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Hydrogen recovery from methanol synthesis purge gas - by catalytic cracking, shift conversion and sepn.

C86-109083 E(BE DE FR GB IT SE)

Purge gas from the low-pressure synthesis of MeOH using synthesis gas produced by gasification of carbonaceous solids is processed by catalytic cracking followed by shift conversion followed by sepn. of H<sub>2</sub> from inerts.

**ADVANTAGE**

The H<sub>2</sub> obtd. may be used to increase the H<sub>2</sub> content of the synthesis gas without causing buildup of inert gases in the system (cf. DE2445884).

**EMBODIMENT**

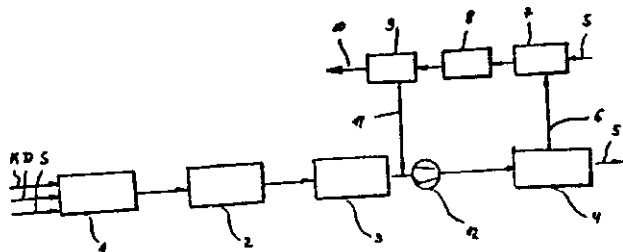
Coal (e.g. lignite) is gasified (1) with steam and O<sub>2</sub> under pressure. The O<sub>2</sub> may be < 99 (esp 90-95)% pure. The crude gas is subjected to shift conversion (2), scrubbed to remove CO<sub>2</sub> and H<sub>2</sub>S (3), compressed (12) and passed to the methanol synthesis reactor (4).

The purge gas (6) is cracked (7) in the presence of O<sub>2</sub>,

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subjected to shift conversion (8) and passed to a pressure-swing adsorption system (9) to recover H<sub>2</sub>, which is recycled (11) for mixing with the synthesis gas. (12pp367DAHDwgNo 1/1).

(G) ISR:- No Search Report.



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