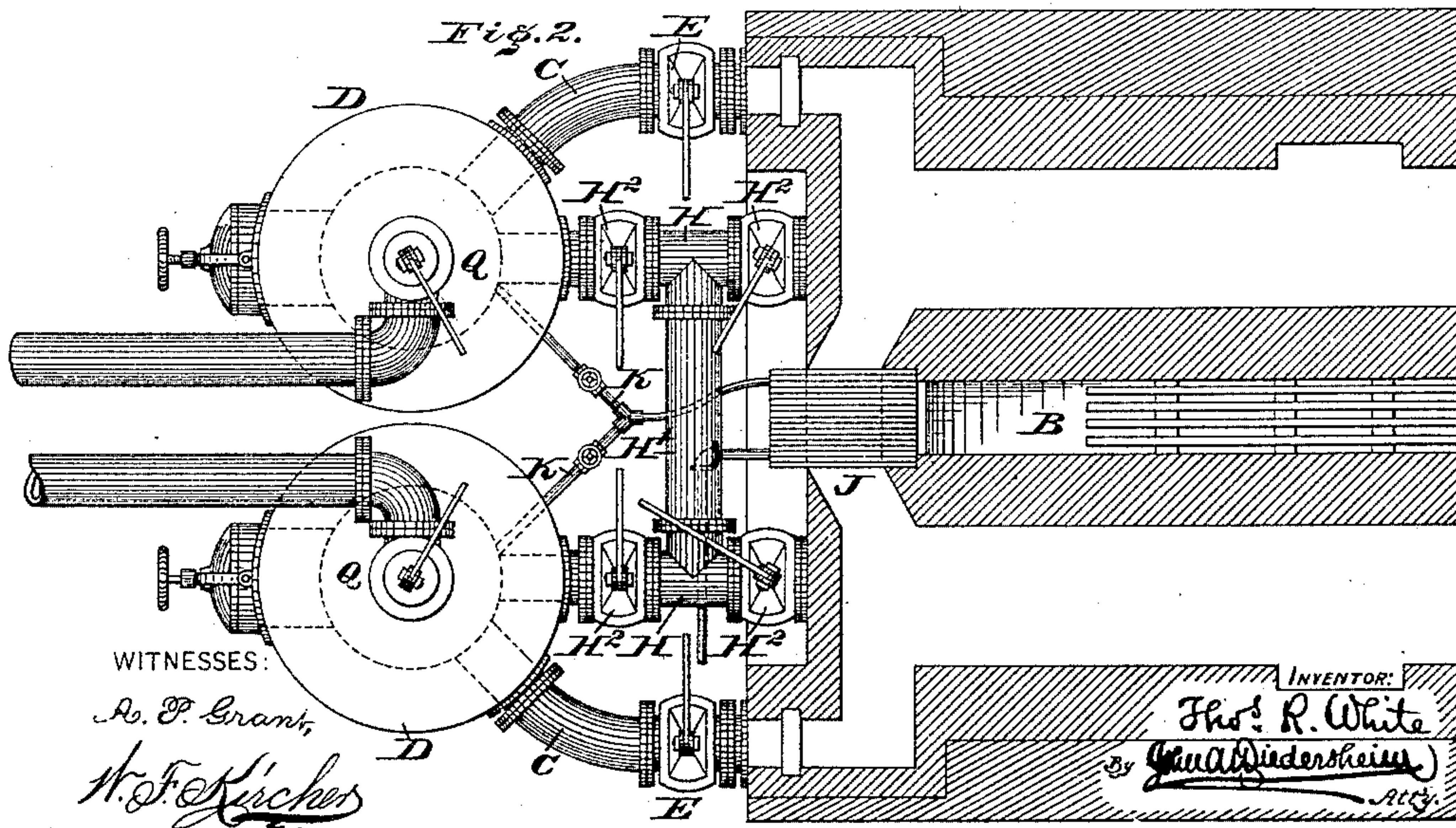
