



US 20040173488A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0173488 A1**
(43) **Pub. Date: Sep. 9, 2004**(54) **DISPOSAL DEVICE FOR SAMPLING MATERIALS****Related U.S. Application Data**

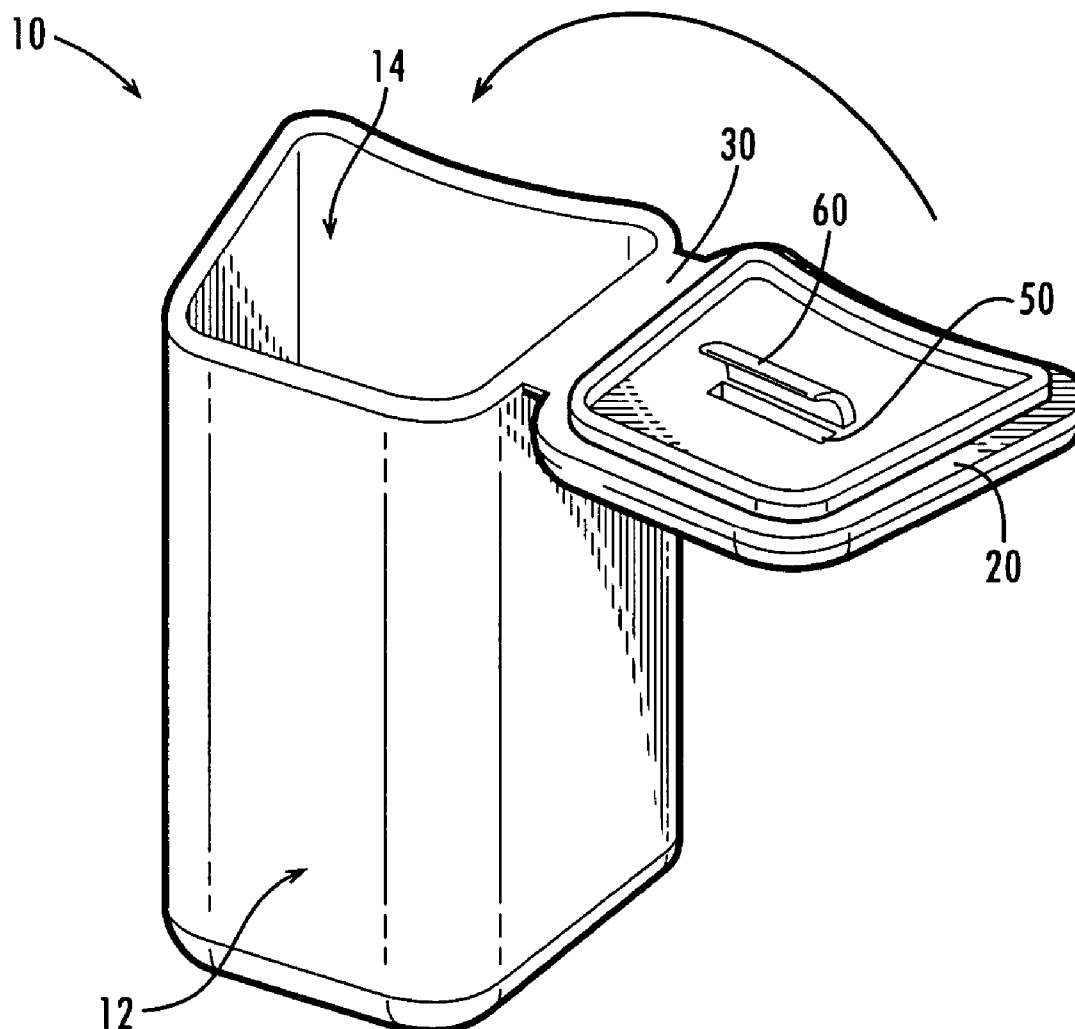
(60) Provisional application No. 60/424,624, filed on Nov. 7, 2002.

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Michael V. Lipoma, Villa Rica, GA (US); **Christopher J. Ruf**, Marietta, GA (US); **Stephanie J. Campbell**, Kennesaw, GA (US)**Publication Classification**(51) **Int. Cl.⁷** **B65D 83/10**(52) **U.S. Cl.** **206/363; 206/438**

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MARIETTA, GA 30067 (US)**ABSTRACT**

A disposal device for a medical test item such as a blood glucose test strip or a lancet, the device including an outer shell bounding an interior chamber, an opening through the shell in communication with the chamber, and a clip for securing the device to an external structure. Curved or angled panels, or flexible sections of the shell can be provided at or adjacent the opening to resist removal or discharge of contents.

