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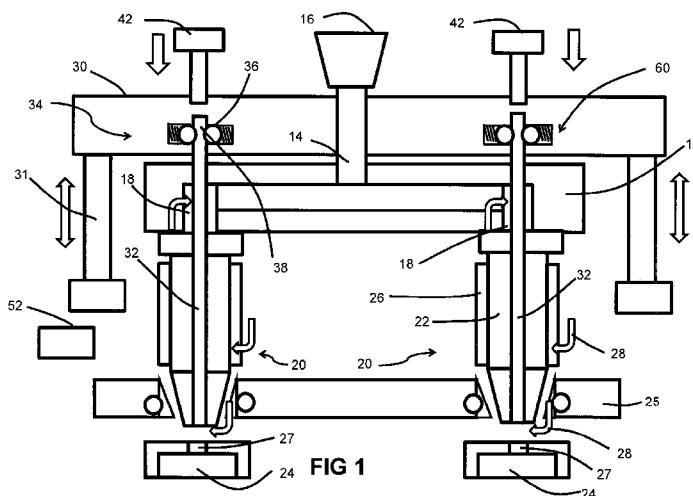
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(54) Title: INJECTION MOLDING APPARATUS WITH ACTIVE VALVE PIN DISENGAGEMENT



(57) Abstract: A hot runner injection molding apparatus (10) includes hot runner nozzles (20), a movable frame (30) that can be dis-  
placed between at least two positions relative to a plurality of mold cavities (24), each cavity having a mold gate (27). Valve pins  
(32) associated with the hot runner nozzles (20) are individually coupled to the movable frame (30) by a decouplable connector (36,  
60). Disengagement devices (40) associated with the valve pins are activated to decouple any associated valve pin (32) from the  
movable frame (30). A control system (52) is used to activate the disengagement devices (40). In some instances a blocking element  
(42) is also activated to lock any valve pin at the mold gate or close to the mold gate. Control system (52) is further used to operate  
the blocking element (42). Disengagement devices (40) and the blocking elements (42) can be the same or different.

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# INTERNATIONAL SEARCH REPORT

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. B29C45/28      B29C45/76      B29C45/84 ADD.				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
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 practicable, search terms used) EPO-Internal				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 7 722 351 B2 (FEICK MURRAY [CA] ET AL) 25 May 2010 (2010-05-25) cited in the application	1,3, 15-22		
Y	abstract; figures 4, 9 column 8, line 26 - line 40 column 14, line 6 - line 14 column 4, line 54 - column 5, line 5 -----	4-8,23		
Y	US 7 988 445 B2 (TABASSI PAYMAN [CA] ET AL) 2 August 2011 (2011-08-02) cited in the application	23		
A	abstract; figures 4, 6, 9, 10, 11 column 4, line 46 - line 50 column 1, line 32 - line 46 -----	1-22		
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.				
* Special categories of cited documents : <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;">                     "A" document defining the general state of the art which is not considered to be of particular relevance                      "E" earlier application or patent 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                 </td> <td style="width: 50%; border: none; vertical-align: top;">                     "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                      "&amp;" document member of the same patent family                 </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent 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
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent 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			
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