

United States Patent Office.

IMPROVEMENT IN TREATING OILS, &c.

H. L. SMITH, OF GAMBIER, OHIO.

Letters Patent No. 60,076, dated November 27, 1866.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HAMILTON L. SMITH, of Gambier, in the county of Knox, and State of Ohio, have discovered a new and improved process of Treating Crude Mineral Oil, or its distillate; and I do hereby declare that the following is a full and complete description thereof.

My invention, or discovery, relates to a peculiar method of treating crude mineral oil, or its distillate, by means of which it is raised to a fire-test of from 140° to 170° F., without the use of acids or other chemical compounds, the oil at the same time assuming and retaining a light color, and possessing a freedom from any offensive odor. This peculiar process is conducted in the following manner:

I provide a closed vessel, or retort, of convenient shape, and having a capacity double the quantity of oil to be treated at one operation; a pipe leads from the top of the retort, descends upon the outside, and terminates in an adjoining open tank of water, some distance below the surface—say a foot or more; a pipe for the introduction of steam into the bottom of the retort is provided, which pipe connects with a steam-generator. I now place in the retort the desired quantity of oil, using for that purpose the crude, filtered, or decanted oil; or if I use oil that has been subjected to the process of distillation, I take the whole product of light and heavy oil, as it is run off, without separation, meaning thereby the entire distillate. I then introduce into the bottom of the retort a jet of steam, which not only agitates the oil, but is condensed therein, which gradually raises the temperature, and when it has reached 160° F. it should be kept as nearly as possible at this point during the continuance of the process. This operation is to be continued until the quantity of condensed water in the retort will equal the quantity of oil used at one charge. During this process, the air contained in the retort above the oil at the commencement is gradually driven out through the pipe that leads from the top of the retort into the tank of water, as before mentioned, carrying with it a small quantity of benzene, which becomes condensed and floats upon the surface of the water, from whence it can be removed and saved. The oil remaining in the retort at the end of this operation possesses a light color, is comparatively free from offensive odor, and possesses a fire-test of from 140° to 170°. This oil may be further improved in regard to odor by agitation with cold air, but it is important that the oil itself becomes cold before the air is introduced. Hot air cannot be used without injuring the color of the oil, neither can cold air be used with hot oil without detriment.

All the apparatus for conducting this process is a steam-generator, a retort for the oil, and a water-tank into which the exit-pipe is conducted; and when cold air is used as an agitator, mechanical means must be resorted to for producing the required current.

In the distillation of the crude oil, preparatory to my process, all the products of distillation should pass over together, and I use the entire distillate, or the crude filtered oil may be used without distillation.

Claim.

I claim, for the purpose of rectifying or refining crude petroleum, or the distillates thereof, the herein described process, which I divide into two parts:

1. I claim the process of treating crude petroleum, or its distillate, in a closed retort, by the introduction of steam, as and for the purpose specified.
2. I claim the process of treating cold petroleum, or its distillate, by agitation with cold air, as and for the purpose specified.

H. L. SMITH.

Witnesses:

WILLIAM TURNER,
ERWIN M. HARLEY.