(21) Appl. No.: **10/704,149**(22) Filed: **Nov. 7, 2003**

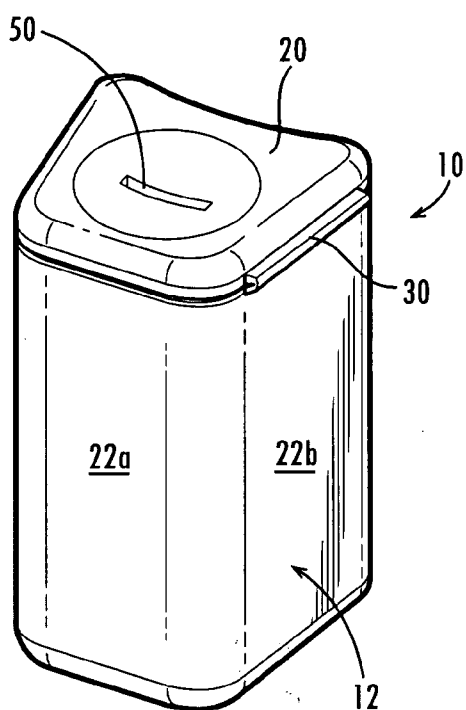


Fig. 1

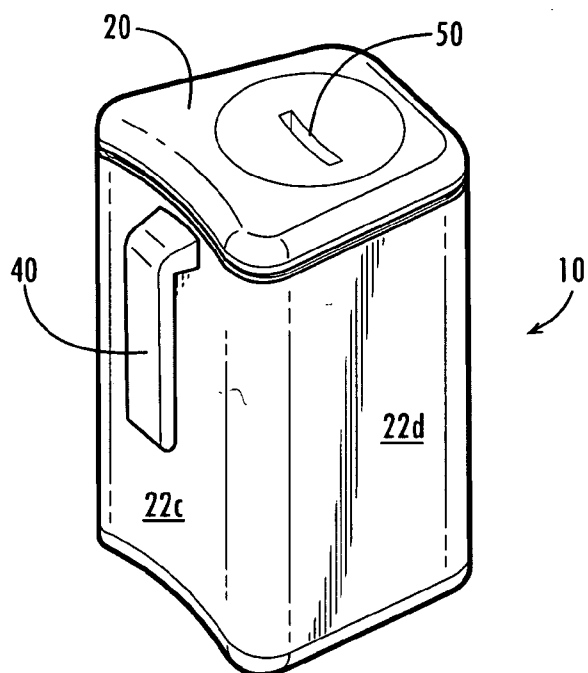


Fig. 2

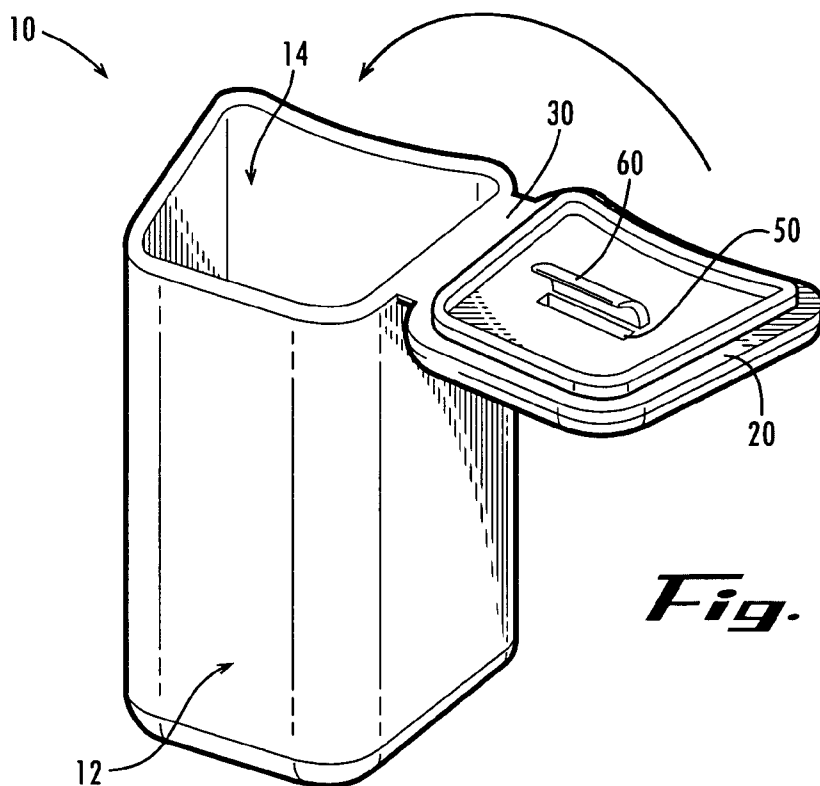


Fig. 3

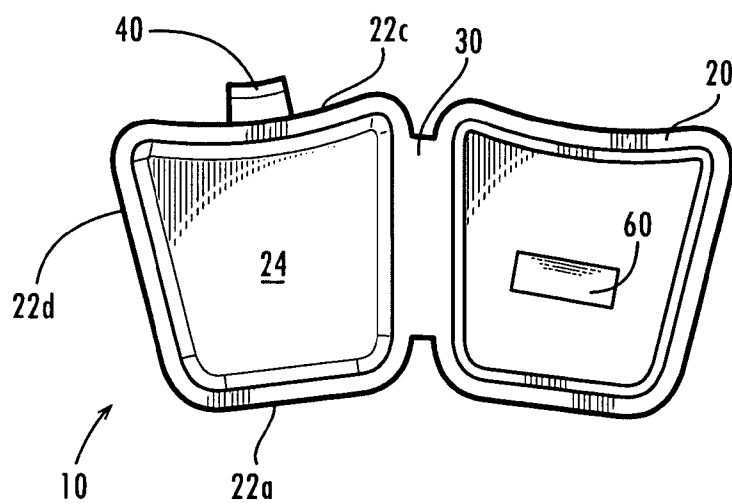


