

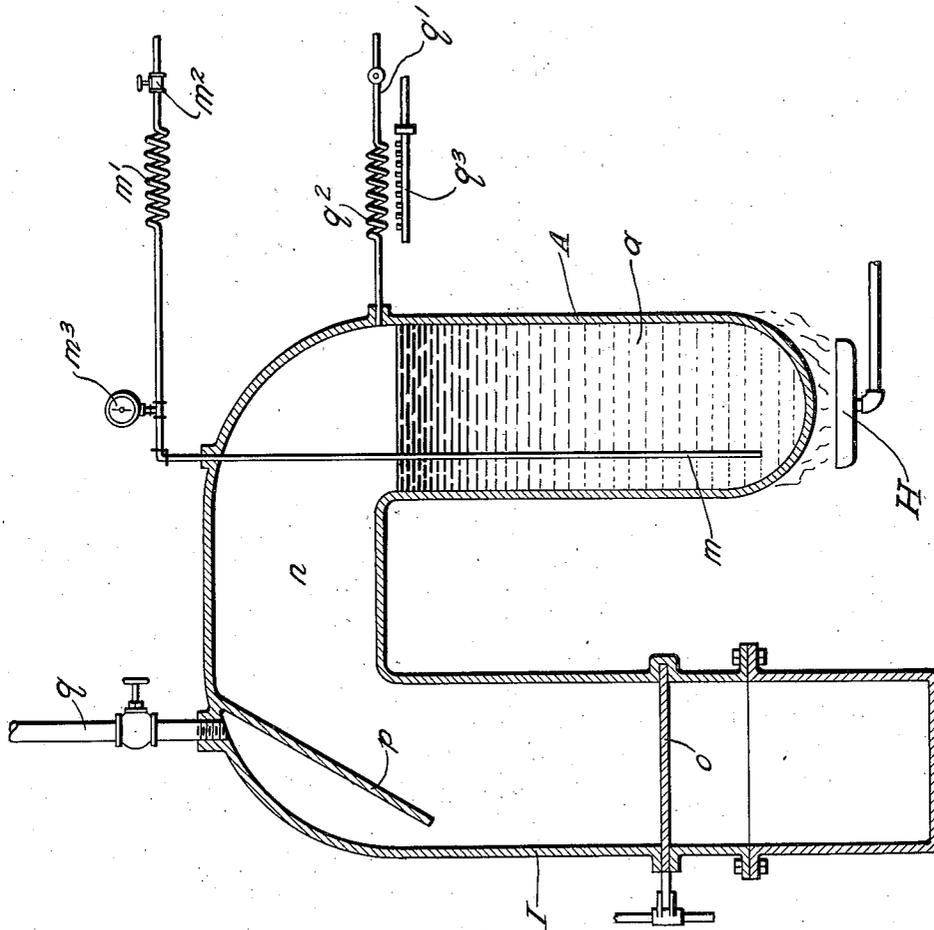
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1,756,877

PROCESS OF PRODUCING LAMPBLACK

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UNITED STATES PATENT OFFICE

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PROCESS OF PRODUCING LAMPBLACK

Original application filed May 3, 1915, Serial No. 25,403. Divided and this application filed October 4, 1921. Serial No. 505,333.

This invention is a process of cracking hydrocarbon gases, and the object of the invention, speaking generally, is to separate the hydrogen and carbon, in whole or in part, contained in said gases.

The present invention overcomes the disadvantages inherent in prior art methods of cracking hydrocarbon gases, and embodies, as one of its salient features, a still, or other receptacle, wherein the gaseous material is treated, in which still is contained a molten mass of metal, preferably lead, through which the gases operated upon are passed, or brought into contact with, depending on the particular procedure adopted.

