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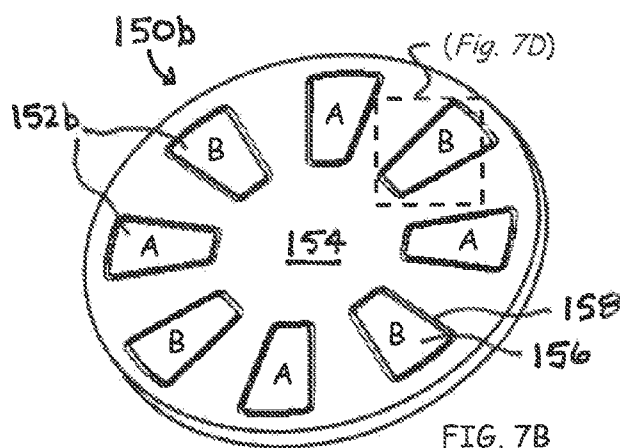
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(54) Title: CHEMICAL MECHANICAL PLANARIZATION PAD CONDITIONER



(57) Abstract: A pad conditioner for a CMP polishing pad is disclosed that includes a substrate that has a first set of protrusions and a second set of protrusions, the first set of protrusions have a first average height and the second set of protrusions have a second average height, the first average height different from the second average height, a top of each protrusion in the first set of protrusions has a non-flat surface and a top of each protrusion in the second set of protrusions has a non-flat surface, the first set of protrusions and the second set of protrusions have a layer of polycrystalline diamond on at least their top surfaces. The protrusion sets can be identified, for example, by their heights, or alternatively by their predetermined locations or their base dimensions. Various ways to measure the height of the protrusions are presented, including an average height as measured from the back face of the pad conditioner, a peak-to-valley height, or a prominence height.



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