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UNITED STATES PATENT OFFICE.

ALBERT ERNEST DELPH, OF WOKINGHAM, ENGLAND, ASSIGNOR TO COURTAULDS LIMITED, OF LONDON, ENGLAND.

MANUFACTURE OF CARBON BISULPHIDE.

No Drawing. Application filed March 31, 1922. Serial No. 548,533.

To all whom it may concern:

Be it known that I, ALBERT ERNEST DELPH, a subject of the King of Great Britain, residing at South View, Gipsy Lane, Wokingham, in the county of Berks, England, have invented new and useful Improvements in or Connected with the Manufacture of Carbon Bisulphide, of which the following is a specification.

It is known that when cast iron retorts are used in the manufacture of carbon bisulphide, they are, when at a red heat, very badly attacked by the sulphur and sulphur compounds with which they are continuously in contact. At the temperature at which these retorts are used, the sulphur readily combines with the iron, forming sulphides of iron which, being of considerably greater volume than iron, gradually diminish the effective capacity of the retort, and, owing to the sulphiding of its walls, the life of the retort is very short. Also, owing to the formation of the iron sulphides, the conductivity of heat to the interior of the retort is greatly reduced, thus causing considerable waste of fuel.

According to the present invention the production of carbon bisulphide is carried out so that the foregoing objection is overcome and the production is effected more economically, this being done by conducting the process in apparatus wherein the retorts and other metal parts of the plant with which sulfur and sulfur compounds, come into contact, at or above a red heat, are protected by a coating, (preferably a thin coating) of aluminum, which prevents the iron from being attacked by the sulphur and sulphur compounds, and materially increases the life, and maintains the efficiency of the retort and other parts as well as effecting a better yield of carbon bisulphide.

The aluminum coating may be obtained in any suitable way, for example by taking the retort, or part, to be treated, thoroughly cleaning the inside surfaces by any suitable means, such for example, as by sand-blasting and then one-third to one-half filling with a mixture of the following composition:—

	Parts by weight.
Granulated aluminium (30 mesh)	93
Aluminium oxide	5
Ammonium chloride	2

The retort, or part, is then fixed horizontally in a furnace and slowly rotated whilst being maintained at a heat of, or about, 800° centigrade for say 3 hours, or thereabouts. A vacuum is maintained throughout the heating in order to prevent the oxidation of the aluminium. When cold, the surplus mixture is removed and the retort, or part, is again heated and maintained at a heat of about 850° centigrade for say about 6 hours, to fix the aluminium firmly to the surface of the iron. The original treatment with the above mixture may then be repeated if a thicker coating of aluminium be desired.

It is to be understood that we do not limit ourselves to the above method of obtaining the coating of aluminium upon the inside of the retort, or other article, or part, as any other process which will give a thin adherent coating of aluminium on iron may be employed. Also, instead of cast iron, other kind of iron, or steel, may be treated in a similar manner if preferred to cast iron for any reason.

It will be understood that the character of the carbonaceous charge to be subjected to the action of sulfur vapor, and the temperatures and other details, may be the same as those heretofore employed in the art, which being entirely well known, need not be specified herein.

What I claim is:—

1. In making carbon bisulfid by processes involving a treatment with sulfur in a retort at about a red heat, the improvement which comprises carrying out such treatment in a retort composed of a ferrous metal having a firmly adherent coating of metallic aluminum.

2. A method of making carbon bisulfid which comprises carrying out the manufacture in a plant wherein the ferrous metal parts with which sulfur and sulfur compounds come into contact at or above a red heat, during such manufacture, are coated with aluminum whereby the same are protected from chemical action.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT ERNEST DELPH.

Witnesses:
GILBERT HARDING,
T. SLADE.