



- (51) International Patent Classification:
B01D 53/94 (2006.01) *B01J 29/00* (2006.01)
- (21) International Application Number:
PCT/US2013/051652
- (22) International Filing Date:
23 July 2013 (23.07.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/681,281 9 August 2012 (09.08.2012) US
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

[Continued on next page]

- (54) Title: CATALYTIC REDUCTION OF NO_x WITH HIGH ACTIVITY CATALYSTS WITH ACETALDEHYDE REDUCTANT

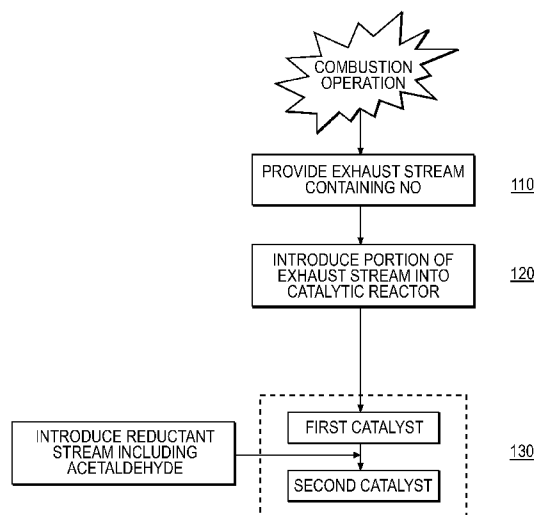


FIG. 1

- (57) Abstract: Methods and systems are provided for selective catalytic reduction of NO_x with a low molecular weight aldehyde, e.g., acetaldehyde, as a reductant using a catalyst system including two catalysts. An exhaust stream containing an amount of NO from a combustion operation is provided. A portion of the exhaust stream is introduced to a first catalyst to convert the NO to NO₂. The exhaust stream from the first catalyst with NO₂ and a reductant stream containing a low molecular weight aldehyde, e.g., acetaldehyde, are introduced to the second catalyst to convert the NO₂ to N₂. The first catalyst can be bulk CO₃O₄, Ru or Pt loaded on alumina; the second catalyst can be various zeolites, or zeolites loaded with potassium.



EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, **Published:**

LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,

SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,

GW, KM, ML, MR, NE, SN, TD, TG).

— *with international search report (Art. 21(3))*

— *with amended claims and statement (Art. 19(1))*