The present invention provides a safe means for disposing of many kinds of medications and other substances so as to mitigate the many hazards associated with flushing them down the toilet, pouring them down the sink or placing them in the trash. For example, the inventive device comprises a closeable container into which pills, capsules or liquids may be placed. Once filled or as otherwise desired, this container may be reliably sealed prior to transporting it to a reclamation place suitable for processing and/or neutralizing the chemicals, or prior to placing the entire container in the trash. A reliably sealed container in the landfill would inhibit drugs from contaminating the water supply.
Fig. 5
DEVICES AND METHODS FOR DISPOSING OF MEDICATIONS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to and the benefit of U.S. Provisional Patent Application No. 61/168,309, filed Apr. 10, 2009, entitled DEVICES AND METHODS FOR DISPOSING OF MEDICATIONS, the entire disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. The Field of the Invention
[0003] This invention relates to devices and methods designed for the safe disposal of unused medications.
[0004] 2. The Relevant Technology
[0005] Historically consumers have been taught to dispose of expired, unused and otherwise unwanted medicine by flushing it down the toilet. The toilet has commonly been used to dispose of many small or pliable items. Through time many have learned that the toilet is not the ideal means for disposing of common bathroom items such as facial tissue, cotton swabs, cigarette butts, etc. Not only can the toilets become clogged, but also many of these items are cumulatively harmful to the water treatment plants and often the water supply itself.
[0006] One class of items we've continued to dispose of through the toilet however is medicine such as pills, capsules, gel caps and cough syrup. These are still commonly flushed down the toilet in order to keep them away from others. For example we might be concerned about pets or children inadvertently taking pills from the household trash and eating them. In the case of controlled substances it is particular, this could be a deadly accident. Alternatively some may also pour such medications down the drain or flush through a kitchen sink dispose-all.
[0007] The U.S. Food and Drug Administration advises that many narcotics such as fentanyl, oxycontin and oxycodone as well as other controlled substances be flushed to dispose of them. This is part of the Office of National Drug Control Policy disposal guidelines (see, e.g., http://www.whitehousedrugpolicy.gov/drugfact/facts.html/promp使用者 disposal. html and http://www.fda.gov/consumer/updates/dog_disposal062308.html), and is also included in the labeling inserts packaged with the drugs themselves.
[0008] These precautions are taken to make it impossible for these drugs to be used by individuals other than the patient to whom they were prescribed. They are part of FDA's risk mitigation strategy. The FDA advises that certain drugs be flushed down the toilet, because they believe that it is the most appropriate route of disposal that presents the least risk to safety (see, e.g., http://www.fda.gov/consumer/updates/dog_disposal062308.html and http://www.huffingtonpost.com/2008/09/14/ap-imp ations-of-drugs-l_n_126330. html).
[0009] In recent years, more information has been forthcoming about the hazards that flushing various medicines down the toilet present to local water supplies (see, e.g., http://www.wickedlocal.com/provincetown/news/x1720662661/Nursing-director-revamps-drug-disposal-policies and http://www.cbc.ca/health/story/2007/11/06/ drugs-kittylitter.html). In Canada, Health Canada instructs people not to throw medications into the garbage or toilet. Instead, they recommend incineration if a local drug recycling program is not available. Potent medicines, even in small doses can be potentially harmful to certain populations such as infants and those with particular allergies. As an example, the fentanyl patch comes with FDA approved instructions to flush used or leftover patches. Too much of this drug can cause severe breathing problems and lead to death in babies, children, pets and even adults, especially those who have not been prescribed the drug (see, e.g., http://www.fda.gov/ForConsumers/ConsumerUpdates/ncm100223.htm).
[0010] The EPA is growing increasingly concerned with pharmaceuticals and personal care products as pollutants (see, e.g., http://www.epa.gov/pepc/). In addition to prescription and over-the-counter (OTC) drugs, other concerns include veterinary drugs, fragrances, cosmetics, sunscreen products, diagnostic agents and vitamins and other neutraceuticals that are directly contributing to the combined load of chemicals in the environment. Because such substances dissolve easily and do not evaporate at normal temperatures or pressure, these substances make their way into the soil and aquatic environments. The problem would not end by placing unused medicines in the trash while shielding children and pets. Particularly in the case of controlled substances, such as painkillers Oxycontin, oxycodone and narcotics, others may wish to steal these for misuse if found in the garbage. Additionally, these drugs could be lethal to animals scavenging in landfills. Moreover, they can still enter the water supply if they are allowed to dissolve in the landfill.
[0011] Analogous products for safely storing sharp objects such as needles, which are commonly known as sharps containers, are known in the art. A primary consideration with sharps containers such as the one disclosed in U.S. Pat. No. 7,445,116 to Dansuet et al., is to shield potential handlers from direct contact with sharp objects such as needles and used vials. For example if one were to dispose of syringe needles or used glass vials in the regular garbage, the sharp objects could cut an individual who handles the trash during disposal or they could be cut by reaching into the trash to retrieve something else inadvertently thrown away. In addition to cutting an individual, the person could additionally become infected by the original user's infectious body fluids as in the case of being pricked with a used needle, and additionally could come in contact with medications not intended for the individual being contaminated.
[0012] The present invention is distinguished from sharps containers in that it is not exclusively concerned with isolating sharp objects, but is concerned with the long-term isolation of medicaments from people, pets and the water supply post-disposal. In order to be protected from the water supply after being disposed of using the normal garbage and refuse channels, the container of the present invention needs to be constructed in a manner that resists crushing and puncturing. In any case, the present invention is distinguished from common sharps containers in that it is designed to provide a long term crush and puncture resistant barrier to prevent medicines from mixing with the water supply after disposal. While there are some resemblances between the present invention and sharps containers, only the present invention is designed to prevent contamination from and theft of its contents as well as reduce or eliminate the post-disposal problems discussed herein relating to ground and water contamination.

