

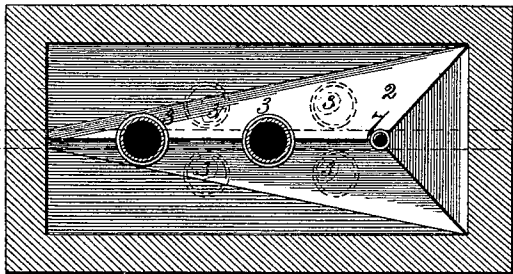
(No Model.)

J. ECKHARDT.

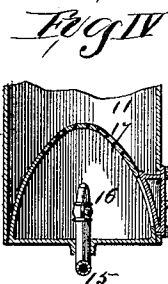
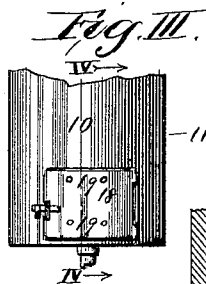
APPARATUS FOR CONSUMPTION OF SEWER GAS.

No. 481,108.

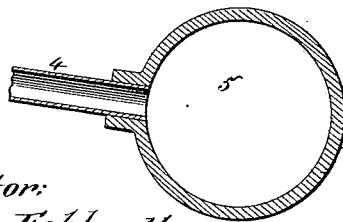
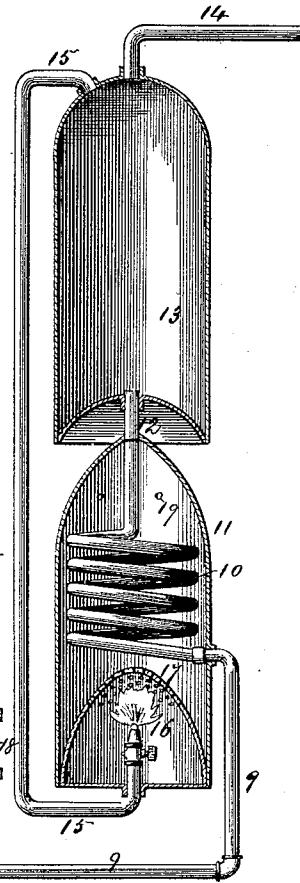
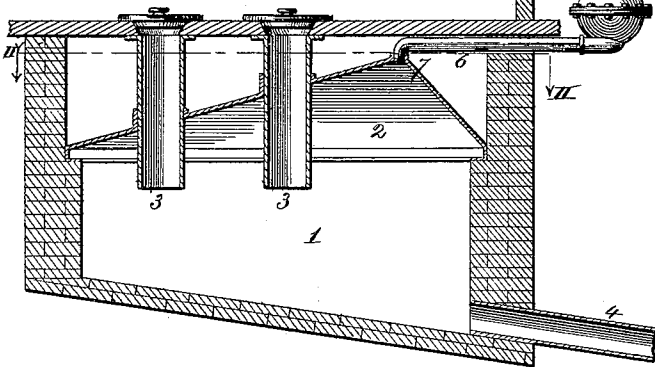
Patented Aug. 16, 1892.



*Fig. II.*



*Fig. I.*



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# UNITED STATES PATENT OFFICE.

JACOB ECKHARDT, OF ST. LOUIS, MISSOURI.

## APPARATUS FOR CONSUMPTION OF SEWER-GAS.

SPECIFICATION forming part of Letters Patent No. 481,108, dated August 16, 1892.

Application filed March 9, 1892. Serial No. 424,315. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB ECKHARDT, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Apparatus for Consumption of Sewer-Gas, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This apparatus is intended specially to lead off the gas from privy-vaults and to make it available for illuminating purposes. The novel features will be set forth in the claims.

Figure I is a vertical section of the apparatus. Fig. II is a horizontal section taken at II II, Fig. I. Fig. III is a detail front view of the lower portion of the heating-chamber. Fig. IV is a vertical section taken at IV IV, Fig. III.

1 is the privy-vault.

2 is a hood or cover fitting tightly at its margin to the walls of the vault.

3 are the receiving-tubes of the vault, said tubes passing through the hood or cover 2 with a tight joint and descending some distance below the hood, so the volatile gas shall not escape from the hood into the tubes. In Figs. I and II these tubes are shown passing through the comb of the hood. They may, however, pass through other parts, as indicated by dotted lines in Fig. II.

