scription

During surgery and medical treatment blades such as those attached to scalpels and other cutting instruments, needles such as hypodermic needles and suture needles, and other sharp debris which are known collectively as sharps, are produced. Frequently the sharps are contaminated with bodily fluids of the patient being treated. Such contaminated sharps are a particular source of danger in a hospital environment. Not only do they include sharp edges and penetrating points both of which can inflict injury but, since they are contaminated and may be contaminated with a life threatening virus or bacteria, the risks involved in their subsequent handling are greater. At present many hospitals do not have a reliable way of safely disposing of the sharps that have been used during surgical operation or medical treatment.

USA,243,140 discloses a container with a hinged lid for the secure storage of used needles, blades and other sharps. The hinged lid of the container includes an adhesive surface to locate and securely hold irregularly shaped sharps. The container also includes foam strips which are fixed to the container into which used needles may be threaded. In EP-A-005052 a scalpel blade disarming device is disclosed which removes used blades from a scalpel handle. The disarming device may also include a closed compartment into which the used blades may be temporarily collected until their removal and subsequent disposal.

According to this invention a device for enabling the safe disposal of contaminated used disposable blades, needles, and other sharps comprises a container having two compartments, a first, permanently closed compartment including a slot a re-entrant wall portion to enable a used blade to be inserted into the slot with the re-entrant wall portion accommodating a handle upon which the used blade is mounted and a disarming unit adjacent the slot in the re-entrant wall portion to remove the blade from the handle, at least part of the wall of the first compartment being transparent to enable the contents of the first compartment to be inspected and counted, and a second compartment including a hinged lid, means inside the second compartment securely to hold used needles, a catch to hold the lid of the second compartment closed, and the lid or an extension of it covering the slot in the re-entrant wall portion of the first compartment when the lid is closed and so preventing any possibility of used blades escaping from the first compartment via the slot.

Typically surgical blades include a key hole shaped slot and they are mounted on the handle by inserting a key on the handle through the larger region of the key hole shaped slot and then urging the blade onto the handle until the heel of the blade snaps over the key or engages an abutment. This moves the narrower portion of a key hole shaped slot into a secure location beneath the key to hold the blade firmly on the handle. The disarming unit enables the blade to be removed from the handle by reversing the above sequence of operations or it may remove the blade from the handle by merely snapping it off.

In the first case the disarming unit preferably includes a detent arranged to engage the heel of the blade to lift it away from the key and hold the blade in position in the slot whilst the user pulls the handle away from the blade until the key on the handle is aligned with enlarged portion of the key hole shaped slot to enable the key to be removed from the key hole shaped slot. The detent preferably includes opposed projections which may also define the sides of the slot, one of which is arranged to engage the heel of the blade when the blade is inserted into the slot. Movement of the free end of the handle then causes the handle to rotate about the other of the projections and the one of the projections to bend the heel of the blade to lift it over the key of the handle. As the handle is withdrawn the heel of the blade engages the other projection and allows the handle to be withdrawn whilst the blade is held in position by the other projection. The used and contaminated blade is received by the first compartment and the handle is withdrawn from the re-entrant wall portion.

Preferably the second compartment includes an adhesive surface. This may be provided on the hinged lid of the second compartment and this adhesive surface is used to locate and hold securely irregularly shaped sharps such as the remains of a broken ampoule or small swabs such as pledgelets, peanut sponges and, for example, very small needles, hypodermic needles and used safety pins. The means securely to hold used needles is preferably formed by one or more strips of foamed plastics material which are fixed to the inside wall of the second compartment and into which the needles are threaded during and after use.

The catch on the lid of the second compartment is preferably one which, after having been closed, cannot easily be released. When the wall of the second compartment is resilient, the catch may be formed by formations one of which includes an inclined ramp surface and an abutment surface and the other of which includes an abutment surface. As the lid is closed, the ramp surface rides over the other formation so distorting the side walls of the second compartment until the lid is completely closed whereupon the catch snaps shut with the resilience of the walls moving the abutment surfaces into contact with one another to hold the lid

closed. Alternatively, the catch may include one part having a conical head mounted on a stem with a smaller diameter than the maximum diameter of the head to provide an annular shoulder behind the head and the other part having an aperture with a resilient margin. The two parts are formed separately on the body and lid. In this case, as the lid is closed the head passes through the aperture stretching its margin until the lid is completely closed and, at this point, the resilient margin of the aperture contracts to engage the annular shoulder behind the head to hold the lid shut.