BRIEF SUMMARY OF THE INVENTION

[0013] The present invention provides a safe means for disposing of many kinds of medications and other substances
so as to mitigate the many hazards associated with flushing them down the toilet, pouring them down the sink or placing them in the trash.

[0014] One preferred embodiment presents a closeable container into which pills, capsules or liquids may be placed. Once filled, this container may be reliably sealed prior to transporting it to a reclamation place suitable for processing and/or neutralizing the chemicals, or prior to placing the entire container in the trash. A reliably sealed container would prevent access to the substances placed in the container by pets, children, and potential thieves, as well as inhibiting the drugs from contaminating the water supply after the container is disposed on in the landfill.

[0015] While in use at a home, hospital, nursing home or the like, these containers would preferably be kept closed so as to lock out access where desired such as to prevent children and/or pets from access. They could be locked as well to discourage potential thieves from stealing medications. Alternatively they could be stored out of reach much like household cleaners are kept away from children and pets. Storing pills in such a container, and outside of their prescription labeled container, may also discourage potential thieves from taking the pills, because the medication will be harder to identify, and eventually would be mixed in with other pills disposed of in the same container disclosed herein. Additionally, additives can be mixed with the medicaments to both dissolve and/or further discourage unwanted usage of the drugs.

[0016] One embodiment of a crush resistant container would be to select a very hard plastic such as polycarbonate or ultem, possibly with reinforced fibers, and design the container in a shape that is known to create a strong container such as a pressure vessel or cylinder without sharp corners. The container could include an opening that allows for the insertion of unused medications and a lid that can be reliably and/or permanently closed to prevent access to the unused medications after disposal.

[0017] Alternatively, another exemplary embodiment includes a medication container manufactured out of a highly durable yet pliable thermoset, such as neoprene or santiprene, that is highly puncture and tear resistant. These too could have reinforcing fibers such as KEVlar in order to prevent puncture. The advantage of this embodiment is that it would be less vulnerable to being crushed and broken open. Additionally, any crushing activity would serve to crush the pills inside making them less usable if found. Furthermore, being made out of a puncture-resistant rubber would make it more difficult to break into the container after disposal, thereby discouraging potential thieves from trying to access the unused medications and reducing the likelihood of the medications finding their way into the ground water.

