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(54) Title: ATTACHMENT DEVICE FOR WOUND DRAINAGE SYSTEM

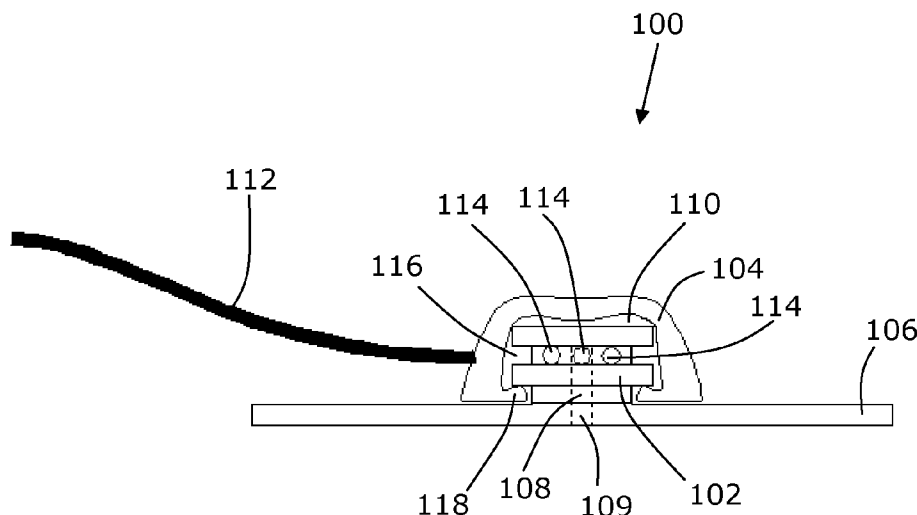


Fig. 1

(57) Abstract: System for draining fluid from a wound site at a skin surface of a living being. The system comprises a suction source, a drainage tube for conveying wound exudate away from a wound at the wound site, the drainage tube being in fluid communication with the suction source at one end thereof and with the wound site at the other end thereof, and an attachment device for connecting the drainage tube to the wound site, the attachment device forming or being part of a sealing enclosure at the wound site. The attachment device comprises a stationary part arranged to be fixed to the living being's body, a rotary part interconnecting the tube and the stationary part, the rotary part being rotatable relative to the stationary part.

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ATTACHMENT DEVICE FOR WOUND DRAINAGE SYSTEM

Technical field

The present invention generally relates to wound drainage systems, in which wound exudate is conveyed away from a wound by application of a suction
5 force. Such systems may comprise a wound enclosure which is attachable to a wound circumference of a living being to form an enclosure, and a suction source in fluid communication with the enclosure through a drainage tube to provide a pressure difference between a negative pressure in the enclosure and
10 an air pressure of an ambient space. The invention provides an improved attachment device for attaching the drainage tube at the wound site.

Background of the invention

It has been found that fluid drainage of wounds promotes tissue growth and thereby facilitates a reduced healing time. The treatment has been exercised for many years, and various therapeutic apparatus for providing suction to a wound
15 have been developed.

US 6,814,079 discloses a wound therapy combination comprising a suction head and a surgical drape. The suction head comprises a tubular connector with a planar flange portion with projections that define flow channels for facilitating flow of liquids to an aperture.

20 WO 2006/052338 discloses a vacuum tube connection device for vacuum assisted wound dressings. The attachment device includes a patch with an adhesive around its perimeter for attaching the patch. The patch has a parted vacuum tube fixed to it such that the patch can be oriented on the primary wound cover to locate the tube near an opening in the cover to allow vacuum
25 pressure to be communicated to the wound.

The known attachment devices cause patient discomfort and imply a risk of blockage of the drainage tube, because they are secured in a fixed relationship

to the patient's body. Moreover, it is often burdensome to physicians to achieve sufficient sealing around the wound site due to handling difficulties.

Summary of the invention

5 It is an object of preferred embodiments of the present invention to provide a system for draining fluid from a wound site a skin surface of a living being, which at least partially overcomes the above disadvantages.

In a first aspect, the invention provides a system for draining fluid from a wound site at a skin surface of a living being, comprising

- a suction source;
 - 10 - a drainage tube for conveying wound exudate away from a wound at the wound site, the drainage tube being in fluid communication with the suction source at one end thereof and with the wound site at the other end thereof;
 - an attachment device for connecting the drainage tube to the wound site, the attachment device forming or being part of a sealing enclosure at the wound
 - 15 site;
- wherein the attachment device comprises:
- a stationary part arranged to be fixed to the living being's body;
 - a rotary part interconnecting the tube and the stationary part, the rotary part being rotatable relative to the stationary part. The stationary part is preferably a
 - 20 centre part surrounded by the rotary part, which hence presents an outer part.

