



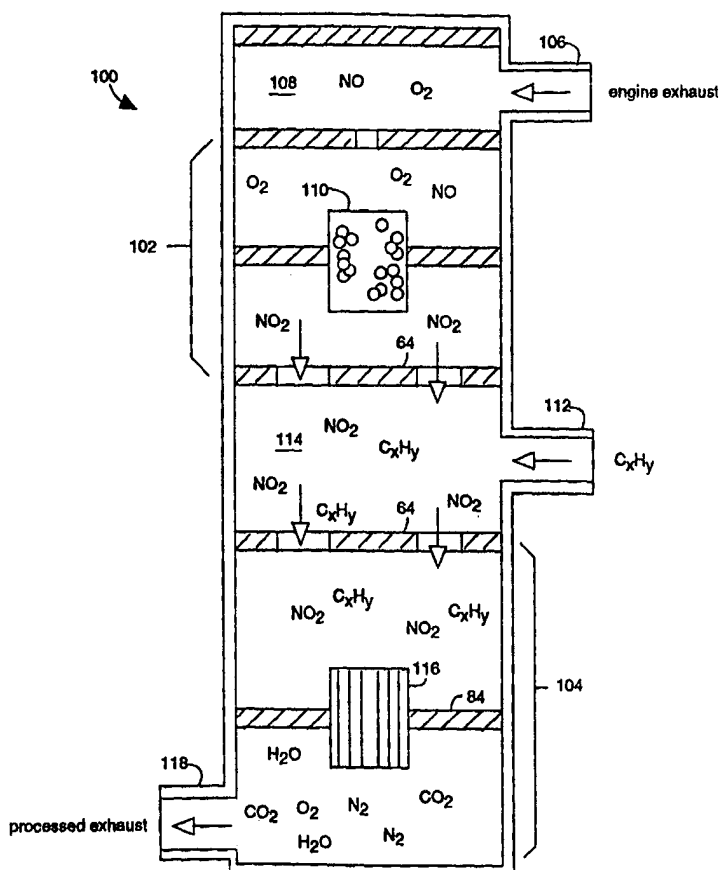
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(54) Title: PLASMA-ASSISTED CATALYTIC REDUCTION SYSTEM

(57) Abstract

A two-stage catalyst (100) comprises an oxidative stage (102) and a reductive second stage (104). The first stage (102) is intended to convert NO to NO₂ in the presence of O₂. The second stage (104) serves to convert NO₂ to environmentally benign gases that include N₂, CO₂, and H₂O. By preconverting NO to NO₂ in the first stage (102), the efficiency of the second stage (104) for NO_x reduction is enhanced. For example, an internal combustion engine exhaust is connected by a pipe (106) to a first chamber (108). A first oxidizing catalyst (110) converts NO to NO₂ in the presence of O₂ and includes platinum/alumina, e.g., Pt/Al₂O₃ catalyst. A flow of hydrocarbons (C_xH_y) is input from a pipe (112) into a second chamber (114). For example, propene can be used as a source of hydrocarbons. The NO₂ from the first catalyst (110) mixes with the hydrocarbons in the second chamber (114). The mixture proceeds to a second reduction catalyst (116) that converts NO₂ to N₂, CO₂, and H₂O, and includes a gamma-alumina. The hydrocarbons and NO_x are simultaneously reduced while passing through the second catalyst (116).



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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : F01N 3/20

US CL : 422/169, 171, 172, 177; 423/213.7; 60/274, 275, 297, 301, 303

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)

U.S. : 422/169, 171, 172, 177; 423/213.7, 239.1; 60/274, 275, 297, 301, 303

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,208,205 A (SUBRAMANIAN ET AL) 04 May 1993, see entire document.	1-4
Y	US 5,500,194 A (BELL) 19 March 1996, see entire document.	1-4
Y	US 5,534,237 A (YOSHIDA ET AL) 09 July 1996, see entire document.	1-4

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