

## **ABSTRACT**

### **OBJECT EXAMINATION BY DUAL ENERGY RADIATION SCANNING AND DELAYED NEUTRON DETECTION**

In accordance with an embodiment, a method of examining contents of an object is disclosed comprising conducting a first examination of an object, checking for the presence of delayed neutrons if the first examination indicates that suspect material is present, and determining whether the object contains nuclear material based, at least in part, on the check. The first examination may comprise a manual examination or scanning of the object to form an image, for example. The first examination may also comprise scanning of the object at two different radiation energies, calculating a function of the energy detected at the two radiation energies, and determining whether the object at least potentially contains suspect material based, at least in part, on the comparison. Systems are also disclosed.

**Fig. 15b**