

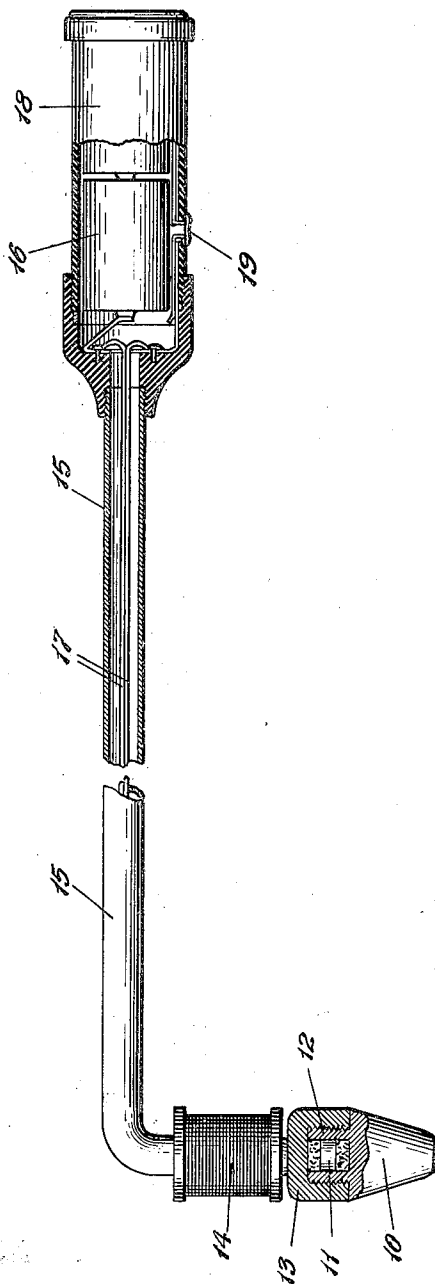
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2,269,458

CAPSULE FOR RADIOACTIVE SUBSTANCES AND MEANS FOR HANDLING THE SAME

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T 1008

U.S. Pat. 2,269,458

85-10

inverted
+ reversible handle
for automatic operation

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CAPSULE FOR RADIOACTIVE SUBSTANCES
AND MEANS FOR HANDLING THE SAME

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10 Claims. (Cl. 250—106)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

This invention relates to capsules for containing radioactive substances and it has a particular relation to capsules employed for radiographic purposes, and means for detachably handling such capsules.

Heretofore capsules of the type referred to have been constructed of duralumin or other strong lightweight material and formed in two parts screwed together. The capsule was handled by means of cords attached to opposite ends of the capsule so that it could be removed from the lead storage container and positioned on location for exposure purposes with a minimum of danger to the operator from radioactive emanations. These cords frequently became frayed and broken necessitating replacement thereof and the consequent intimate physical contact with the capsule itself.

One of the objects of the present invention is the provision of a capsule for radioactive substances which is constructed and adapted for handling at a safe distance by a spacer rod of desired length and from which the capsule is readily detachable, thus dispensing with the cords formerly used and their attendant disadvantages.

Another object of the invention is the provision of a capsule of the type indicated having a portion formed of a ferrous metal capable of being attracted by a magnet.

A further object of the invention is the provision of a spacer rod for handling such a capsule, said rod being provided with a magnet for removably supporting the capsule when the ferrous portion thereof is engaged by the magnet.

With these and other objects in view, as well as other advantages that may be incident to the use of the improvements, the invention consists in the parts and combinations thereof hereinafter set forth and claimed, with the understanding that the several necessary elements constituting the same may be varied in proportion and arrangement without departing from the nature and scope of the invention, as defined in the appended claims.

In order to make the invention more clearly understood, there are shown in the accompanying drawing, means for carrying the invention into practical use, without limiting the improvements in their useful application to the particular construction, which, for the purpose of explanation, have been made the subject of illustration.

The single figure in the accompanying drawing is a view partly in longitudinal section and partly in side elevation of a capsule for radioactive

substances and a spacer rod for handling the same, both being constructed in accordance with the invention.

