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(54) Title: COLLECTING DEVICE FOR POINTY OBJECTS

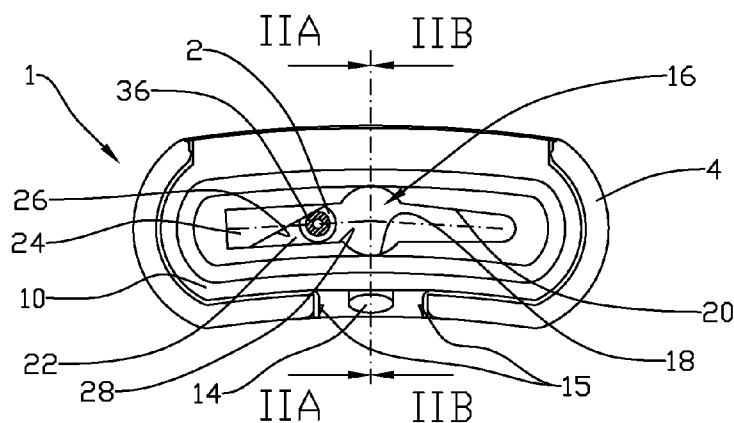


Fig. 2

(57) Abstract: A method and a collecting device (1) for pointy objects (2), the collecting device (1) including a container part (4) and a lid (6) closably covering an opening (16) in the container part (4), and the opening (16) being provided with a knife (24) which is arranged to cut the coupling tube (36) of a syringe (30).

COLLECTING DEVICE FOR POINTY OBJECTS

This invention relates to a collecting device for pointy objects. More particularly, it relates to a collecting device for pointy objects wherein the collecting device includes a container part and a lid closably and sealingly covering an opening in the container part. The invention also includes a method of using a collecting device.

During work with syringes and syringe needles there is always a risk that personnel working with these may prick themselves on the pointy objects. After use, pointy objects of this kind are often contaminated with blood that may contain infective agents of various kinds. In what follows, the pointy object will be exemplified by a syringe needle, even though the present invention is not limited to syringe needles, but also covers cannulas and other forms of pointy objects which, for reasons of hygiene, must be disposed of after use.

Collecting devices for used syringe needles are known, for example from the patent publication EP 0276150. The document discloses a cylinder-shaped container with a slot into which the needle is inserted and then pulled off the syringe.

In the patent publication NO 321581 a collecting device for pointy objects is disclosed, in which a perforable lid functions as an intermediate storage for syringe needles and cannulas before they are disposed of in a container. The container is provided with a closable opening which lets a connecting part of the pointy object through, but prevents said connecting part from getting out of the container, so that the pointy object stays within the container.

The patent publication US 4984686 discloses a collecting receptacle for pointy objects including a lid formed with an opening, the opening having side walls sloping downwards at an angle of 45 degrees below the surface of the lid. The sloping side walls provide an abutment with a maximum moment against a coupling part of a syringe for the removal of a needle.

Common to the known solutions, some of which are mentioned in the foregoing, is the fact that they have one or more of the drawbacks that are mentioned in what follows.

Several successive operations are often needed to dispose of a syringe needle by means of known devices. The known devices may therefore be cumbersome to use.

5 Some known devices consist of a number of different joints and loose components so that the structure and functionality of the device are not very robust. Known solutions are dependent on the syringe needle being attached to a connecting part with a larger circumference than the needle itself. The connecting part is to prevent said syringe needle from escaping from a container or the like. The known solutions are not fluid-tight either, so that there is a real risk of blood and infective agents connected to used
10 syringe needles and the like not being stored and sealed up in a safe way.

The invention has for its object to remedy or reduce at least one of the drawbacks of the prior art.

15 The object is achieved according to the invention through the features that are specified in the description below and in the claims that follow.

According to a first aspect of the invention, a collecting device for pointy objects has been provided, the collecting device including a container part and a lid closably covering an opening in the container part, the opening being provided with a knife which is arranged to cut the coupling tube of a syringe.

20 Pointy objects, for example in the form of syringe needles, are often releasably connected to a syringe, that is to say the pumping part. The syringe needle is typically provided with a coupling sleeve which complementarily fits on a coupling tube located on the syringe. The coupling tube may be made from a relatively soft material to achieve good sealing between the syringe and the syringe needle. The coupling tube is
25 therefore well suited for cutting when the syringe needle is to be separated from the syringe after use.

The plane of the knife may be perpendicular relative to the direction of the opening. The knife could thereby cover part of the opening.

