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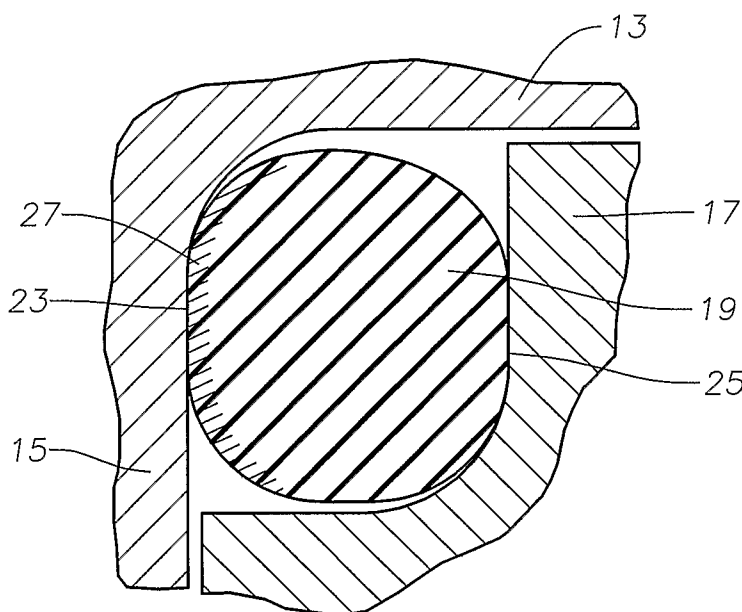
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(54) Title: METHOD FOR MANUFACTURING A DRILLING TOOL WITH AN ELASTOMER SEAL HAVING GRADED PROPERTIES



(57) Abstract: A method of forming a seal (19) for a subterranean drilling tool (11) employs irradiation. The seal is formed of a single homogeneous elastomeric material. The seal has an exterior surface with at least one portion that is in sliding engagement with part of a seal gland of the drilling tool. A property gradient is formed in the elastomeric material on at least this portion. The property gradient is formed by exposing the seal to an environment to define a property that changes from a first level to a second level without essentially changing the composition of the elastomeric material. The step of exposing is done by irradiating the seal with an electron beam.