Preferably the outside surface of the lid and the base of the container include adhesive strips with a peel-off backing to allow the device to be adhered to, for example, the drapes of an instrument trolley, so that it is held securely in position during use.

A particular example of this device in accordance with this invention will now be described with reference to the accompanying drawings in which:-

Figure 1 is a plan of the device with the lid of the second compartment open;

Figure 2 is a cross section through the device taken along the line II-II shown in Figure 1, with the lid of the second compartment open;

Figure 3 is a longitudinal section through the first compartment taken along the lines III-III shown in Figure 1 illustrating the operation of the disarming unit; and,

Figure 4 is an enlarged detail section of the catch with the lid about to close.

The device comprises a container 1 having a first compartment 2 and a second compartment 3. A lid 4 is joined to the remainder of the second compartment 3 by a membrane hinge 5 and a catch 6 is provided to hold the lid 4 closed. An extension flap 7 on the lid 4 covers the end of the first compartment 2 when the lid is closed. Two dense foam strips 8 are fixed to the inside of the second compartment 3 and an adhesive layer 9 is formed inside the lid 4. The compartment I includes a transparent face 10 to enable its contents to be inspected and counted and adhesive pads 11 are provided on the outside surface of a base of the second compartment 3 and the lid 4 to enable the device to be adhered to a surface in use. A check list (not shown) is usually included in the container 1 to enable all of the sharps introduced into an operating field to be recorded and to facilitate a subsequent count of them. The first compartment 2 includes a re-entrant body portion 12 a base of which includes a slot 13 seen best in Figure 3. Projections 14 and 15 are located at the innermost ends of the re-entrant portion 12 and a further slot 16 is defined between them.

Typically a scalpel or other knife used in surgery comprises a handle 17 having a narrow head 18. The head 18 includes a key which fits into an enlarged portion 19 of a key hole shaped slot 20 of a blade 21. To use the disarming unit the scalpel is inserted into the re-entrant portion 12 with the blade 21 extending through the slot 13 in the position shown as A in Figure 3. The handle 17 is then raised whilst, at the same time, pressing down on the forward end of the handle. The handle 17 turns around one side of the slot 13 into the position B with the head 18 of the handle being received in the further slot 16. The projections 14 and 15 engage the heel of the blade 21 causing it to bend and disengage from the rear of the key on the head 18 of the handle 17. The handle 17 is then withdrawn and, the raised heel of the blade 21 engages the one side of the slot 13. Further withdrawal of the handle 17 releases the blade 17 from the key on the head 18. As the handle 17 is removed from the re-entrant portion 12 the blade 21 is released from the handle 17 and is received in the first compartment 2.

Suture needles 22 and 23 and hypodermic syringe needles (not shown) are threaded into the dense foam strips 8 in the second compartment 3. Very small suture needles 24 pledgelets 25 and other small items are adhered to the adhesive layer 9 in the lid 4.

At the conclusion of the surgical operation or other medical treatment the used sharps and other items which have accumulated in the device are counted and compared with those entered on the check list to make sure that they are all accounted for and, if they are, the lid 4 is closed. The container 1 containing the sharps and other items can then be handled safely with no possibility of any of them coming into contact with anybody handling the package. The entire container 1 and contents is incinerated.

The catch is shown in more detail in Figure 4 and comprises an outwardly included ramp surface 26 terminating in a first abutment surface 27 formed on the rim of the lid 4 and a co-operating slot 28 including a second abutment surface 29. As the lid 4 is shut to close the second compartment 3 the ramp surface rides over a wall 30 of the compartment 3 and, so doing distorts the side wall 31 of the lid 4. When the lid 4 is completely closed the distorted side wall 31 snaps back as the ramp surface 26 and first abutment surface 27 enter the slot 28 and the first 27 and second 29 abutment surfaces engage to hold the lid 4 closed. The extension on the lid 4 covers the re-entrant portion 12 of the first compartment 2 to ensure that no blades can escape from the first compartment 2 through the slot 16.

Typically the container 1 is sterilised before use, for example by irradiation, so that it is sterile

fore it is bought into the operating field. The container 1 is made from a material which is capable of incineration and typically it is made by injection moulding from a thermoplastics material.