30 The knife may be in an elongated knife portion of the opening and, with advantage, have its cutting edge at an angle relative to the side edge of the opening. By the coupling tube being moved along the side edge of the opening, the cutting edge of the knife will penetrate into the coupling tube and cut it.

The opening may be provided with an uncoupling portion which may optionally also consist of a separate opening.

The syringe and the pointy object are moved into the uncoupling portion, but instead of cutting the coupling tube, the syringe is bent sideways while the syringe needle is abutting against the uncoupling portion and possibly against the wall of the container part, until the syringe needle loses its grip in the coupling tube and falls off.

Inside the container part, a shoulder may be arranged, encircling the opening. When the container is turned upside down, the shoulder forms a well that collects at least a portion of any fluid present in the container part.

The lid of the collecting device may be fluid-tight and provided with a fluid-tight seal. A relatively elastic seal will enable the collecting device to stand relatively heavy impacts without there being any risk of leakage of fluid present in the collecting device.

The collecting device may be provided with a recess in the container part, wherein the recess complementarily fits a snap-off ampoule, and wherein a lateral force against the snap-off ampoule may result in it being broken in an intended way on contact against the container part in the recess.

The container part may be provided with a mark beside the recess. By placing the mark of the snap-off ampoule at the mark of the container part, it is ensured that the snap-off ampoule will break in the intended place.

According to a second aspect of the invention, a method of collecting pointy objects in a collecting device is provided, wherein the collecting device comprises a container part and a lid closably covering an opening in the container part, and wherein the method includes:

- moving a syringe with a connected pointy object with the pointed object first into the opening until the coupling tube of the syringe is at the cutting edge of a knife;
- moving the coupling tube of the pointed object against the cutting edge of the knife so that the coupling tube is cut; and
- letting the pointy object together with the severed coupling tube be stored in the collecting device.

The method may further include cutting the coupling tube by moving the coupling tube in between the cutting edge of the knife and the side edge of the opening, the cutting edge of the knife being at an angle relative to the side edge of the opening.

The collecting device may be made in various sizes, such as in a pocket size for it to be carried by ambulance personnel, for example, and various sizes adapted for steady wall mounting.

5 The collecting device and method according to the invention provide a simple and functionally reliable way of separating pointy objects from the syringe and taking care of the pointy objects so that they do not constitute a hazard to personnel handling them.

In what follows, an example of a preferred embodiment is described, which is visualized in the accompanying drawings, in which:

- 10 Figure 1 shows a collecting device according to the invention;
- Figure 2 shows a plan view of the collecting device, in which the lid of the collecting device is not shown, but in which an opening in the container part is shown;
- 15 Figure 3 shows a plan view of the collecting device, seen from the opposite end relative to that of figure 2;
- Figure 4 shows a section IIA-IIA of figure 2;
- Figure 5 shows a section IIB-IIB of figure 2; and
- Figure 6 shows a section IV-IV of figure 4.

20 In the drawings, the reference numeral 1 indicates a collecting device for pointy objects 2, illustrated here by a syringe needle. The collecting device 1 comprises a container part 4 and a lid 6.

The lid 6, which is hingedly connected to the container part 4, is provided with a seal 8 which is arranged to be fluid-tight when pressed against a sealing portion 10 of the container part 4. A locking lip 12 on the lid 6 is arranged to releasably grip a locking
25 dog 14 on the container 4.

The container part 4 is provided with two opposite catches 15. When the locking lip 12 is pressed past the catches 15, it is practically impossible to open the collecting device 1 without using a tool.

30 In its closed state, the lid covers 6 an opening 16 in the container part 4. The opening 16 is shown best in figure 2 in which the opening 16 is formed with a circular central

opening 18, from which an elongated, tapering uncoupling portion 20 extends in one direction and an elongated knife portion 22 extends in the opposite direction.

A knife 24 that has its plane perpendicular to that of the opening 16 is arranged in the knife portion 22. The cutting edge 26 of the knife 24 is at an angle relative to the side edge 28 of the elongated knife portion 22.

When a, typically used, pointy object 2, here a syringe needle, is to be separated from a syringe 30, the syringe 30 and the pointy object 2 are inserted with the pointy object 2 first into the uncoupling portion 20 of the opening 16 until the coupling sleeve 32 of the pointy object 2 is under the uncoupling portion 20 as is shown in figure 4. Then the syringe 30 is bent sideways, as the arrow 34 indicates in figure 6. The pointy object 2 is thereby often bent out of the coupling tube 36 of the syringe 30, whereby the pointy object 2 falls into the container part 4.

