamber, an outlet channel, a vertical channel connected with said outlet channel, a partition which separates said vertical channel from the discharge ends of the lower heating channels, and cut-off slides extending through said partition in line with the lower channels.

5. The combination of an oven having a gasifying chamber and superposed heating channels located at each side of said chamber, an outlet channel, a vertical channel connected with said outlet channel, a partition which separates said vertical channel from

the discharge ends of the lower heating channels, and cut-off slides extending through said partition in line with the lower channels, said slides being perforated to allow the gases to escape from the open lower channels.

6. The combination of an oven having a gasifying chamber and superposed inclined heating channels laterally of said chamber, a horizontal channel into which the upper heating channels are arranged to discharge, an upward passage into which the lower heating channels and said horizontal channel are arranged to discharge, and an outlet channel connected with the upper end of said passage.

7. The combination of an oven having a gasifying chamber and superposed longitudinal heating channels laterally of said chamber, said channels having their outlets at like ends, a transverse outlet channel, a partition which separates said outlet channel from direct communication with the discharge ends of the lower heating channels, and a connection leading around said partition from the discharge ends of the heating channels to the outlet channel.

8. The combination of an oven having a gasifying chamber and superposed heating channels at each side thereof, a cut-off device for opening or obstructing the upper channels in unison, and individual cut-off devices for the lower channels.

In testimony whereof I hereunto affix my signature in the presence of witnesses.

HERMANN ALBERT ROBERT BRÖKER.

Witnesses:

ERNEST H. L. MUMMENHOFF,
IDA CHRIST. HAUFERMANN.