In a second aspect, the invention provides an attachment device for use in a system according to the first aspect of the invention, the attachment device comprising:

- a stationary part, which is securable relative to the body of a living being; and
- 25 - a rotary part for interconnecting a drainage tube and the stationary part, the rotary part being rotatable relative to the stationary part.

In a third aspect, the invention provides a kit comprising an attachment device according to the second aspect of the invention and a film having an adhesive

side for attachment of the film to the skin surface of a living being, and an opposite side, to which the attachment device is attached.

Due to the provision of the stationary part and the rotary part of the attachment device, the direction or orientation of the drainage tube may be varied during
5 wound drainage, i.e. without disconnecting the suction source from the wound site and without interrupting the applied suction. This increases patient comfort.

Further, the attachment device may include an easily operable connecting device, e.g. a luer lock or bayonet coupling, for conveniently coupling the drainage tube to the attachment device to thereby provide fluid communication
10 from the suction source to the wound site. Preferably, the rotary part forms the sealing enclosure around the stationary part, so that the drainage tube may be disconnected without opening or removing the wound bandage.

The rotary part is preferably rotatable around an axis, which extends away from the patient's body. Hence, in embodiments, in which the stationary part has a
15 lower surface for co-extending with a body surface of the living being, the rotary part may be rotatable relative to the stationary part around an axis, which is transverse, preferably essentially perpendicular, to said lower surface. The rotary part is preferably rotatable through an angle of at least 180 degrees with respect to the stationary part around the aforementioned axis, most preferably
20 through an angle of 360 degrees.

The wound site may be sealed by a film having an adhesive side for attachment of the film to the skin surface, and an opposite side, to which the attachment device is attached. One or more passages may be provided in the film in the area of the attachment device to allow wound exudate to pass from the wound
25 into said sealing enclosure. The film is preferably permeable to gasses and impermeable to liquids.

The film is preferably reinforced in the area of abutment of the attachment device. For example, the film may be reinforced by means of an annular element (ring) providing an abutment support for the rotary part.

In order to facilitate the flow of wound exudate within the sealing enclosure in the attachment device, flow passages may be formed through and/or around the stationary part. For example, horizontally oriented bores may be provided through the stationary part. The stationary part may also or alternatively
5 comprise a peripherally extending groove for facilitating fluid flow around the stationary part. Further, the stationary part may include a vertically oriented passage through which wound exudate may be sucked under the action of vacuum drawn through the drainage tube.

The use of the attachment device and kit according to the second and third
10 aspects of the invention is not limited to wound drainage systems. For example, the attachment device is applicable in an access port as disclosed in WO 2007/006306, which is hereby incorporated by reference. The attachment device and kit of the present invention may further be applicable for the connection of urine leg bags to night bags.

15 Description of the drawings

Preferred embodiments of the invention will now be described with reference to the accompanying drawings.

Fig. 1 shows an attachment device 100 comprising a stationary inner part 102 and a rotary outer part 104. The rotary part 104 is attached to the upper surface
20 of a semipermeable film 106, the lower surface of which is adhered to the skin surface around the wound site (not shown). A vertically extending passage 108 extends from an interior volume 110 in the stationary part 102 to a lower surface thereof, where the passage 108 connects to a passage 109 through the permeable film. A drainage tube 112 connects the attachment device to a
25 suction source (not shown). Passages 114 extend transversely through the stationary part 102 to allow wound exudate sucked from the wound to travel through the stationary part. A peripheral groove 116 in the stationary part allows exudate to travel along the outer surface of the stationary part.

The rotary part 104 is allowed to rotate 360 degrees relative to the stationary part. It may for example be made from styrene ethylene butadiene styrene (SEBS) or from silicone. The rotary part 104 forms a lower collar portion 118, which engages a lower surface of the stationary part 102. At the area of
5 abutment between the rotary part 104 and the film 106, there is provided a reinforcing ring 120. The reinforcing ring is more rigid than the film 106. The ring 120 may be provided as an integrated element in the film, or as a separate element, see Fig. 2.

