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(54) Title: SYSTEM AND PROCESS FOR GAS SWEETENING

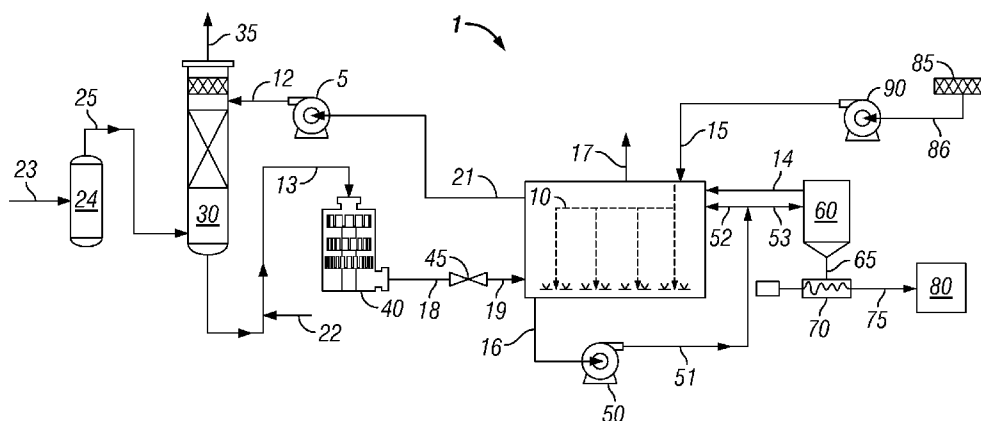


FIG. 1

(57) Abstract: A method for removing hydrogen sulfide from a sour gas stream comprising hydrogen sulfide by oxidizing hydrogen sulfide in a converter by contacting the sour gas stream with an aqueous catalytic solution, thereby producing a desulfurized gas stream and a liquid stream comprising reduced catalyst and elemental sulfur, introducing an oxidant and the liquid stream comprising reduced catalyst and elemental sulfur into a high shear device and producing a dispersion wherein the mean bubble diameter of the oxidant gas in the dispersion is less than about 5 microns, introducing the dispersion into a vessel from which a sulfur-containing slurry is removed and a regenerated catalyst stream is removed, wherein the sulfur slurry comprises elemental sulfur and aqueous liquid, and recycling at least a portion of the regenerated catalyst stream to the converter. A system of apparatus for carrying out the method is also provided.



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