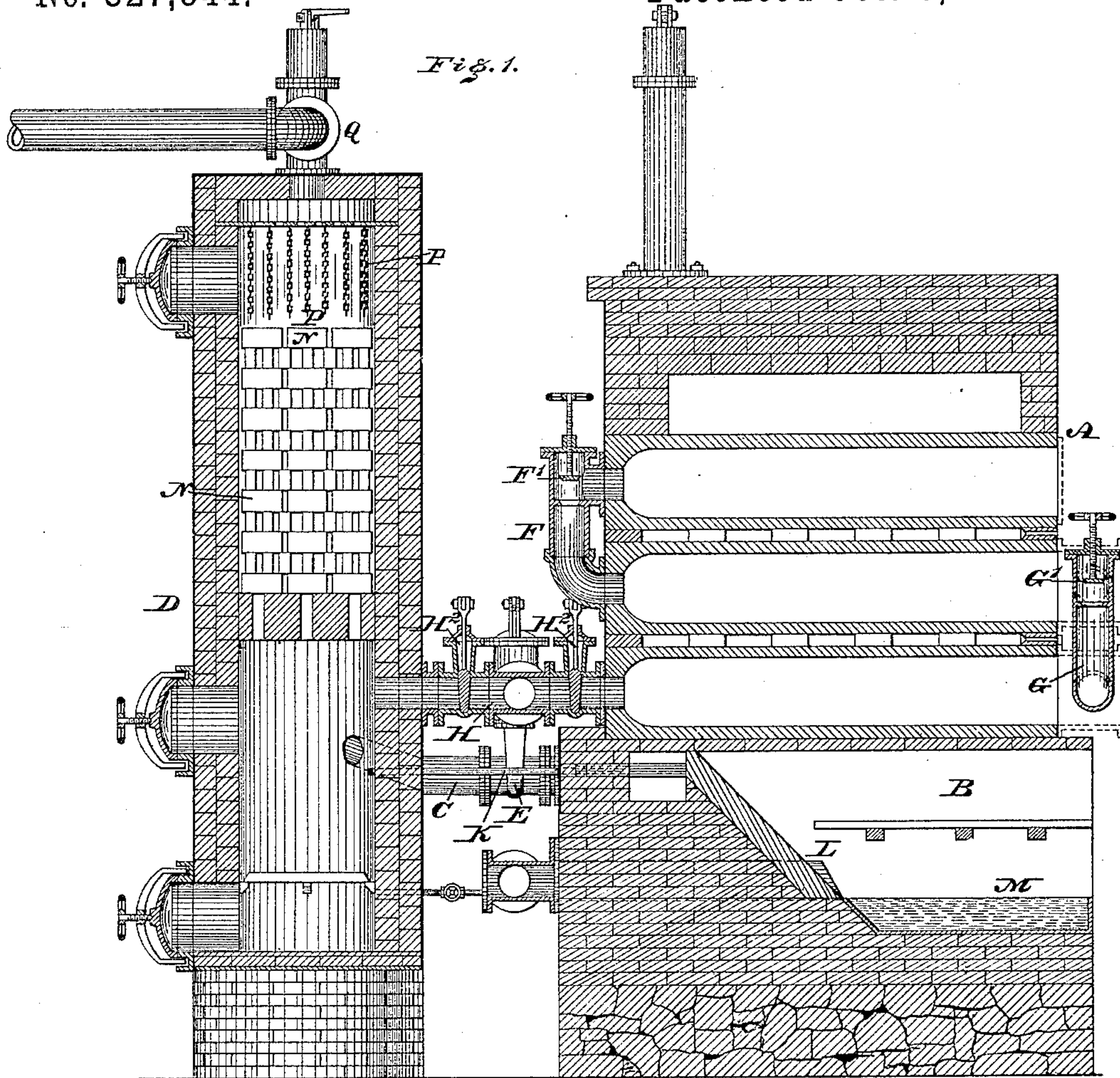