Alternatively, the coupling tube 36 may be positioned between the cutting edge 26 of the knife 24 and the side edge 28, see figure 2 in which a section of the coupling tube 36 is illustrated. See also figure 5. By the coupling tube 36 being moved along the side edge 28, the knife 24 penetrates into the coupling tube 36 and cuts it. The pointy object 2 together with the severed part of the coupling tube 36 thereby falls into the container part 4.

In figure 4, a recess 38 in the container part 4 is shown. The recess 38 is formed to receive the top of a snap-off ampoule 40. By the application of a lateral force indicated by an arrow 42 to the snap-off ampoule 40, the snap-off ampoule 40 abutting against the container part 4 in the recess 38 will be broken in an intended way and with a considerably reduced risk of spillage and personal injury, especially in dark and demanding operations.

The container part 4 may be provided with a mark 44 beside the recess 38. By placing a mark, not shown, of the snap-off ampoule 40 at the mark 44 of the container part 4, it is ensured that the snap-off ampoule 40 will break in the intended place.

As the container part 4 may contain contaminated fluid residues, it is advantageous to provide the container part 4 with a shoulder 46 encircling the opening 16 and projecting somewhat into the container part 4. When the container part 4 is turned upside down, a well 48 is formed, which collects at least a portion of the fluid present in the container part 4.

C l a i m s

1. A collecting device (1) for pointy objects (2), the collecting device (1) including a container part (4) and a lid (6) closably sealing an opening (16) in the container part (4), c h a r a c t e r i z e d i n that the opening
5 (16) is provided with a knife (24) which is arranged to cut the coupling tube (36) of a syringe (30), and that the collecting device (1) is provided with a recess (38) in the container part (4), the recess (38) complementarily fitting a snap-off ampoule (40), wherein a lateral force (42) against the snap-off ampoule (40) may result in it being broken on contact against the container
10 part (4) in the recess (38), and the recess (38) being placed at the opposite end of the container part (4) relative to the opening (16).
2. The collecting device according to claim 1, c h a r a c t e r i z e d i n that the plane of the knife (24) is perpendicular to the direction of the opening (16).
- 15 3. The collecting device according to claim 1, c h a r a c t e r i z e d i n that the knife (24) is in an elongated knife portion (22) of the opening (16).
4. The collecting device according to claim 1, c h a r a c t e r i z e d i n that the cutting edge (26) of the knife (24) is at an angle relative to
20 the side edge (28) of the opening (16).
5. The collecting device according to claim 1, c h a r a c t e r i z e d i n that the opening (16) is provided with an uncoupling portion (20).
6. The collecting device according to claim 1, c h a r a c t e r i z e d i n that inside the container part (4), a shoulder (46) is arranged, encir-
25 cing the opening (16).
7. The collecting device according to claim 1, c h a r a c t e r i z e d i n that the lid (6) is fluid-tight and provided with a fluid-tight seal (8).

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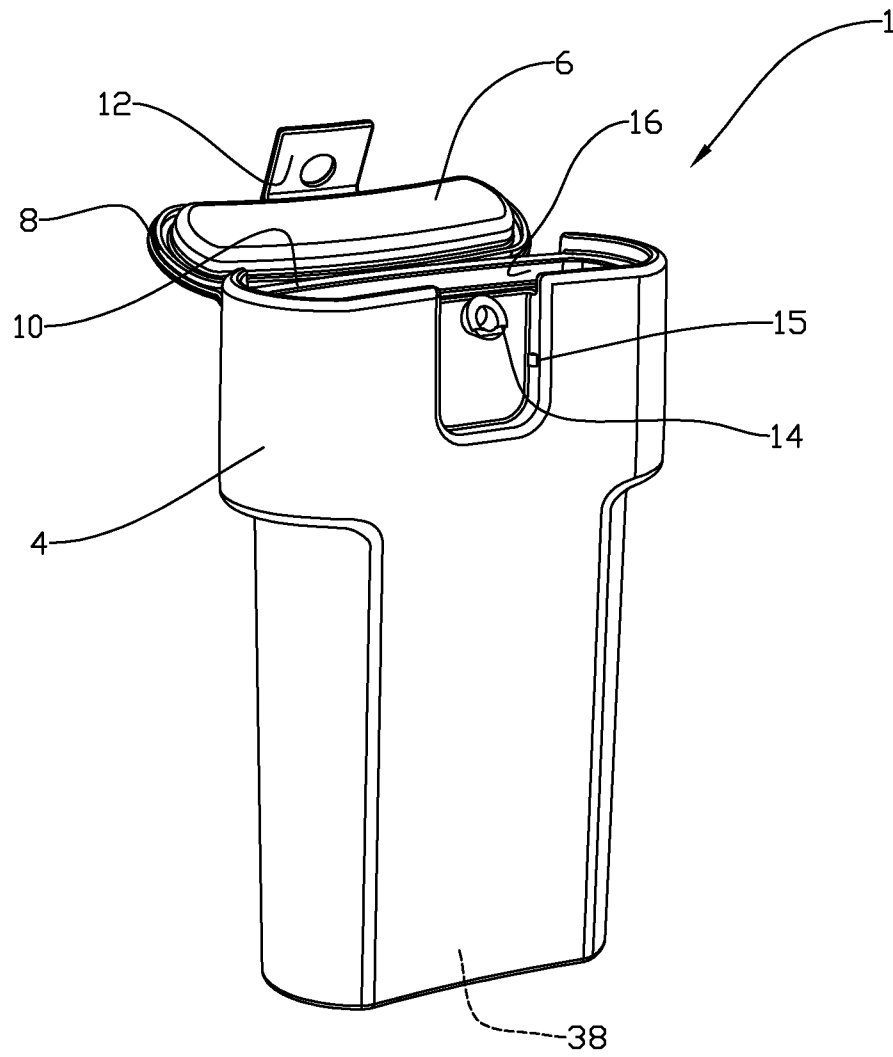