Fig. 4

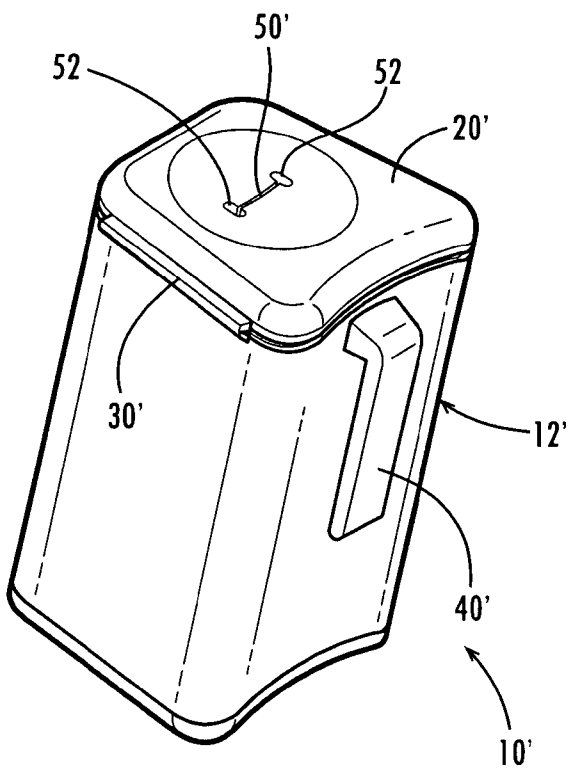
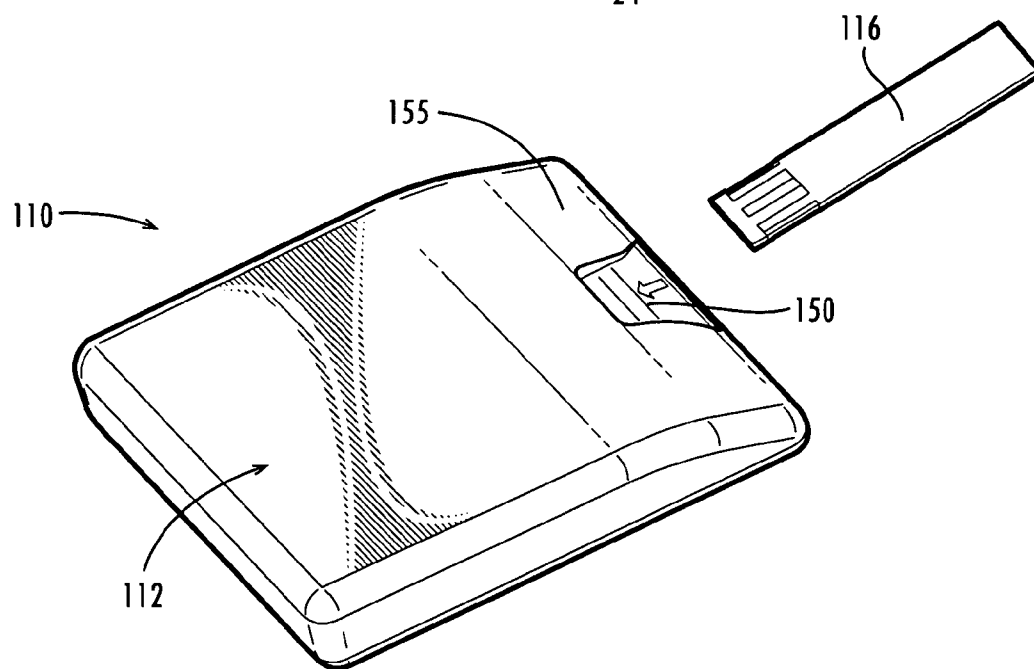
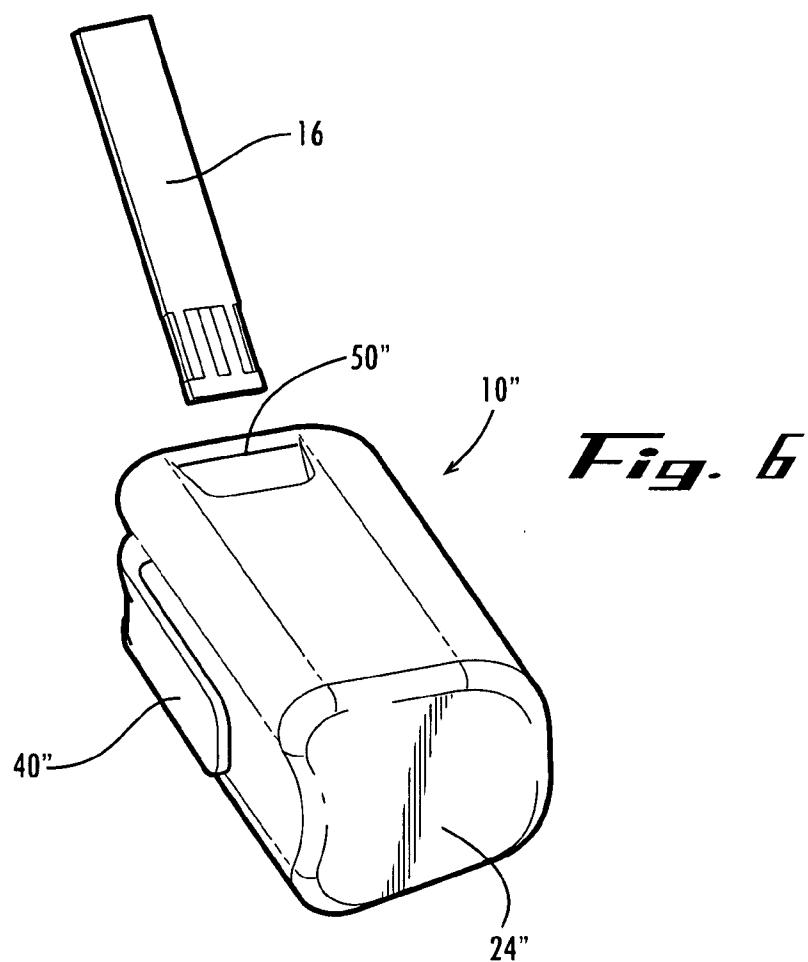


