

Nov. 25, 1958

J. MEILINK

2,862,108

DEVICE FOR CONTAINING AND EXPOSING A RADIOACTIVE MATERIAL

Filed June 18, 1953

Fig.1

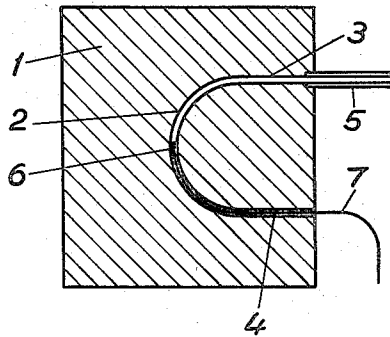


Fig.2

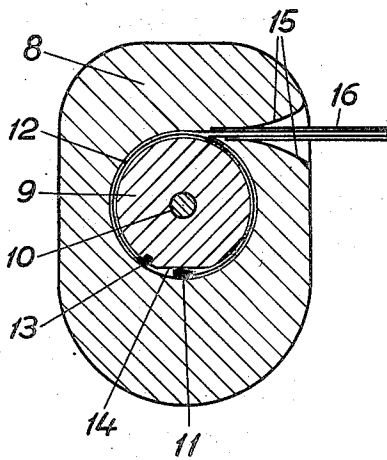
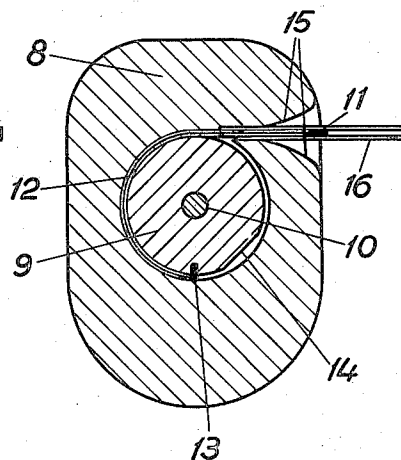


Fig.3



Inventor
Johannes Meilink
By *James Aiken*
Attorney.

1

2,862,108

DEVICE FOR CONTAINING AND EXPOSING A RADIOACTIVE MATERIAL

Johannes Meilink, Vasteras, Sweden, assignor to Allmänna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden

Application June 18, 1953, Serial No. 362,639

Claims priority, application Sweden July 2, 1952

7 Claims. (Cl. 250—106)

The present invention refers to a device for containing a radioactive material and for setting such material for exposure. Previously such devices were usually made in the shape of a container of an absorbing material, in which the radioactive material was placed. In the retracted position the material was covered by a lid of absorbing material, and this lid had to be removed for exposure. These known devices, however, suffer from certain drawbacks. Owing to the great weight of the lid there are great difficulties in handling it, and such a simple device will not permit the control of the starting of the radiation and the divergence of the rays.

Said drawbacks are avoided by the present invention, which refers to a device where the radioactive material is placed in a bent channel within a body of absorbing material and is so arranged that it can be moved within said channel between a radiating position at the outer surface of the body and a retracted position within said body.

The invention will be best understood from the accompanying drawing, in which Fig. 1 schematically shows one form of the invention and Figs. 2 and 3 another form of the invention.

In Fig. 1, which shows a vertical section, 1 designates a body of a material absorbing radioactive radiation and 2 a bent channel within said body with straight channel portions 3 and 4 running to the outer surface of the body. 5 designates a tube of a material with small absorption of radioactive radiation which projects from the body 1. The radioactive material is placed in a capsule 6 which is shown in the retracted position in the innermost portion of the channel. The capsule containing the radioactive material may, however, be moved in the channel by aid of a flexible member 7. By moving the capsule 6 through the channel portion 3, the radioactive material will be brought to a position where outwardly directed radiation is permitted. By moving the radioactive material further within tube 5, the angle of radiation may be extended.

Figs. 2 and 3 show another form in which the handling of the radioactive material takes place by aid of a shaft inserted in the absorbing body. Fig. 2 shows the radioactive material in retracted position and Fig. 3 in radiating position. In both said figures, 8 denotes a body of absorbing material, suitably divisible to make the interior of the body accessible. 9 denotes a cylinder, suitably of absorbing material, which may be turned by aid of the shaft 10, extending through and outside the body 8. The cylinder 9 has such a diameter that a certain gap is obtained between its outer surface and the surrounding body 8. A portion of the outer surface of

2

the cylinder is suitably provided with a recess 14 to accommodate a capsule 11 containing the radioactive material. One end of a band 12 is attached to the capsule 11. The band is wound on to the cylinder, and the other end of it is attached to the cylinder at 13. Tangentially to the upper portion of the cylinder the body 8 is provided with an opening 15 in the shape of a cone, the opening angle of which is so chosen that a directional effect is achieved when the radioactive material is moved into the opening. The opening angle is suitably continuously increased. To guide the capsule with the radioactive material when it is moved in the cone shaped opening, a tube 16 is arranged which possibly may be replaced by a channel. The moving of the radioactive material in the outward direction is obtained by clockwise turning of the shaft 10. The radioactive material will be moved in the gap between the cylinder and the body and will further be entered into the tube 16 and moved within it.

The invention offers the possibility of remote control of the position of the radioactive material in relation to the containing body to obtain a desired intensity and spread of the radiation. This also increases the safety for the person handling the material. By providing the container with a cone shaped opening according to Figs. 2 and 3, a desired directional effect of the spread of the radiation may be obtained. By moving the radioactive material far enough in the tube outside the surface of the body, so-called panorama exposures will be possible, for instance when several objects have to be irradiated at one time.

I claim as my invention:

1. A device for containing and exposing a radioactive material for the exposure of objects to radioactive radiation, comprising a body of absorbing material, a channel having a bent portion within said body, and means for displacing the radioactive material within the bent portion of said channel between a radiating position at the outer surface of the body and a retracted position within said body.

2. A device for containing and exposing a radioactive material, comprising a body consisting of a material able to absorb radioactive radiation, a bent channel in said body, an opening located at the outer surface of said body and communicating with said channel, a receptacle for a radioactive substance within said channel, means for moving said receptacle in said bent channel between a retracted position within said body and an exposing position at the outer surface of the body.

3. A device according to claim 2, in which the said receptacle consists of a capsule, and in which said receptacle moving means consists of a flexible member attached to said capsule and having one end extending outside the body for remote control of the position of the capsule within the body.

4. A device according to claim 2, in which the said opening located at the outer surface of the body is of conical form.

5. A device according to claim 2, comprising a guiding member arranged in line with the opening located at the outer surface of the body.

6. A device according to claim 2, comprising a guiding member serving to guide the movement of said receptacle and forming a continuation of said channel outside the outer surface of the body.

7. A device for containing and exposing a radioactive

material, comprising a body of absorbing material, a cylindrical roller arranged within the body and spaced therefrom to form a channel within the body, a substantially straight channel portion formed in the body in tangential relation to the roller and extending to the outer surface of the body, a band surrounding at least a portion of said roller and having one end attached thereto, a receptacle for radioactive material attached to the other end of said band whereby rotation of said roller within said body moves said radioactive material

between a radiating position at the outer surface of the body and a retracted position within said body.

References Cited in the file of this patent

UNITED STATES PATENTS

2,551,491	Gilks	May 1, 1951
2,719,823	Zinn	Oct. 4, 1955

FOREIGN PATENTS

1,079,640	France	May 19, 1954
-----------	--------	--------------