

(12) **EUROPEAN PATENT APPLICATION**

(21) Application number: **87306227.7**

(51) Int. Cl.⁴: **C10G 9/20**

(22) Date of filing: **14.07.87**

(30) Priority: **15.07.86 GB 8617214**

(43) Date of publication of application:
20.01.88 Bulletin 88/03

(84) Designated Contracting States:
BE DE ES FR GB IT NL

(68) Date of deferred publication of the search report:
08.02.89 Bulletin 89/06

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(54) **Heat exchanger, method of making heat exchanger, and hydrocarbon cracking furnace containing heat exchanger.**

(57) A heat exchanger, particularly for use in a thermal cracking furnace for hydrocarbons, comprises a pair of coaxial metal tubes (12, 14) defining an inner duct (11), and a ceramic block (13) defining an outer duct (10) coaxially disposed about the inner duct for substantially radiative heat transfer between the outer duct and the inner duct.

The surface area per unit length of the outer wall of the outer duct increases continuously along at least a portion of the length of the outer duct, and the cross sectional area of the outer duct (10) reduces along its length, to provide an inwardly directed radiative heat flux from the outer wall which varies along the said portion of the length of the outer duct. The heat flux through the heat exchanger can thereby be maximised and short residence times achieved.

The outer wall of the outer duct is formed of a ceramic which may be cast monolithically and has inwardly projecting ribs having a cross sectional area which increases continuously along the said portion of the length of the outer duct.

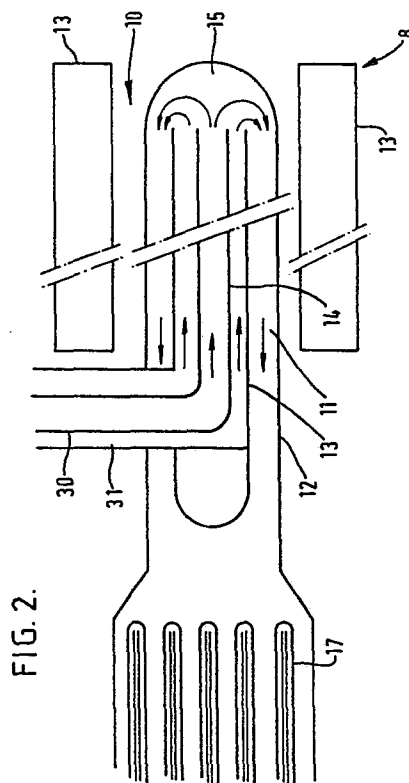


FIG. 2.



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
D,A	EP-A-0 074 435 (DOW CHEMICAL) * Claims 1-34; figures 1,3-6 * ---	1-11	C 10 G 9/20
D,A	US-A-4 412 975 (PARIZOT et al.) * Figures * ---	1-11	
A	FR-A-2 249 942 (STONE & WEBSTER) * Figure 1; claims * ---	1-11	
A	EP-A-0 065 046 (ESSO) * Figure 2 * ---	1-11	
A	US-A-1 560 891 (BAGWILL) * Claims 1-13; figures 1-3 * ---	1-11	
A	US-A-2 721 735 (PERMANN) * Figure 1; claims * -----	1-11	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			C 10 G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 21-11-1988	Examiner MICHIELS P.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			