Fig. 5



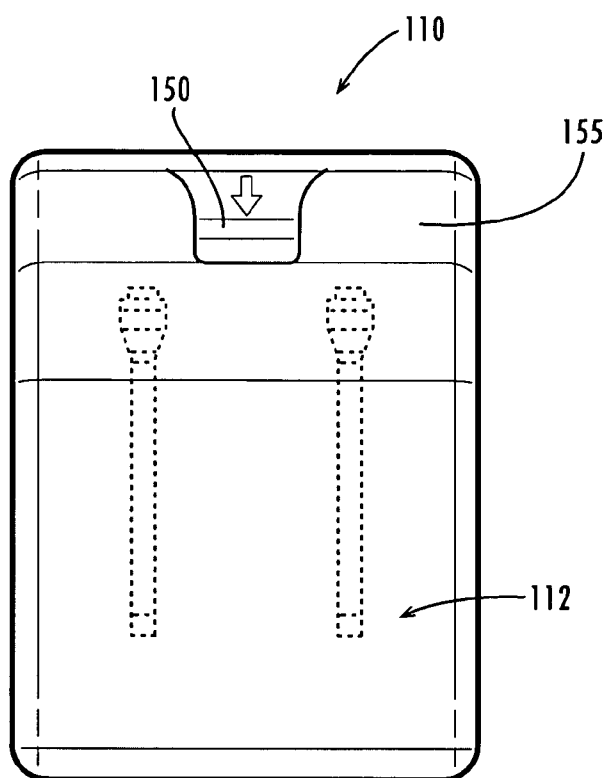


Fig. 8

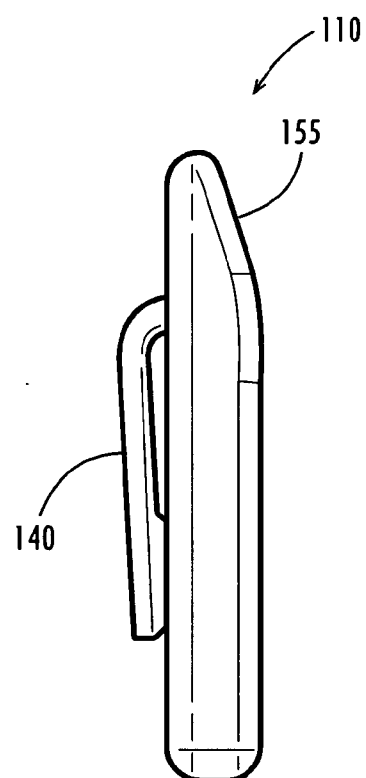


Fig. 9

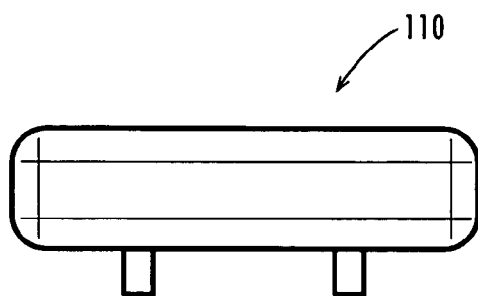


Fig. 10

DISPOSAL DEVICE FOR SAMPLING MATERIALS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application Serial No. 60/424,624, filed Nov. 7, 2002, the entirety of which is hereby incorporated herein by reference for all purposes.

TECHNICAL FIELD

[0002] The present invention relates generally to the field of personal medical devices, and more particularly to a device for the disposal of used blood glucose test supplies and other materials that may be contaminated with blood or other body fluids.

BACKGROUND OF THE INVENTION

[0003] Many diabetics use lancets and test strips to monitor their blood glucose levels. Other persons sample blood and/or other body fluids for a variety of health-related purposes. With increased concerns regarding disease transmission from contact with blood and body fluids, the importance of safe and proper disposal of potentially contaminated medical supplies and materials has been recognized.

[0004] For example, in order to prevent inadvertent contact with the sharp tip of a lancet and because lancets and test strips may be contaminated with the user's blood after testing, it has been found desirable to provide a disposal device for the sanitary storage and disposal of test strips and/or lancets after their use. In order to encourage use, it is also desirable that the device be simple and inexpensive in construction and use, and be disposable when filled to avoid the need for emptying contents.

[0005] It is to the provision of an improved disposal device meeting these and other needs that the present invention is primarily directed.

