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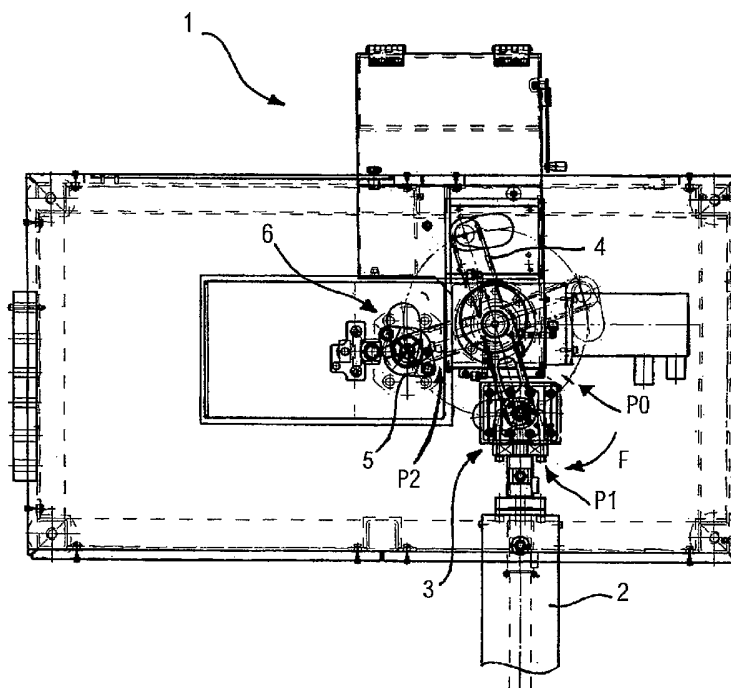
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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: APPARATUSES AND METHODS FOR PRODUCING OBJECTS



(57) Abstract: An apparatus comprises transfer means (4) rotatable at a speed (v) to transfer a dose of plastics from supply means (2; 2a; 2b) to forming means (5) of said dose, control means that is suitable for varying said speed (v) in a substantially continuous manner between a minimum value and a maximum value being associated with said transfer means (4).

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— *of inventorship (Rule 4.17(iv))*

(88) Date of publication of the international search report:
4 May 2006

Published:

— *with international search report*

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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.

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2005/001802

A. CLASSIFICATION OF SUBJECT MATTER
B29C31/04 B29C37/00 B29C43/34 B65G47/84 B65G47/90

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 596 251 A (MILLER ET AL) 21 January 1997 (1997-01-21)	1-8, 48, 60, 63, 64, 72-74
Y	column 1, line 63 - column 2, line 8 column 2, line 35 - line 64 column 3, line 10 - line 29 column 4, line 1 - column 5, line 21 column 6, line 27 - line 50; figures -----	49-59, 62, 65-71
X	US 5 811 044 A (ROTE ET AL) 22 September 1998 (1998-09-22)	1-8, 73, 74
Y	column 1, line 12 - line 46 column 2, line 34 - line 51 column 4, line 23 - line 55 figures 5, 20, 21 ----- -/--	56-59

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier document but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
 "&" document member of the same patent family

Date of the actual completion of the international search 10 February 2006	Date of mailing of the international search report 22.02.2006
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Fageot, P
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INTERNATIONAL SEARCH REPORT