Fig. 1

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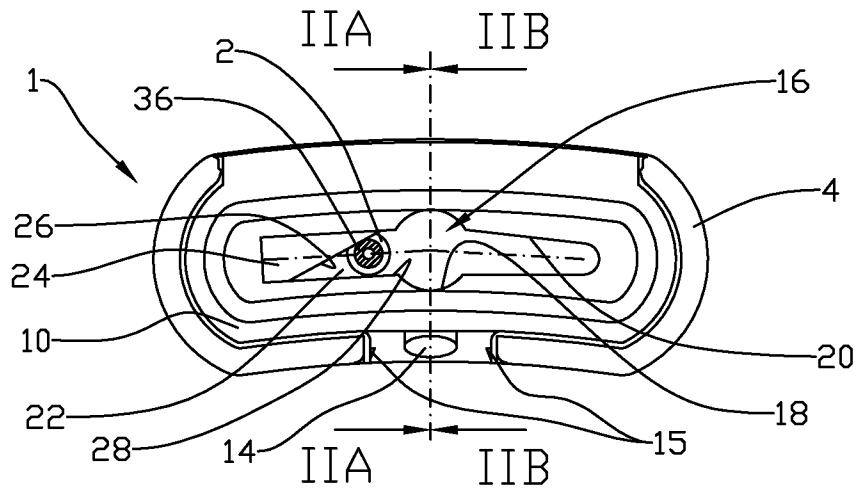


