

(No Model.)

A. DAUBER.
GAS GENERATOR.

No. 570,008.

Patented Oct. 27, 1896.

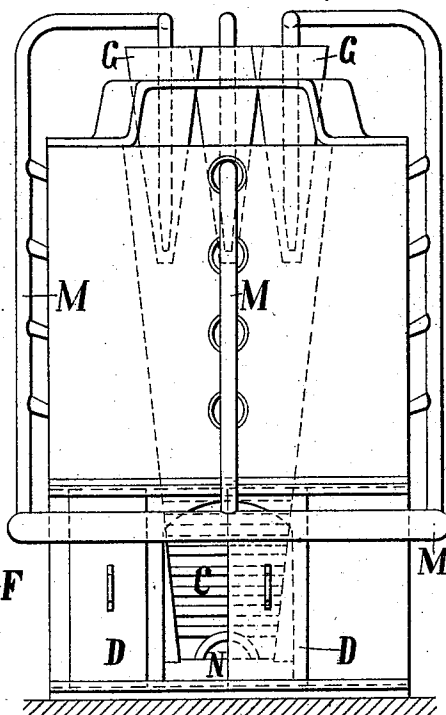
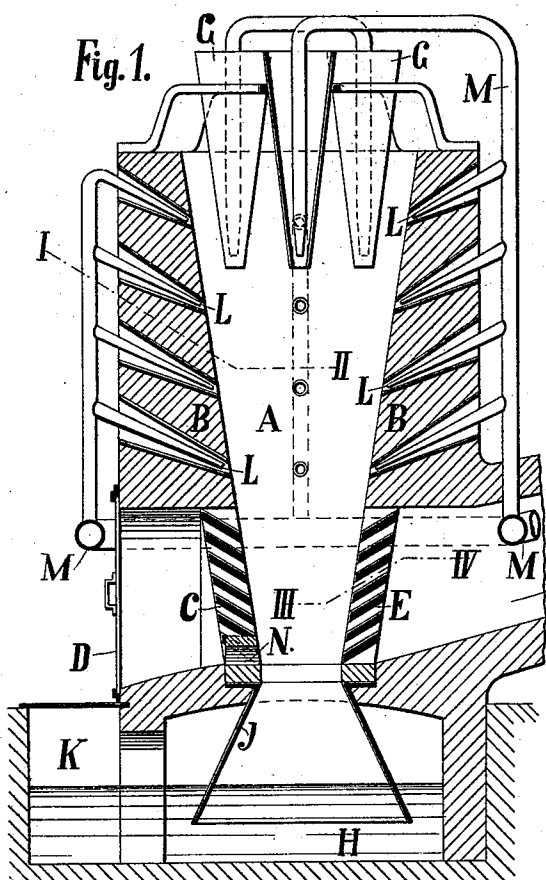


Fig. 2.

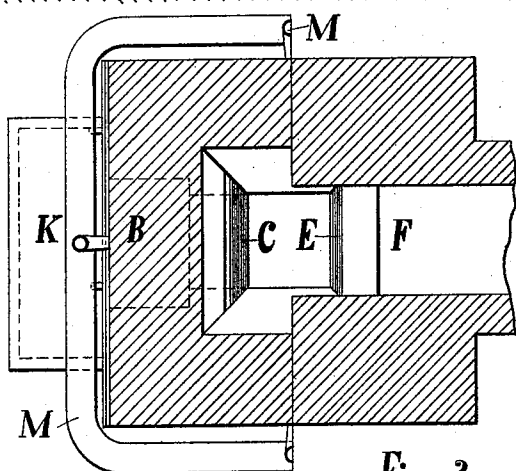


Fig. 3.

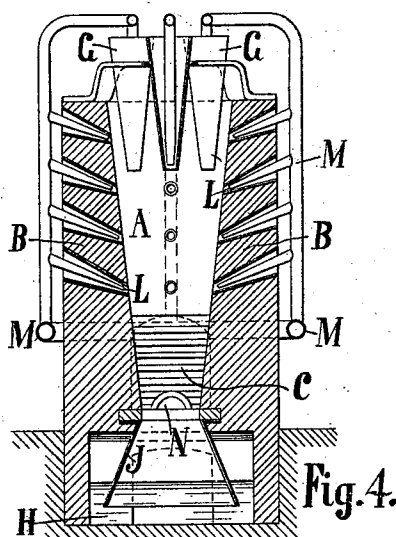


Fig. 4.

Witnesses;
H. F. Hess.
Att. Hony

Inventor:

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UNITED STATES PATENT OFFICE.

AUGUST DAUBER, OF BOCHUM, GERMANY.

GAS-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 570,008, dated October 27, 1896.

Application filed July 17, 1896. Serial No. 599,468. (No model.) Patented in Germany April 26, 1890, No. 54,995; in France June 2, 1890, No. 206,042; in Luxemburg December 6, 1890, No. 1,385; in England December 8, 1890, No. 20,002; in Switzerland December 12, 1890, No. 2,965; in Italy December 20, 1890, No. 28,844; in Norway January 21, 1891, No. 2,085; in Belgium November 29, 1891, No. 92,936, and in Austria-Hungary December 12, 1891, No. 39,737 and No. 65,347.

