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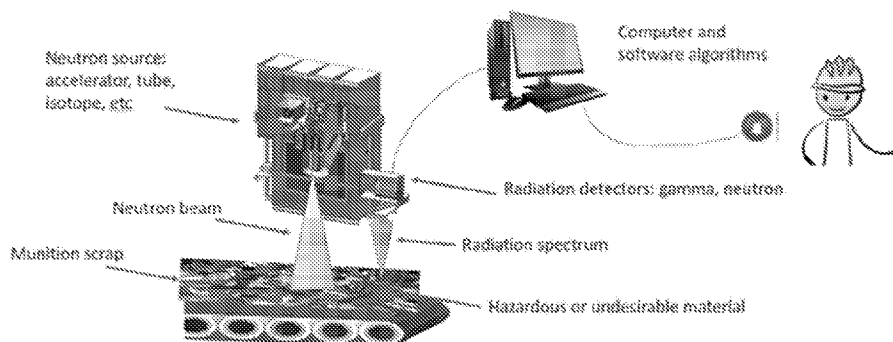
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(54) Title: NEUTRON ACTIVATION AND DETECTION OF HAZARDOUS, UNDESIRABLE, OR HIGH VALUE MATERIAL

FIG. 1



(57) Abstract: Provided herein are neutron-based detection systems and methods that provide, for example, high throughput analysis of elemental analysis of scrap materials. Such systems and methods find use for the commercial-scale evaluation of bulk process materials where hazardous or otherwise undesirable materials or high value materials may be interspersed with the primary process material. In certain embodiments, the system is used to detect and potentially remove unexploded ordinance (UXO) from a conveyor of demilitarized shell casings being recycled by detecting the presence of nitrogen and other elements present in the UXO. In other embodiments, the system detects and removes unwanted or highly valuable materials from a stream of scrap material.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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CPC - G01N 23/22; G01N 23/222; G21G 4/02; G01T 1/167; G01T 1/20

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

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

See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2017/0023500 A1 (XRSCIENCES LLC) 26 January 2017 (26.01.2017) entire document especially para [0002], [0009-0010], [0028], [0038], [0043], [0057-0058], [0074-0075], [0077]	1-24
Y	US 2010/0038550 A1 (DEVITO) 18 February 2010 (18.02.2010) entire document especially para [0020], [0041], [0072]	1-24
Y	US 2013/0279638 A1 (MATSUMOTO et al.) 24 October 2013 (24.10.2013) entire document especially para [0093]	6, 7, 18, 19, (23-24)/(6-7,18-19)
Y	US 2002/0175288 A1 (TALEYARKHAN) 28 November 2002 (28.11.2002) entire document especially para [0009]	13, (23-24)/(13)

Further documents are listed in the continuation of Box C.

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