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[Continued on next page]

(54) Title: FIXED CUTTER DRILL BIT CUTTER ELEMENTS INCLUDING HARD CUTTING TABLES MADE FROM CVD
SYNTHETIC DIAMONDS

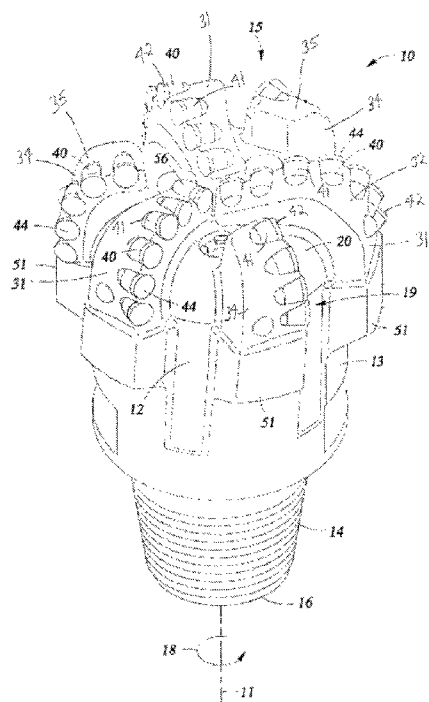


Figure 1

(57) Abstract: Systems and methods of forming components from CVD single crystal diamonds that can withstand high temperatures and pressures, for example, in a mining and/or drilling environment. This may be accomplished by transforming a graphite powder by hot-filament chemical vapor deposition (HFCVD) into a CVD single diamond crystal powder, growing a plurality of CVD single diamond crystals on a planar surface of a substrate or on a dowel. In one example, if a substrate is used as the growth surface, the plurality of CVD single crystals grow in at least one layer on the substrate and at least a portion of the plurality of CVD single diamond crystals are removed from the substrate in the form of a plurality of discrete intact sheets of CVD single diamond crystals, stacked in a mold, and sintered, for example, to form a CVD single crystal diamond table.



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