UNITED STATES PATENT OFFICE.

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ASPHALTUM COMPOUND AND PROCESS OF MAKING THE SAME.

SPECIFICATION forming part of Letters Patent No. 387,357, dated August 7, 1888

Application filed December 17, 1887. Serial No. 258,210. (Specimens.)

To all whom it may concern:

Be it known that we, MOSES S. HIGBIE, of South Amboy, New Jersey, and ALBERT W. DOUGHERTY, of Brooklyn, New York, have invented a new and Improved Process of Refining Asphaltum, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it most nearly appertains to make and use the same.

Asphaltum referred to in this specification is to be distinguished from bitumen referred to in another application, Serial No. 258,211, filed by us the same day this was filed. We confine the term "asphaltum" to the material, which is a solid at ordinary temperatures, as distinguished from bitumen, which at ordinary temperatures is a fluid.

This process relates to the removal of impurities from asphaltum and the softening or rendering pliant and flexible such as is too hard and friable to be of service in the art; and it consists in heating to and maintaining at or above the boiling-point of water paraffine-wax and oil or a like product of petroleum in a vessel to which heat is applied and adding to such boiling liquid the hard asphaltum to be melted in small pieces from time to time, continuing heat sufficient to maintain an ebullition of the liquid throughout the process.

The hard and impure asphaltum cannot be melted in an ordinary vessel by the application of heat, as the asphaltum chars and burns before melting. To prevent the burning, we use paraffine-wax and oil or other like product of petroleum melted together in a suitable vessel, and add the asphaltum in small quantities and small pieces from time to time, adding more as that already added becomes dissolved until a large percentage of the mixture is asphaltum. The whole mass is kept at a boiling point or ebullition, so that the water, sulphur, acids, and all volatile or volatilizable impurities are driven off into the atmosphere, as well as portions of the petroleum products used as a solvent. The hard parts which cannot be dissolved by this treatment—such as the sand, rock, and gravel mixed with the asphaltum—will settle to the bottom of the vessel, and may be left in it until after the purified portion has been poured out or run off, when it can be removed. The asphaltum thus treated will be found pliant and flexible and equal to the best and most expensive asphaltum for use in the arts.

By a proper proportioning of the asphaltum and petroleum products and proper boiling the resulting product may be made hard or soft, as may be desired. We have found that good results are obtained by using from fifty to eighty per cent. of hard asphaltum to fifty to twenty per cent. of the petroleum products and continuing the boiling until no steam or fumes are driven off from the boiling mass. We generally use the residuum from the refining of petroleum for either illuminating or lubricating oils, which consists of from ten to thirty per cent. oil and seventy to ninety per cent. paraffine-wax, and place it in a vessel heated by a steam-jacket or fire and provided with an agitator to stir continually the material in it. Other like products of petroleum may, however, be used and the agitator may be omitted from the vessel without departing from our invention.

The treatment of bitumen with paraffine-wax is not claimed in this application, as it is claimed in application Serial No. 258,211, made by us.

What we claim as new, and desire to secure by Letters Patent, is—

1. The process herein described of refining asphaltum, which consists in adding it in small quantities from time to time to a bath of melted paraffine-wax and mineral oil and subjecting it to heat sufficient to melt it and to volatilize certain impurities therein contained, substantially as specified.

2. The process herein described of refining asphaltum, which consists in subjecting it to a bath of boiling paraffine-wax and mineral oil, and subjecting it to heat sufficient to melt it and to volatilize certain impurities therein contained, as specified.

3. The compound of paraffine-wax, mineral oil, and asphaltum melted together and freed from volatile impurities, as specified.

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Witnesses:
JOSEPH J. SULLIVAN,
JOHN E. ELMENDORF.