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The Director

of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this United States

Patent

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Director of the United States Patent and Trademark Office

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(12) **United States Patent**
Yurchenko

(10) **Patent No.: US 10,808,176 B2**
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(54) **METHOD OF DELAYED COKING OF PETROLEUM RESIDUES**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 44 days.

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C10B 23/00 (2006.01)
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C10B 55/00 (2006.01)

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CPC ***C10B 23/00*** (2013.01); ***C10B 55/00*** (2013.01); ***C10B 57/045*** (2013.01)

(58) **Field of Classification Search**
CPC C10B 23/00; C10B 55/00; C10B 57/045; C10G 9/00
See application file for complete search history.

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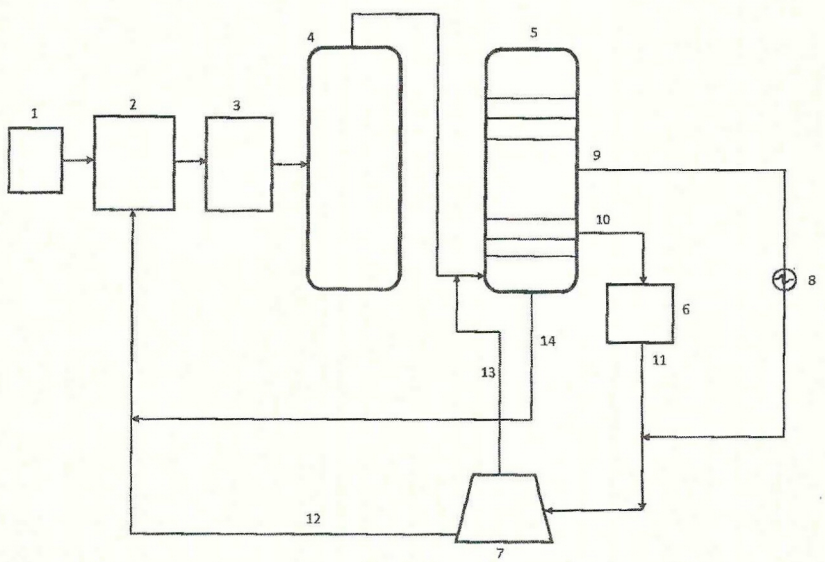
(57) **ABSTRACT**

The delayed coking method includes directing a heated secondary feedstock, which contains heated primary feedstock and recirculate, from a reaction furnace to a coking chamber. Vapor-liquid coking products formed in the coking chamber are then directed to a fractionation column, which fractionates hydrocarbon gas, gasoline, light and heavy gas oils, and bottom residues. Heavy gas oil from the fractionation column is directed to a thermal cracking furnace, the products of which are cooled by cooled light gas oil and directed to an evaporator for separation. In the evaporator, gases and light boiling products are removed by evaporation and returned to the fractionation column, and the remaining distillate cracking residue is separated and used as a component of the recirculate, along with bottom residues from the fractionation column. The resulting process produces high quality and high yield needle and anode cokes.

15 Claims, 1 Drawing Sheet



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