B. S. ALEXANDER.

Method of Extracting Gases of Sewers and Consuming Same by Combustion.

No. 210,443. Patented Dec. 3, 1878.

Fig. 1.

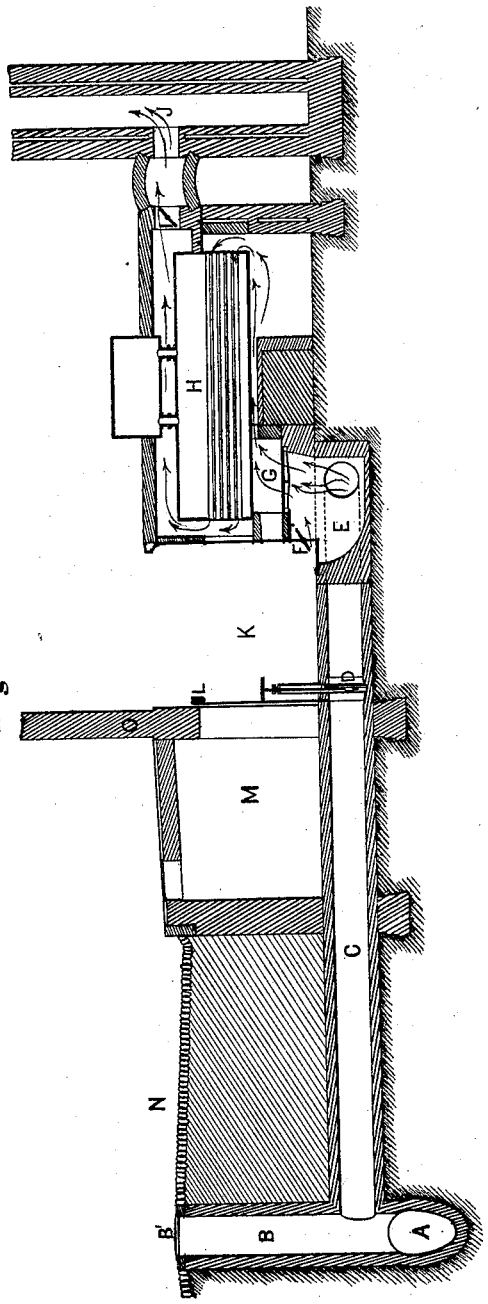
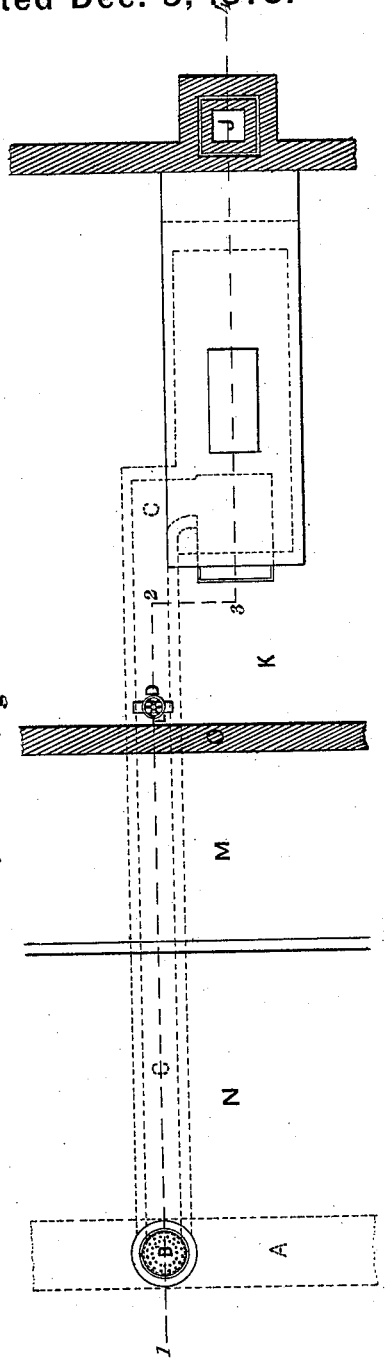


Fig. 2.