Claims

1. A device for enabling the safe disposal of contaminated used disposable blades, needles, and other sharps comprising a container (1) having two compartments, a first permanently closed compartment (2) including a slot (16) in a re-entrant wall portion (12) to enable a used blade to be inserted into the slot (16) with the re-entrant wall portion (12) accommodating a handle upon which the used blade is mounted, and a disarming unit (14, 15) adjacent the slot (16) in the re-entrant wall portion (12) to remove the blade from the handle, at least part of the wall (10) of the first compartment (2) being transparent to enable the contents of the first compartment (2) to be inspected and counted, and a second compartment (3) including a hinged lid (4), means (8,9) inside the second compartment securely to hold used needles, a catch (6) to hold the lid of the second compartment closed, and the lid (4) or an extension of it (7) covering the slot (16) in the re-entrant wall portion of the first compartment (2) when the lid (4) is closed and so preventing any possibility of used blades escaping from the first compartment (2) via the slot (16).

2. A device according to claim 1, in which the disarming unit includes a detent (14, 15) arranged to engage the heel of the blade to lift it away from the key on its handle and hold the blade in position in the slot (16) whilst the user pulls the handle away from the blade until the key on the handle is aligned with enlarged portion of the key hole shaped slot to enable the key to be removed from the key hole shaped slot.

3. A device according to claim 2, in which the detent includes opposed projections (14, 15) which also define the sides of the slot (16), one of which (14) is arranged to engage the heel of the blade when the blade is inserted into the slot to bend the heel of the blade to lift it over the key of the handle, and the other of which (15) engages the heel of the blade to prevent it being withdrawn as the handle is withdrawn.

4. A device according to any one of the preceding claims, in which the second compartment (3) includes an adhesive surface (9).

5. A device according to any one of the preceding claims, in which the means securely to hold used needles includes one or more strips of foamed plastics material (8) fixed to the inside of the second compartment (3).

6. A device according to any one of the preceding claims, in which the lid (4) of the second compartment (2) is resilient, and in which the catch (6) is formed by an inclined ramp surface (26) and a first abutment surface (27) formed on the lid and a second abutment surface (29) on the base of the second compartment (2).

7. A device according to any one of the preceding claims, in which the outside surface of the lid (4) and the base of the container (1) include adhesive strips (11) with a peel-off backing.

Revendications

1. Dispositif destiné à permettre de se débarrasser avec sécurité des lames, aiguilles et autres objets dangereux à usage unique, usagés et contaminés, comprend une boîte (1) présentant deux compartiments, dont un premier compartiment (2), fermé en permanence et présentant une fente (16) dans une partie de paroi rentrante (12) pour permettre d'insérer une lame usagée dans la fente (16) tandis que la partie de paroi rentrante (12) reçoit un manche sur lequel la lame usagée est montée, et une unité de désarmement (14, 15) adjacente à la fente (16) de la partie de paroi rentrante (12) et servant à séparer la lame du manche, au moins une partie de la paroi (10) du premier compartiment (2) étant transparente pour permettre de vérifier et de compter le contenu du premier compartiment (2), et un deuxième compartiment (3) comprenant un couvercle (4) à charnière, des moyens (8, 9) placés dans le deuxième compartiment, pour retenir solidement les aiguilles usagées, un fermoir (6) servant à maintenir le couvercle du deuxième compartiment fermé, et le couvercle (4) ou un prolongateur (7) de ce couvercle recouvrant la fente (16) de la partie de la paroi rentrante du premier compartiment (2) lorsque le couvercle (4) est fermé et supprimant ainsi le risque de voir les lames usagées s'échapper du premier compartiment (2) en passant par la fente (16).

2. Dispositif selon la revendication 1, dans lequel l'unité de désarmement comprend un encliquetage (14, 15) agencé pour attaquer le talon de la lame pour le dégager du tenon de son manche par un mouvement de soulèvement et

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ore it is bought into the operating field. The container 1 is made from a material which is capable of incineration and typically it is made by injection moulding from a thermoplastics material.

Claims

1. A device for enabling the safe disposal of contaminated used disposable blades, needles, and other sharps comprising a container (1) having two compartments, a first permanently closed compartment (2) including a slot (16) in a re-entrant wall portion (12) to enable a used blade to be inserted into the slot (16) with the re-entrant wall portion (12) accommodating a handle upon which the used blade is mounted, and a disarming unit (14, 15) adjacent the slot (16) in the re-entrant wall portion (12) to remove the blade from the handle, at least part of the wall (10) of the first compartment (2) being transparent to enable the contents of the first compartment (2) to be inspected and counted, and a second compartment (3) including a hinged lid (4), means (8,9) inside the second compartment securely to hold used needles, a catch (6) to hold the lid of the second compartment closed, and the lid (4) or an extension of it (7) covering the slot (16) in the re-entrant wall portion of the first compartment (2) when the lid (4) is closed and so preventing any possibility of used blades escaping from the first compartment (2) via the slot (16).