SUMMARY OF THE INVENTION

[0006] Briefly described, in preferred forms, the present invention provides a compact, portable container for the disposal of used glucose meter test strips and/or used lancets. In an example embodiment, the device of the present invention comprises a permanently closed container with one or more small openings or ports designed to accept test strips, lancets, and/or other items for disposal into an interior chamber of the container. Those ports are preferably configured such that they do not allow these disposed items to easily be removed or fall out of the container, where they might cause contamination or spread of pathogens. Likewise, the used supplies preferably are not accessible to the user nor others that may come in contact with the container, thereby avoiding the risk of inadvertent or intentional re-use of supplies intended for single use only. The device is preferably formed of a one-piece, unitary molding that is sufficiently simple and inexpensive to produce to allow economical disposability of the device when completely or partially filled. The device is preferably relatively small, for example less than about 75 mm×35 mm×35 mm, and more preferably less than about 50 mm×25 mm×25 mm, to permit convenient storage and transport, and to allow it to be stowed in the case for a glucose testing meter or other portable personal medical monitoring device.

[0007] In further aspects of the invention, the device optionally further includes a clip or other attachment feature that allows attachment to a typical glucose meter system, a case for a meter or portable medicine kit such as an insulin medication kit, or to a user's belt or purse. The container preferably also has markings, labeling and/or coloring to indicate that it potentially contains biohazard material. The container preferably is not reusable once filled with disposed supplies, and cannot be opened for access to its contents. In example embodiments, the device of the present invention includes one or more openings configured to closely match the cross-sectional geometry of a standard blood glucose test strip, for example about 1 mm×3 mm. In further example embodiments, the container of the present invention has a similar shape and functionality to that described above, but additionally or alternatively has one or more openings of a size and shape to closely match the geometry of standard lancets and/or other test items, for example about 5 mm×5 mm.

[0008] In another aspect, the invention is a disposal device having a shell enclosing an interior chamber. An opening is preferably provided through the shell to permit a disposed item to be deposited into the interior chamber. The shell preferably further includes a fin projecting into the interior chamber from adjacent the opening to resist removal or discharge of disposed items deposited into the interior chamber.

[0009] In still another aspect, the invention is a disposal device including a shell surrounding an interior chamber, and having a slot provided through the shell. The slot is preferably bounded by confronting first and second sides that flex to an open configuration to permit objects to pass through the slot into the interior chamber, and that return to a normally closed configuration under their own resilience to prevent discharge or removal of objects from the interior chamber through the slot.

[0010] In another aspect, the invention is a disposal device including a housing surrounding an interior chamber, an opening through the housing, and means for resisting removal or discharge of items from the interior chamber through the opening. The means for resisting removal or discharge of items can take various forms, including without limitation, a fin projecting into the interior chamber from adjacent the opening; confronting opposed sides bounding the opening, at least one of the confronting opposed sides being flexible; and/or an obliquely angled panel of the housing adjacent the opening.

[0011] In another aspect, the invention is a disposal device including a housing having a top, a bottom, at least one sidewall, and a panel angled obliquely relative to the top and to the sidewall; and also including an opening through the housing, the opening located through or adjacent the obliquely angled panel.

[0012] The specific techniques and structures employed by the present invention to improve over the drawbacks of the prior systems and accomplish the advantages described herein will become apparent from the following detailed description of example embodiments of the invention and the appended drawings and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 shows a first perspective view of a disposal device according to an example embodiment of the present invention.

[0014] FIG. 2 shows a second perspective view of the disposal device of FIG. 1.

[0015] FIG. 3 is a perspective view of the disposal device of FIG. 1, showing the top cover in an opened position prior to closing and sealing the cover for use.

[0016] FIG. 4 is a top view of the disposal device as shown in FIG. 4.

[0017] FIG. 5 shows a perspective view of a disposal device according to another example embodiment of the invention, having a different opening configuration.

[0018] FIG. 6 shows a perspective view of a disposal device according to another example embodiment of the invention, with another opening configuration, shown receiving a test strip.

[0019] FIG. 7 is a perspective view of a disposal device according to another example embodiment of the invention, shown receiving a test strip.

[0020] FIG. 8 is a front view of the disposal device of FIG. 7.

[0021] FIG. 9 shows a side view of the disposal device of FIG. 7.

[0022] FIG. 10 shows a bottom view of the disposal device of FIG. 7.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0023] Referring now to the drawings, preferred forms of the present invention will now be described by way of example embodiments. It is to be understood that the embodiments described and depicted herein are only selected examples of the many and various forms that the present invention may take, and that these examples are not intended to be exhaustive or limiting of the claimed invention.

