

[72] Inventor **Herman Glasser**
Nassau County, N.Y.
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[73] Assignee **Nuclear Associates, Inc.**

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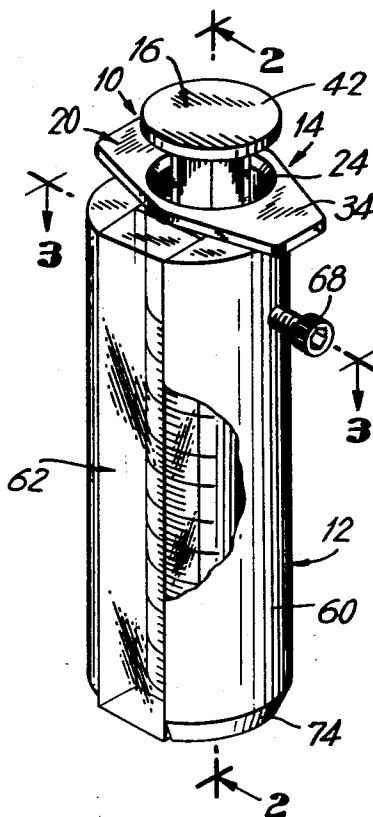
Primary Examiner—Robert B. Reeves

Attorney—Lilling & Siegel

[54] **A SHIELDING HOLDER FOR A SYRINGE**
9 Claims, 3 Drawing Figs.

[52] U.S. Cl. **128/215**
[51] Int. Cl. **A61m 5/00**
[50] Field of Search **222/156,**
157, 173; 128/215, 1.1, 1.2, 218, 234

ABSTRACT: Syringe and holder therefor fabricated of high-density material to reduce transmission of energy, either by radiation or particle bombardment, either inwardly or outwardly thereof while yet enabling visual observation of material within the syringe.