2. A device according to claim 1, in which the disarming unit includes a detent (14, 15) arranged to engage the heel of the blade to lift it away from the key on its handle and hold the blade in position in the slot (16) whilst the user pulls the handle away from the blade until the key on the handle is aligned with enlarged portion of the key hole shaped slot to enable the key to be removed from the key hole shaped slot.

3. A device according to claim 2, in which the detent includes opposed projections (14, 15) which also define the sides of the slot (16), one of which (14) is arranged to engage the heel of the blade when the blade is inserted into the slot to bend the heel of the blade to lift it over the key of the handle, and the other of which (15) engages the heel of the blade to prevent it being withdrawn as the handle is withdrawn.

4. A device according to any one of the preceding claims, in which the second compartment (3) includes an adhesive surface (9).

5. A device according to any one of the preceding claims, in which the means securely to hold used needles includes one or more strips of foamed plastics material (8) fixed to the inside of the second compartment (3).

6. A device according to any one of the preceding claims, in which the lid (4) of the second compartment (2) is resilient, and in which the catch (6) is formed by an inclined ramp surface (26) and a first abutment surface (27) formed on the lid and a second abutment surface (29) on the base of the second compartment (2).

7. A device according to any one of the preceding claims, in which the outside surface of the lid (4) and the base of the container (1) include adhesive strips (11) with a peel-off backing.

Revendications

1. Dispositif destiné à permettre de se débarrasser avec sécurité des lames, aiguilles et autres objets dangereux à usage unique, usagés et contaminés, comprend une boîte (1) présentant deux compartiments, dont un premier compartiment (2), fermé en permanence et présentant une fente (16) dans une partie de paroi rentrante (12) pour permettre d'insérer une lame usagée dans la fente (16) tandis que la partie de paroi rentrante (12) reçoit un manche sur lequel la lame usagée est montée, et une unité de désarmement (14, 15) adjacente à la fente (16) de la partie de paroi rentrante (12) et servant à séparer la lame du manche, au moins une partie de la paroi (10) du premier compartiment (2) étant transparente pour permettre de vérifier et de compter le contenu du premier compartiment (2), et un deuxième compartiment (3) comprenant un couvercle (4) à charnière, des moyens (8, 9) placés dans le deuxième compartiment, pour retenir solidement les aiguilles usagées, un fermoir (6) servant à maintenir le couvercle du deuxième compartiment fermé, et le couvercle (4) ou un prolongateur (7) de ce couvercle recouvrant la fente (16) de la partie de la paroi rentrante du premier compartiment (2) lorsque le couvercle (4) est fermé et supprimant ainsi le risque de voir les lames usagées s'échapper du premier compartiment (2) en passant par la fente (16).

2. Dispositif selon la revendication 1, dans lequel l'unité de désarmement comprend un encliquetage (14, 15) agencé pour attaquer le talon de la lame pour le dégager du tenon de son manche par un mouvement de soulèvement et

pour retenir la lame en position dans la fente (16) pendant que l'utilisateur tire le manche pour le dégager de la lame jusqu'à ce que le tenon du manche soit aligné sur la partie élargie de la fente en forme de trou de serrure pour permettre de dégager le tenon de la fente en forme de trou de serrure.

3. Dispositif selon la revendication 2, dans lequel l'encliquetage comprend des saillies opposées (14, 15) qui définissent aussi les côtés de la fente (16), l'une (14) de ces saillies étant agencée pour attaquer le talon de la lame lorsque la lame est insérée dans la fente afin de faire fléchir le talon de la lame pour le soulever au-dessus du tenon du manche tandis que l'autre (15) coopère avec le talon de la lame pour empêcher qu'elle ne soit extraite lorsqu'on retire le manche.

4. Dispositif selon une quelconque des revendications précédentes, dans lequel le deuxième compartiment (3) comprend une surface adhésive (9).

5. Dispositif selon une quelconque des revendications précédentes, dans lequel les moyens servant à maintenir solidement les aiguilles usagées comprennent une ou plusieurs bandes de mousse de matière plastique (8) fixées à la face interne du deuxième compartiment (3).

