

UNITED STATES PATENT OFFICE.

JOHN KINGSFORD FIELD, OF LONDON, ENGLAND.

PROCESS OF REFINING MINERAL OIL.

SPECIFICATION forming part of Letters Patent No. 408,472, dated August 6, 1889.

Application filed September 5, 1887. Serial No. 248,859. (No specimens.) Patented in England August 27, 1885, No. 10,139, and in Austria-Hungary May 31, 1888, No. 38/1,592.

To all whom it may concern:

Be it known that I, JOHN KINGSFORD FIELD, of Lombard Road, Battersea, London, England, manufacturing chemist, have invented certain new and useful Improvements in Processes of Refining Mineral Oils, (for which I have obtained Letters Patent in Great Britain, No. 10,139, dated August 27, 1885, and in Austria-Hungary, No. 38/1,592, dated May 31, 1888,) of which the following is a specification.

My invention is designed to treat hydrocarbon oils.

In the treatment of heavy mineral oils, which, for example, may be of a gravity of from 8.65 to 9.15, I first acidify in a jacketed pan, by preference, so as to keep the temperature at a low point. In winter the natural temperature of water circulating or standing round the pan will suffice; but in summer or in hot climates I may cool the pan by refrigeration. In acidifying I first apply, say, ten per cent. of fuming sulphuric acid, and afterward add, say, twenty per cent. In each instance I allow the acid to settle and the oil to be transferred to another vessel. I then wash the oil, if found needful, with an alkaline solution or with water, as will be well understood. After settling I decant the oil into a closed steam-jacketed pan, and I may in some cases advantageously add, say, from fifty to one hundred per cent. or more of volatile solvent, as before described, to the bulk of oil under treatment; or I may elect to treat the mineral oil without the addition of the volatile solvent, as described, and in this case the agitation of the mixture may take place in an open vessel and by the action of air forced therein, and with, say, ten per cent. of bleaching material or decolorant—such as animal charcoal, the residuum from the manufacture of ferrocyanide of potassium, fuller's earth, silicate of magnesia, either separately or any or all of them in combination—and such bleaching agents or decolorants I hereinafter designate "powder." It is then allowed to settle and the deposit drawn off or filtered, if required. I then again add,

say, twenty per cent. of powder, and pump the solution through a filter-press. (If the volatile solvent has been employed, I must distill it off at the filtering stage of the process and recover for future use.) I then acidify the product with, say, from ten per cent. to fifteen per cent. of fuming sulphuric acid, allow the solution to settle, wash as before, if necessary, and then well agitate with, say, from fifteen per cent. to twenty per cent. of powder. I thus obtained a product devoid of either color or smell. The percentages in every case refer to the weight unless otherwise expressed.

I do not bind myself to the exact quantities of acid and powder above named, which must vary accordingly with the nature and color of the oil to be treated; but having stated the various steps of my process, such will be readily perceived by any practical chemist after analysis of the substance.

I am aware of a proposal to acidify mineral oils with sulphuric acid and then bleach with ferrocyanide of potassium; but it will be seen that my invention is very different from these methods, and I do not claim the steps recited in these methods; but,

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

The method of refining mineral oil, which consists in acidifying the oil with fuming sulphuric acid, then subjecting it to agitation in connection with bleaching material, then again acidifying with sulphuric acid, and again subjecting to agitation in connection with bleaching material.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHN KINGSFORD FIELD.

Witnesses:

E. GARDNER COLTON,
17 and 18 Southampton Buildings, London,
W. C.

WALTER J. SKERTEN,
17 Gracechurch Street, London, E. C.