Referring to the drawing, a capsule embodying the invention is shown as comprising a substantially conical tip portion 10 of duralumin or other lightweight metal permeable to the gamma ray emanations of a radium pellet 11 contained in a socket formed in an axially disposed screw threaded nipple 12. The socket is closed by a cap portion 13 which is threaded onto the nipple 12 and which is formed of ferrous metal capable of being attracted and supported by the pole piece of a magnet 14 mounted on one end of a tubular spacer rod 15. As shown, this magnet may be an electromagnet energized when desired by a battery or batteries 16 which are connected thereto by wires 17 extending through the tubular spacer rod 15, and which are contained in a hollow handle 18 of the flashlight type secured to the opposite end of the spacer rod. A switch 19 of the type generally employed in flashlight structures is included in the circuit to control the energizing of the magnet 14.

In use the switch 19 is closed thereby energizing the magnet 14. Holding the spacer rod by the handle 18, the magnet end is inserted in the lead storage container near the capsule, the latter being magnetically attracted to and held by the magnet. With the magnet end of the spacer rod held at a distance from the operator, the capsule may then be carried to the place where a radiographic exposure is to be made where it is released by opening the switch 19.

The length of the rod 15 not only protects the operator from the radioactive emanations, but facilitates the insertion of the capsule in a pipe when it is desired to radiograph the wall structure for flaws or the like.

It will be understood that the above description and accompanying drawing comprehend only the general and preferred embodiment of the invention and that various changes in construction, proportion and arrangement of the parts may be made within the scope of the appended claims without sacrificing any of the advantages of the invention.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

I claim:

1. A capsule for containing a radioactive substance and constructed from a metal capable of being attracted by a magnet.

2. A capsule for containing a radioactive substance comprising a member having a socket therein for containing said substance and another member for closing said socket, one of said members being constructed of a magnetizable metal.

3. A capsule for containing a radioactive substance comprising a member having a socket therein for containing said substance and another member for closing said socket, one of said members being constructed of a relatively light metal and the other being constructed of a magnetizable metal.

4. A capsule for containing a radioactive substance comprising a member having a socket therein for containing said substance and another member for closing said socket, one of said members being constructed of duralumin and the other being constructed of a ferrous metal.

5. A device of the character described comprising a capsule for containing a radioactive substance and having a metallic portion; a spacer rod having a metallic end portion for engagement with the metallic portion of said capsule, one of said metallic portions being magnetizable to magnetically attract the other of said metallic portions, whereby said capsule may be supported and transported by said rod at a safe distance from the operator, and means for releasing said capsule from said rod.

6. A device of the character described comprising a capsule for containing a radioactive substance, said capsule having at least a portion thereof constructed from a ferrous metal capable of being attracted by a magnet, a support for said capsule comprising a rod, a magnet on one end of said rod for attracting and supporting the ferrous portion of said capsule, and means for releasing said capsule from said magnet.

7. A device of the character described comprising a capsule for containing a radioactive substance, said capsule having a portion formed from a material permeable to the rays emanating from said substance and another portion formed

from a magnetizable material, a holder for said capsule, and a magnet on said holder adapted to attract and releasably support the magnetizable portion of said capsule.

8. A device of the character described comprising a capsule for containing a quantity of radium, said capsule having an end portion formed of duralumin or the like permeable to the gamma rays emanating from said radium and another portion formed from a magnetizable ferrous material, a holder for said capsule, and a magnet on said holder adapted to attract and releasably support the magnetizable portion of said capsule.

9. A device of the character described comprising a capsule for containing a radioactive substance, said capsule having a portion formed from a material permeable to the rays emanating from said substance and another portion formed from a magnetizable material, an elongated handle adapted to be grasped by the operator, an electromagnet fixed to one end of said handle and adapted to be connected with a source of electric energy for attracting and supporting, when energized, the magnetizable portion of said capsule, and switch means on said handle for controlling the energizing of said electromagnet.

10. A device of the character described comprising a capsule for containing a quantity of radium, said capsule having a portion formed from an aluminum alloy permeable to the gamma rays emanating from said radium and another portion formed from a magnetizable ferrous material, a manually manipulable rod, an electromagnet fixed to one end of said rod and adapted when energized to attract and support the magnetizable portion of said capsule, a source of electric energy for said electromagnet, and a switch on said rod for controlling the circuit between said electromagnet and said source of electric energy to selectively attract and release said capsule.

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