Fig. 3 shows the attachment device 100 when attached to a wound site, which in
10 the example shown is on a leg portion of a human being.

CLAIMS

1. A system for draining fluid from a wound site at a skin surface of a living being, comprising
 - a suction source;
 - 5 - a drainage tube for conveying wound exudate away from a wound at the wound site, the drainage tube being in fluid communication with the suction source at one end thereof and with the wound site at the other end thereof;
 - an attachment device for connecting the drainage tube to the wound site, the attachment device forming or being part of a sealing enclosure at the wound
 - 10 site;wherein the attachment device comprises:
 - a stationary part arranged to be fixed to the living being's body;
 - a rotary part interconnecting the tube and the stationary part, the rotary part being rotatable relative to the stationary part.
- 15 2. A system according to claim 1, wherein the stationary part has a lower surface for co-extending with a body surface of the living being, and wherein the rotary part is rotatable relative to the stationary part around an axis, which is transverse to said lower surface.
3. A system according to claim 1 or 2, wherein the rotary part is rotatable
- 20 through an angle of at least 180 degrees with respect to the stationary part.
4. A system according to any of the preceding claims, further comprising a film having an adhesive side for attachment of the film to the skin surface, and an opposite side, to which the attachment device is attached.
5. A system according to claim 4, wherein a passage is provided in the film in
- 25 the area of the attachment device to allow wound exudate to pass from the wound into said sealing enclosure.
6. A system according to claim 4 or 5, wherein the film is reinforced in the area of abutment of the attachment device.

7. A system according to any of claims 4-6, wherein the film is permeable to gasses and impermeable to liquids.

8. A system according to any of the preceding claims, wherein the rotary part forms said sealing enclosure around the stationary part.

5 9. A system according claim 8, wherein flow passages are formed through and/or around the stationary part.

10. An attachment device for use in a system according to any of the preceding claims, the attachment device comprising:

- a stationary part, which is securable relative to the body of a living being; and
- 10 - a rotary part for interconnecting a drainage tube and the stationary part, the rotary part being rotatable relative to the stationary part.

11. An attachment device according to claim 10, wherein the stationary part has a lower surface, and wherein the rotary part is rotatable relative to the stationary part around an axis, which is transverse to said lower surface.

15 12. An attachment device according to claim 10 or 11, wherein the rotary part is rotatable through an angle of at least 180 degrees with respect to the stationary part.

13. An attachment device according to any of claims 10-12, wherein the rotary part forms said sealing enclosure around the stationary part.

20 14. An attachment device according claim 13, wherein flow passages are formed through and/or around the stationary part.

15. A kit comprising an attachment device according to any of claims 10-14 and a film having an adhesive side for attachment of the film to the skin surface of a living being, and an opposite side, to which the attachment device is attached.

16. A kit according to claim 15, wherein a passage is provided in the film in the area of the attachment device to allow wound exudate to pass from the wound into said sealing enclosure.

17. A kit according to claim 15 or 16, wherein the film is reinforced in the area
5 of abutment of the attachment device.

18. A kit according to any of claims 15-17, wherein the film is permeable to gasses and impermeable to liquids.

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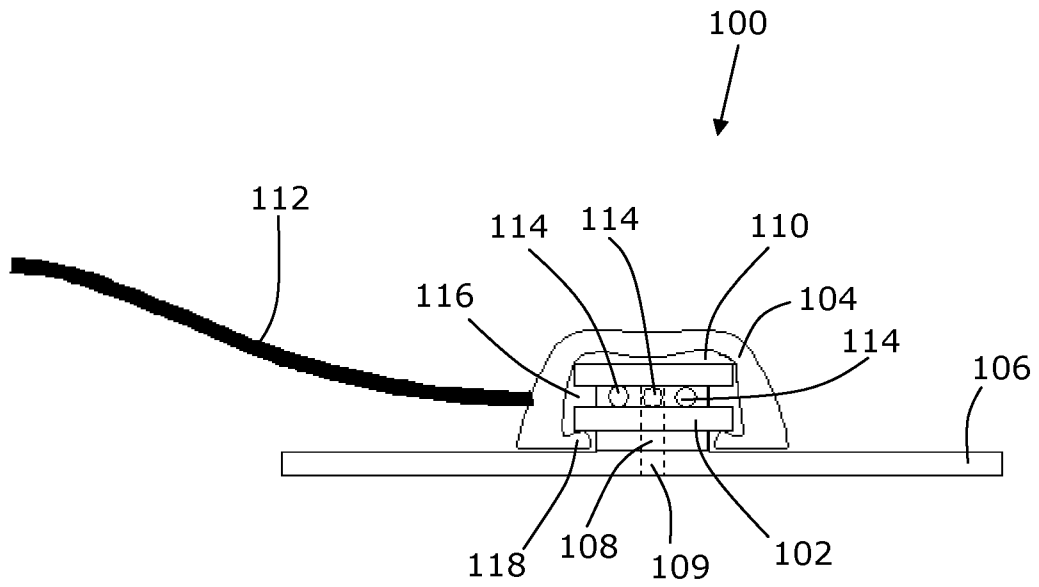


