

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 February 2001 (15.02.2001)

PCT

(10) International Publication Number
WO 01/10617 A1

(51) International Patent Classification⁷: B29B 7/46, 7/82

(21) International Application Number: PCT/US99/17694

(22) International Filing Date: 4 August 1999 (04.08.1999)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant and

(72) Inventor: FOGARTY, James, D. [US/US]; 4970 Alfresco Street, Boca Raton, FL 33428 (US).

(74) Agent: MALLOY, Jennie, S.; Malloy & Malloy, P.A., Historic Coral Way, 2800 S.W. 3rd Avenue, Miami, FL 33129 (US).

(81) Designated States (national): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE,

ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW.

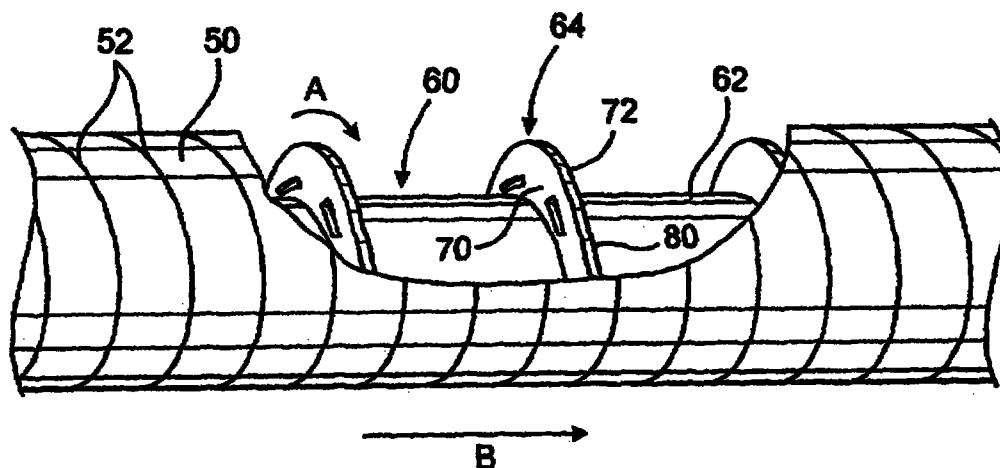
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A HOMOGENIZATION ENHANCING THERMOPLASTIC FOAM EXTRUSION SCREW



(57) Abstract: A foam extrusion assembly (10) having a melt region (20) and a heat extraction region (40) which extracts excess heat from a mixture of melted material pellets and blowing agent. The heat extraction region includes an elongate barrel (50) having an inlet (31) and an outlet (44), the inlet receiving the extrusion mixture for passage into the barrel wherein a heat extraction structure disposed with the barrel draws heat therefrom. An extrusion screw (60) is disposed in the barrel and includes a screw flight (64) structured to rotate within the barrel and urge the extrusion mixture towards the outlet of the barrel where a die (44) is disposed in order to form the finished product. The screw flight (64) includes a circulation channel (90) which receives quantities of the extrusion mixture upon rotation of the extrusion screw, thereby circulating the extrusion mixture towards the barrel for more effective and uniform cooling of the extrusion mixture to an extrudable temperature.

WO 01/10617 A1