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(57) Abstract

A claw tooth rotary bit having teeth that are constructed from a hard material that is combined with a softer material so that the teeth wear unevenly as the bit is used to bore through an earth formation. Adjacent teeth may be provided with complementary patterns of hard and soft material shapes. Two adjacent teeth form a set that wear in complementary pattern such that the high points of one tooth register with the low points of the adjacent tooth. As the bit rotates, the formation is randomly engaged by the high and low areas on the teeth to increase cutting effectiveness. The alternating layers of hard and soft material provide a self-sharpening configuration as the teeth wear unevenly. The presence of the hard material in the tooth structure improves tooth rigidity. In a preferred form, the hard material is a polycrystalline diamond while the softer material is steel.



