

UNITED STATES PATENT OFFICE.

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BY MESNE ASSIGNMENTS, TO MARCUS STINE, OF NEW YORK, N. Y., AND EDWARD F. C.
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WURTZILITE.

No. 903,275.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Original application filed January 26, 1906, Serial No. 297,970. Divided and this application filed July 5, 1907.
Serial No. 382,361.

To all whom it may concern:

Be it known that we, WILLIAM F. DOERFLINGER and LEON H. BUCK, citizens of the United States, and residents of Niagara Falls, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Wurtzilite, of which the following is a specification.

Our invention relates to the process of treating wurtzilite and its novelty consists in the several successive steps of the process employed and the product which is the result thereof.

In an application for Letters Patent of the United States filed by us January 26, 1906, Serial No. 297,970 we originally claimed the subject matter of this application but at the requirement of the Patent Office we limited that application to a particular method only of treating the material. This application therefore is a division of the former one and will relate to matters not allowed in the former application.

Briefly, the method described in the allowed application consisted in heating the wurtzilite in the presence of a suitable fusible resinous substance which is soluble in turpentine, for instance, gilsonite, until a homogeneous liquid is formed which is allowed to cool and then is dissolved in turpentine and linseed oil to form a coating compound which is acid proof and of good wearing properties.

We have discovered that in place of the gilsonite, or similar single resinous substance, we may use as the vehicle for the conversion of the wurtzilite, the product which is the result of the patented process above referred to. For instance, in that patent we describe as a preferred example of our method the use of nearly equal quantities of wurtzilite and gilsonite. If now we repeat the process with 50 parts of the product and 100 parts of wurtzilite, we get a new product containing a high proportion of wurtzilite and if we repeat the process the third time, with, say 50 parts of the second product and 100 parts of the wurtzilite, the resulting product has a yet higher proportion of wurtzilite. This is a result which was wholly unexpected and is important because it enables us to produce a product having an unusual proportion of wurtzilite and yet which has all of the advantageous qualities of the first product. As wurtzilite has high elec-

trical insulating properties, this is an important feature of our invention. The process may be repeated even beyond the third degree thus increasing the proportion of wurtzilite in the final product.

The product of the patented process or of the repetition of the same in the manner just described has been found to be soluble not only in turpentine, but also in carbon tetrachlorid, tar hydrocarbons, terpenes, resin spirits, chloroform, carbon disulfid and the petroleum hydrocarbons in about the order named, carbon tetrachlorid being the best and the petroleum hydrocarbons the poorest of the various solvents mentioned.

In practice, after the conversion of the wurtzilite into the soluble form, as described in the patented process, or in the repetition thereof, the product is broken up, and slowly heated in the selected solvent contained in a suitable vessel. Of course it will be understood that some of these solutions would be valuable in certain situations where the others would not. For instance the turpentine solution is naturally inflammable while the tetrachlorid solution is not.

We described linseed oil as a proper and preferred form of oil to be employed with turpentine. Linseed oil is merely an example of oils which may be used in this connection. For instance, when turpentine is used, linseed may be used, or rape seed, sunflower seed, cotton seed and similar vegetable oils, or even the mixture of vegetable and animal oils which is placed on the market under the name of lucol. Some of these oils would not be suitable with some of the solvents above mentioned and consequently when any particular solvent is employed that oil should be chosen which will best harmonize with it.

Our invention may be carried yet further. Before the wurtzilite is allowed to cool and while it is yet in a liquid or semi-liquid state mixed with the fused gilsonite, there may be added to and incorporated with the mass a proportion of rubber, guttapercha, wax, easily fusible resins and selected pigments, so as to produce novel products, especially adapted for specific purposes. Instead of adding such materials to the melted wurtzilite, it may be allowed to cool, broken up into small particles and dissolved in any one of the suitable solvents named and then

there may be added to the solution so formed, rubber, gutta percha, wax, fusible resins and pigments. If these are soluble in the selected solvent employed the result may be used for a great variety of purposes. If they are not so soluble this may interfere with the use of the product, as a coating material, when applied with a brush, but will not otherwise be disadvantageous. In fact the fused and melted wurtzilite whether of the first or subsequent degrees can be used as the basis of an enormous variety of useful products.

What we claim as new is:—

1. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, and heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place.

2. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place and successively repeating the operation with fresh lots of wurtzilite.

3. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place and adding to it before cooling a gum, as india rubber, soluble in any solvent in which the said resinous substance is soluble, allowing the mass to cool and dissolving the same in the selected solvent and adding oil thereto to form a coating compound.

4. The process of treating wurtzilite, which consists in heating it in the presence of a suitable, fusible resinous substance until homogeneous fusion takes place and adding to it before cooling a gum, as india rubber, soluble in any solvent in which the said resinous substance is soluble.

5. The process of treating wurtzilite, which consists in heating it in the presence of a suitable, fusible resinous substance until homogeneous fusion takes place and adding to it before cooling a gum, as india rubber, soluble in any solvent in which the said resinous substance is soluble, allowing the mass to cool and dissolving the same in the selected solvent.

6. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place and adding to it before

cooling a gum, as india rubber, soluble in any solvent in which the said resinous substance is soluble.

7. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place and adding to it before cooling a gum, as india rubber, soluble in any solvent in which the said resinous substance is soluble, allowing the mass to cool and dissolving the same in the selected solvent.

8. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place and successively repeating the operation with fresh lots of wurtzilite until a high proportion of wurtzilite is secured and adding to it before cooling a gum, as india rubber, soluble in any solvent in which the said resinous substance is soluble.

9. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place and successively repeating the operation with fresh lots of wurtzilite until a high proportion of wurtzilite is secured and adding to it before cooling a gum, as india rubber, soluble in any solvent in which the said resinous substance is soluble, allowing the mass to cool and dissolving the same in the selected solvent.

10. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place and heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place, allowing the compound to cool and dissolving it when cool in a suitable liquid vehicle.

11. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place and heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again takes place, allowing the compound to cool and dissolving it when cool in a suitable liquid vehicle, and adding oil thereto to form a coating compound.

12. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, heating a new lot of wurtzilite in the presence of the fused compound until homogeneous fusion again

takes place and successively repeating the operation with fresh lots of wurtzilite, allowing the compound to cool and dissolving it when cool in a suitable liquid vehicle.

- 5 13. The process of treating wurtzilite, which consists in heating it in the presence of a suitable fusible resinous substance until homogeneous fusion takes place, heating a new lot of wurtzilite in the presence of the
10 fused compound until homogeneous fusion again takes place and successively repeating the operation with fresh lots of wurtzilite,

allowing the compound to cool and dissolving it when cool in a suitable liquid vehicle and adding oil thereto to form a coating 15 compound.

Witness our hands this 1st day of July 1907, at the city of New York, in the county and State of New York.

WILLIAM F. DOERFLINGER.

LEON H. BUCK.

Witnesses:

CHAS. LUNDELIUS,

KATHRYN CALDWELL.