(12) UK Patent Application (19) GB (11) 2 168 718 A

(43) Application published 25 Jun 1986

(21) Application No 8427288

(22) Date of filing 29 Oct 1984

(51) INT CL⁴
C01B 3/22

(52) Domestic classification
(Edition H)
C5E 122 152 AS

(58) Documents cited
GB A 2139644

(58) Field of search
C5E
Selected US specifications from IPC sub-class C01B

(71) Applicants
Humphreys & Glasgow Limited (United Kingdom)
Chestergate House, 253 Vauxhall Bridge Rd, London SW1V 1HD

(72) Inventor:
Anthony Horton

(74) Agent and/or Address for Service
C. L. Winter, Humphreys & Glasgow Ltd., Chestergate House, 253 Vauxhall Bridge Rd., London SW1V 1HD

(54) Producing synthesis gas

(57) High temperature gases leaving a reformer wherein hydrocarbons are converted to gases including oxides of carbon are mixed with carbon dioxide and passed through a catalyst promoting the reaction of carbon dioxide and hydrogen to carbon monoxide and water i.e. in a back shift converter. The stream leaving the converter may be passed through a carbon dioxide removal system, the carbon dioxide removed being heated and recycled to the exit of the reformer.

GB 2 168 718 A

back shifting may even rise because there is an excess of heat release due to methanation over back shifting.

In the event that the carbon dioxide stream added to the very high temperature stream comes from a carbon dioxide removal unit which is located just

c. passing the mixture through a catalyst promoting the reaction of carbon dioxide and hydrogen to carbon monoxide and water.

2. A process as claimed in claim 1 wherein the carbon dioxide containing gas is recovered from the effluent of the back shifted reactor

producing process such as an ammonia plant or a fermentation process.

5. Products produced from gases produced from the aforementioned processes.

New claims or amendments to claims filed on 13 Feb '86.

Superseded claims 1 only.

CLAIMS

1. A process characterised by:

A. the reforming of a hydrocarbon to gases, including oxides of carbon

B. the addition of a carbon dioxide containing gas to the hot effluent from A

C. passing the mixture through a catalyst promoting the reaction of carbon dioxide and hydrogen to carbon monoxide and water but which does not promote the formation/decomposition of methane.

2. A process as claimed in claim 1 wherein the carbon dioxide containing gas is recovered from the effluent of the back shifted reactor.

3. A process as claimed in claim 1 wherein the carbon dioxide containing gas is recovered by removing it from the hydrocarbon feed.

4. A process as claimed in claim 1 wherein carbon dioxide is supplied from a well or a carbon dioxide producing process such as an ammonia plant or a fermentation process.

5. Products produced from gases produced from the aforementioned processes.

Printed in the United Kingdom for Her Majesty's Stationery Office, 8818935, 8/86 18996. Published at the Patent Office, 25 Southampton Buildings, London WC2A 1AY, from which copies may be obtained.