6. Dispositif selon une quelconque des revendications précédentes, dans lequel le couvercle (4) du deuxième compartiment (2) est élastique et dans lequel le fermoir (6) est formé par une surface inclinée en rampe (26) et une première surface de butée (27) formée sur le couvercle et par une deuxième surface de butée (29) formée sur la base du deuxième compartiment (2).

7. Dispositif selon une quelconque des revendications précédentes, dans lequel la surface externe du couvercle (4) et la base de la boîte (1) comprennent des bandes adhésives (11) munies d'un revêtement protecteur pelable.

Patentansprüche

1. Vorrichtung zum sicheren Beseitigen verwendeter kontaminierter Einmalklingen, Nadeln und anderer scharfer Gegenstände, mit einem Behälter (1), der zwei Abteile aufweist, ein erstes permanent geschlossenes Abteil (2) mit einem Schlitz (16) in einem einspringenden Wandteil (12), um eine gebrauchte Klinge in den Schlitz (16) einführen zu können, wobei der einspringende Wandteil (12) einen Handgriff aufnimmt, an welchem die gebrauchte Klinge montiert ist, und mit einer Entschärfungseinheit (14, 15) nahe dem Schlitz (16) im einspringenden Wandteil (12), um die Klinge vom Handgriff zu entfernen, wobei zumindest ein Teil der Wand (10) des ersten Abteils (2) transparent ist, um eine Inspektion des Inhaltes des ersten Abteiles (2) und eine Zählung zu ermöglichen, und ein zweites Abteil (3) mit einem angelenkten Deckel (4), Mitteln (8, 9) innerhalb des zweiten Abteiles, um die gebrauchten Nadeln sicher zu halten, einer Sperre (6), um den Deckel des zweiten Abteils in der Schließstellung zu halten, wobei der Deckel (4) oder eine Verlängerung (7) desselben den Schlitz (16) im einspringenden Wandteil des ersten Abteils (2) bedeckt, wenn der Deckel (4) in der Schließstellung ist, und so jede Möglichkeit verhindert, daß gebrauchte Klingen aus dem ersten Abteil (2) über den Schlitz (16) austreten.

2. Vorrichtung nach Anspruch 1, bei welcher die Entschärfungseinheit einen Anschlag (14, 15) aufweist, der so angeordnet ist, daß er mit dem Hinterteil der Klinge in Eingriff kommt, um diese vom Rastvorsprung an ihrem Handgriff abzuheben und die Klinge in der Position im Schlitz (16) zu halten, während der Benützer den Handgriff von der Klinge abzieht, bis der Rastvorsprung am Handgriff mit dem verbreiterten Teil des schlüssellochförmigen Schlitzes ausgerichtet ist, damit der Rastvorsprung aus dem schlüssellochförmigen Schlitz entfernt werden kann.

3. Vorrichtung nach Anspruch 2, bei welcher der Anschlag einander gegenüberliegende Vorsprünge (14, 15) umfaßt, die auch die Seiten des Schlitzes (16) bilden, von denen einer (14) so angeordnet ist, daß er mit dem Hinterteil der Klinge in Eingriff kommt, wenn die Klinge in den Schlitz eingeführt wird, um den Hinterteil der Klinge zu biegen, um ihn über den Rastvorsprung im Handgriff zu heben, und der andere (15) mit dem Hinterteil der Klinge in Eingriff kommt, um zu verhindern, daß diese zurückgezogen wird, wenn der Handgriff zurückgezogen wird.

4. Vorrichtung nach einem der vorhergehenden Ansprüche, bei welcher das zweite Abteil (3) eine Klebefläche (9) aufweist.

5. Vorrichtung nach einem der vorhergehenden Ansprüche, bei welcher die Mittel, welche ge-

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brauchte Nadeln sicher halten, einen oder mehrere Streifen aus Schaumkunststoffmaterial (8) aufweisen, der bzw. die an der Innenseite des zweiten Abteils (3) befestigt ist bzw. sind.

6. Vorrichtung nach einem der vorhergehenden Ansprüche, bei welcher der Deckel (4) des zweiten Abteiles (2) elastisch ist, und bei welcher die Sperre (6) durch eine geneigte Rampenfläche (26) und eine erste Anschlagfläche (27) am Deckel sowie eine zweite Anschlagfläche (29) an der Basis des zweiten Abteiles (2) gebildet ist.

7. Vorrichtung nach einem der vorhergehenden Ansprüche, bei welcher die Außenseite des Deckels (4) und die Basis des Behälters (1) Klebestreifen (11) aufweisen, die mit einem abziehbaren Träger versehen sind.