[0018] The present invention could be formed by either constructing the container as a stand-alone, crush-resistant vessel, or it could be formed of an amorphous material that is used as a disposable liner inside of a reusable outer structure.

[0019] These and other objects and features of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] To further clarify the above and other advantages and features of the present invention, a more particular description of the invention will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. It is appreciated that these drawings depict only illustrated embodiments of the invention and are therefore not to be considered limiting of its scope. The invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

[0021] FIG. 1 illustrates a medicine disposal container according to one exemplary embodiment of the invention;

[0022] FIG. 2 illustrates one embodiment of a lid for the container illustrated in FIG. 1;

[0023] FIG. 3 illustrates a perspective view of one embodiment of a vessel for the container illustrated in FIG. 1;

[0024] FIG. 4 illustrates a snap closure device of the lid of FIG. 2;

[0025] FIG. 5 illustrates a partial cross-sectional view of the container of FIG. 1 showing an exemplary manner in which the vessel and lid of FIGS. 2 and 3 can be sealingly attached to one another;

[0026] FIG. 6 illustrates a perspective view of a medicine disposal container according to another exemplary embodiment of the invention;

[0027] FIG. 7A illustrates a perspective view of one embodiment of a lid for the container illustrated in FIG. 6;

[0028] FIG. 7B is a cross-sectional view of the lid illustrated in FIG. 7A, taken along cutting plane lines 7A-7B of FIG. 7A;

[0029] FIG. 8A illustrates a perspective view of another embodiment of a lid for use with the embodiment illustrated in FIG. 6;

[0030] FIG. 8B is a cross-sectional view of the lid illustrated in FIG. 8A, taken along cutting plane lines 8A-8B of FIG. 8A;

[0031] FIG. 8C is a partial, cross-sectional view of the lid illustrated in FIG. 8A;

[0032] FIG. 9A is a cross-sectional view of a lid for use with the embodiment illustrated in FIG. 6;

[0033] FIG. 9B is a detail, cross-sectional view of the rollers of the lid illustrated in FIG. 9A, showing a plurality of radially extending protrusions or teeth distributed about the periphery of the rollers; and

[0034] FIG. 9C is a plan view of one of the rollers of the lid illustrated in FIG. 9A, schematically illustrating the plurality protrusions or teeth distributed along the length of the roller.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0035] One embodiment of the invention is a container designed for home use, i.e., relatively small volume, compared to an institutional application such as for a hospital or nursing home. While various additional embodiments with additional features suited for institutions will be disclosed below, embodiments intended for consumer-based applications and in-home use will first be discussed. FIG. 1 illustrates the basic concepts of one embodiment of the consumer-based invention.

[0036] The container consists of a vessel and a lid, with the lid reliably attached using common design features such as a snap fit. Additionally the junction between the lid and the vessel can be designed so as to form a watertight seal. Common examples might be a type of fit used on toothpaste or shampoo containers. Tamper-proof mechanisms, such as those used for prescription bottles, could be used as well, although this might not be as much of a deterrent
against theft. One preferred, low cost embodiment uses an o-ring between the vessel and lid, and fastens together using clips between the vessel and the lid. Clips can often be designed in a manner that renders them difficult to unfasten, certainly by children or pets.  

[0037] FIG. 1 illustrates one preferred embodiment of the consumer-based invention. In the Figure, item 100 is the overall container, which comprises of a lid 102 and a vessel 104. The shape of vessel 104 resembles that of a pressure vessel, namely it is substantially cylindrical in shape. This shape is widely known to be the strongest mechanical shape for the purposes of withstanding pressures, either internally or externally, without the vessel's structural integrity being compromised. Such a shape is desired to minimize the likelihood of container 100 being broken open, particularly during long term storage such as in a landfill. Lid 102 has a generally hemispherical shape, which like the cylindrical shape of vessel 104, is designed for maximum structural integrity. While the bottom 106 of vessel 104 is flat rather than cylindrical or hemispherical, its edge 108 are generously rounded to minimize stress concentrations. Bottom 106 is flat to provide a means for standing vessel 104 upright, as shown in FIG. 1. This upright position facilitates a convenient orientation for filling and storing vessel 104 during use and prior to permanently affixing lid 102 thereto. Note that this design also substantially maximizes the volume that may be stored in vessel 104. As discussed below, alternative designs may be pursued which have a small opening within hemispherical top 104 that allows for insertion of medications into container 100 when lid 102 is secured onto vessel 104.  

