Oct. 29, 1929. F. I. LEACH 1,733,159

DEVICE FOR CARRYING RADIUM OR RADIUM CONTAINING COMPOUNDS

Filed Dec. 27, 1927

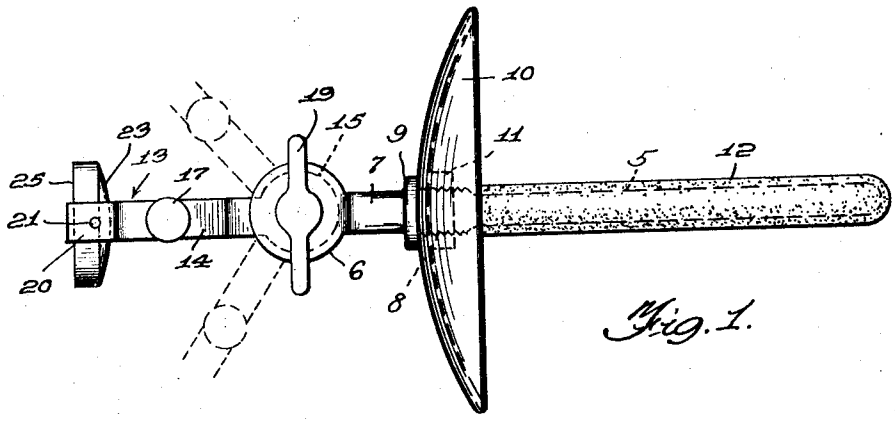


Fig. 1.

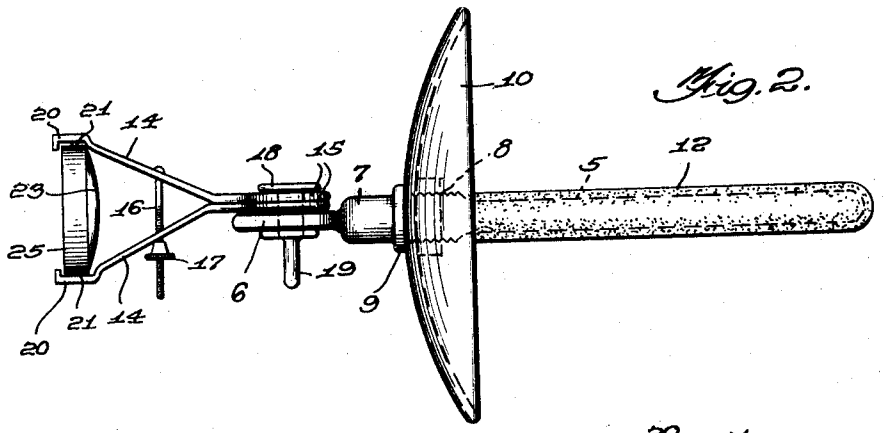


Fig. 2.

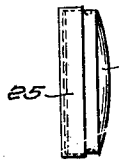


Fig. 3.

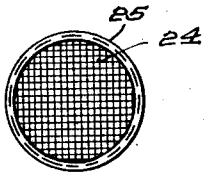


Fig. 4.

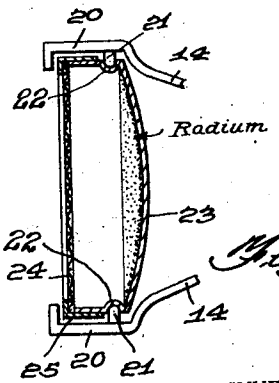


Fig. 5.

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UNITED STATES PATENT OFFICE

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DEVICE FOR CARRYING RADIUM OR RADIUM-CONTAINING COMPOUNDS

Application filed December 27, 1927. Serial No. 242,891.

My invention relates to a device for carrying radium or a radium containing compound.

In accordance with my invention, I provide a device of the above mentioned character which is in the nature of an applicator, having means for holding or carrying radium or a radium compound of varying strengths, to be used for external application. The applicator is adjustable and may be conveniently used in various positions. The applicator embodies receptacles, such as, cups or tubes, for holding radium or radium compounds, of varying strengths. The receptacle for holding the radium or radium compound has a portion thereof open, whereby not only the penetrating gamma and beta rays but all other rays, including the ionizing alpha rays, may be properly applied to the body. The opening of the receptacle may be covered by a foraminous member, thus protecting the radium from damage.

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

Figure 1 is a side elevation of an applicator embodying my invention,

Figure 2 is a plan view of the same,

Figure 3 is a side elevation of the radium holding cup or receptacle,

Figure 4 is a front elevation of the same, and,

Figure 5 is a central vertical section through the radium holding cup or receptacle, showing the same held by the jaws of the applicator.

The device embodies a preferably straight handle 5. This handle is provided at its forward end with an enlarged flat head 6, and near and rearwardly of this head with an enlarged portion 7, the rear end of which is screw-threaded, as shown at 8. The enlarged portions carries a flange 9. The numeral 10 designates a lead shield, preferably spherically curved and having a central opening to receive the enlarged portion 7 of the handle. The shield is placed upon the enlarged portion 7 of the handle, rearwardly of the flange 10, and is clamped to the flange, by means of a nut 11, engaging the screw-threaded portion 8. The rear portion of the handle 5 is provided with a sleeve or cover element 12, which may be formed of rubber or the like.