(No Model.)

T. R. WHITE.
GAS GENERATING APPARATUS.

No. 327,844.

Patented Oct. 6, 1885.



WITNESSES:

As. P. Grant,
W. F. Kitcher

INVENTOR:

Thos. R. White
By (Gustav Diersheimer)
Att'y.

UNITED STATES PATENT OFFICE.

THOMAS R. WHITE, OF PHILADELPHIA, PENNSYLVANIA.

GAS-GENERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 327,844, dated October 6, 1885.

Application filed July 7, 1885. Serial No. 170,890. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. WHITE, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Gas-Generating Apparatus, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 represents a vertical section of a gas apparatus embodying my invention. Fig. 2 represents a partial top view and partial horizontal section thereof.

Similar letters of reference indicate corresponding parts in the two figures.

My invention consists of a gas apparatus having retorts which may be separated from one another, means for directing gas, hydrocarbon vapor, and air into a mixer, working opposite parts of the apparatus, and collecting the tar and other impurities in the mixer, as will be hereinafter set forth.

Referring to the drawings, A represents benches of retorts of a gas apparatus, the retorts of each bench being superimposed one on the other, and suitably supported on the masonry of the furnace B, which latter heats the two sets of retorts, and has its opposite sides provided with pipes C for directing the products of combustion to the mixers D, which, in the present case, as will be seen, are two in number, each pipe C having a valve, E, so that the products of combustion may be admitted or cut off from either or both mixers, as desired.

F G represent pipes which connect different retorts of each bench at opposite ends, and are provided with valves F' G', respectively, so that one or more retorts of a bench may be used as desired.

The outlet of gas from the retorts to the mixers is through pipes H, which are in communication with each other by a pipe, H', and each is provided with two sets of valves, H², whereby one or both pipes H may be brought into service; or the bench of retorts of one side may be placed in communication with the mixer of the opposite side.

Within the furnace B is supported a generator, J, for hydrocarbon vapor, the same receiving hydrocarbon fluid and steam, the resultant vapor in a highly-heated condition

being directed into the mixers by a pipe or pipes, K.

L represents a pipe for supplying air to the mixers, the same passing through the supports or masonry of the furnace and leading into the mixers, said pipe having its front end adjacent to a water-pan, M, in the furnace below the grate thereof, whereby the vapor rising from the water in said pan unites with the hot air in the pipe L, and moistened air is directed into the mixers.

The mixers D are of the form of furnaces, and provided with a stack of bricks, N, near their upper end, the bricks being suitably separated and alternating in such manner as to form flues between them to permit the gas to rise between them to the top of the mixers.

Depending from the top of the mixers are iron chains P, which are above the bricks N and below the outlet Q of the mixers, the bricks and chains being highly heated by the furnaces within the mixers.

It will be seen that the gas from the retorts, the products of combustion from the furnace when so required, the hydrocarbon vapor, and the air enter the mixers, and, all in a hot condition, are thus thoroughly combined therein, the gas as formed then rising through the hot bricks N, where the tar is caught and held, and then passing around the chains, whereby certain impurities in the gas having an affinity for the metal of said chains lodge thereon, and afterward drop as scale therefrom, the chains being gradually expended and requiring renewing.

The gas as generated is directed to the washers through pipes connected with outlets Q, and may be otherwise treated, and will be found to be of a pure and highly illuminating quality.

I am aware that it is not new to employ two or more benches of retorts in combination with mixers, the said retorts being interchangeably connected with said mixers; neither is it new to employ in apparatus for generating gas a generator for hydrocarbon vapor; nor is it new to employ a packing of iron-fillings in a mixer, nor a water-pan in connection with the furnace thereof.

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

1. Two or more benches of retorts and mixers, said retorts having pipes with valves at opposite ends, and connected with said mixers by pipes having valves, in combination
5 with a furnace, substantially as and for the purpose set forth.

2. Two or more benches of retorts and mixers, said retorts having pipes with valves at opposite ends and connected to said mixers
10 by pipes having valves, in combination with a furnace, a generator for hydrocarbon vapor located on the walls of said furnace, and connected to the said mixers by pipes having valves therein, substantially as described.

15 3. A mixer in combination with a furnace provided with a water-pan, M, a pipe, L, having an opening above the said water-pan, and

extending through the walls of the said furnace into the said mixer, substantially as described.

4. A mixer connected by pipes to either one or both of two benches of retorts, and having brick flues therein, substantially as described, and iron chains pending above said bricks, substantially as described.

5. Mixers having bricks therein so arranged as to form flues, and metallic chains P, which depend from the mixer above said bricks, substantially as described.

THOS. R. WHITE.

Witnesses:

JOHN A. WIEDERSHEIM,
A. P. GRANT.