[0038] A seam 110 between vessel 104 and lid 102 is preferably water-tight so as to prevent leakage from container 100 of liquid-based medications and/or dissolved medications. Any of the exemplary sealing mechanisms discussed herein (e.g., o-ring seals, or adhesive or solvent-based sealants) as well as other known sealing mechanisms may be used to render seam 110 water-tight to prevent the ingress of water and the egress of liquid medicine such as cough syrup. Additionally, seam 110 between lid 102 and vessel 104 could be designed without any tab or other mechanism by which to re-open container 100. Further, container 100 could be designed with a minimal seam 110 so that it would not be obvious that there were two components to be separated or prised apart. For instance, as illustrated in FIGS. 2-5, clips 112 and recesses 114 can be used to securely attach lid 102 to vessel 104 in such a manner that will discourage or prevent individuals from attempting to separate lid 102 from the vessel 104. As shown in the figures, clips 112 and recesses 114 are designed to be on the inside walls of lid 102 and vessel 104, respectively, so that they are not visible or accessible from the outside of container 100 when lid 102 is secured onto vessel 104. Thus, once snapped shut, the closed container 100 cannot be re-opened since clips 112 and recesses 114 are inaccessible from the outside of container 100. This configuration is particularly preferred when the user intends to fill vessel 104 once for disposal, and does not need repeated access such as in the case where one keeps vessel 104 as a means for accumulating medicaments for disposal over time.  

[0039] Once vessel 104 is filled, lid 102 is designed to be fastened to vessel 104 in a manner such that it does not leak, and may not be re-opened. It is desired that container 100 not leak so that there is a reliable barrier between the medicaments inside container 100 and the environment outside so as to minimize or eliminate the opportunity for contamination. Contamination could come in the form of medications leaching into the water supply, or leaking out in a manner whereby it could come in contact with humans, pets or other animals. As mentioned above, to provide a leak-tight seal or union between lid 102 and vessel 104, an o-ring or other sealing mechanism can be provided therebetween. By way of example, FIGS. 3 and 5 illustrate a groove 116 in the rim of vessel 104, which is configured to receive a sealing mechanism 118 therein, as shown in FIG. 5. With sealing mechanism 118 in groove 116, lid 102 can be attached to vessel 104 so that sealing mechanism 118 provides a water-tight seal between lid 102 and vessel 104.  

[0040] As noted above, sealing mechanism 118 can take any one of a number of forms. For instance, in one exemplary embodiment, sealing mechanism 118 can be designed with a small sealed ring containing an appropriate adhesive, such as cyanoacrylate or solvent. This adhesive containing ring can be placed within lid 102 or in vessel 104, such as in groove 116, so that when lid 102 is attached to vessel 104 the adhesive containing ring is in contact with both lid 102 and vessel 104. When lid 102 is snapped or screwed onto vessel 104, an interference fit can be presented that breaks the seal on the adhesive or solvent, thereby permanently sealing of lid 102 to vessel 104. This seal could be robust and tamper-proof, while the approach would be convenient and require no additional handling or steps on the part of the user. As will be appreciated, other types of sealing mechanisms 118 can also be used to seal seam 110 between lid 102 and vessel 104. For instance, a simple O-ring could be placed in groove 116 so that when lid 102 is attached to vessel 104, the O-ring forms a seal therebetween.  

[0041] It is desired that lid 102 be attached to vessel 104 so that container 100 cannot be re-opened. This may prevent access to the container's content by those who should not have access, such as children, pets, thieves or the like. For this reason clips 112 and recesses 114 are designed on the inside of lid 102 and vessel 104 such that once closed, there is no access to unsnap clips 112 from recesses 114.  