[0024] FIGS. 1-4 depict one example embodiment of a disposal device 10 according to the present invention. The device preferably comprises an outer shell 12 defining an interior chamber 14 for receiving one or more test strips, lancets, and/or other items for disposal 16. The shell 12 is preferably formed of a unitary one-piece molding of polyethylene, polypropylene, or other polymeric material. Alternatively, the shell 12 comprises a plurality of separately-formed elements permanently secured to one another to prevent disassembly. In preferred form, the shell 12 comprises a top panel 20, at least one sidewall 22 (the depicted embodiment comprising four sidewalls 22a, 22b, 22c and 22d), and a bottom panel 24, enclosing the chamber 14.

[0025] As seen best with reference to FIGS. 3 and 4, at least one of the top panel 20, the sidewall(s) 22, and/or the bottom panel 24 is/are initially formed in an opened configuration, for ease of molding and/or to permit inspection of the interior chamber 14. The opened panel or wall is preferably formed as an integral portion of the overall device, as for example by way of an interconnecting flexible

strip or panel of material. Preferably, this interconnecting strip of material forms a living hinge 30 that provides alignment and assists in the assembly of the finished device 10. The device 10 is assembled by closing the opened panel or wall over the open end or side of the remainder of the shell 12 to completely enclose the interior chamber 14. Preferably, the closed panel is then permanently affixed to the remainder of the shell, as for example by adhesive, snap fittings, thermal welding, sonic welding, solvent bonding, or other attachment means, to prevent opening of the device and access to or contact with potentially contaminated contents.

[0026] The device 10 preferably further comprises one or more clips, hooks, snaps, eyelets, or other attachment means 40, for securing the device to an external structure such as a glucose meter, a case for a meter or portable medicine kit such as an insulin medication kit, or to a user's belt, purse or other clothing or accessory.

[0027] One or more slots or other openings 50 is/are preferably formed through the shell 12 to permit passage of test strips, lancets and/or other disposal items 16 therethrough, for containment within the interior chamber 14 of the device 10. The opening(s) is/are preferably sized and shaped to accommodate the intended item(s) for disposal, but to prevent their inadvertent or purposeful removal from the container and/or the inadvertent or purposeful contact with disposed items within the interior chamber. In the embodiment depicted in FIGS. 1-4, the opening 50 comprises a generally rectangular slot having a length of about 2-3 mm and a width of about 1 mm, to permit many standard commercially available blood glucose test strips to pass easily therethrough on insertion into the chamber 14, but with a sufficiently close fit to resist discharge or removal therefrom. An opening 50 is shown located in the top panel 20 of the shell 12, which has been found desirable for ease of access. In alternate embodiments, opening(s) is/are alternatively or additionally formed through a sidewall 22 and/or the bottom panel 24. As seen best in FIGS. 3 and 4, a curved or angled fin 60 is preferably formed integrally with or attached to the shell 12, extending from a first connected end on the interior face of the shell adjacent the opening 50, to a second free end. The fin 60 is preferably curved or angled to extend across and beneath the opening 50 to further resist discharge or removal of contents from the chamber 14.

[0028] FIG. 5 shows another embodiment of a container 10' (referenced elements corresponding to similar elements of the container 10 described above are indicated with a single prime symbol in this embodiment), according to the present invention. The opening 50' comprises a slot having closely spaced (less than about 1 mm), abutting or overlapping opposed confronting sides, to resist discharge or removal of contents from the interior chamber. The material of the shell 12' surrounding the opening 50' is preferably formed from a thin flexible material, and one or more relief cuts 52' are preferably provided at the ends of the slotted opening 50', to permit the opposed sides of the slotted opening to flex inwardly as a test strip, lancet, or other disposed object is inserted into the device. After insertion, the opposed sides of the opening 50' return under their own resilience to close the opening to block discharge or removal of contents from the interior chamber.

[0029] FIG. 6 shows a similarly configured disposal device 10", according to another example embodiment of

the invention (referenced elements corresponding to similar elements of the container **10** described above are indicated with a double prime symbol in this embodiment). An opening **50''** of this embodiment is formed at or adjacent the intersection of the top panel **20''** and a sidewall **22''** of the shell, and is obliquely angled relative to the top panel and sidewall to resist discharge or removal of contents.

