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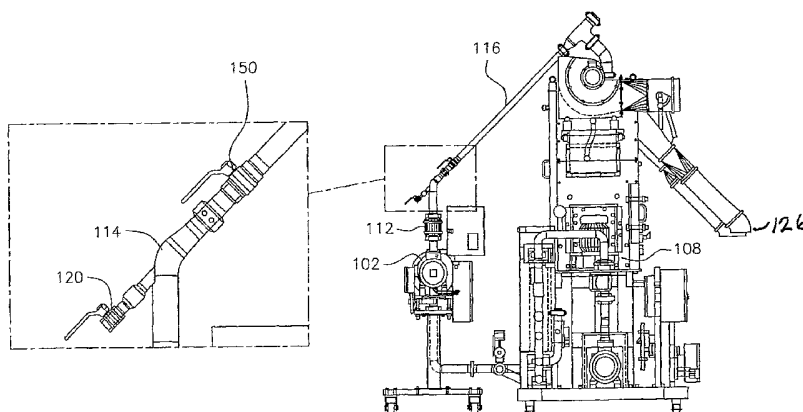
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(54) Title: METHOD AND APPARATUS FOR MAKING CRYSTALLINE POLYMERIC PELLETS AND GRANULES



(57) Abstract: A method and apparatus for underwater pelletizing and subsequent drying of crystallizing polymers to crystallize the polymer pellets without subsequent heating is shown in Figure 5. High velocity air or other inert gas is injected into the water and pellet slurry line (120) toward the dryer near the pelletizer exit (102) at a flow rate of from about 100 to about 175 m³/hour, or more. Such high-speed air movement forms a vapor mist with the water and significantly increases the speed of the pellets into and out of the dryer such that the polymer pellets leave the dryer with sufficient latent heat to cause self-crystallization within the pellets. A valve mechanism in the slurry line (150) after the gas injection further regulates the pellet residence time and a vibrating conveyor after the dryer helps the pellets to achieve the desired level of crystallinity and to avoid agglomeration.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **B29B 9/06(2006.01),9/00(2006.01),13/02(2006.01);B29C 71/00(2006.01),71/02(2006.01)**
 USPC: 264/143,235;425/67,313
 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)
 U.S. : 264/143,235;425/67,313

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3,544,525 (BALINT et al) 1 December 1970 (01.12.1970), figure 1 and column 2, lines 54-72, columns 5 and 6.	1-32
Y	US 2005/0056961 A1 (BONNER) 17 March 2005 (17.03.2005), figures 1-3 and pages 2 and 3.	1-32
Y	US 5,633,018 (STOUFFER et al) 27 May 1997 (27.05.1997), figure 1, item 20.	28
Y	US 5,607,700 (KANDO et al) 4 March 1997 (04.03.1997), column 2.	29,32
Y	US 4,632,752 (HUNKE) 30 December 1986 (30.12.1986), figure 1.	29,32
A	US 3,988,085 (KRCHMA) 26 October 1976 (26.10.1976), figure 1, item 33.	1-32
A	US 4,476,019 (NOWISCH et al) 9 October 1984 (09.10.1984), entire document.	1-32

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

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"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	"&"	document member of the same patent family

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,895,617 (MIZUGUCHI et al) 20 April 1999 (20.04.1999), figure 1 and column 4.	1-32
X,P	US 2005/0154183 A1 (EKART et al) 14 July 2005 (14.07.2005), entire document, particularly paragraphs 72, 73, 76-96, 103-108, 112, and 120.	1-32
X,P	US 2005/0110184 A1 (ELOO) 26 May 2005 (26.05.2005), figures 1 and 3 and paragraphs 1-31.	1-32