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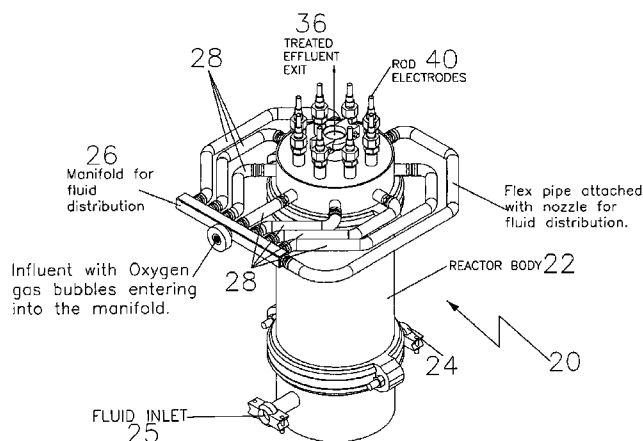
(54) Title: ELECTROLYTIC CELL WITH ADVANCED OXIDATION PROCESS AND ELECTRO CATALYTIC PADDLE  
ELECTRODE

FIG. 1  
ELECTRO-CHEMICAL  
CELL REACTOR

(57) **Abstract:** Electrolytically treating water through influent inlet arrangements for cavitation and one or more pairs of electrodes. The electrodes can provide continuous anodic and cathodic operation for treating water. The pressurized influent premixed with oxidant gas can be pumped into the reactor vessel through the mixing nozzles arranged radially along the circumference. The polarity of the current to the electrode can be periodically reversed at a set interval. An electro-catalytic paddle electrode can be used for the treatment of flowback and produced water. The paddle electrode can consist of alternate pentagonal flat plate electrodes separated by adjustable variable distance Teflon spacers. The paddle electrode is provided with a chemical coating capable of switching/reversing the polarity of anodes and cathodes at ultra high frequencies under very high current flowing conditions thus making it more efficient, stable and durable under demanding field conditions.