Fig. 1

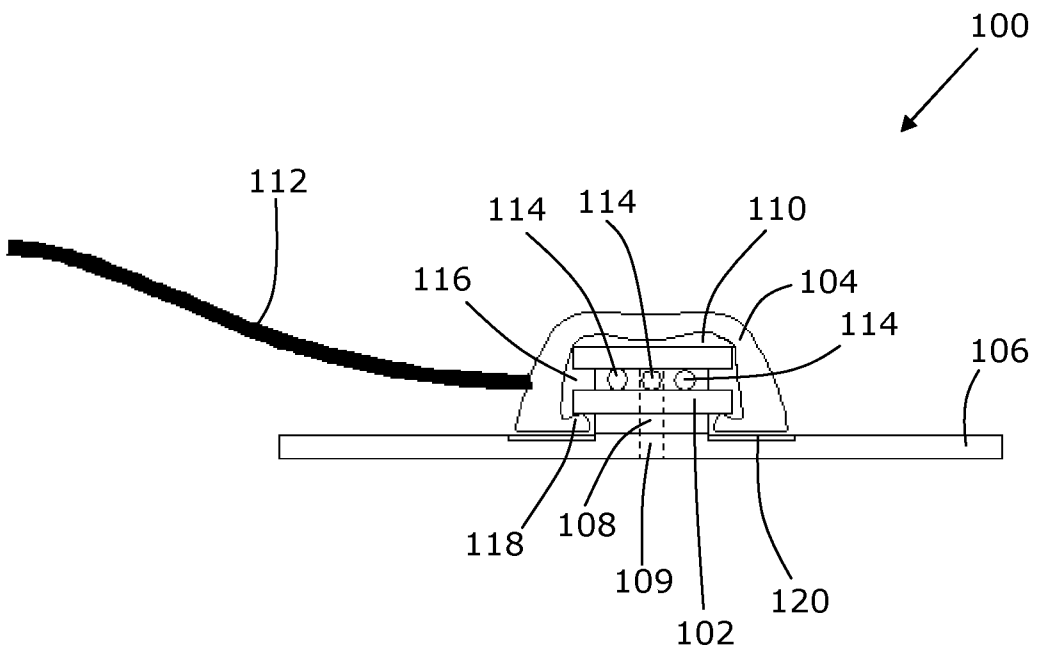


Fig. 2

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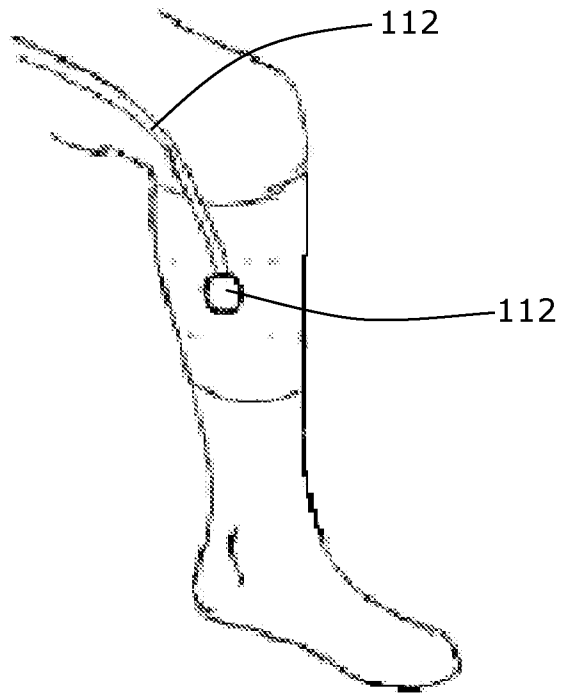


Fig. 3