

PATENT SPECIFICATION

282,634

Convention Date (Germany): Dec. 24, 1926.

Application Date (in United Kingdom): Oct. 25, 1927. No. 28,358 / 27.

Complete Accepted: Jan. 24, 1929.

COMPLETE SPECIFICATION.

**Process for Purifying Gases from Organically Combined Sulphur.**

I, Professor Dr. FRANZ FISCHER, citizen of the German Republic, residing at 1, Kaiser-Wilhelm-Platz, Mülheim on the Ruhr, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a process for the catalytic purification of gases especially from the organic sulphur compounds contained therein. More particularly the invention relates to a process of that kind, wherein the composition of the gases, for instance of water-gas, is not catalytically modified in any other manner, as is the case for instance when iron, cobalt and nickel are used as catalysers in a known manner.

I have found, that the precious metals of the first group of the periodic system, especially silver, possess the desired properties when they are used as contact substances in one of the commonly known manners by giving them a large surface and in a fine distribution. The said catalytic means to be used according to the present invention, when compared with lead and antimony which have already been proposed for the same purpose, show the advantage that they are effective already at considerably lower temperatures of about 200 to 300° C.

Otherwise the proceeding is, however, an analogous one, as apparently a metal sulphide is formed first by the reaction of the contact metal with the organic sulphur compounds, said metal sulphide being then reduced again by the hydrogen present in the gas, sulphuretted hydrogen being formed therein.

The process can be carried out under ordinary, reduced or increased pressure.

EXAMPLE:

Asbestos fibres are impregnated with a

solution of nitrate of silver, dried and calcined to red heat whereby the nitrate of silver is converted into silver oxide and then brought into suitable tubes or other vessels and heated to 200 to 300° C. Water-gas, which has been freed from sulphuretted hydrogen but not from the organic sulphur compounds, is then conducted through the tubes. At first a reduction of the silver compound to metallic silver takes place, whereupon the catalytic action begins, which will become perceivable by the fact that the gas leaving the tube or vessel without noticeable volume alteration smells of sulphuretted hydrogen. When the sulphuretted hydrogen is removed hereafter in the usual manner, the treated gas is free of all sulphur compounds.

I am aware that it has been proposed to use other precious metals, as platinum, iridium, ruthenium and rhodium for catalytically decomposing the organic sulphur compounds contained in coal gas, and I do not claim this.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

A process for purifying gases from organically combined sulphur by converting the organic sulphur-combinations into sulphuretted hydrogen in the presence of hydrogen by means of contact substances in the heat and absorption of the sulphuretted hydrogen formed, characterised by the fact that for the conversion of the sulphur-combinations into sulphuretted hydrogen such contact substances are used which contain precious metals of the first group of the periodic system, especially silver.

Dated this 25th day of October, 1927.

MARKS & CLERK.

ND