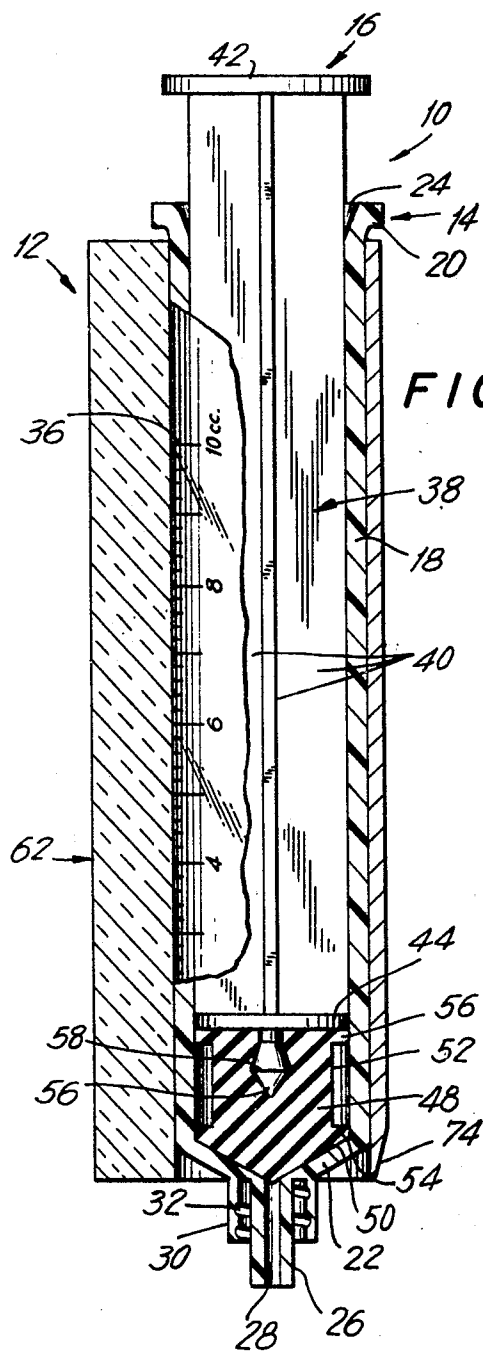


FIG. 2

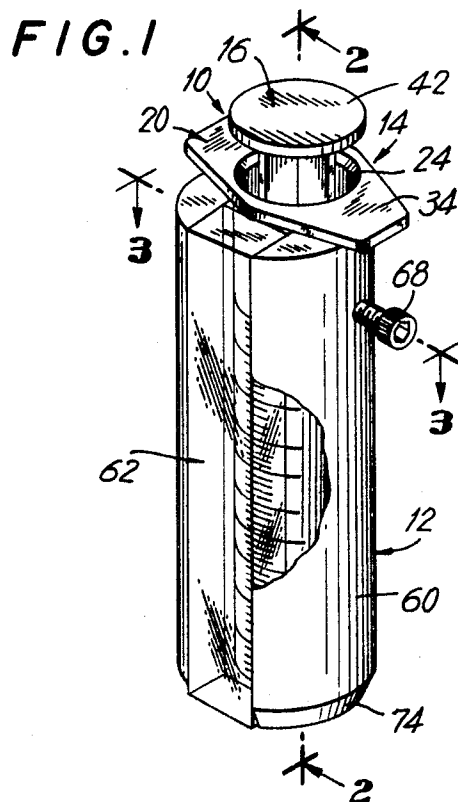


FIG. 1

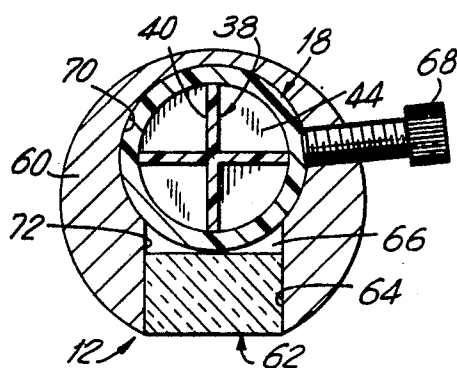


FIG. 3

INVENTOR.
HERMAN GLASSER

BY *Rachewach & Siegel*
ATTORNEYS

A SHIELDING HOLDER FOR A SYRINGE

This invention relate, generally, to syringes and, more particularly, to syringes provided with a shielding holder.

A primary object of the present invention is the provision of a syringe and holder therefor fabricated of high-density material to reduce energy transfer through either radiation or particle bombardment, either inwardly or outwardly thereof.

Another primary object of the present invention, in addition to the foregoing object, is the provision of such syringe and shielded holder which enables visual observation of the contents of the syringe.

Yet still further, another primary object of the present invention in addition to each of the foregoing objects, is the provision of such syringes and holders therefor which may be readily assembled or disassembled for cleaning.

Another and yet still further primary object of the present invention in addition to each of the foregoing objects, is the provision of such a syringe holder which may be readily assembled with a syringe and fixedly secured relative thereto.

Yet still further, it is another primary object of the present invention, in addition to each of the foregoing objects, to provide such holders which enable visual observation of graduations on the syringe cylinder and the position of the plunger relative thereto.

Another yet still further primary object of the present invention, in addition to each of the foregoing objects, is the provision of such syringe and holder which is economical to manufacture and durable in use.

IN THE DRAWING

FIG. 1 is a perspective illustration of a syringe and holder constructed in accordance with the principles of the present invention;

FIG. 2 is an elevational cross-sectional view taken along line 2-2 of FIG. 1; and

FIG. 3 is a plan cross-sectional view taken along line 3-3 of FIG. 1.

With reference now to the drawing, there is shown and illustrated therein a syringe 10 disposed within a holder or shield constructed in accordance with the principles of the present invention and designated generally by the reference character 12.

The syringe 10 may be of substantially any desired construction and design and may, for example, comprise a cylinder portion 14 and a plunger portion 16 slidably disposed therewithin.

The syringe 10 may be of substantially any desired construction and design and may, for example, comprise telescopingly interengaged cylinder and plunger portions 14 and 16, respectively.

By way of example only, the cylinder portion 14 may, for example, comprise a generally tubular medial portion 18 of generally uniform diameter and wall thickness; a radially outwardly extending handle portion 20 disposed at one end portion thereof; and a generally conical generally closed end portion 22 at the other end portion thereof. The open end portion adjacent the handle portion 20 may be provided with a generally outwardly extending tapered mouth 24 to enable easy insertion therein of the plunger 16 and the generally closed end portion 22 may be provided with a generally axially forwardly extending boss 26 provided with a bore 28 extending therethrough from the apex of the conical portion 22, the outer surface of the boss 26 being generally cylindrical or of slightly tapered configuration so that a conduitlike member, such as a hypodermic needle, catheter, stylet, tubing, or the like, may be readily and easily structurally associated therewith. Yet further, as a further aid in providing secure structural association between the syringe 10 and a mating conduit member, the forward end portion of the syringe 10 may be further provided with a generally annular boss 30 extending generally coaxially and radially spaced outwardly of the boss 26 and provided with internal screw threads 32 for

engaging such conduit members as may be provided with mating screw threads.

The handle portion 20 may extend substantially entirely radially outwardly of the medial portion 18 or may, as shown, be of generally elongated configuration comprising a pair of generally opposed ear or flange portion 34. The medial portion 18 of the cylinder 14 may, as shown, be provided with a generally longitudinally extending scale 36 for defining and indicating the volume contained between individual markings thereof and the forward end portion 22 or the volume contained therewithin between the piston portion 16 and the forward end portion 22 when a particular predetermined portion of the piston is aligned with a particular scale graduation. The scale 36 may, for example, and as shown, be constructed and arranged to indicate volumetric measurement, as in cubic centimeter, in accordance with conventional practice.

