

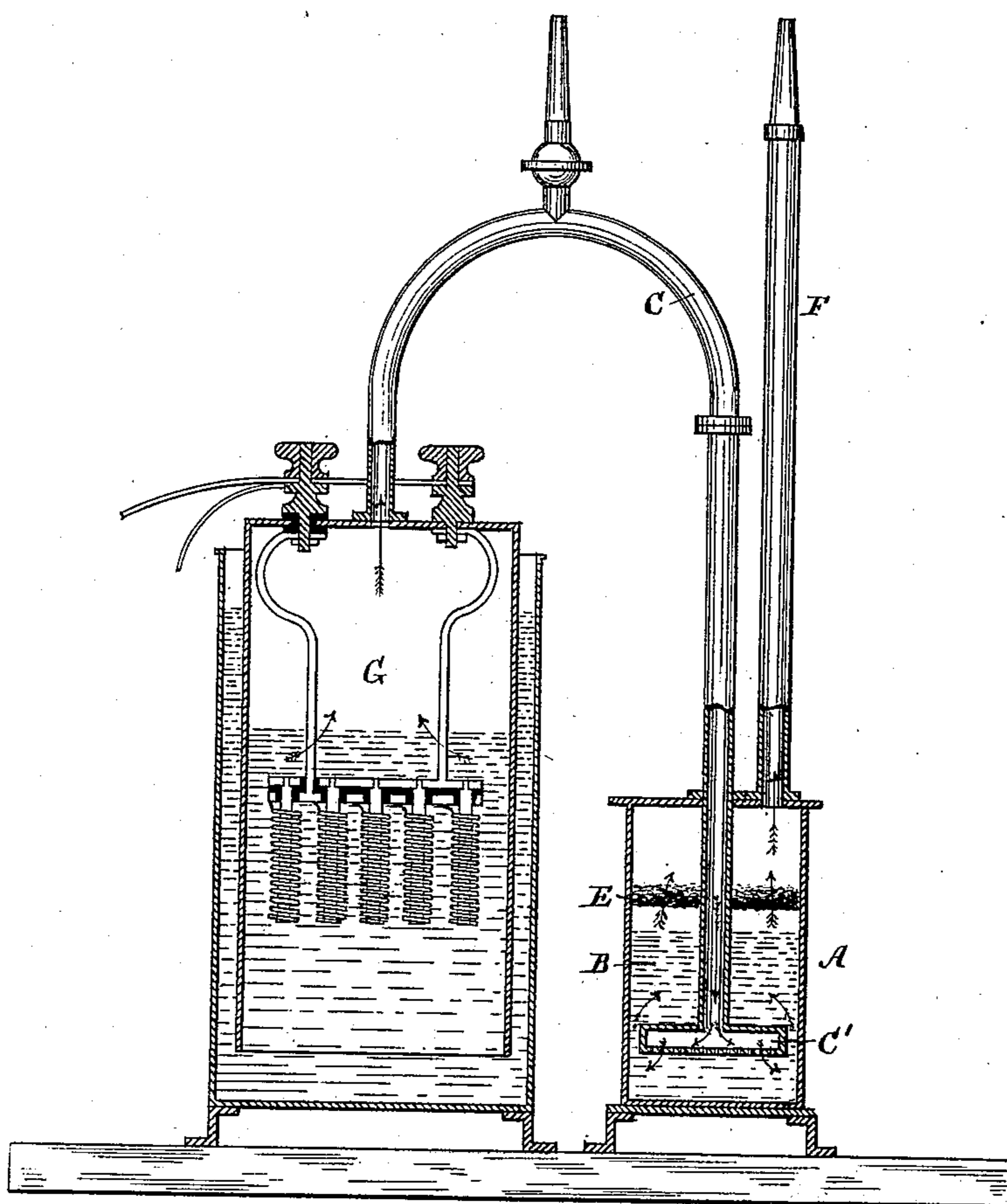
(No Model.)

H. M. PAINE.

PROCESS OF MANUFACTURING ILLUMINATING GAS.

No. 308,276.

Patented Nov. 18, 1884.



WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY M. PAINE, OF NEWARK, NEW JERSEY, ASSIGNOR TO BENNET OSBORN AND HENRY W. MOREHOUSE, BOTH OF SAME PLACE.

PROCESS OF MANUFACTURING ILLUMINATING-GAS.

SPECIFICATION forming part of Letters Patent No. 308,276, dated November 18, 1884.

Application filed January 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. PAINE, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in the Process of Manufacturing Illuminating-Gas; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to letters or figures of reference marked thereon, which form a part of this specification.

The present invention relates to processes for manufacturing illuminating-gas, as hereinafter explained and set forth. Heretofore it has always been found necessary to keep the constituent gases of water thus obtained separated from each other from the source of production to the point of ignition, for the two gases, hydrogen and oxygen, being present in the proper proportions for a complete reunion, form a highly-explosive mixture. Consequently the two gases have either been preserved in separate holders and only brought together at the point of ignition or else the hydrogen product alone has been saved and the oxygen to support combustion has been drawn from the open air, and the hydrogen gas thus obtained has been carburated by itself by passing it through a liquid hydrocarbon, which imparts luminosity to the flame.

I have discovered that the mixed gases obtained by the decomposition of water by electrolysis can be used with absolute safety if they are passed through a volatile hydrocarbon; and my invention consists of the new gas thus obtained and the process herein described of treating the mixed gases, whereby they are rendered safe for use and storage under the same conditions as prevail in the use of ordinary coal-gas, and are also transformed into a highly-luminiferous gas.

In the accompanying drawing, which shows in sectional elevation an apparatus adapted to carry out my invention, G is a producer for generating the mixed gases, preferably by the decomposition of water by an electric

current. A is a tank partly filled with turpentine, camphene, or other hydrocarbon fluid, as indicated by B. The two vessels are connected by the pipe C, the end of which terminates below the surface of the turpentine, and has a broad mouth-piece, C', with numerous small perforations, so that the gas rises through the turpentine in fine streams or bubbles in order that it may be brought intimately in contact with the hydrocarbon. Above the surface of the turpentine there may be a diaphragm, E, of wire-netting or perforated sheet metal, and above this a layer of wool or other fiber packed sufficiently tight to catch all particles of the hydrocarbon fluid that may be mechanically held in suspension, but loose enough to allow a free passage to the gases.

The pipe F conducts the mixed gases off directly to the burners or to a holder.

I am aware that hydrocarbons have been used in the manufacture of water-gas from steam, and, as before stated, hydrogen-gas alone has been carburated; but I am not aware of any attempt having been made to treat the explosive mixed gases in this manner.

Experiments have demonstrated that the amount of turpentine or other volatile hydrocarbon taken up by the gases in this process is very small and that the consumption of the same does not appear to bear any fixed ratio to the volume of the mixed gases passed through it. I do not, however, attempt to explain the action of the hydrocarbon on the gases.

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

The process herein described of manufacturing gas, which consists in decomposing water by electrolysis and conjointly passing the mixed constituent gases of water thus obtained through a volatile hydrocarbon, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY M. PAINE.

Witnesses:

BENNET OSBORN, Jr.,
W. E. REDDING.