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METHOD FOR PROTECTION OF OBJECTS

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment of any royalty thereon.

This invention relates to a method for protecting objects from theft, and is particularly applicable to the protection of secret Government documents, maps, drawings, manuscripts, and other objects, both metallic and non-metallic.

In accordance with the invention, objects to be protected are coated with a radioactive material emitting ionizing particles. At each exit to the vault, room, building or the like, where the objects being protected are contained, a Geiger-Mueller ionization counter is placed. The Geiger-Mueller counter is connected to an electronic amplifier, which in turn is connected to an alarm, electric lock, or similar device, in a well known manner. If a protected article coated with radioactive material is brought in the vicinity of the Geiger-Mueller tube, the pulse rate of the tube is increased above its normal rate for cosmic ray radiation and the increased pulse rate may be integrated with vacuum tube circuits into an increased current flow that will be amplified and made to operate a relay which actuates the alarm or other device.

The amount of radioactive material required to protect each object is extremely small, equivalent to the order of a microgram of equivalent radium or less.

The application of the radioactive material may be made in many ways, and this disclosure is not to be considered as limitative of the method of application. It is possible, for example to apply a solution of radioactive salt to an object by means of a dropper, or alternatively the radioactive material may be applied to a small piece of paper covered with adhesive material, which can be attached to the object.

In certain cases the radiation from objects normally carried on the person, for example, luminous watch dials, may be undesirable, since such objects will trigger the alarm. This may be overcome by applying an amount of radioactive material on each protected object in excess of that usually carried on the person and adjusting the threshold of the amplifier to function only on the higher amount of radiation. Undesired radiation may also be overcome by applying a radioactive

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material which emits so-called "soft" rays and using two Geiger-Mueller tubes, one sensitive to "hard" rays only, and the other sensitive to both hard and soft rays. The radioactive materials usually found on the person emit hard radiation. By using circuits known to the art of photoelectric cell devices, the alarm may be actuated by soft radiation which is detected by the "soft" ray tube, while hard radiation will be detected by both tubes which will prevent the alarm circuit from functioning in response to such hard radiation alone.

From the above description it will be seen that there has been provided a simple and effective method of giving an alarm when protected objects are removed from a vault, room or the like. The Geiger-Mueller counter is extremely sensitive, and any movement of an object coated with radioactive material in its path will be detected.

The invention having been described, what is claimed is:

1. A method of protecting against unauthorized removal from a designated location an object to be protected, comprising the steps of: adding to such object radioactive material which is distinguished in the nature of its radiation from radioactive materials normally carried by a person; providing at least one path for removal of the object from such location; restricting the removal of the object to such paths; indicating the presence of the added radioactive material therewith as the object moves along such restricted path; distinguishing between radiations of radioactive material present on an item normally carried by a person and the radiations of the said material added to the object to be protected, and operating a means to prevent removal of the object in response to radiations of said added material when the object is at a part of said path remote from said designated location.

2. A method of protecting an object of designedly fixed location against casual removal from a designated location, comprising the steps of: adding radioactive material to such object, providing at least one path for removal of the object from such location, restricting removal of the object to such path, maintaining a radiation-responsive protective device at a place beside such path remote from the said designated location, and operating a lock in said path further remote

from said designated location responsively when an indication of said added radioactive material is given by said radiation responsive protective device.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,662,429	Lowy	Mar. 13, 1928

Number	Name	Date
2,346,043	Mysels	Apr. 4, 1944
2,401,723	Deming	June 11, 1946

OTHER REFERENCES

Locher and Weatherwax, Radiology, vol. 27, 1936, pp. 149 and 153–155.

Curtiss, Journal of Research of the National Bureau of Standards, vol. 23, July 1939, pp. 137 and 141–143.