Patented Oct. 23, 1928. 1,688,859

UNITED STATES PATENT OFFICE.

GUSTAV EGLOFF AND HARRY P. BENNER, OF CHICAGO, ILLINOIS, ASSIGNORS TO UNIVERSAL OIL PRODUCTS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF SOUTH DAKOTA.

PROCESS OF CRACKING HYDROCARBONS.

No Drawing. Application filed December 20, 1920, Serial No. 432,068. Renewed November 21, 1927.

This invention relates to a process of cracking colloidal hydrocarbons for the purpose of obtaining substantial yields of light hydrocarbons therefrom such as gasoline, kerosene but more specifically it relates to the cracking of a mixture of petroleum fuel oil and colloidally dispersed coal.

The mixture to be cracked may also consist of coal tar or water gas tar in which is dispersed coal or shale in colloidal form, or such bituminous solids dispersed in colloidal form as gilsonite, elaterite, wurtzilite or the like.

The process may be carried out as follows: Fuel oil or heavy Mexican or California crudes may be mechanically mixed with a solid bitumen, in colloidal form, as for example, finely powdered bituminous coal can be injected into the oil in such a way as to form colloidal dispersion of the bitumen in the oil. This mixture is then placed in the still and distilled by means of heat and pressure in any suitable cracking apparatus. This apparatus, for example, might consist of a still, the vapor space of which is provided with a reflux condenser whereby the reflux condensate may be returned to the still for further treatment, the upper end of the reflux condenser being in turn connected to the usual water condenser or receiver. This mixture may be cracked either as an intermittent or batch process. The oil may be heated to 750 or as high as 900 degrees F., and subjected to a pressure of from 50 to several hundred pounds, depending on the extent of the cracking desired, and the character of the material being treated. The percentage of colloidal material relative to the liquid may vary within relatively wide limits, from 10% to 60% of the mixture being in colloidal condition.

The pressure distillate produced from the process may be from 20% to 60% of the original charge.

We claim as our invention:

1. A process of cracking hydrocarbons consisting in dispersing in a liquid hydrocarbon oil at least 10% by volume of a solid bitumen in colloidal form, and in then subjecting mixture to a cracking temperature while the same is maintained under a superatmospheric pressure.

2. A process of cracking hydrocarbons, consisting in dispersing in a liquid hydrocarbon oil not less than 10% by volume or over 60% by volume of a solid bitumen in colloidal form, and in then subjecting the mixture to a cracking temperature while the same is maintained under a superatmospheric pressure, to cause substantial vaporization, subjecting the vapors to reflux condensation returning the reflux condensate to be retreated and condensing the uncondensed vapors.

GUSTAV EGLOFF.
HARRY P. BENNER.