[0042] In some embodiments, it may be desirable to store container 100 in a closed state while it is intermittently filled and before disposing of container 100 with its contents. In such a case, a means can be provided to close container 100 in a reversible manner. One means for accomplishing this would be to design clips 112 and recesses 114 on the outside of container 100 and in a manner that makes them easy to open. Alternatively a design such as is commonly used for prescription medicine bottles could be used. A positive aspect of this approach is that it provides an improved barrier against accidental contact with the medicines by children or pets while still allowing the device to be selectively opened and closed.  

[0043] In other exemplary embodiments of the invention, the container and lid can be configured so that the medications can be placed in the container after the lid is attached to the container. For instance, the lid or a portion of the container can be formed with an opening that allows for the insertion of medications into the vessel while substantially preventing the removal of the medications from the vessel. FIG. 6 illustrates an exemplary embodiment of a container having an opening in the lid for insertion of medications. FIGS. 7A-9B illustrate various alternative embodiments for the opening in the container through which medications can be inserted into the container. While the openings in the vessels are illustrated and described as being formed in the lid, it will be appreciated that the openings may also be formed in the walls of the container.
As noted, FIG. 6 illustrates an exemplary embodiment of a container 150 for use in safely disposing of medications. Container 150 includes a vessel 152, a lid 154 that can be attached to vessel 152 in secure and, optionally, permanent manner, and secondary lid 158 that can be attached over lid 154. For instance, similar to container 100, vessel 152 may have one or more recesses disposed on an interior surface and lid 154 may have one or more corresponding clips that are configured to mate with the recess of vessel 152 to securely attach lid 154 to vessel 152. Alternatively, lid 154 may be screwed or otherwise attached to vessel 152. Likewise, secondary lid 158 can be securely and, optionally, permanently attached onto lid 154 and/or vessel 152.

In the illustrated embodiment of FIGS. 6-7B, lid 154 is designed with a narrow slot 160 just wide enough to insert pills, capsules or gel caps into container 150. In one embodiment, lid 154 is made out of an injection-moldable plastic, with slot 156 designed such that the wall thickness around slot 156 gets progressively thinner, and thus more flexible, toward the opening. This design could have the width of the slot 156 actually narrower than the thickness of most pills, but the plastic could be flexible enough to enable the pills to be pushed through slot 156. In this case, pills could not fall out due to the interference fit created by slot 156 being narrower than the pills. This design would qualify as a tamper-resistant container, as it would be difficult for one to retrieve pills out of the container once deposited in. Thus, slot 156 is one example of means for substantially preventing removal of unused medications from container 150. Once the desired medications are inserted through slot 156 into container 154, secondary lid 158 may then be attached onto lid 154 and/or vessel 152 so as to cover slot 156. Similar to the seam between lid 154 and vessel 152, secondary lid 158 can create a water-tight seal or barrier to prevent leaking between lid 154 and secondary lid 158, as well as covering slot 156. Thus, secondary lid 158 is another example of means for substantially preventing removal of unused medications from container 150. This configuration can close slot 156 prior to disposal of container 150 so as to provide a water or airtight seal to prevent the ingress of water and the egress of medications deposited within container 150.

Another embodiment of a slotted lid 160 is illustrated in FIGS. 8A-8C, which can be used as an alternative to lid 154, and which provides a different means for placing medications into vessel 152—one that would not require an additional sealing lid, such as secondary lid 158. Lid 160 in this embodiment includes a pair of rollers 162, 164, preferably made out of a soft rubber or silicone. Note particularly in FIG. 8C the fact that they are mounted so as to have a bit of an interference with one another and preferably no clearance therebetween. Additionally, rollers 162, 164 could be mounted into lid 160 with o-rings and/or baffles to provide water-tight seals between the moving rollers 162, 164 and the stationary portion of lid 160. Thus, rollers 162, 164, o-rings, and baffles are each examples of means for substantially preventing removal of unused medications from container 150. As shown in FIG. 8A, a thumbwheel 166 may also be provided in lid 160, adjacent to rollers 162, 164. Thumbwheel 166, or an equivalent crank or wheel extending out of the side of lid 160, could be used to turn rollers 162, 164. Thumbwheel 166 could be directly coupled to one of rollers 162, 164, and the second roller could also turn by virtue of its interference with the first roller. As mentioned earlier, rollers 162, 164 may have a relatively soft and pliable exterior. Rollers 162, 164 may also be of a sufficiently large diameter to permit some retention of pills therebetween. In this embodiment, pills would be placed in the crevice between rollers 162, 164 and then thumbwheel or crank 166 would be actuated so as to cause rollers 162, 164 to grab and draw the pills into vessel 152. Additional means could be provided to assist the pills in going into rollers 162, 164 and vessel 154, and safety means could also be provided to prevent a user’s fingers from getting caught in rollers 162, 164. In addition rollers 162, 164 may also be motorized.