[0030] FIGS. 7-10 show a disposal device **110**, according to another example embodiment of the invention. Like the above-described embodiments, the device **110** includes a generally rectangular housing or shell **112**, enclosing an interior chamber for receiving disposed objects **116**, and preferably includes a clip or other attachment means **140** for attachment to an external structure or item. The housing **112** of this embodiment is preferably wider and thinner than that of the above-described embodiments, for example, having the general dimensions of a small pager, such that it may be worn inconspicuously on the user's belt or in a purse. An opening **150** is preferably formed through the housing **112**, at or adjacent an obliquely angled (relative to other primary panels of the housing) panel **155** of the housing. Placement of the opening **150** on the obliquely angled panel between the top and a sidewall of the housing **112** helps resist discharge or removal of contents from the device.

[0031] In use, the user preferably secures the disposal device of the present invention to his or her belt, bag, etc., or otherwise carries the device, for example attached to a monitor or in the case of a test meter or medical kit. After performing a test, a test strip, lancet or other item is disposed of by insertion through the opening in the shell, into the interior chamber. When the interior chamber of the device is completely or partially filled, the entire device is preferably properly disposed of according to accepted disposal techniques for potential biohazard materials, and a new device is placed into use.

[0032] While the invention has been disclosed in preferred forms for illustration purposes, those skilled in the art will readily recognize that many modifications, additions, and deletions can be made therein without departing from the spirit and scope of the invention.

What is claimed is:

1. A disposal device comprising a housing surrounding an interior chamber, an opening through said housing, and means for resisting removal or discharge of items from the interior chamber through the opening.

2. The disposal device of claim 1, wherein said means for resisting removal or discharge of items from the interior chamber comprises a fin projecting into the interior chamber from adjacent said opening.

3. The disposal device of claim 2, wherein said fin comprises a curved panel.

4. The disposal device of claim 1, wherein said means for resisting removal or discharge of items from the interior chamber comprises confronting opposed sides bounding said opening, at least one of said confronting opposed sides being flexible.

5. The disposal device of claim 4, comprising first and second flexible opposed sides bounding the opening.

6. The disposal device of claim 1, wherein said means for resisting removal or discharge of items from the interior chamber comprises an obliquely angled panel of said housing adjacent the opening.

7. A disposal device comprising a shell enclosing an interior chamber, and wherein an opening is provided through the shell to permit a disposed item to be deposited into the interior chamber, the shell further comprising a fin projecting into the interior chamber from adjacent the opening to resist removal or discharge of disposed items deposited into the interior chamber.

8. The disposal device of claim 7, wherein the fin projecting into the interior chamber comprises a curved panel.

9. The disposal device of claim 7, wherein the shell comprises a one-piece, unitary molding.

10. The disposal device of claim 9, wherein the shell comprises at least one hingedly closable panel.

11. The disposal device of claim 10, wherein upon assembly of the device, the at least one hingedly closable panel is permanently affixed in a closed configuration.

12. The disposal device of claim 7, wherein the shell further comprises an attachment clip.

13. The disposal device of claim 7, wherein the shell has external dimensions of less than about 75 mm×35 mm×35 mm.

14. The disposal device of claim 13, wherein the shell has external dimensions of less than about 50 mm×25 mm×25 mm.

15. A disposal device comprising a shell surrounding an interior chamber, wherein a slot is provided through the shell, said slot bounded by confronting first and second sides that flex to an open configuration to permit objects to pass through the slot into the interior chamber, and that return to a normally closed configuration under their own resilience to prevent discharge or removal of objects from the interior chamber through the slot.

16. The disposal device of claim 15, wherein relief cuts are provided at first and second ends of the slot to enhance flexure of the confronting first and second sides.

17. The disposal device of claim 15, wherein the shell comprises a one-piece, unitary molding.

18. The disposal device of claim 17, wherein the shell comprises at least one hingedly closable panel.

19. The disposal device of claim 18, wherein upon assembly of the device, the at least one hingedly closable panel is permanently affixed in a closed configuration.

20. A disposal device comprising:

a housing having a top, a bottom, at least one sidewall, and a panel angled obliquely relative to the top and to the sidewall; and

an opening through said housing, said opening located through or adjacent the obliquely angled panel.

* * * * *