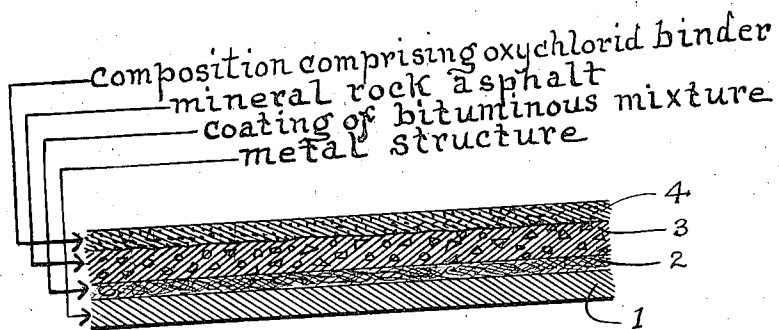


N. J. PORTER.
PROCESS AND PRODUCT OF COATING METAL STRUCTURES.
APPLICATION FILED MAY 8, 1914.

Patented Dec. 31, 1918.

1,289,537.



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UNITED STATES PATENT OFFICE.

NORMAN JOHN PORTER, OF BELFAST, IRELAND.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NORMAN JOHN PORTER, a subject of the King of Great Britain, residing at Belfast, Ireland, have invented certain new and useful Improvements Relating to Processes and Products of Coating Metal Structures, of which the following is a specification.

My invention has reference to cementitious compositions containing magnesite and magnesium chlorid or equivalent chemical binding agents for covering iron or steel or like surfaces.

It is well known that such cementitious compositions when applied to surfaces such as the deck plates of ships have a tendency to bulge and crack since they do not combine or unite with the surface of the structure and the like.

Also it is known that steel plates or the like which are covered with such compositions are subjected to the corrosive action of moisture which finds its way under the covering and may become charged with any active chemical constituent of the same.

Such cementitious compositions being insulating, fire resisting, and durable, their successful use as a covering for iron and steel structures and especially for ships' decks is highly desirable.

The object of my invention is therefore to enable such compositions to be used for the purpose for which they are so highly desirable and to this end my invention consists in interposing between the covering of such composition and the steel or like surface, a substantial layer of mineral rock asphalt which contains a major proportion of limestone and a minor proportion of bitumen or a mixture in which rock asphalt predominates, laid in a plastic state, and roughening the surface of the asphalt or forming in it indentations or grooves to enable the covering composition to bond to it.

The figure represents a longitudinal section of a composition for covering iron or steel or like structures embodying my invention.

In carrying out my invention I first paint the surface 1 to be covered with one or more coats 2 of bitumen or a bituminous preparation which has the effect of assisting the asphalt to adhere to the surface. The mineral rock asphalt or mixture of the same 3 is next applied hot in a plastic state and in one or more coats to a suitable thickness.

The surface of the asphalt is then roughened by slightly disturbing it with a suitable tool just before it has set hard or it may have indentations or grooves formed in it preferably while it is still plastic, and on this asphalt surface so proposed the cementitious composition 4 is finally applied in a plastic state.

In practice I have found that rock asphalt being of a gritty nature, compositions of the kind referred to above readily combine or unite with it, and as the asphalt can be made to adhere to the iron or steel surfaces by means of a preliminary coat of bitumen or bituminous preparation the necessity of providing holdfasts, cleats or other fastenings, in order to attach the covering to the structure, is avoided, and the asphalt being of a resilient nature, it reduces the tendency of the composition to crack, due to straining or vibration of the structures. Also, the asphalt being non-corrosive, and impervious, effectively protects the structure against corrosion by excluding moisture and isolating the composition from its surface.

I am aware that surfaces have been covered with a preliminary coating of a mixture of pitch and asphaltum, or tar and asphaltum, melted and applied by a brush or mop, or in other suitable manner, to which a layer of gravel or sand has been applied, and a composition of cement, sand, water and other ingredients is laid thereon. I am also aware that plaster or mastic has been caused to adhere to wall covering consisting of asphaltum, coal, candle, or pine-tar, or like ingredients, by incorporating into the mixture gravel, sawdust, chips, bagging or like substances, and I know that asphalt mastic has been caused to adhere to surfaces by applying to the surfaces a solution of bitumen or a bituminous compound in a volatile solvent and applying the mastic after the evaporation of the solvent.

I do not therefore claim any such process.

I do claim as new and desire to secure by Letters Patent:

1. A process of coating and preserving iron and steel structures which comprises first applying thereto a coating of a bituminous composition, thereafter applying a coating containing mineral rock asphalt such second coating being applied in a hot plastic condition, and roughening the surface thereof before the same has set to a hard solid, and finally applying to the roughened har-

dened asphalt rock coating, a top coating comprising magnesite and magnesium chlorid, and allowing the same to set, thereby forming an elastic non-corrosive resilient impervious coating capable of adhering to the metal without holdfasts, cleats or other extraneous mechanical means of attachment.

2. A coated metal structure comprising a metal coated with a layer of bituminous material, then by a roughened mass of hard asphalt rock, and carrying a final coating having a magnesium oxychlorid binder, the

whole covering firmly adhering to the metal structure without holdfasts, cleats or other extraneous mechanical attaching means, and forming a resilient, non-corrosive and impervious protective covering for the metal structure. 15

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

NORMAN JOHN PORTER.

Witnesses:

ANDREW HAMILTON,

HARRY WALTER ALLSOPP.