

UNITED STATES PATENT OFFICE.

PETER DITMAR, OF ST. PETERSBURG, RUSSIA.

PROCESS OF SOLIDIFYING CRUDE AND REFINED PETROLEUM.

SPECIFICATION forming part of Letters Patent No. 246,096, dated August 23, 1881.

Application filed April 4, 1881. (Specimens.)

To all whom it may concern:

Be it known that I, PETER DITMAR, a subject of the Emperor of Russia, and residing in St. Petersburg, Russia, have invented a new Process of Solidifying Crude and Refined Petroleum and other Hydrocarbon Oils and Residues, of which the following is a specification.

The object of my invention is to convert crude and refined petroleum and petroleum residuum into a condition in which it can be safely and readily transported in cheap receptacles.

The casks necessary for transportation of petroleum and other liquid hydrocarbons have to be water-tight, and are more or less expensive. In order to permit the conveyance of such oils in cheap packing and obtain better and more useful products from the crude oils, I convert them into a more or less solid state, so that these masses of petroleum may be packed in wooden boxes or other receptacles made at slight expense.

After many experiments I have succeeded in converting crude and refined petroleum, as well as hydrocarbon residue, into solid masses resembling pork-lard, adapted for transportation at a temperature of $+50^{\circ}$ Celsius in cheap packing without leakage.

My process is as follows: By mixing crude or refined petroleum or residues with two or three per cent. of tallow-soap as free from water as possible, while the mixture is warming the molecular state of their atoms is modified in such a manner that the said oils are converted into a solid state adapted for transportation in cheaply-constructed packing. By a careful mixing of the materials to which the soap is added the process is promoted. In order to liquefy at its place of destination this solidified petroleum, it is to be well mixed with water, to which is added about two per cent. of muriatic acid, whereupon the petroleum is easily separated in its former unaltered state.

When crude petroleum is treated by my process it affords also great advantages for distillation.

As is well known, in the separation of carbureted hydrogens of different boiling-points soap pertinaciously retains all substances boiling at the higher degrees of heat. This property, which is made use of on a great scale for purifying alcohols, causes the lighting-oils in

the distillation of the solidified petroleum to pass over as clear as water without any trace of sulphuric substances. No subsequent purification by sulphuric acid, soda, &c., is required. The products are free from solar oils, (heavy-carbureted hydrogen,) burn with a very bright flame without any smell, even when the wick is screwed up high, and the production of lighting-oils is considerably increased.

Thus I succeed in obtaining by my process forty-five per cent. best refined petroleum, producing inflammable gas at $+45^{\circ}$ Celsius from crude naphtha of .895 specific weight, which gives, by ordinary distillation and refining, only thirty-three per cent. of lighting-oils.

The residue remaining after distillation has a consistence like that of lard, and in this state is not only adapted for transportation, but also, in consequence of its high melting-point, (about $+50^{\circ}$ Celsius,) it presents an excellent greasing material for machinery, especially for railway use, being perfectly free from acids, not liable to become resinous, nor to saponification by metallic oxides. Experiments made with this greasing material gave the best of results.

Solidified residues of petroleum appear most adapted to be employed instead of rosin-oil greasing, especially when mixed with ten to twelve per cent. of common ozocerite in order to give to this matter, becoming liquid at a high temperature, a little more body, and to add some paraffine.

I am aware of the British Patent No. 3,603 of 1873 and Jordery's United States Patent of May 2, 1872, No. 126,552, and therefore do not desire to claim the processes or products therein described; but

I claim as my invention—

The mode herein described of solidifying liquid hydrocarbons—such as crude or refined petroleum, naphtha residues, and the like—by dissolving two to three per cent. of tallow-soap in the hydrocarbon under the action of heat, substantially as described.

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

PETER DITMAR.

Witnesses:

FREDERICK KAUPF,

NICHOLAS TSCHERVALOFF.