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(54) Title: SYSTEM AND METHOD FOR DETECTION AND IDENTIFICATION OF FOREIGN ELEMENTS IN A SUBSTANCE

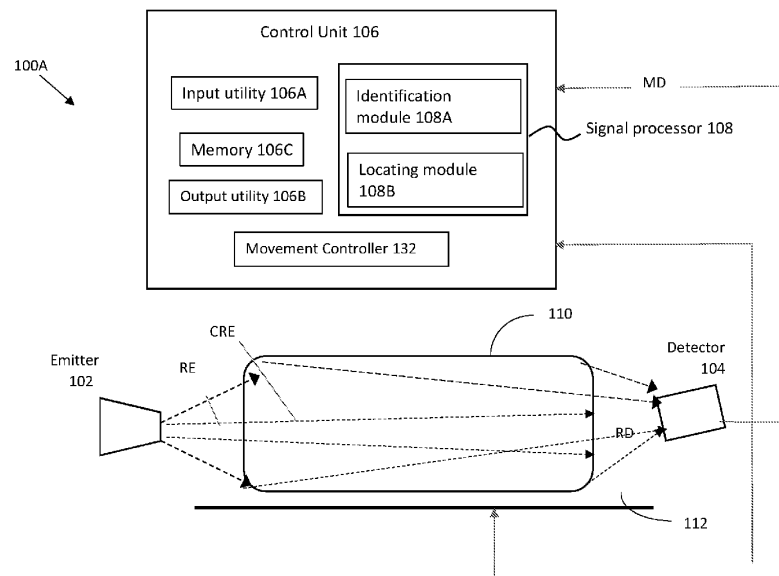


FIG. 2A

(57) Abstract: In one embodiment, a system and method for inspecting a substance to detect and identify predetermined foreign element(s) in the substance. The foreign element may carry X-ray responding material compositions, emitting X-ray signals in response to primary exciting X-ray or Gamma-ray radiation. The inspection is performed during a relative displacement between the substance and an inspection zone, defined by an overlap region between a solid angle of emission of an X-ray / Gamma-ray source and a solid angle of detection of X-ray radiation, along a predetermined movement path, as the substance moves along said path, the detected X-ray radiation includes X-ray response signals from successive portions of the substance propagating towards, through, and out of said overlap region. Measured data indicative of X-ray response signals is analyzed to identify a signal variation pattern over time indicative of a location of at least one foreign element carrying an X-ray responsive marker.

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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