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(54) Title: MINERAL SEPARATION USING SIZED-, WEIGHT-OR MAGNETIC-BASED POLYMER BUBBLES OR BEADS

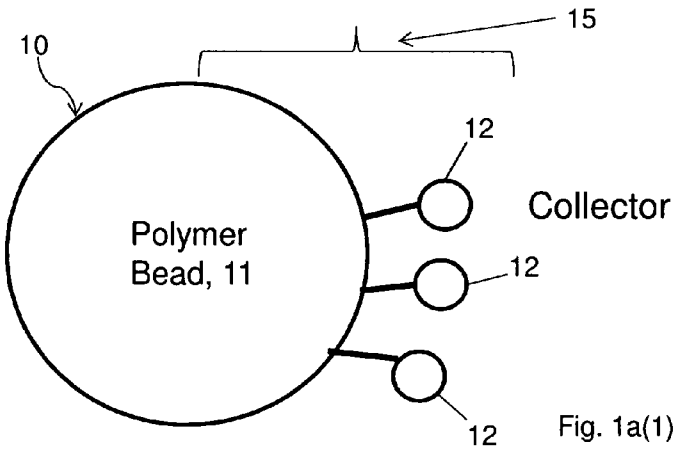


Fig. 1a(1)

(57) Abstract: Apparatus for use in, or forming part of, a separation process to be implemented in separation processor technology, the apparatus comprising synthetic bubbles or beads configured with a polymer or polymer-based material functionalized to attach to a valuable material in a mixture so as to form an enriched synthetic bubbles or beads having the valuable material attached thereto, and also configured to be separated from the mixture based at least partly on a difference in a physical property between the enriched synthetic bubbles or beads having the valuable material attached thereto and the mixture.

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - B03C 1/01; H01F 1/032; B01J 47/00 (2012.01)
USPC - 210/676;210/222
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)
IPC(8): B03C 1/01; H01F 1/032; B01J 47/00 (2012.01)
USPC: 210/676;210/222

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 210/495,502.1,503,504,505,506,670,679,688,695; 252/62.51R,62.53,62.54,62.56; 428/393,394 (keyword limited; search terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST(USPT, PGPB, JPAB, EPAB); Google Scholar; Google Patents
Search terms: ore$2 separat$6 bubble$2 bead$2 polymer$5 hydrocyclone densit$4 and size$2 and magnet$5 screen column$2 flow$5 vat$2 mixing drum$2

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2010/0072110 A1 (Gradek) 25 March 2010 (25.03.2010), especially, para [0001], [0019], [0025], [0029], [0038], [0047], [0051]-[0054] and [0094].	1-3, 5, 8, 9, 17, 27, 28 --- 4, 6, 7, 10-16, 18-26, 29-31
Y	US 2008/0139399 A1 (Fonnum et al.) 12 June 2008 (12.06.2008), especially, para [0010], [0031], [0032] and [0035].	4, 18, 21-25, 30, 31
Y	US 2010/0108573 A1 (Ravishankar et al.) 6 May 2010 (06.05.2010), especially, para [0031], [0060], [0065] and [0071].	6, 7, 15, 16
Y	US 2005/0051465 A1 (Khan et al.) 10 March 2005 (10.03.2005), especially, para [0030], [0045], [0072], [0093] and [0100].	10-14, 19
Y	US 2005/0242000 A1 (Khan et al.) 3 November 2005 (03.11.2005), especially, para [0080].	13, 14, 19, 20
Y	US 2006/0226051 A1 (Navaratte et al.) 12 October 2006 (12.10.2006), especially, para [0003], [0005] and [0102].	26, 29
Y	US 2009/0139906 A1 (Kruyer) 4 June 2009 (04.06.2009), especially, para [0043], [0047], [0052] and [0061].	24, 25, 30, 31
Y	US 2010/0228056 A1 (Wang et al.) 9 September 2010 (09.09.2010), especially, para [0024].	25, 30, 31

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"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	Date of mailing of the international search report
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