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(54) Title: DEVICE AND METHOD OF MAKING THEREOF

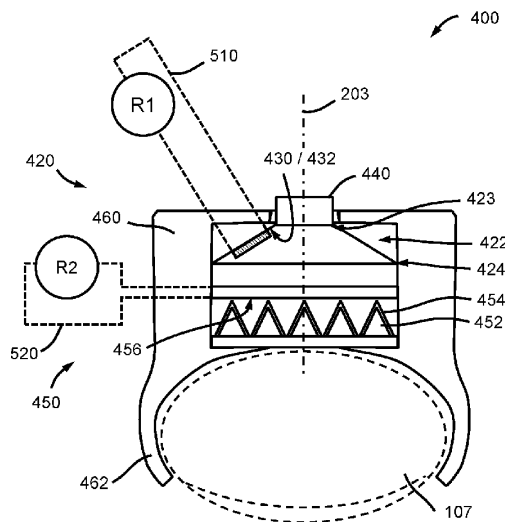


FIG. 14A

(57) Abstract: A device suitable for use as a stretchable sensor and a method of making thereof. The device includes a substrate, an oxidized portion of the substrate, and an electrically conductive element. The substrate is formed of an elastomer elastically stretchable along at least a first axis. The oxidized portion includes an interface interrupted by micro-cracks. The electrically conductive element is disposed on the interface. The electrically conductive element extends contiguously into and across each of a plurality of the micro-cracks, in which the plurality of the micro-cracks are anisotropically oriented. The electrically conductive element is formed with the substrate and oxidized portion being under a pre-strain. A sensor based on the device integrates a strain sensor and a pressure sensor that are configured to operate simultaneously and better mimic the "feeling of use" of human touch.

[Continued on next page]

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