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— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

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[Continued on next page]

(54) Title: PROCESS TO HYDRODESULFURIZE FCC GASOLINE RESULTING IN A LOW-MERCAPTAN PRODUCT

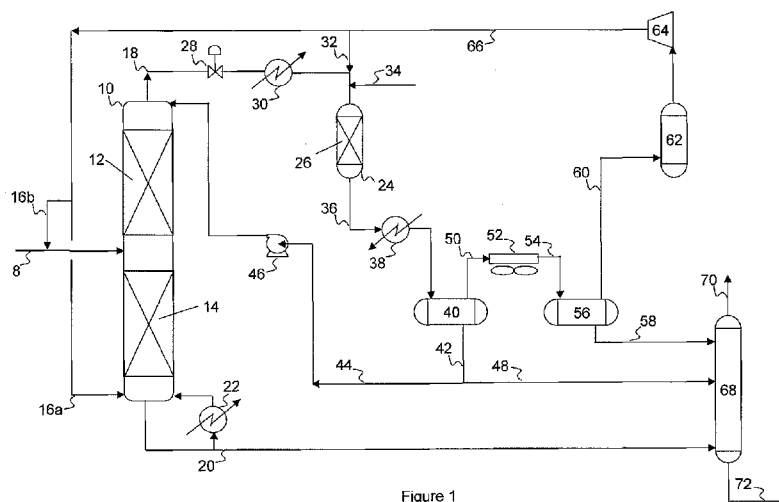


Figure 1

(57) Abstract: A process for reducing the sulfur content of a hydrocarbon stream, including: feeding a hydrocarbon stream including sulfur compounds to a catalytic distillation reactor having one or more hydrodesulfurization reaction zones; feeding hydrogen to the catalytic distillation reactor; concurrently in the catalytic distillation reactor: fractionating the hydrocarbon stream into a heavy fraction and a light fraction; contacting hydrogen and the light fraction to form H₂S and a light fraction of reduced sulfur content; recovering the light fraction, H₂S, and hydrogen as an overheads; recovering the heavy fraction; heating the overheads to a temperature from 500 to 700°F; feeding the heated overheads and hydrogen to a high temperature low pressure reactor to form H₂S and a reactor effluent of reduced mercaptan content; separating the reactor effluent, H₂S, and unreacted hydrogen to form a light hydrocarbon fraction and a fraction including H₂S and hydrogen; recycling a portion of the light hydrocarbon fraction to the catalytic distillation reactor.



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A. CLASSIFICATION OF SUBJECT MATTER*C10G 11/18(2006.01)i, C10G 55/06(2006.01)i, B01J 23/883(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC C01G 11/18, C01G 55/06, B01J 23/883

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) "hydrocarbon stream & hydrosulfurization & catalyst & hydrogen sulfide and similar tems "

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,881,324 B2(SMITH, JR.)19.APR.2005 See the abstract, fig. 1,2, Column 2 line 65 ~ Column 8 line 41, whole claims	1-21
X	US 7,125,484 B2(SMITH, JR)24.OCT.2006 See the abstract, fig. 1,2, Column 3 line 44 ~ Column 8 line 47, whole claims	1-21
X	US 2003-0230518 A1(SMITH, JR)18.DEC.2003 See the abstract, fig. 1,2, Paragraph <22> ~ <45>, whole claims	1-21



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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