

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
20 October 2005 (20.10.2005)

PCT

(10) International Publication Number
WO 2005/098290 A1

(51) International Patent Classification⁷: **F16K 15/02**,
B29C 45/23

(74) Agents: **SMITH, Derek K. W.** et al.; Husky Injection
Molding Systems Ltd., 500 Queen Street South, Bolton,
Ontario L7E 5S5 (CA).

(21) International Application Number:
PCT/CA2005/000212

(22) International Filing Date: 21 February 2005 (21.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2463281 5 April 2004 (05.04.2004) CA

(71) Applicant (for all designated States except US): **HUSKY
INJECTION MOLDING SYSTEMS LTD.** [CA/CA];
500 Queen Street South, Bolton, Ontario L7E 5S5 (CA).

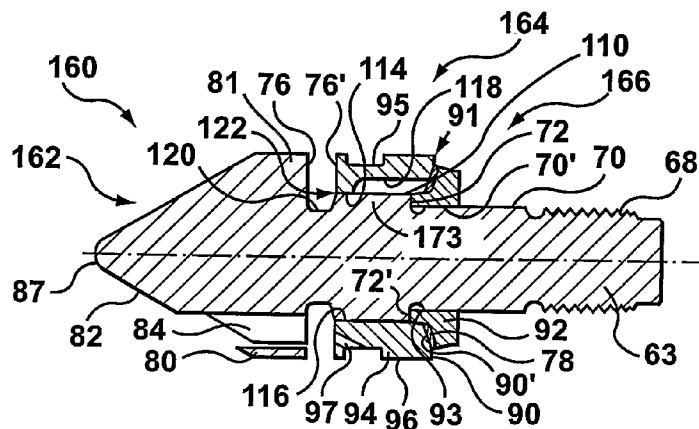
(72) Inventors: **MANDA, Jan M.**; 132 Anndale Drive,
Toronto, Ontario M2N 2X8 (CA). **WEIR, Sean**; 705
King Street West, Suite 504, Toronto, Ontario M5V 2W8
(CA). **PINET, Pierre Jean**; 373-2303 Front Street West,
Toronto, Ontario M5V 3R7 (CA).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, 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, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: NON-RETURN VALVE FOR USE IN A MOLDING SYSTEM



(57) Abstract: The present invention relates to a non-return valve that can be configured for use anywhere along a molding material flow path in a molding system. The non-return valve of the present invention includes an improved means to restrict the backflow of melt therethrough during injection. In particular, a spigot-seal is configurable, during injection, between overlapping, closely-spaced, and mutually parallel complementary male and female spigot portions that are configured between complementary valve members. The spigot-seal advantageously maintains an effective backflow restriction even in the eventuality of transient movement between the spigot portions during injection. Preferably, the non-return valve of the present invention is also configured to include a means for mutually aligning and/or guiding the complementary valve components that ensures a proper alignment between the complementary spigot portions, and may also serve to improve the function and longevity of a face-seal, when present. The non-return valve of the present invention provides particularly advantageous utility when configured for use in a barrel assembly of an injection unit for the injection molding of a metal alloy.

**Declaration under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM,

AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, 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.