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(54) Title: CRYOGENIC SYSTEMS FOR REMOVING ACID GASES FROM A HYDROCARBON GAS STREAM USING CO-CURRENT SEPARATION DEVICES

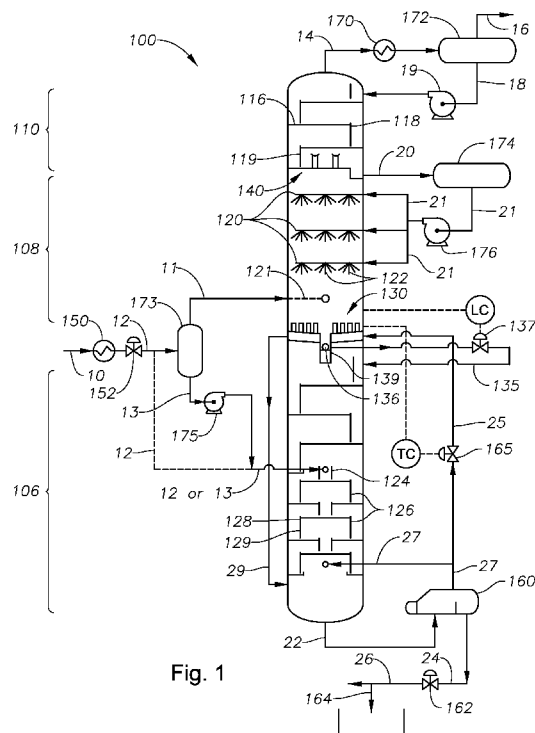


Fig. 1

(57) Abstract: A system for removing acid gases from a raw gas stream is provided. The system includes a cryogenic distillation column. The cryogenic distillation column receives a dehydrated and chilled sour gas stream, and separates the sour gas stream into an overhead gas stream comprised primarily of methane, and a bottom acid gas stream comprised primarily of carbon dioxide. The system also includes a series of co-current contactors. The co-current contactors may be placed in series to receive the bottom acid gas stream and recapture any entrained methane gas. Alternatively or in addition, the co-current contactors may be placed in series to receive the overhead gas stream, and sweeten it using a reflux liquid such as methane. In this instance, the sweetened gas is optionally liquefied and delivered for commercial sale, or is used as fuel gas on-site.

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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