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FIG. 7A

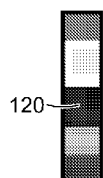
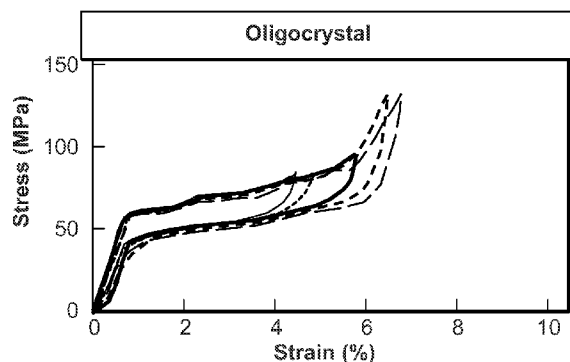


FIG. 7B



(57) Abstract: Shape memory and pseudoelastic martensitic behavior is enabled by a structure in which there is provided a crystalline ceramic material that is capable of undergoing a reversible martensitic transformation and forming martensitic domains, during such martensitic transformation, that have an average elongated domain length. The ceramic material is configured as an oligocrystalline ceramic material structure having a total structural surface area that is greater than a total grain boundary area in the oligocrystalline ceramic material structure. The oligocrystalline ceramic material structure includes an oligocrystalline ceramic structural feature which has an extent that is less than the average elongated domain length of the crystalline ceramic material.