

Aug. 19, 1924.

1,505,209

F. I. LEACH ET AL  
RADIUM CARRYING DEVICE

Filed May 12, 1922

*Fig. 1*

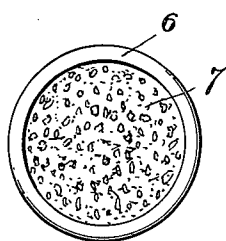


*Fig. 2.*

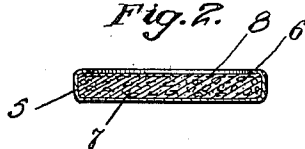


*Fig. 3.*



*Albert A. Leach.*  
*Francis I. Leach.*  
Inventor

By

*B. D. Milburn*

Attorney

## UNITED STATES PATENT OFFICE.

FRANCIS I. LEACH AND ALBERT A. LEACH, OF TYRONE, NEW MEXICO.

## RADIUM-CARRYING DEVICE.

Application filed May 12, 1922. Serial No. 560,480.

*To all whom it may concern:*

Be it known that we, FRANCIS I. LEACH and ALBERT A. LEACH, citizens of the United States, residing at Tyrone, in the county of Grant and State of New Mexico, have invented certain new and useful Improvements in Radium-Carrying Devices, of which the following is a specification.

The present invention relates to a device for carrying radioactive substances, which are employed in impregnating water with the emanations from such substances.

An important object of the invention is to provide a device of the above mentioned character, so constructed that the radioactive substance is carried near the outside of an inert binder, and hence discharges all of the emanations into the water, and prevents occlusion of gases.

In accordance with the invention we provide a device or plaque, embodying a metal container, which receives and holds an inert binder. The top of the metal container is entirely open except for a surrounding flange and the radioactive substance is fixed near the exposed surface only of the binder. The plaque is adapted to be immersed in water, and of course in contact therewith. The emanations discharging from the radioactive substance passes into the water, and impregnates the same, so that the water becomes charged with the emanations. The water thus charged has therapeutic properties, as is well known.

In the accompanying drawings, forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a plan view of a device or plaque embodying our invention,

Fig. 2 is a transverse section through the same, and,

Fig. 3 is an edge elevation of the same.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of our invention, the numeral 5 designates a container, which is preferably made of a single section of sheet metal, preferably sterling silver. This container is preferably circular and is generally flat with its bottom completely closed, and its top provided with an overhanging flange 6. Of course the container may be made in other shapes: While it is preferred to use silver, the container may be made of other metals, or even of other materials, such as glass.

Within the container 5 is held the inert filler and binder 7, which is preferably formed of kieselguhr, although any other suitable inert material may be employed. This inert material also contains a suitable cement binder, so that when the mass sets and hardens, it will remain permanent in its shape. The numeral 8 designates the radioactive substances, which is fixed near the exposed upper surface only of the inert filler. This radioactive substance may be in the form of any of the well known radium salts, such as radium sulfate, radium carbonate or any of the radium salts or compounds or any of the thorium or actinium compounds, soluble or insoluble. As before stated, the radioactive substance is fixed near the exposed surface of the binder, and by this is meant that the radioactive substance is arranged in a thin sheet near and slightly beneath the exposed surface of the inert filler. This permits of the radioactive substances being covered by the filler, so that the water will not come in contact with the radioactive substances, but the covering is in the form of a porous sheet, and does not prevent the emanations of the radioactive substances discharging into the water, and there is also no occlusion of gases.

In the use of the device or plaque, it may be inserted into an ordinary drinking glass, bath tub or the like, containing water to be charged, and allowed to remain therein for a suitable length of time.

It is to be understood that the form of our invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of our invention or the scope of the subjoined claims.

Having thus described our invention, we claim:

1. A device for use in discharging gaseous radium emanations from radioactive substances into water, comprising a protecting container having one side closed and the opposite side open, an inert porous filler held within the container with one side exposed at the open side of the container, said exposed side being of a character to permit the free outward discharge of the gaseous radium emanations, and a radioactive substance fixed in the porous inert filler suitably near the exposed porous face thereof to

permit of the proper discharge of the gaseous radium emanations through the face of the filler to the exterior thereof.

2. A plaque for use in discharging gaseous radium emanations from radioactive substances into water, comprising a relatively shallow metallic container having one side closed and the opposite side open, an inert porous filler held within the container with one side exposed at the open side of the container, said exposed side having a surface of a substantial area and of a character to permit the free outward discharge of the gaseous radium emanations, and a layer of radioactive substance embedded in the porous inert filler near and beneath the exposed porous face thereof, said exposed porous face covering the radioactive substance and permitting of the proper dis-

charge of the gaseous radium emanations through the same to the exterior thereof.

3. A device for use in discharging gaseous radium emanations from radio active substances into water, comprising a relatively shallow container of a non-corrodible material having one side closed and the free edges of the open side intumed, a block of inert porous material retained within the container with its exposed face of a character to permit the free outward discharge of the gaseous radium emanations, and a radio active substance held within the block beneath the exposed face thereof.

In testimony whereof we affix our signature.

FRANCIS I. LEACH.  
ALBERT A. LEACH.