In some embodiments it might also be useful or desirable to not only place pills or capsules into vessel 152, but also to crush the pills or capsules. An additional embodiment of this invention includes a feature to break up pills, capsules, gel caps or the like. One might imagine that placing whole medication into a container might not sufficiently discourage thieves from looking for controlled substances or otherwise valuable medications. Thus, the present invention can be made in various forms configured to crush or cut up pills over the top of vessel 152, with the broken pieces falling inside vessel 152. Examples that crush pills might resemble modified versions of a garlic press, a paper shredder, pencil sharpener or a pepper grinder. Medicines with a soft exterior such as gel caps or capsules could be cut open using a guillotine-type mechanism. These crushing devices could be in a manual form, such as a paper cutter, or they could be automated, like a food processor.

These various cutting or crushing mechanisms could be battery-operated, they could plug into common wall outlets, or they could be manually operated. Some medicine disposal containers could have the cutting/crushing mechanism fully integrated therein so that the cutting/crushing mechanism would be disposed of or transported elsewhere with the rest of the container. In other configurations, more expensive or powerful devices could be segregated into reusable and disposable portions, where the medicine container would be disposed of while the cutting/crushing mechanism could be retained for additional uses.

One embodiment of a means for crushing pills and the like as they are deposited in vessel 152 is illustrated in FIGS. 9A-9C. Depending on the pills and the force of rollers 162, 164, certain capsules might break while passing through rollers 162, 164 into vessel 152. In some circumstances, however, it may be desirable to have additional cutting/crushing means for breaking up medicines disposed of in vessel 152. Illustrated in FIGS. 9A-9C are a lid 170 and rollers 172, 174 which are configured to crush and break up pills as they are inserted into vessel 152. Similar to rollers 162, 164, rollers 172, 174 can be mounted within lid 170 so that there is no clearance therebetween, as shown in FIGS. 9A and 9B. This can provide a seal to prevent the medications from being removed or leaking out from the container after disposal. Thus, rollers 172, 174 are examples of means for substantially preventing removal of unused medications from container 150.

As best seen in FIGS. 9B and 9C, each of rollers 172, 174 may have a core 176 constructed of a hard material with protruding corrugations or high points 178 (hereinafter referred to as protrusions 178). Protrusions 178 may be formed on core 176 in a specific pattern, such as the pattern shown in FIG. 9C. Alternatively, protrusions 178 may be formed at random on core 176. Protrusions 178 may be made
out of metal, plastic or another hard material such that they are not compressed as rollers 172, 174 turn to allow passage of pills therebetween.

[0051] Core 176 may be covered with a soft, compressible outer surface 180 to provide the desired seal between rollers 172, 174. Rubber or silicone can be used to form the outer surface 180. In this instance, the rubber or silicone is formed over core 176 in such a manner that keeps protrusions 178 exposed and not covered by outer surface 180. Preferably, protrusions 178 would remain recessed or just below the exterior surface of outer surface 180 in the natural uncompressed state of outer surface 180, but would come closer to the surface during the compression caused by the interference between rollers 172, 174, as depicted in FIG. 9B. By properly positioning rollers 172, 174 relative to one another, protrusions 178 will crush pills that are rolled between rollers 172, 174. Crushing the pills, capsules or caplets will further discourage theft particularly when dealing with controlled substances. This fabrication of outer surface 180 could be accomplished with injection molding and appropriate shutoffs at protrusions 178. The interference between outer surfaces 180 on rollers 172, 174 can create a seal therebetween to prevent the removal of medications from the container. Thus, outer surfaces 180 are examples of means for substantially preventing removal of unused medications from container 150.