To all whom it may concern:

Be it known that I, AUGUST DAUBER, a subject of His Majesty the Emperor of Germany, residing at Bochum, Westphalia, Germany, have invented certain new and useful Improvements in Gas-Generators, (for which I have obtained the following patents: in Germany, No. 54,995, dated April 26, 1890; in England, No. 20,002, dated December 8, 1890; in Austria-Hungary, No. 39,737 and No. 65,347, dated December 12, 1891; in Norway, No. 2,085, dated January 21, 1891; in Belgium, No. 92,936, dated November 29, 1891; in Switzerland, No. 2,965, dated December 12, 1890; in Italy, No. 28,844, dated December 20, 1890; in France, No. 206,042, dated June 2, 1890, and in Luxemburg, No. 1,385, dated December 6, 1890,) of which the following is a specification.

My invention relates to improvements in the furnaces or apparatus for making gas for heating purposes or for illuminating purposes, and my object is to produce such a gas-generator which will be able to work any sort of combustible, solid ones and mixtures of solid and liquid ones.

To make my gas-generator suitable for all sorts of combustibles, I have invented a special mode of blowing in the air, which allows its regulation at will, and this air, before being so introduced into the furnace, is heated by the hot gases coming from the generator, and it is blown into the furnace either alone or in combination with carbureted hydrogen, or with carbon in a solid, in pulverized, or in fluid state, or with superheated steam, which has also been got up and superheated by the heat of the gas coming from the furnace. In order to obtain pure or permanent gases only, they are withdrawn from the generator at its bottom only after having been compelled to pass through the incandescent fuel, and for that purpose I use an exhauster of any suitable construction, and I arrange a special outlet-grate. For the cooling of the cinders I provide a special sump containing water below the furnace, which at the same time serves as a seal for preventing air entering from below.

My new gas-generator is shown on the accompanying drawings.

Figure 1 is a vertical section of the same. Fig. 2 is an outside view. Fig. 3 is a horizontal section partly along line I II, partly along line III IV, of Fig. 1. Fig. 4 is a vertical section at right angles to Fig. 1 on a reduced scale and seen from the right of Fig. 1.

This gas-generator is built in the form of a blast-furnace, the pit A forming an inverted truncated cone or pyramid, open at top and bottom. At the lower part two oppositely-arranged side grates C and E form parts of the furnace-walls. The one is under the control of suitable sliding doors D. The opposite one is communicating with a gas-channel F, an exhauster (not shown on the drawings) evacuating this flue F continuously, drawing off the gas produced. The fresh air is principally led into the furnace from the open top and by adjustable twyers G. The regulation of the production is done by adjusting these twyers by means of valves and by opening or closing more or less the sliding door D for regulating the admission of the open air to the grate C.

Below the pit-sole is arranged a sump H, into which the slag, ashes, and cinders drop and are cooled there at once. The sump is covered by a brick arch, and it is filled with water up to such a height that it reaches above the bottom edge of a cone or pyramid J, forming the ash-pit's side walls, the water forming a seal, and thus shutting up all communication with the air outside from below. By means of a covered opening K the ashes and cinders can be taken out of the sump.

Now in order to prevent that the combustible sticks to the side walls of the pit. For instance, when bituminous or coking coal is used, I employ specially-constructed combined twyers L all around the furnace and at various heights, and by means of these I blow superheated steam and heated air into the furnace or coal-dust or fluid carburets, singly or in combinations of one with the others. The steam-pipes M and the air-pipes for feeding these twyers are both carried through the gas-channel F, so that part of the heat contained therein may be made use of for heating the air and the steam, the latter coming from an ordinary boiler, which may be heated

by the hot gas in the flue or gas-channel F, which is led round said boiler or led through its flues in known manner to produce steam in it. At the foot of the front grate C, I provide a stoke-hole N, so as to be able to clear the grates from slag and scoria sticking to it there.

Now I am well aware that gas-generators for producing heating and other gas have been known, and I do not claim such gas-generating plant broadly; but

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

In a gas-generator having its pit or shaft built in the uniform shape of an inverted cone or pyramid from top to bottom and quite open at both ends, providing the lower part at two opposite sides near the bottom with grates C and E; the one C serving as an air-inlet into the furnace and having its communication with the open air intercepted by adjustable sliding doors D in front of it for regulating the air admission; the other E serving as an outlet for the gas produced in the fur-

nace at such place nearest its foot, where the gas produced above has passed through highly-incandescent fuel, a flue or gas-channel F being arranged immediately behind said grate E for evacuating the produced gas; a cone or pyramid J below the grates and forming an ash-pit reaching into a sump H containing water to form a hydraulic seal at the bottom of said cone J, preventing air from entering the furnace at this place and without hindering the withdrawal of cinders and slags; and in combination herewith providing twyers G entering at the top and twyers L entering at the sides for blowing superheated steam, air and other materials in variable proportions into the furnace, thereby preventing fuel sticking to the side walls and obtaining complete gasification of all the carbon contained in the fuel; the whole as specified and for the purpose set forth.

AUGUST DAUBER.

Witnesses:

H. F. HESS,
OTTO KÖNIG.