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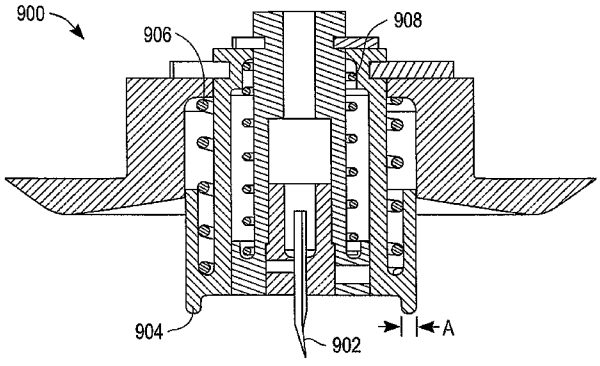
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(54) Title: SYSTEMS FOR EXTRACTING BODILY FLUID AND MONITORING AN ANALYTE THEREIN



(57) Abstract: A system for extracting a bodily fluid sample (e.g., an interstitial fluid [ISF] sample) and monitoring an analyte therein includes a disposable cartridge and a local controller module. The disposable cartridge includes a sampling module adapted to extract a bodily fluid sample and an analysis module adapted to measure an analyte (e.g., glucose) in the bodily fluid sample. The local controller module is in electronic communication with the disposable cartridge and is adapted to receive and store measurement data from the analysis module. An ISF extraction device includes a penetration member configured for penetrating and residing in a target site of a user's skin layer and, subsequently, extracting an ISF sample therefrom. The device also includes a pressure ring(s) adapted for applying pressure to the user's skin layer in the vicinity of the target site. The device is configured such that the pressure ring(s) is capable of applying pressure in an oscillating manner whereby an ISF glucose lag of the ISF sample extracted by the penetration member is mitigated. A method for extracting ISF includes providing an ISF fluid extraction device with a penetration member and a pressure ring(s). Next, a user's skin layer is contacted by the pressure ring(s) and penetrated by the penetration member. An ISF sample is then extracted from the user's skin layer while pressure is being applied in an oscillating manner by the pressure ring(s). The oscillating pressure mitigates an ISF glucose lag of the extracted ISF sample.

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