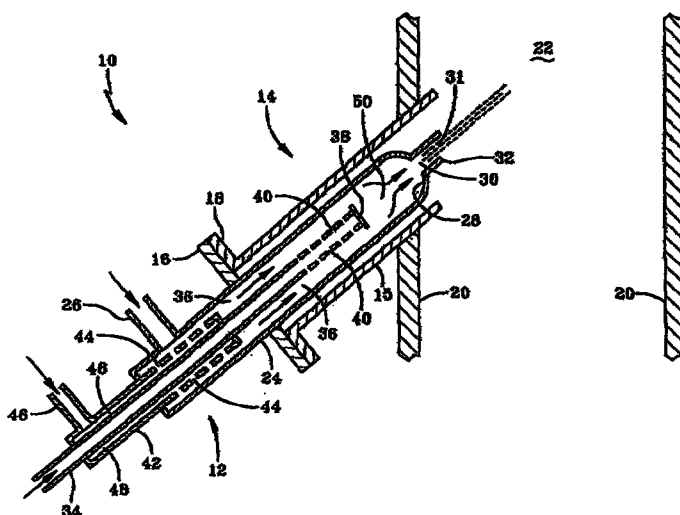




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(54) Title: FCC FEED INJECTION USING SUBCOOLED WATER SPARGING FOR ENHANCED FEED ATOMIZATION

**(57) Abstract**

Atomization of a high boiling point, hot liquid, such as a hydrocarbon feed oil for a fluid cat cracker, is enhanced by injecting subcooled water into the hot liquid, to form a two-phase fluid of the liquid and steam, upstream of the atomization. The hot liquid is at conditions of temperature and pressure effective for the injected, subcooled water to vaporize into steam, when the water contacts it. Typically this means that the hot liquid is hotter and at a lower pressure than the water. In an FCC process, the subcooled water is sparged into the flowing hot oil in a conduit (34) in a riser feed injector (10). This produces a spray of hot oil in the riser reaction zone (22) in which the oil drops are smaller and more uniformly distributed in the spray.