The plunger portion 16 may comprise an elongated stem portion 38 comprising, for example, a plurality of webs 40 extending generally radially outwardly from generally axially of the cylinder portion 14 and of such dimension as to fit generally snugly while being yet slidable within the cylinder portion 14. The plunger portion 16 may further comprise an enlarged cap or actuating portion 42 of, for example, generally circular- or disc-shaped configuration disposed at one end portion thereof and an inner cap 44 of generally disc-shaped configuration disposed at the other end portion thereof having a diameter substantially equal to the inside diameter of the cylinder medial portion 18. An elastomeric sealing plug 48 having, for example, a generally conical forward end portion 50 adapted to congruently engage the conical forward end portion 50 adapted to congruently engage the conical cylinder portion 22 so as to enable substantially complete extrusion or dispensing of material from the syringe 10 outwardly through the bore 28. The plug 48 may, for example, be fabricated of an elastomeric material and may be provided with a generally circumferentially or annularly inwardly extending side groove 52 so as to define a forward and rearward generally circular sealing ring portions 54 and 56, respectively, disposed generally adjacent the conical forward end portion 50 and the forward end portion 44 of the plunger stem 38. The forward end portion of the plunger stem 38 may be provided with means, such as a point 56 having an outwardly bulged portion 68 for retaining the elastomeric plug 48 secured for movement therewith.

The operation of the syringe is believed to be readily apparent and no further explanation or description thereof is deemed necessary.

The shield or holder portion 12 may comprise a high-density portion 60 fabricated of a high-density material selected to provide a maximum shielding with minimal thickness and may, for example, comprise a heavy metal, such as lead. The shield 12 may further comprise a window 62 fabricated of a transparent material which may, to provide for maximum shielding, be of substantial thickness and may, for example, comprise a leaded glass. The window 62 may be secured, as by means of adhesive, or the like, with a lot 64 provided in the portion 60 of the holder 12 and adapted to be positioned in general alignment with the graduations of the scale 36 so that the material within the syringe 10 and the scale 36 may be viewed or visually observed, enabling the quantity of material within the syringe to be readily ascertained at any desired time.

The portion 60 of the holder or shield 12 may be of generally U-shaped configuration with the window 62 being secured between the legs thereof so as to define therewith a bore 66 within which the cylinder 18 of the syringe 10 is particularly adapted to be disposed. Means, such as a screw 68 may be provided for clamping the cylinder 18 of the syringe 10 within the holder or shield 12 with the graduations of the scale 36 thereof being disposed in general alignment with the window 62.

The portion 60 may, for example, as shown, be of generally cylindrical bore portion 70 extending longitudinally

therethrough generally eccentrically to the axis thereof and a generally rectangular slot 72 extending through the thickest portion of the high-density portion 60 and communicating with the cylindrical bore 70 to define the bore 66 and with the window 62 being disposed within the slot 72. The lower end portion of the high-density portion 60 may, as shown, be provided with a bevelled portion 74, as shown.

It is to be understood that terminology such as "upper," "lower," "inner," "forward" and "rearward," as used in the preceding description and in the subjoined claims, along with other similar directional terminology, is to be construed and interpreted in its normal and accepted sense and with reference to the drawing herein. However, such terminology is not to be construed or interpreted in a limiting sense either in the preceding description or the subjoined claims, since the same is used merely to facilitate an understanding of, and to clearly set forth and particularly define the present invention.

While the invention has been described, disclosed, illustrated and shown in terms of an embodiment of modification which it has assumed in practice, the scope of the invention should not be deemed to be limited by the precise embodiment or modification herein described, disclosed, illustrated or shown, such other embodiments or modifications as may suggested to those having the benefit of the teachings herein being intended to be reserved especially as they fall within the scope and breadth of the claims hereto appended.

What I claim is:

1. A shielding holder for a syringe, or the like, comprising, in combination, a high-density portion of generally U-shaped configuration provided with a generally cylindrical bore extending generally eccentrically longitudinally therethrough and a rectangular insert of high-density glass disposed between the legs thereof and defining therewith said bore which is adapted to receive therewithin a syringe, or the like, so that the contents thereof may be visually observed through

the glass insert.

2. The shielding holder defined in claim 1, wherein said legs define an elongated slot extending generally longitudinally, for at least a portion of the length of said high-density portion, and through the thickest portion thereof and into communication with said eccentric bore.

3. The shielding holder defined in claim 1, further comprising means for retaining a syringe, or the like, fixedly positioned within said bore.

4. The shielding holder in claim 3, wherein said means for retaining said syringe or the like comprises a screw positioned generally radially through said high-density portion.

5. The shielding holder defined in claim 1, wherein said high-density portion comprise high-density metal such as lead.

6. The shielding holder defined in claim 1, wherein said rectangular insert comprises a window adhesively secured to said high-density portion.

7. The shielding holder defined in claim 1, wherein said high-density portion is of generally cylindrical configuration provided with a generally cylindrical bore extending generally longitudinally eccentrically therethrough and with a generally longitudinally elongated slot extending generally radially outwardly of said bore oppositely the thinnest portion of said cylindrical holder and wherein said rectangular insert comprises a generally rectangular glass window disposed within said slot.

8. The shielding holder defined in claim 7, wherein said window comprises high-density glass adhesively secured to said cylindrical portion.

9. The shielding holder defined in claim 7, further comprising a threaded hole extending generally radially outwardly of said bore and threaded screw disposed therein for clamping and fixedly positioning a syringe, or the like, therewithin.

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