

C. J. EAMES.

Hydro-carbon Vapor Furnaces.

No. 147,620.

Patented Feb. 17, 1874.

Fig. 1.

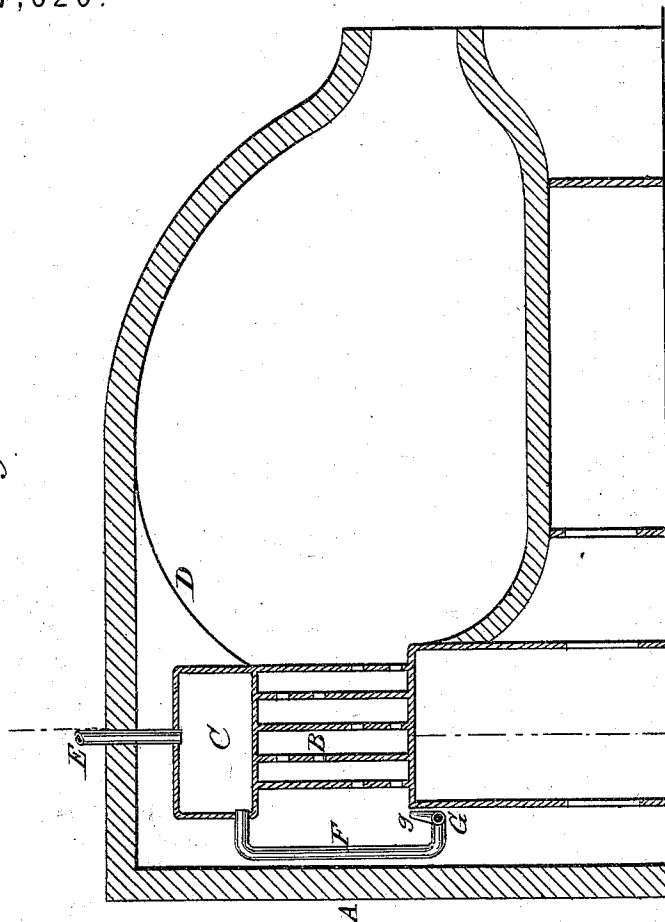
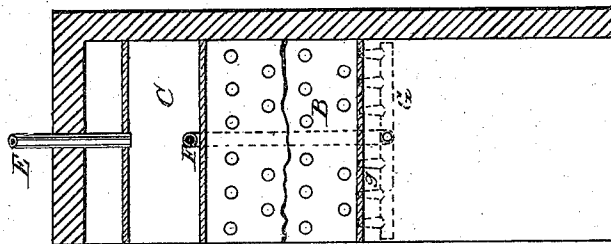


Fig. 2.



Witnesses:

T. C. Brecht.

V. C. Clayton.

Inventor:

Charles Eames

UNITED STATES PATENT OFFICE.

CHARLES J. EAMES, OF NEW YORK, N. Y.

IMPROVEMENT IN HYDROCARBON-VAPOR FURNACES.

Specification forming part of Letters Patent No. **147,620**, dated February 17, 1874; application filed February 13, 1874.

To all whom it may concern:

Be it known that I, CHARLES J. EAMES, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Hydrocarbon-Vapor Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction of an improvement in hydrocarbon-vapor furnaces by the construction of a supplementary chamber within the furnace, and against a combustion-chamber, by means of which hydrocarbon vapor that has been condensed in conducting-pipes may be vaporized and consumed at the said combustion-chamber, where it has been conveyed by an education-pipe leading from the supplementary chamber, as will more fully appear below. The object of the invention is to revaporize hydrocarbon vapors that have been condensed while being conveyed a great distance in pipes, these vapors being at all times extremely susceptible to condensation, and especially when the pipes conveying these vapors are exposed to a low temperature.

In the ordinary manner of constructing generators of hydrocarbon vapor for the special purpose of iron-works, there are no means for revaporizing these vapors that are condensed as they pass from their generator or retort for long distances to the several furnaces in such works, so that, when these vapors have been conveyed a considerable distance, they reach the point of combustion in the form of liquid, and not gaseous, hydrocarbon.

My invention is well adapted to reconvert such hydrocarbon from its liquid into a gaseous form, and pass it on for combustion.

To enable others skilled in the art to make and use my invention, I will now proceed to give a more specific description of its construction and operation.

In the drawing, Figure 1 is a vertical longitudinal section of my invention when applied to a reverberatory furnace; and Fig. 2 is a

transverse vertical section through the line *xy* of Fig. 1.

A represents the walls of the furnace, provided with a combustion-chamber, B, which is built of brick and formed with several division-walls, that are provided with suitable openings, so as to form within chamber B several small chambers communicating with each other. The openings in the division-walls are placed so as to cause the vapor and air to thoroughly commingle by pursuing a zigzag course from the front of the chamber B, when the air and vapor are admitted to the rear of said chamber, into the furnace A. I find that three or four small chambers are sufficient to secure a perfect mixture and combustion of the air and hydrocarbon vapor in the combustion-chamber B. C is the supplementary chamber, preferably constructed of cast-iron and set in the brick-work of the furnace above the combustion-chamber B, with its rear side protected by brick-work from the intense heat at D in the crown of the furnace A.

I do not limit myself to this arrangement of chamber C above chamber B, as it may be placed in other positions and answer the purpose of my invention. It is desirable to have the chamber C cut off from exposure to very low temperature, and hence is preferably set in brick-work. Chamber C has communication by means of connecting-pipe E with the pipe conveying the hydrocarbon vapor from a distance, and which has become more or less condensed, so as to be unfit for use as a vapor. By means of a pipe, F, the condensed vapor, when revaporized in chamber C, is conveyed down to the pipe G, attached to which are the burners *g* at the lower and front end of chamber C.

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

The combination of a reheating or supplementary chamber with a vapor-combustion chamber, as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of February, 1874.

Witnesses: CHARLES J. EAMES.

V. C. CLAYTON,
A. MOORE.