[0052] In another exemplary embodiment of the present invention, additives can be provided for mixing with the medications once the vessel is filled or otherwise ready for disposal. For example, in one exemplary embodiment, additives are provided that, when mixed with the medicines, will render the medicines relatively inaccessible by unintended users. Compounds such as Sodium Polyacrylate and/or Bentonite can be mixed with water and the medications to yield a gel-like composite. The composite can also present an unappetizing color to further discourage consumption.

[0053] Water is useful to dissolve tablets, capsules and the like, whereas Sodium Polyacrylate, which is commonly found in diapers, is used to absorb the liquid into a gel. Bentonite also absorbs liquids, but not as efficiently as Sodium Polyacrylate. Bentonite does, however, have the ability to make the contents less appealing, due to its blue/grey color. In this embodiment, the user may first fill the vessel with medicaments, add water, and then add the compounds to absorb and dissolve medicaments. Alternatively, the vessel could first be partially filled with water, preferably warm water, to enhance the dissolution of the tablets. Once filled, the user would then add the compounds, close the vessel and shake the closed container to mix the contents. Mixing the contents would allow the liquid to be absorbed, and would allow the compounds to spread and encapsulate all of the different capsules and tablets, forming an undesirable composite of gelled medications that are less prone to leaking.

[0054] Additional embodiments provide additional techniques to discourage children, pets and others from taking medicine not intended. For example, means can be provided to intermittently add and/or mix pre-existing kitty litter or coffee grounds into the medication mixture, either by providing separate access or the same one used for the medications. Additionally, moisture-absorbing materials may be included to allow for disposal of gels or liquids.

[0055] Information to log medications as they are added to the container may also be provided on the outside of the container. This could be done manually or means could be provided to link a computerized log with a serial number or equivalent identifier provided on the exterior of the container. [0056] The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed is:

1. A system for safely disposing of unused medications, comprising:
a vessel having a bottom wall and a side wall extending upwardly from the bottom wall, wherein the bottom wall and the side wall cooperate to define an interior cavity adapted to receive unused medications, wherein the side wall comprises a rim defining an opening to the interior cavity through which the unused medications can be placed into the interior cavity, wherein the vessel further comprises one or more recesses formed on an interior surface thereof; and
a lid adapted to be selectively attached to the vessel to close the opening to the interior cavity and thereby form a closed container, wherein the lid comprises a rim that is adapted to sealingly engage the rim of the vessel side wall when the lid is attached to the vessel, wherein the lid further comprises one or more clips that are configured to engage the one or more recesses to securely attach the lid to the vessel, wherein the one or more clips of the lid and the one or more recesses of the vessel cooperate to prevent the lid from being detached from the vessel after the lid is attached to the vessel.

2. The system of claim 1, wherein the one or more recesses of the vessel are formed on an interior surface of the rim.

3. The system of claim 1, wherein the one or more clips of the lid extend from the rim of the lid to facilitate engagement with the one or more recesses formed in the vessel.

4. The system of claim 3, wherein the one or more clips extend from an interior surface of the rim of the lid to facilitate engagement of the one or more clips with the one or more recesses formed on the interior surface of the vessel.

5. The system of claim 4, wherein the one or more clips and the one or more recesses are disposed within an interior of the closed container formed by the vessel and lid so as to render the one or more clips and the one or more recesses inaccessible when the lid is attached to the vessel.

6. The system of claim 5, wherein at least one of the rim of the vessel and the rim of the lid comprises a groove formed therein, wherein the groove is adapted to receive a sealing mechanism therein to facilitate sealing engagement between the vessel and the lid when the lid is attached to the vessel.

7. The system of claim 1, further comprising one or more additives adapted to render the unused medications substantially unusable after disposal in the container.

8. The system of claim 1, wherein the vessel is adapted to receive one or more syringes or needles therein that have been used to administer a medication, wherein the container formed by the vessel and lid is adapted to prevent access to the one or more syringes or needles after insertion of the one or more syringes or needles in the vessel and attachment of the lid to the vessel.