 International application No
 PCT/IB2005/001802

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 101 586 A (ALCOA CLOSURE SYSTEMS INTERNATIONAL, INC) 23 May 2001 (2001-05-23) column 1, paragraph 1 column 2, paragraph 6 column 2, paragraph 8 column 3, paragraph 12 - paragraph 13 column 5, line 21 column 10, line 48 figures 1,12 -----	1-8,73, 74
X	EP 1 101 587 A (ALCOA CLOSURE SYSTEMS INTERNATIONAL, INC) 23 May 2001 (2001-05-23) column 1, paragraph 1 column 5, line 19 - line 23 column 7, paragraph 27 - paragraph 28 column 8, paragraph 35 - column 9, paragraph 42; figures 1-3 -----	1-8,48, 60,61, 72-74
Y	US 5 807 592 A (ALIERI ET AL) 15 September 1998 (1998-09-15) column 2, line 5 - line 42 column 3, line 35 - line 48 column 3, line 62 - line 67; figure 1 -----	9-19,62
Y	US 5 336 074 A (KASHIWA ET AL) 9 August 1994 (1994-08-09) column 2, line 1 - line 55 column 3, line 41 - line 62; figures 1,3 -----	9-13, 15-19
A	US 2003/102587 A1 (KOBAYASHI KAZUHIKO ET AL) 5 June 2003 (2003-06-05) -----	9,15-19
Y	page 1, paragraph 5 page 1, paragraph 15 page 2, paragraph 33 - paragraph 48 page 5, paragraph 94 - paragraph 98; figures 1,8,19 -----	14
A	US 4 076 780 A (DITTO ET AL) 28 February 1978 (1978-02-28) column 2, line 34 - column 4, line 40; figures -----	9,11-13, 15-19
A	US 5 395 565 A (NAGAOKA ET AL) 7 March 1995 (1995-03-07) column 1, line 40 - line 53 column 5, line 1 - column 6, line 45; figures -----	9,11-13, 15-19
A	US 2003/230821 A1 (OKADO SHOJI ET AL) 18 December 2003 (2003-12-18) abstract; figures -----	9,11,12, 15-19
	-/--	

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2005/001802

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/198703 A1 (JOHNS ALBERT D ET AL) 23 October 2003 (2003-10-23) page 2, paragraph 16 - page 3, paragraph 23	49-55
Y	US 2001/011782 A1 (IDE AKINORI ET AL) 9 August 2001 (2001-08-09) page 6, paragraph 114	65,66
Y	US 5 578 159 A (MIYASHITA ET AL) 26 November 1996 (1996-11-26) column 5, line 8 - column 6, line 41 column 7, line 32 - line 54	67-71

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2005/001802

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

1-19, 48-74
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8,73,74

an apparatus and corresponding method directed to control means suitable for varying the speed of a rotationally drivable transfer means

2. claims: 9-19

an apparatus and corresponding method directed to actuating means suitable for moving a first forming means towards a second forming means.

3. claims: 20-28

an apparatus and corresponding method directed to an extruder provided with screw means and comprising moving means.

4. claims: 29-42

an apparatus and corresponding method directed to an extruder provided with screw means and comprising chamber means provided to temporarily store plastics.

5. claims: 43-47

an apparatus comprising punch means for shaping an object and extracting means.

6. claims: 48-72

an apparatus comprising sensor means.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2005/001802

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5596251	A	21-01-1997	NONE	
US 5811044	A	22-09-1998	US 5603964 A	18-02-1997
EP 1101586	A	23-05-2001	BR 0005793 A US 6422854 B1	23-04-2002 23-07-2002
EP 1101587	A	23-05-2001	BR 0005517 A US 6368094 B1	24-07-2001 09-04-2002
US 5807592	A	15-09-1998	AT 173666 T AU 694520 B2 AU 2613395 A BR 9507750 A CN 1148825 A DE 69506243 D1 DE 69506243 T2 WO 9532086 A1 EP 0759844 A1 ES 2125619 T3 IT 80940242 A1 JP 10500370 T	15-12-1998 23-07-1998 18-12-1995 19-08-1997 30-04-1997 07-01-1999 29-04-1999 30-11-1995 05-03-1997 01-03-1999 23-11-1995 13-01-1998
US 5336074	A	09-08-1994	DE 4233954 A1 JP 5104300 A	29-04-1993 27-04-1993
US 2003102587	A1	05-06-2003	CN 1424191 A NL 1022046 C2 NL 1022046 A1	18-06-2003 21-11-2003 03-06-2003
US 4076780	A	28-02-1978	NONE	
US 5395565	A	07-03-1995	DE 4233079 A1 JP 2980747 B2 JP 5092440 A KR 9602710 B1	08-04-1993 22-11-1999 16-04-1993 26-02-1996
US 2003230821	A1	18-12-2003	CN 1467074 A JP 2004017396 A TW 221441 B	14-01-2004 22-01-2004 01-10-2004
US 2003198703	A1	23-10-2003	CA 2317872 A1 JP 2001129901 A US 2003183968 A1 US 6585506 B1	09-03-2001 15-05-2001 02-10-2003 01-07-2003
US 2001011782	A1	09-08-2001	NONE	
US 5578159	A	26-11-1996	NONE	