

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau

(43) International Publication Date  
09 November 2023 (09.11.2023)



(10) International Publication Number  
**WO 2023/215135 A1**

(51) International Patent Classification:

H01L 21/311 (2006.01) H10B 41/27 (2023.01)  
H01L 21/02 (2006.01) H10B 43/27 (2023.01)

(21) International Application Number:

PCT/US2023/019795

(22) International Filing Date:

25 April 2023 (25.04.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/364,251 05 May 2022 (05.05.2022) US  
63/364,795 16 May 2022 (16.05.2022) 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, CV, CZ, DE, DJ, DK, DM,  
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,  
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG,  
KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY,  
MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA,  
NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,  
RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,  
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,  
ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, CV,  
GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST,  
SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ,  
RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ,  
DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT,  
LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE,

(54) Title: MOLYBDENUM HALIDES IN MEMORY APPLICATIONS

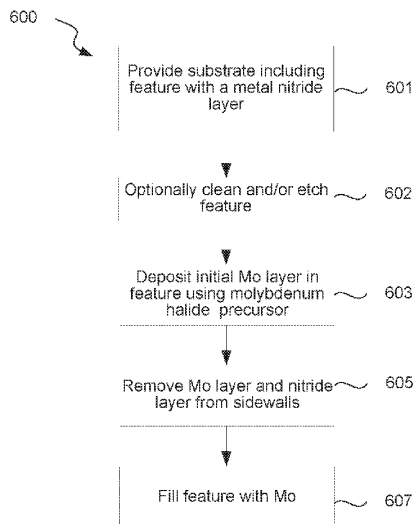


FIG. 6

(57) Abstract: Provided are processes of filling features with method. The processes include deposition, etch, and clean operations using a molybdenum chloride ( $\text{MoCl}_x$ ) compound. The  $\text{MoCl}_x$  compound may be controlled to selectively deposit on metal nitride features compared to dielectric, form plugs and crystals on dielectric materials, and perform a net etch of materials within the feature. Also provided are in-situ clean processes in which the  $\text{MoCl}_x$  compound is used to remove oxidation from underlying surfaces prior to deposition. Subsequent deposition using the  $\text{MoCl}_x$  precursor may deposit an initial layer and/or fill a feature.

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[Continued on next page]

SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, KM, ML, MR, NE, SN, TD, TG).

**Published:**

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