9. A container for use in safely disposing of unused medications, comprising:
a vessel having a bottom wall and a side wall extending upwardly from the bottom wall, wherein the bottom wall and the side wall cooperate to define an interior cavity adapted to receive unused medications, wherein the side wall comprises a rim defining an opening to the interior cavity; and

a lid adapted to be selectively attached to the vessel to close the opening to the interior cavity and thereby form a container, wherein the lid comprises: a slot adapted to enable the selective insertion of unused medications into the interior cavity of the vessel; and

means for substantially preventing the removal of unused medications from the container after insertion of the unused medication into the container.

10. The container of claim 9, wherein the slot is formed in the lid by spaced apart side walls.

11. The container of claim 10, wherein the spaced apart side walls are spaced apart a first distance, and wherein the spaced apart side walls are sufficiently flexible to enable the side walls to bend to increase the distance between therebetween to allow for the insertion of unused medications therebetween.

12. The container of claim 10, wherein the means for substantially preventing the removal of unused medications from the container comprises a secondary lid that is adapted to be permanently attached over the lid to prevent access to the slot.

13. The container of claim 9, wherein the slot comprises first and second opposing rollers, wherein rotation of the first and second opposing rollers facilitates insertion of unused medications into the container.

14. The container of claim 13, wherein the first and second opposing rollers comprise the means for substantially preventing the removal of unused medications from the container.

15. The container of claim 13, wherein the first and second opposing rollers cooperate to substantially seal the slot to prevent unused medication disposed in the container from escaping out of the container.

16. The container of claim 13, wherein at least one of the first and second opposing rollers comprises a plurality of protrusions adapted to break up unused medications as the unused medications are inserted into the container between the first and second opposing rollers.

17. The container of claim 16, wherein the at least one of the first and second opposing rollers that comprises the plurality of protrusions further comprises a compressible outer cover that interfaces with the other roller of the first and second opposing rollers to form a seal between the first and second opposing rollers.

18. The container of claim 9, wherein the container is configured to receive one or more additives adapted to render the unused medications substantially unusable after disposal in the container.

19. The container of claim 18, wherein the one or more additives comprise Sodium Polycrylate or Bentonite.

20. The container of claim 9, wherein the vessel further comprises one or more recesses formed on an interior surface thereof and the lid further comprises one or more clips that are configured to engage the one or more recesses to securely attach the lid to the vessel, wherein the one or more clips of the lid and the one or more recesses of the vessel cooperate to prevent the lid from being detached from the vessel after the lid is attached to the vessel.

21. A system for safely disposing of unused medications comprising:

a vessel having a bottom wall and a side wall extending upwardly from the bottom wall, wherein the bottom wall and the side wall cooperate to define an interior cavity adapted to receive unused medications, wherein the side wall comprises a rim defining an opening to the interior cavity through which the unused medications can be placed into the interior cavity, wherein the vessel further comprises one or more recesses formed therein; and

a lid adapted to be selectively attached to the vessel to substantially cover the opening to the interior cavity, wherein the vessel and lid cooperate to form a substantially closed container, wherein the lid comprises a rim that is adapted to sealingly engage the rim of the vessel side wall when the lid is attached to the vessel, wherein the lid further comprises one or more clips that are configured to engage the one or more recesses of the vessel to securely attach the lid to the vessel, wherein the one or more clips and the one or more recesses are substantially inaccessible from the outside of the container when the lid is attached to the vessel, thereby substantially preventing removal of the lid from the vessel, wherein the lid further comprises a slot adapted to enable the selective insertion of unused medications into the interior cavity of the vessel and means for substantially preventing the removal of unused medications from the container after insertion of the unused medication into the container.

22. The container of claim 21, wherein the vessel and lid are configured to substantially resist crushing of the container.

23. The container of claim 21, further comprising two opposing rollers mounted within the slot, wherein the rollers facilitate insertion of unused medications into the interior cavity and substantially prevent the removal of the unused medications from the interior cavity after insertion therein.

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