





## FLEXIBLE NON-CONTACT WOUND TREATMENT DEVICE

### TECHNICAL FIELD

This invention relates to a wound treatment device and, in particular, to a wound treatment device having a substantial portion of a wound cover that is in non-contact with a wound and capable of delivering heat to the wound. More particularly, the wound treatment device includes a flexion joint that maximizes the ability of the wound treatment device to adapt to the contours and movements of a human body.

### BACKGROUND ART

A novel mode of wound treatment is disclosed in detail in published PCT Applications WO 94/00090 and WO 96/15745, both owned in common with this application. This new treatment employs a non-contact wound treatment device that covers a wound, forming a treatment volume about and over the wound. An embodiment of such a wound treatment device may be characterized in having a plurality of parts, three of which are useful for the purpose of description. These three parts are an attachment portion, a wound treatment portion, and a transition portion. Each portion serves a respective function.

The attachment portion connects and retains the wound treatment device on the skin of a person. The wound treatment portion typically includes a standoff that rises above the person's skin surface, and a wound cover that spans an open portion of the standoff. Together, the standoff and wound cover define a wound treatment volume and a wound treatment area onto which the wound treatment volume is projected.

The transition portion connects the attachment portion to the wound treatment portion. An important function of the transition portion is to adapt the wound treatment device to the contour of the portion of a person's body where the device is mounted and to movements of the person's body that deform the wound treatment device *in situ*. In this regard, an important function of the transition portion is the accommodation of patient motion by the compliance of the transition portion.







Fig. 12B is a schematic drawing depicting functional relationships between several elements of the previous wound treatment device;

Fig. 13A is a schematic drawing depicting functional relationships between several elements of the previous wound treatment device;

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Fig. 14A is a schematic drawing depicting functional relationships between several elements of the previous wound treatment device;

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Fig. 15 is a perspective view of the preferred embodiment of a flexible non-contact wound treatment device that embodies our invention;

Fig. 16 is a perspective view of a detachable heater in combination with our preferred embodiment;

Fig. 17 is an exploded view of our preferred embodiment;

Fig. 18A is a cross-sectional perspective view of our preferred embodiment of the present invention;

Fig. 18B is the cross-sectional perspective view of our preferred embodiment showing the operation of a membrane in adapting the wound treatment device to body motion;

Fig. 18C is a magnified partial cross-sectional view of our preferred embodiment showing further operation of the membrane in accommodating body motion;

Fig. 19A is a side elevational view of the cross-sectional view of Fig. 18B when attached to a human patient; and

Fig. 19B is a side elevational view representing the cross-sectional view of Fig. 18C.

































19. The non-contact wound treatment device of Claim 15, wherein the attachment portion has a substantially collar-like shape.

20. The non-contact wound treatment device of Claim 1, wherein the wound cover is substantially planar.

