4 is a discharge-tube leading to a sewer 5.

6 is a pipe leading from the apex 7 of the hood or cover 2 to the bottom of a receiver 8, from whose top a pipe 9 leads to a coil 10 in a heating-chamber 11. Any vapor mixed with the gas may condense in the receiver 8 and flow back through the pipe 6 into the vault and find exit into the sewer. The coil 10 discharges through a pipe 12, extending from its apex into the bottom of the storing-tank 13.

14 is a pipe extending from the top of the tank to the burners of lamps upon the alley or street or located in some other place.

15 is a pipe leading from the top of the tank to the bottom of the heating-chamber 11. The pipe 15 enters the chamber 11 and has at its upturned end a burner 16, whose flame heats the chamber. Over the burner is a hood 17, of metal gauze or perforate metal, adapted to diffuse the heat from the burner. The orifices of the hood 17 may be so small

as to prevent the passage of flame, if preferred.

18 is a door giving access to the burner 16. Orifices 19 may be made in the door 18 or other part of the heating-chamber for air to supply the burner and for escape of the products of combustion.

The operation of the apparatus is as follows: Volatile gas forming in the vault will escape through the pipe 6 to the receiving-chamber, from whence the condensed vapors flow back in liquid form to the vault. The gas becomes heated in flowing through the coil and is discharged into the tank 13. From the tank 13 the gas escapes through the pipe 14 to street or other lamps and through the pipe 15 to the burner 16, by which the gas is heated and the current induced from the vault to the tank 13. The main purpose of the coil-heating burner 16 is to produce an upward current in the coils; but it also superheats the gas, so that it will not deposit moisture after leaving the coil. The heating of the gas also acts to destroy its disagreeable and unhealthy qualities, the chamber 11 serving to confine the heat around the coil.

It would be superfluous at this day to call attention to the deadly nature of sewer-gas to prove the value of any device by which it may be rendered innocuous even if not turned to use, as in the present invention.

It is intended to apply this improvement to a number of contiguous vaults, all of which may be in connection, by the pipe 14 or otherwise, with a service-pipe that is in connection with a number of lamps, so that a whole alley or street may be illuminated by this means.

I claim as my invention—

1. The combination, with the vault having receiving-ducts and gas-discharging duct, of a cover closing the top of the vault, excepting the space occupied by the ducts, a coil in the gas-discharging duct, a burner beneath the coil and fed by escaping gases, and a discharge-duct communicating with said coil, all substantially as set forth.

2. The combination of the vault having a cover, a tank, a pipe communicating between the vault and the tank, a coil in the pipe between said vault and tank, a burner located near the coil, and a pipe communicating be-

tween the burner and tank, all substantially as set forth.

3. The combination, with the vault, of the tank, the heating-chamber, the gas-discharging pipe communicating between the vault and the tank and having formed in it a coil located in the heating-chamber, a burner located in the heating-chamber beneath the coil, and a pipe feeding the burner from the tank, all substantially as set forth.

4. The combination of the vault having a cover, the tank, the heating-chamber, the pipe leading from the vault through the heating-chamber and to the tank, the burner in the heating-chamber fed from the tank, and the condensing-chamber in the pipe between the vault and the heating-chamber, all substantially as set forth.

5. The combination, with the vault having the cover, of a tank, a gas-outlet pipe communicating between the cover and the tank, the heating-chamber surrounding a portion

of said gas-outlet pipe and having a hood therein, and a burner located beneath said hood and fed from the tank, all substantially as set forth.

6. In an apparatus for the consumption of sewer-gas, the combination of the vault having the arched cover in the upper part thereof, the gas-tank connected by a pipe with the upper portion of said cover, the condenser and heating-coil interposed in the pipe between the vault and the tank, a heating-chamber surrounding the coil and having a hood beneath said coil, a burner located beneath the hood, a pipe leading from the tank to the burner, and an outlet-pipe for permitting the discharge of the gas from the tank to any desired point, all substantially as and for the purposes herein specified.

JACOB ECKHARDT.

Witnesses:

SAML. KNIGHT,  
J. M. MAROT.