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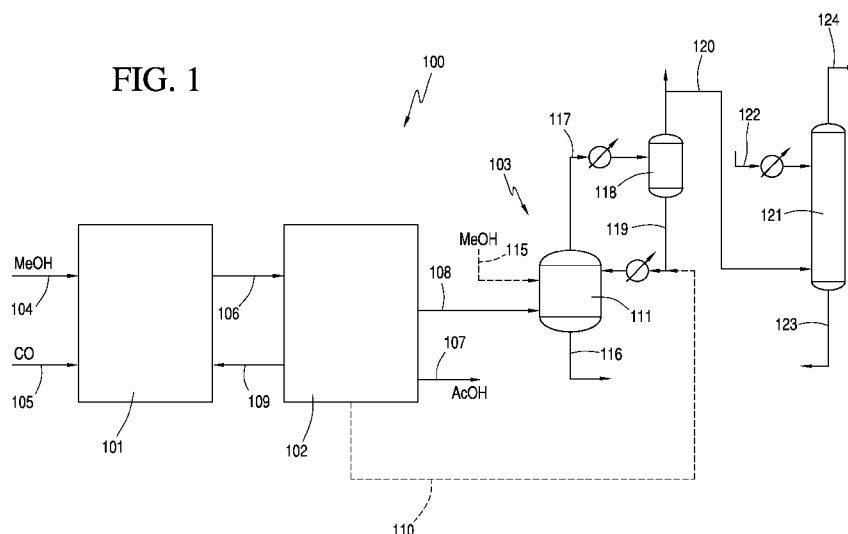
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(54) **Title:** PRODUCTION OF ACETIC ACID FROM METHANOL

FIG. 1



(57) **Abstract:** A process for producing acetic acid comprising the steps of reacting carbon monoxide and at least one of methanol and a methanol derivative in a first reactor under conditions effective to produce a crude acetic acid product; separating the crude acetic acid product into at least one derivative stream, at least one of the at least one derivative stream comprising residual carbon monoxide; and reacting at least a portion of the residual carbon monoxide with at least one of methanol and a methanol derivative over a metal catalyst in a second reactor to produce additional acetic acid. The second reactor is a homogeneous reactor and the reactor carbon monoxide partial pressure is less than 1.05 MPa. In a second independent embodiment the carbonylation of methanol and a methanol derivative produces acetic acid and a vent stream with less than 60 mol% CO.