



(51) International Patent Classification:

B29C 65/02 (2006.01) **B65D 35/12** (2006.01)
F16L 11/04 (2006.01)

(21) International Application Number:

PCT/US2008/068297

(22) International Filing Date:

26 June 2008 (26.06.2008)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/146,127 25 June 2008 (25.06.2008) US

(71) Applicant (for all designated States except US): **COLGATE-PALMOLIVE COMPANY** [US/US]; 300 Park Avenue, New York, NY 10022 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HERNANDEZ, David, C.** [US/US]; 416 Edpas Road, New Brunswick, NJ 08901 (US). **MILLER, Christopher, J.** [US/US]; 271 Old Farm Road, Flemington, NJ 08822 (US).

(74) Agent: **WALLACE, Michael**; Colgate-palmolive Company, 909 River Road, Po Box 1343, Piscataway, NJ 08854 (US).

(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, BR, BW, BY, BZ, CA, CH, 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, KM, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

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

(54) Title: METHOD OF MAKING SHOULDER/NOZZELS WITH FILM BARRIER LINERS

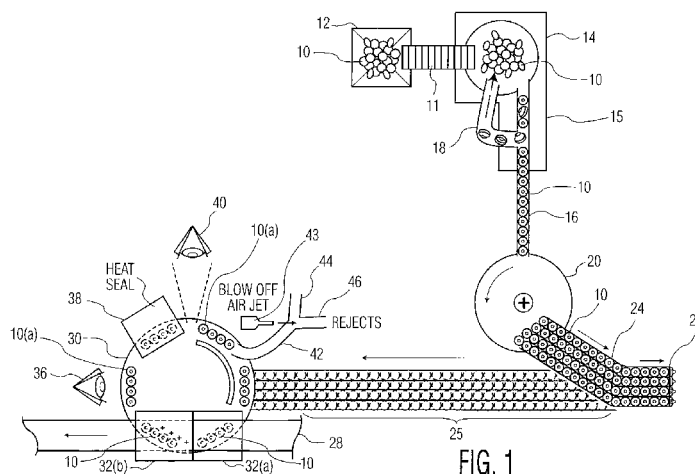


FIG. 1

(57) Abstract: The method comprises an automated technique for making and inserting flexible laminate film barrier liners into the shoulder/nozzles of product tube packaging. The shoulder/nozzles are made and oriented with the shoulder opening to be facing the laminate film. The film is fed to a station that forms the nozzle aperture, die cuts the laminate film to fit into the shoulder of the shoulder/nozzle, and inserts this laminate film into the shoulder/nozzle. The laminate film can be heat bonded to the shoulder nozzle at this station or in a subsequent sealing station. After the shoulder/nozzle leaves the station that forms and inserts the laminate film into the shoulder/nozzle there can be a detection station to determine if the laminate film is properly aligned in the shoulder/nozzle. There also can be a detection station after a subsequent sealing station. Shoulder/nozzles with sealed laminate film liner are then sent to tube making. The laminate film will have a polymer layer and a barrier layer comprising ethylene vinyl alcohol copolymers, polyethylene terephthalate polymers, polyethylene naphthalate polymers and acrylonitrile methyl-acrylate copolymers. The tube packages produced using these shoulder/nozzles are very useful for products which contain flavorants, such as dentifrices.