Fig. 2

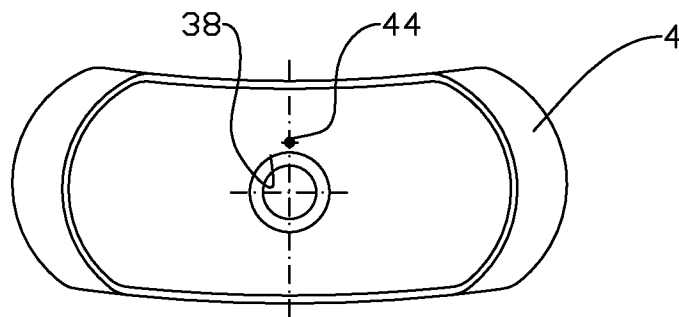


Fig. 3

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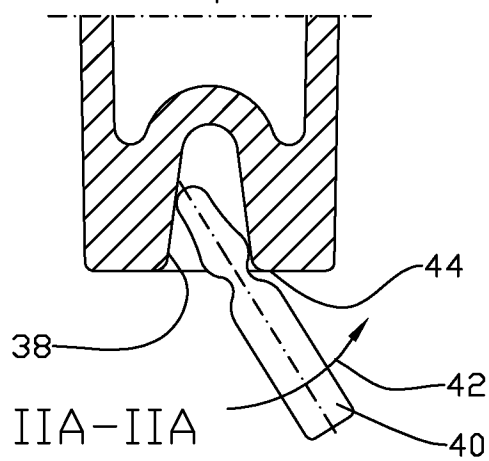
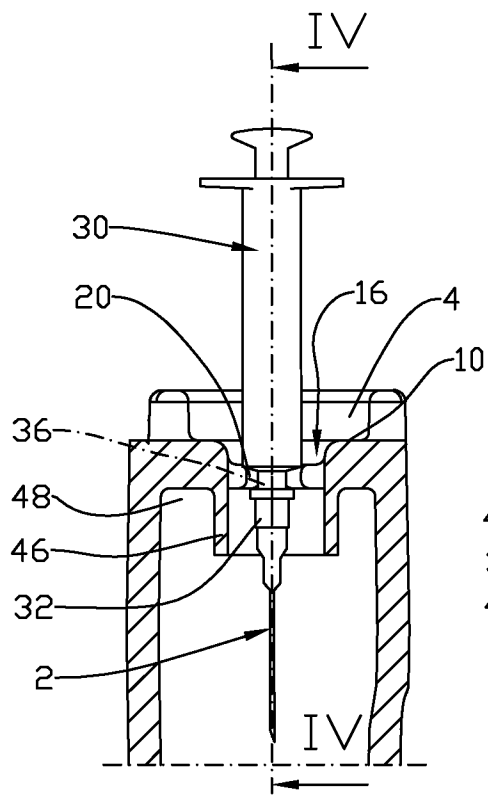
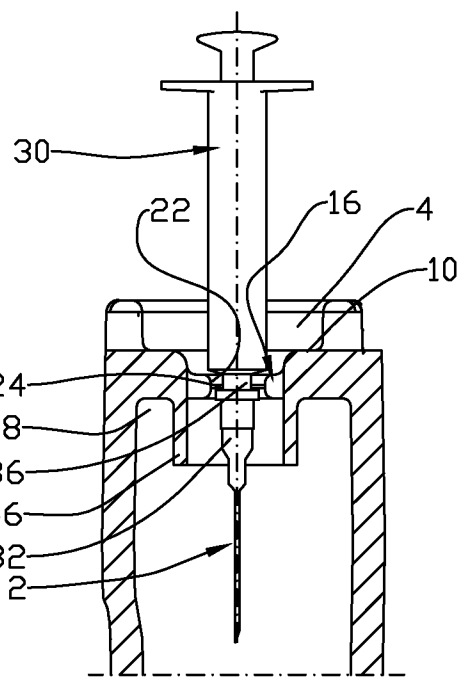


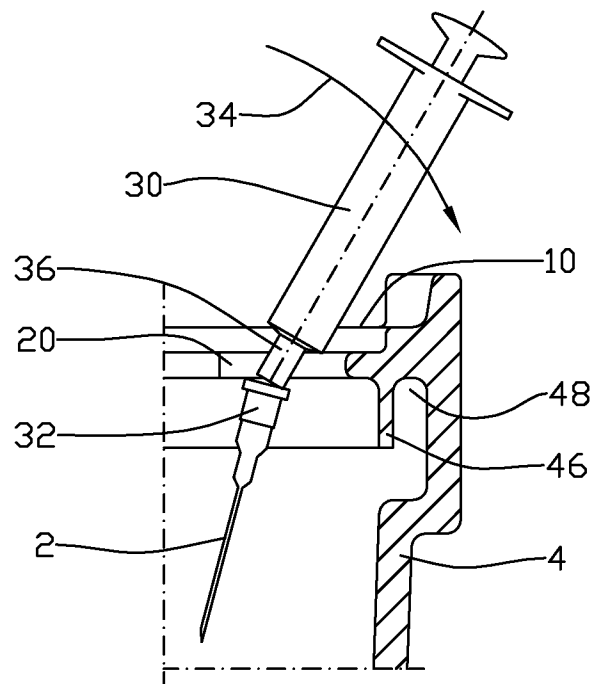
Fig. 4



IIB-IIB

Fig. 5

4/4



IV-IV

Fig. 6

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO2014/050193

A. CLASSIFICATION OF SUBJECT MATTER (2006.01): A61M 5/32, A61B 19/02, B67B 7/92, B65D 85/24, B65F 1/14 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC: A61M, A61B, B67B, B65D, B65F Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched DK, NO, SE, FI: Classes as above. Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPODOC, WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents: “A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier application or patent but published on or after the international filing date “L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) “O” document referring to an oral disclosure, use, exhibition or other means “P” document published prior to the international filing date but later than the priority date claimed “T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention “X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone “Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art “&” document member of the same patent family		
Date of the actual completion of the international search 16/04/2015		Date of mailing of the international search report 13/05/2015
Name and mailing address of the ISA Nordic Patent Institute Helgeshøj Allé 81 DK - 2630 Taastrup, Denmark. Facsimile No. + 45 43 50 80 08		Authorized officer Tove Kathrine Rognan Telephone No. +47 22 38 73 42

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