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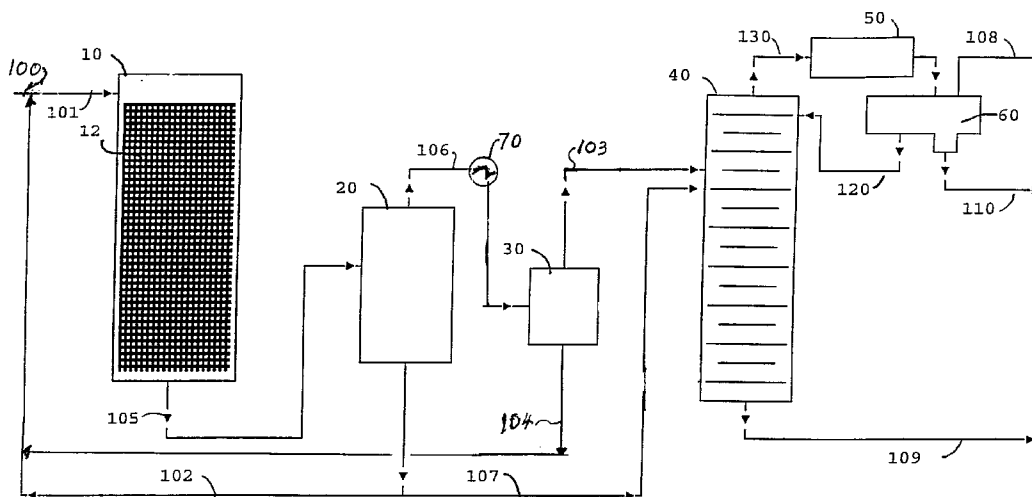
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD OF OPERATING DOWNFLOW BOILING POINT REACTORS IN THE SELECTIVE HYDROGENATION OF ACETYLENES AND DIENES



(57) Abstract: Acetylenes and dienes in a stream containing hydrogen, methane, C₂-C₆olefins and paraffins, C₂-C₆ acetylenes and dienes, benzene, toluene, xylenes, and other C₆+ components are hydrogenated in a downflow boiling point reactor wherein the heat of reaction is absorbed by the liquid in the reactor which produces a vapor. Besides the feed to the reactor there is a recirculating stream which is fed at a rate sufficient to ensure that the catalyst particles within the reactor are wetted. A third stream, which is provided from a second downstream liquid/vapor separator from partially condensed vapor from the first downstream liquid/vapor separator corresponding to the mass evaporated in the reactor, is fed to the reactor. The composition of the third stream controls the steady state composition of the liquid flowing through the reactor.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/03083

A. CLASSIFICATION OF SUBJECT MATTER

IPC: C07C 7/167 (2007.01)

USPC: 585/259

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)

USPC: 585/259

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

USPC: 585/259 (see key words below)

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

Electronic Databases Searched: USPTO WEST (PGPUB, EPAB, JPAB, USPT), Google, Thomson dialog. Search Terms Used: hydrogen\$ and acetylene, hydrogen\$ and dienes, condens\$, reactor, downflow, catalyst, benzene or toluene, hydrogen or methane or olefins or paraffins, downflow.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/0233017 A1 (Gelbein et al.) 18 December 2003 (18.12.2003) entire document	1-4

 Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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Date of the actual completion of the international search

10 June 2007 (10.06.2007)

Date of mailing of the international search report

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