

UNITED STATES PATENT OFFICE.

JULIUS DEHNST, OF HALENSEE, NEAR BERLIN, GERMANY.

PROCESS FOR PREPARING AN OIL SUITABLE FOR IMPREGNATING POROUS BODIES.

1,041,604.

Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, JULIUS DEHNST, doctor of philosophy, chemist, a subject of the King of Prussia and the German Emperor, residing at 2 Auguste Victoria street, Halensee, near Berlin, Kingdom of Prussia, German Empire, have invented a new and useful Improvement in Processes for Preparing Oils Suitable for Impregnating Porous Bodies; and I do hereby declare the following to be a full, clear, and exact description of the same.

I have found that by mixing coal tar with petroleum, especially crude petroleum, pitch like, resinous substances are separated, while the main portion of the mixture forms a clear oil, which may be separated by decantation, filtration or any suitable mechanical separation process from the deposited substances. The oil is a viscous clear liquid containing the bituminous substances present in the coal tar. The pitch consists of free carbon and resin like matter. This oil is, in a fresh state, namely as soon as possible after its production, very suitable for impregnating wood or other porous bodies. In continued storage or after heating, however, again pitch like resinous substances are formed, whereby the use of the said oil for impregnating purposes is essentially injured. I have furthermore found that one may produce a perfectly clear and stable oil, very suitable for impregnating wood by heating the said oil to a sufficiently high temperature and treating the heated oil with air. This treatment has the effect to cause the quick, immediate, practically complete deposition of substances which without the said treatment would be formed only after a certain lapse of time or after a heating. The temperature during the treatment of the oil with air may vary between 50 and 200 degrees centigrade. If the coal tar or the petroleum or both materials contain a large amount of resinous substances one must choose a higher temperature than if one employs materials of a smaller proportion. If one desires to treat the mixture with air for a short period, one must also increase the temperature during the treatment.

As a substitute for the petroleum in the present process one may also use distillates of high boiling point, for instance the distillates called commercially "gas oil" or "paraffin oil," boiling between 300 and 450

degrees centigrade. One may also use shale oils. The coal tar may be substituted by filtered tar, deprived of free carbon. One may also use the high boiling point distillates of tar, as naphthalene oil, boiling between 180 and 250 degrees centigrade, heavy oil boiling between 200 and 275 degrees centigrade, anthracene oil boiling between 250 and 360 degrees centigrade. One may also use in the place of coal tar brown coal tar (lignite tar) and the distillates from it.

Example: 1000 kilograms coal tar are mixed with 3000 kilograms crude petroleum under gentle heating sufficient for rendering the coal tar fluid in order to secure a thorough mixing. One allows the mixture to stand sufficient time to insure a deposition of the separated pitch like or resinous substances. Then one separates the clear oil mixture from the separated particles, and blows air in the oil while heating to about 100 degrees centigrade during 8 hours. One allows to cool and the precipitated particles to settle and separates then the clear oil from the deposits.

The oil obtained by the present process may be used for impregnating wood. The wood is exhausted and the oil is forced by pressure into the wood.

One may also add metallic compounds having antiseptic power to the oil. For instance one may incorporate sulfate of copper, iron, zinc, aluminum, chlorid of zinc or iron. One may also use the said compounds in the form of emulsions.

I claim:—

1. The process for preparing an oil suitable for impregnating porous bodies, which consists in mixing tar with petroleum, allowing the obtained precipitate consisting of free carbon and resin like substances to settle and separating mechanically the clear oil consisting of the hydrocarbons of the petroleum and coal tar, including the bituminous substances of the latter soluble in the said hydrocarbons, from the deposits.

2. The process for preparing an oil suitable for impregnating porous bodies which consists in mixing tar with petroleum, allowing the obtained precipitate consisting of free carbon and resin like substances to settle separating mechanically the clear oil consisting of the hydrocarbons of the petroleum and coal tar including the bituminous substances of the latter soluble in the said hydrocarbons, from the deposits,

blowing air into the heated separated clear oil and separating mechanically the clear oil from the formed deposits.

3. The process for impregnating porous
5 bodies which consists in mixing tar with petroleum, allowing the formed precipitate to settle, separating the clear oil from the deposits and introducing the obtained oil into exhausted porous bodies under pres-
10 sure.

4. The process for impregnating porous bodies which consists in mixing tar with petroleum, allowing the formed precipitate

to settle, separating the clear oil from the deposits, blowing air into the heated sepa- 15 rated clear oil, separating the clear oil from the formed deposits and introducing the obtained oil into exhausted porous bodies under pressure.

In testimony whereof, I have signed my^f 20 name to this specification in the presence of two subscribing witnesses.

JULIUS DEHNST.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.