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IMPERVIOUS MATERIAL AND PROCESS OF MAKING THE SAME.

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This invention relates to an impervious material and a method for its production, and its primary object is to provide a non-metallic material adapted for use in the production of conduits, valves, vessels, containers and other similar objects, which is impervious to liquids and gases.

Another object of the invention is to provide an impervious material of the above described character which is proof against the corrosive influence of acids and other chemicals.

In accordance with the present invention, carbon or graphite in powder form is thoroughly mixed with a suitable binder preferably composed of a carbonaceous substance such as, pitch, into a plastic pulp which is pressed, molded or otherwise formed into the desired shape.

After the article thus formed, has dried, it is impregnated, coated or otherwise treated with an impervious and preferably chemically inert material, which upon the subsequent exposal of the article to the influence of heat or air, solidifies by evaporation of its volatile constituents, into a solid, impervious and acid-proof filler or filler and coating.

It is essential that, irrespective of the method of applying the filling material to the carbon or graphite article, the material enter into the pores, crevices and other voids thereof, so that even if in case of a coating, the exterior film is worn away or otherwise removed, the voids of the material remain permanently closed at the surface thereof.

Among materials particularly adapted for the above described purpose, may be mentioned carbonaceous oils, pitch, tar and other bituminous substances, and metallic lead.

The materials are applied to the carbon or graphite article in a liquid state either by smearing, spraying or dipping, or by impregnation in a partial vacuum, and the heat by which the material is subsequently solidified, is applied to the article preferably by baking it in a kiln or other closed oven.

It will be understood that by repeating the above described process, the surface of the article may if necessary, be rendered more completely impervious to liquids and gases and resistant to the destructive influences of acids and other chemicals.

It will be understood that if carbon is used in composing the body of the material, it must necessarily be of a kind which does not liquefy by imparted heat.

The material hereinabove described and defined in the following claims, has a composite body made of powdered graphite or carbon and a suitable binder, the voids of which are closed with a carbonaceous filler, and it differs in this respect from the material disclosed in my co-pending application for patent, Serial No. 525,489, which is composed of solid artificial graphite impregnated with a chemically-resistant substance, the artificial product above referred to being a commercial product composed of pure graphite without a binder.

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

1. The herein described process of producing material consisting in mixing a powdered non-liquefiable solid with a naturally solid liquefied binder, then causing the mixture to harden into a solid body by solidification of the binder, and then closing the voids of the body with a normally solid substance liquefied at a temperature not exceeding the melting point of the binder in the body.

2. The herein described process of producing material consisting in mixing a powdered non-liquefiable solid with a naturally solid liquefied binder, then causing the mixture to harden into a solid body by solidification of the binder, and then filling the voids of the body with a normally solid substance liquefied at a temperature not exceeding the melting point of the binder in the body.

3. The herein described process of producing material consisting in mixing a powdered non-liquefiable solid with a naturally solid liquefied binder, then causing the mixture to harden into a solid body by solidification of the binder, and then impregnating the body with a liquefied substance similar to the filler.

4. The herein described process of producing material consisting in mixing a powdered non-liquefiable solid with a naturally solid liquefied binder, then causing the mixture to harden into a solid body by solidification of the binder, and then impregnating the body with a normally solid substance liquefied at a temperature not exceeding the melting point of the binder in the body.

5. As a new article of manufacture, a solid

material composed of a solid body of powdered carbon or graphite and a naturally solid liquefiable binder having its voids closed with a naturally solid liquefiable substance.

6. As a new article of manufacture, a solid material composed of a solid body of powdered carbon or graphite and a chemically resistant normally solid and liquefiable binder, having its voids closed with a chemically resistant normally solid and liquefiable substance.

7. As a new article of manufacture, a solid material composed of a solid body of powdered carbon or graphite and a hydrocarbon binder having its voids closed with a hydrocarbon.

8. As a new article of manufacture, a solid material composed of a solid body of powdered carbon and a naturally solid liquefiable binder impregnated with a naturally solid liquefiable substance.

9. The herein described process of producing material, consisting in mixing a powdered, non-liquefiable solid with a naturally-solid, liquefied binder, baking the mixture into a solid body, and then closing the voids of the body with a normally solid substance liquefied at a temperature not exceeding the melting point of the binder in the body.

10. As a new article of manufacture, a solid material composed of a baked mixture of powdered carbon or graphite, and a naturally-solid, liquefiable binder, impregnated with a naturally-solid, liquefiable substance.

In testimony whereof I have affixed my signature.

WARREN F. BLEECKER.