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[Continued on next page]

(54) Title: POLYCRYSTALLINE COMPACTS HAVING DIFFERING REGIONS THEREIN, CUTTING ELEMENTS AND EARTH-BORING TOOLS INCLUDING SUCH COMPACTS, AND METHODS OF FORMING SUCH COMPACTS

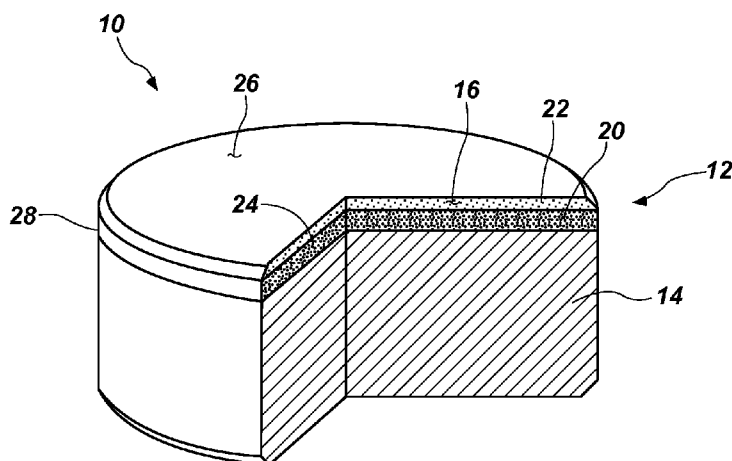


FIG. 1

(57) Abstract: Polycrystalline compacts include a hard polycrystalline material comprising first and second regions. The first region comprises a first plurality of grains of hard material having a first average grain size, and a second plurality of grains of hard material having a second average grain size smaller than the first average grain size. The first region comprises catalyst material disposed in interstitial spaces between inter-bonded grains of hard material. Such interstitial spaces between grains of the hard material in the second region are at least substantially free of catalyst material. In some embodiments, the first region comprises a plurality of nanograins of the hard material. Cutting elements and earth-boring tools include such polycrystalline compacts. Methods of forming such polycrystalline compacts include removing catalyst material from interstitial spaces within a second region of a polycrystalline compact without entirely removing catalyst material from interstitial spaces within a first region of the compact.



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