

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
31 July 2025 (31.07.2025)



(10) International Publication Number
WO 2025/160463 A1

- (51) **International Patent Classification:**
H01L 21/02 (2006.01) *H01L 21/67* (2006.01)
- (21) **International Application Number:**
PCT/US2025/013034
- (22) **International Filing Date:**
24 January 2025 (24.01.2025)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/625,802 26 January 2024 (26.01.2024) US
- (71) **Applicant: LAM RESEARCH CORPORATION**
[US/US]; 4650 Cushing Parkway, Fremont, California
94538 (US).
- (72) **Inventor: HUANG, Yanhui;** 4650 Cushing Parkway, Fre-
mont, California 94538 (US).
- (74) **Agent: HALL, Matt;** Alleman Hall & Tuttle LLP, 900 SW
5th Ave., Suite 2300, Portland, Oregon 97204 (US).

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UY, UZ, VC, VN,
WS, ZA, ZM, ZW.

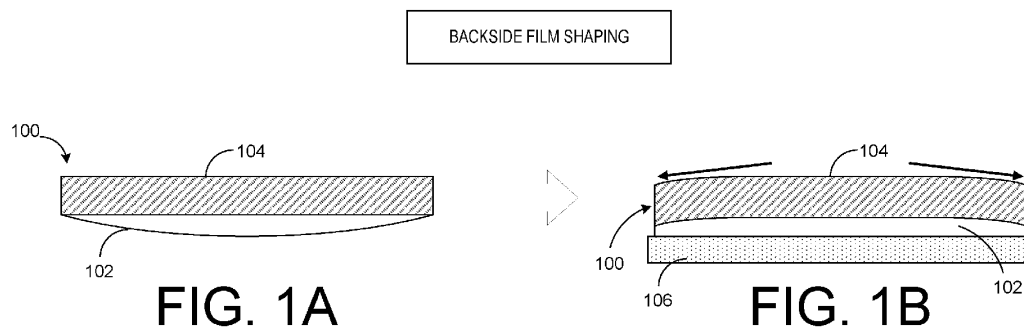
- (84) **Designated States** (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, CV,
GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST,
SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ,
RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ,
DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT,
LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE,
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))
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

- (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,

(54) **Title:** BACKSIDE FILM DEPOSITION TO CORRECT FOR OVERLAY ERROR



(57) **Abstract:** One disclosed example provides a method of mitigating substrate warpage. The method comprises depositing, on a warped substrate, a backside film having a controlled, variable thickness profile. The method further comprises chucking the warped substrate on a chuck. Chucking the warped substrate flattens the backside film against the chuck, thereby bending the warped substrate to mitigate the substrate warpage.