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BARTON S. ALEXANDER, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN METHODS OF EXTRACTING GASES OF SEWERS AND CONSUMING SAME BY COMBUSTION.

Specification forming part of Letters Patent No. **210,443**, dated December 3, 1878; application filed October 9, 1878.

To all whom it may concern:

Be it known that I, BARTON S. ALEXANDER, of the city and county of San Francisco, and State of California, have invented an Improved Method of Extracting the Gases of Sewers and Consuming the Same by Combustion; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

The invention relates to the method by which sewer-gases are to be drawn out from the sewers and consumed in the fire of furnaces, and to the apparatus and combination of parts by which this is to be accomplished.

One of the plans that have been proposed for destroying poisonous sewer-gases is to consume them at the burners of street-lamps. There are several objections to this plan, principally on account of the expense of making connection with the lamps, the necessary modification of the burners, and the difficulty of supplying the proper proportions of air and gas, or of making connection at the time when the lamps are lighted, and the fact that they could only be serviceable a small part of the time, being burned only at night.

With my invention, however, I propose to provide a practical and efficient method of ventilation for the sewers and the destruction of the noxious vapors, as will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a section, showing the engine-house and boiler, section of roadway, and sewer with its tunnel. Fig. 2 is a plan view.

A is the sewer; B, the man-hole to the surface of the street N, and B′ the perforated cover. C is a tunnel leading into the draft-chamber E of the boiler-furnace, or in other ways connecting with the grate G. D is a gate in the tunnel C, and F is the ordinary air-damper, and these two may be so connected as to operate automatically, so that when one opens the other will close. H is the boiler, J the chimney, and K the fire-room; and L is a siphon-gage, to show the pressure within the sewer or tunnel.

Within the most suitable locations for the extraction and complete destruction of poisonous sewer-gases we can select manufactories, printing-offices, &c., consuming in the aggregate at least fifty tons of coal per day in their boiler-furnaces. The expense of making permanent connections from the sewers to the furnaces of these boilers, with all necessary regulating-dampers, &c., so as to render the connection entirely unobjectionable to the owners of the boilers, would not exceed one thousand dollars ($1,000) for each. The sewers would then be ventilated without further expense.

The operation is as follows: The damper F being closed and the valve D opened, direct communication is made from the sewer to the chimney of the furnace. Should the sewers in some localities or at certain times not furnish sufficient air to support the required combustion, as would be shown by the slightest difference in the water-level of the siphon-gage L, the damper F can be opened partially, or until the requisite quantity of air to support combustion is obtained. In this case part of the air for the furnace will be obtained from each source—the sewer and the external atmosphere.

If the sewer should ever be full of water, of course all the air for the furnace would at that moment be drawn through the damper F. The arrangement between the sewer and damper F should be automatic—that is to say, whenever the sewer-connection fails to supply the proper quantity of oxygen to support combustion, the damper F will be opened automatically.

When the gas is extracted from the sewer A, atmospheric air will be supplied through the perforated man-hole covers B′, which are distributed at intervals along the streets to ventilate the sewers, to fill up any partial vacuum in the sewer.

By the method of ventilating proposed, instead of the offensive air from the sewers escaping through the perforated covers B′ into the streets, there will be a constant current of fresh air entering the sewers through these man-hole covers, and taking up its course toward the nearest furnace, to be in turn consumed.

I am aware that sewers have been cleared of their gases by means of the introduction of the ordinary gas-pipes within the sewer, and

burning the gas by commingling it with the illuminating-gas; but such is not my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The tunnel or passage C, leading from the sewer A to the draft-chamber E or fire-grate of a furnace, and provided with the valve D, in combination with the damper F, substantially as and for the purpose herein described.

2. The draft-chamber E or grate of a boiler-furnace, with its draft-passage and valve F, in combination with the tunnel or passage C, leading from said draft-chamber to the sewer A, and provided with the gate D, together with the siphon water-gage L, substantially as and for the purpose herein described.

3. The sewer A, with its tunnel or passage C, connecting with the furnace or draft-chamber E of a boiler, said sewer having the perforated man-hole cover B′, or equivalent means, for admitting fresh air and providing a circulation through the sewer, substantially as herein described.

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