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(71) **Applicant (for all designated States except US):** **BAKER HUGHES INCORPORATED** [US/US]; P.O. Box 4740, Houston, TX 77210-4740 (US).

(72) **Inventors:** **ZAHRADNIK, Anton, F.**; 227 Burkwood Court, Sugar Land, TX 77479 (US). **JONES, Ronnie, L.**; P.O. Box 118, New Waverly, TX 77358 (US).

(74) **Agents:** **WELBORN, Brian, S.** et al.; Baker Hugues Incorporated, P.O. Box 4740, Houston, TX 77210-4740 (US).

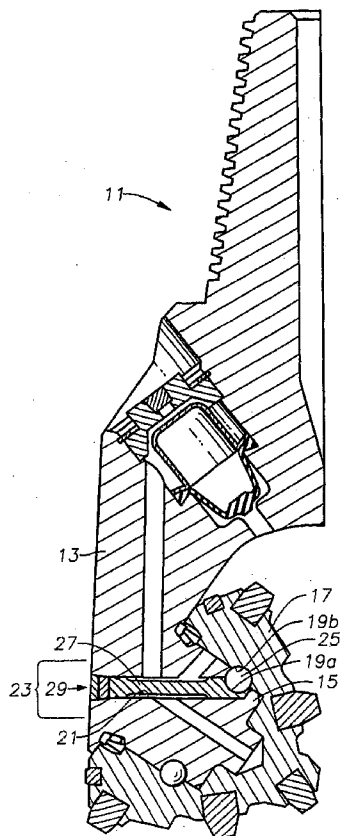
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- (54) Title:** SYSTEM5 METHOD, AND APPARATUS FOR REDUCING RESIDUAL STRESS IN AS-WELDED ROLLER CONE BIT BALL PLUG WELDS



- (57) Abstract:** A roller cone bit has a ball retention system to secure the cones to the head. A radial ball race includes a ball way with a ball plug to keep the balls in the ball race. The ball plug is secured to the head by welding. Any residual stress in the weld region is alleviated by one of several solutions. Material may be selectively removed from the weld, the heat-affected zone, and/or the surrounding area to promote relaxation of residual stress. Alternatively, deflection is imposed and/or heat or vibration is applied to promote relaxation.



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