United States Patent Office.

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IMPROVED PROCESS OF TREATING PETROLEUM.

The Schedule referred to in these Letters Patent and making part of the same.

I, JOSEPH A. TATRO, of Hartford, county of Hartford, and State of Connecticut, have invented a certain Process for Converting the whole of the Distilled Product of Crude Petroleum-Oil, into a safe and reliable burning-oil, of which the following is a specification.

To show the nature and importance of my invention, as distinguished from the processes already in use, I will explain that when crude petroleum is distilled in the common way, the first product is benzole, the second benzine, the third a light oil, the fourth the common burning-oil, then gasoline, and last, a dark heavy oil. The only one of these parts fit for burning in the family lamp is the fourth product above specified.

By my process I am enabled to take all the above products, mix them together, and make the whole a safe and reliable oil.

The difficulty to be overcome is to raise the fire-oil, that is, the temperature at which flame will ignite the oil, to such a point as will make the oil safe for family use, and this I accomplish perfectly.

My process is as follows:

Having distilled the crude oil, driving over everything that will go over in the worm of the still, and having, say, one hundred gallons of product, take from one-fourth per cent. to two per cent. of sulphuric acid, and pour it into the whole product, and mix thoroughly. When thoroughly mixed, then add lime, partially or wholly slaked, in almost a dry state, sprinkling it over the oil, and allowing it to subside into the oil and act upon it. The quantity of lime added is about three per centum. Gases will now rise through the oil, the mass, meanwhile, being stirred. When the gas ceases to rise, add three per centum more of lime, in all about six per centum.

The lime, and the gas evolved therefrom, combine with those ingredients of the oil which render it dangerously inflammable, and raise the fire-point to a perfectly safe degree, from 140° to 160° Fahrenheit, according to the duration and strength of the chemical action.

Sulphuric acid may be used with phosphate of lime, in place of the slaked lime, if desired, but in this case it will be best to mix these substances before putting them with the oil.

A process something similar to this has been applied to crude oil before distillation, but in this case only a portion of the distilled product is fit for burning-oil, and I expressly disclaim any intention to claim as my invention the application of these ingredients to crude oil or to distilled oil, but it will be observed that an enormous saving of material is made by applying my process to the whole product arising from the distillation of crude oil, thereby utilizing the benzole, benzine, light oil, gasoline, and heavy oil, which have heretofore been of little value.

The only product to which I do not apply my process is the residuum left in the still, which cannot be forced through the worm, consisting mainly of charcoal and tar.

The amount of sulphuric acid used is determined by the gravity of the crude oil, using the greater quantity for the heavier oil.

Claim.

I claim, as my invention—

The process described, of applying the said ingredients, in about the proportions specified, to the whole product arising from the distillation of crude petroleum-oil, for the purpose set forth.

JOSEPH A. TATRO.

Witnesses:

WM. ED. SIMONDS,

SARA J. SIMONDS.