Speaking generally, the advantages of employing a molten bath of metal, for the purposes specified, are as follows: first, the bottom of the still is kept entirely free from any deposit of carbon or other residues, this result being effected, mainly, because of the fact that the movement of agitation of the molten metal keeps the bottom of the still or retort clean. The separated material, being of less specific gravity than the bath, flows to the surface of the latter, and, in its passage through the metal becomes disintegrated; second, in the cracking operation, there is an intimate and extended contact of the gases treated with the molten metal, thereby allowing ample time for the completion of the chemical reactions desired; third, the temperature can be uniformly controlled; fourth, a uniform and predetermined pressure can be readily secured at the bottom of the still, by regulating the height or column of the bath, and, fifth, regardless of the pressure at the bottom of the still, the pressure at the top, above the molten metal, may be varied as desired, i. e., at, above, or below, atmospheric pressure. Advantages of the process, other than those enumerated, will appear from the hereinafter description.

It is understood that the term "hydrocarbon gas" has reference to such hydrocarbon gases, as natural gas or its equivalents, which are substantially free of tarry matter, as are suitable for the formation of lampblack devoid of any substantial quantities of tarry matter.

Features of the process, and their advantages, other than those referred to, will be apparent from the hereinafter detailed description taken in conjunction with the accompanying drawings.

In the accompanying drawing, one form of apparatus is shown, in section, which may be successfully employed in practicing the present invention, but said apparatus is merely typical, and the process, as will be obvious to those skilled in the art, may be carried out in other forms of apparatus.

Referring to the drawing, A is a still or retort containing the molten lead or other metal *a*, heated by gas-burner H or other suitable heating means. It has a gaseous inlet *m*, dipping below the surface of bath *a*, in which may be located a pre-heater *m'*, hand valve *m²*, and pressure gage *m³*. An outlet *n*, from chamber A, leads to a receptacle or chamber I, wherein the separated carbon is deposited. Chamber I is provided with a valve *o*, normally open, but which may be closed to permit the removal of the carbon which accumulates in the bottom of the chamber without interfering with the operation of the apparatus. At the top of chamber I is an inclined baffle *p*, which deflects the separated carbon, and an outlet pipe *q*, for the escape of hydrogen or other gases, resulting from the cracking operation. Retort A is provided with a gas inlet pipe *q'*, for blowing the separated carbon out of the retort into chamber I. Pipe *q'* may, if desired, be supplied with a pre-heater, similar to that heretofore described, consisting of a coil *q²*, heated by a gas-burner *q³*. The burner H may, if desired, be thermostatically controlled, in any suitable manner, and the customary accessories, such as gages, pyrometers, etc., applied thereto.

From the foregoing description of the apparatus, and its general mode of operation, the manner of practicing applicant's process will be readily understood by those skilled in the art.

Any suitable combinations of metals or alloys may be used in the still, for specific purposes, in lieu of the lead bath.

The invention is as broad as is commensurate with the appended claims.

The separated hydrogen or other gases may be used for heating or other desired purposes.

5 This application is a division of my copending application, No. 25,403, filed May 3, 1915, patented Oct. 4, 1921, No. 1,392,788.

Having thus fully described the invention, what I claim as new and desire to secure by
10 Letters Patent is:

1. The process of making lampblack or carbon which consists in decomposing hydrocarbon gases by bringing them into contact with molten metal, and recovering the lampblack or carbon which appears at the surface
15 of the metal by blowing a heated gas over the surface of said metal.

2. The process of making lampblack which consists in decomposing a hydrocarbon gas
20 by bringing the gas into contact with molten metal and recovering the lamp black which appears at the surface of the metal by blowing gas over the surface of said metal.

3. The process of making lampblack or
25 carbon which consists in decomposing hydrocarbon gases by passing same through a column of molten metal, the height of the column of molten metal and the rate at which the hydrocarbon is passed being so related as to obtain the desired quality of lampblack or carbon,
30 and recovering the lampblack or carbon which appears at the surface of the metal by blowing a heated gas over the surface of the metal and thereby carrying the carbon into
35 an adjacent chamber.

4. The process of making lampblack by the separation of the carbon in the form of lampblack from the hydrogen in natural gas, or other suitable hydrocarbon gases, which consists in forming lampblack by passing such
40 gas through a chamber containing a column of molten metal at a point below the surface thereof and in intimate and direct contact with said molten metal, allowing said lampblack to deposit on the surface of said molten
45 metal, and causing said lampblack to pass out of said chamber.

In testimony whereof I have signed the foregoing specification.

50 AUGUSTE JEAN PARIS, Jr.

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