The numeral 13 designates a holding element, embodying a pair of diverging oppositely arranged resilient jaws 14, provided at their rear ends with enlarged heads 15, arranged in contacting relation. The jaws 14 are connected between their ends by means of a screw 16, attached to one jaw 14 and extending through an opening in the other jaw 14, and carrying an adjustable nut 17. The heads 15 are of substantially the same size as the head 6 and these several heads have openings to pivotally receive a pin 18, screw-threaded for receiving a wing nut 19. By manipulation of the nut 19, it is obvious that the holding element 14 may be angularly adjusted with relation to the head 8, and clamped thereto in the selected adjusted position.

The jaws 14 are provided at their free or forward ends with sockets 20, and these sockets carry inwardly projecting studs 21, adapted to enter depressions 22, formed in a receptacle 23. This receptacle is shown as in the form of a cup, having its rear side closed and the forward side open. The cup may be formed of metal, such as silver, although it may be formed of any other suitable material, such as glass, porcelain, or the like, The radium or radium containing material is arranged within the cup and is fixed to the outer surface of any suitable material held within the cup. This material or body may be pyroxylin, cellulose, varnish, rubber cement, or any other suitable material or compound. This supporting surface may first be coated upon the interior of the receptacle or cup and the radium or radium compound fixed in the surface of such material. The 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. In order that the radium or radium compound may be suitably protected within the

cup, I cover the open side of the cup with a foraminous screen 24, carried by a ring 25, which may have screw-threaded engagement upon the open side or end of the cup, or may simply have frictional engagement therewith.

While I have shown the receptacle in the form of a cup, yet the invention is in no sense restricted to this particular shape as the receptacle may be in the form of a tube or any other shape.

In the use of the device, by unscrewing the nut 17, the resilient jaws 14 will automatically open, being tensioned to move apart. The cup 23 may now be placed in the sockets 20, and the nut 17 screwed up and the lugs 21 will enter recesses 22. The cup is, therefore, securely held or clamped within the holding element, with its face arranged at a right angle to the longitudinal axis of the holding element. The holding element may be set at any desired angular position with respect to the handle, and locked thereto in a selected adjusted position, by manipulation of the inner nut 19. The operator holds the handle 5 in one hand and may, therefore, bring the receptacle 22 in suitably close relation to the body of the patient. As the forward side of the cup is open, all rays from the radium may pass to the body, not only the penetrating gamma and beta rays but the ionizing alpha rays. The device may be conveniently employed to ionize and stimulate surface tissue, hair roots, et cetera. It may also be used in eradicating moles, disfigurations, blemishes, and small growths of a malignant nature.

All parts of the device, excepting the shield 10 and receptacle 23, are preferably formed of nickel-plated steel.

It is to be understood that the form of my 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 my invention, or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A holder for a radium applicator comprising a handle, a shield mounted upon the handle and extending radially therebeyond, a holding element arranged in advance of the shield for receiving a receptacle, and means for pivotally connecting the holding element with the forward end of the handle.

2. A holder for a radium applicator comprising a handle, a lead shield mounted upon the handle and extending radially beyond the handle, a holding element arranged near the forward end of the handle in advance of the shield and embodying resilient jaws tensioned to move outwardly, adjustable means to draw the jaws together, and adjustable clamping means for pivotally connecting the holding element and handle.

3. A holder for a radium applicator comprising a handle, a holding element carried by the handle and including resilient jaws provided at their ends with sockets, said sockets having inwardly extending lugs, and a receptacle to be held within the sockets and having depressions to receive the lugs.

4. A holder for a radium applicator comprising a handle, a lead shield having a generally central opening to receive the handle, a holding element secured to the handle forwardly of the shield, a receptacle mounted within the holding element and having its forward side open, and a foraminous cover for the open side.

5. A receptacle for holding radium or a radium compound having an opening whereby all rays may pass from the radium compound, a protecting cover over the opening, and a holding device carrying the receptacle.

6. A holder for a radium applicator, comprising a handle provided at its forward end with a flat head, a pair of flat heads arranged in contacting relation upon the first named flat head, a clamping screw passing through the flat heads and adapted to lock them together in adjusted positions, forwardly diverging resilient jaws carried by the pair of flat heads and provided at their free ends with generally U-shaped sockets for receiving a receptacle having depressions, inwardly projecting lugs formed upon the generally U-shaped sockets and adapted to enter the depressions, and means to draw the resilient jaws together.

7. A holder for a radium applicator, comprising a handle provided at its forward end with an apertured flat head, a pair of apertured flat heads arranged in contacting relation upon the first named flat head, a clamping screw passing through the apertured flat heads, forwardly diverging resilient jaws formed upon the pair of flat heads and tensioned to spring outwardly, sockets carried by the free ends of the jaws to receive a receptacle, and a screw passing through the jaws and carrying the adjusting nut.

8. A holder for a radium applicator, comprising a handle provided near and spaced from its forward end with a shoulder, a spherically curved shield provided centrally thereof with an opening to receive the handle, a nut having a screw-threaded engagement with the handle and disposed to clamp the shield against the shoulder, a holding element arranged forwardly of the shield, and adjustable means for connecting the holding element with the handle.

9. A holder for a radium applicator, comprising a handle, a spherically curved lead shield mounted upon the handle and extending radially beyond the same, and a holding

element secured to the handle forwardly of the shield and adapted to carry the radium applicator element.

10. A holder for a radium applicator comprising a handle, a lead shield mounted upon the handle and extending radially beyond the same, and an angularly adjustable holding element secured to the handle in advance of the shield and adapted to carry the radium applicator element.

11. A holder for a radium applicator comprising a handle, a lead shield mounted upon the handle and extending radially beyond the same, a holding element secured to the handle in advance of the shield and adapted to carry the radium applicator element.

In testimony whereof I affix my signature.

FRANCIS I. LEACH.