

12

EUROPEAN PATENT APPLICATION

21 Application number: 84305806.6

51 Int. Cl.⁴: **C 21 D 11/00**
C 21 D 9/50

22 Date of filing: 24.08.84

30 Priority: 07.09.83 GB 8323995

43 Date of publication of application:
10.04.85 Bulletin 85/15

88 Date of deferred publication of search report: 26.11.86

84 Designated Contracting States:
DE FR IT

71 Applicant: **UNITED KINGDOM ATOMIC ENERGY**
AUTHORITY
11 Charles II Street
London SW1Y 4QP(GB)

72 Inventor: **Duncombe, Edward**
60 Melrose Crescent Hale
Altrincham Cheshire WA15 8NJ(GB)

72 Inventor: **Thomson, Alexander**
6 Avon Avenue Penketh
Warrington Cheshire WA5 2EX(GB)

72 Inventor: **Evans, Robert Arthur**
2 Euclid Avenue Grappenhall
Warrington Cheshire WA4 2PS(GB)

74 Representative: **Collingwood, Anthony Robert**
Patents Branch United Kingdom Atomic Energy
Authority 11 Charles II Street
London SW1Y 4QP(GB)

54 Temperature control during annealing.

57 Temperature control at a weld (52) between a tube (51) and tube plate (53) having heat input from an inductive heating probe (50) to effect annealing of the weld is performed with the aid of a signal generating receptor coil (54) coupled with the probe (50). The signal from the coil (54) experiences a characteristic change when the temperature of the weld reaches the required annealing temperature and this signal is used to control the heat input to the weld. The receptor coil can be inside the tube (51), outside the tube (51), embracing a number of similar tubes (51) or may be inside an adjacent tube (51). At the anneal, the materials of the tube and weld reach their Curie point which brings about a permeability change. The invention also has application to annealing a braze between a ferritic repair tube and a ferritic tube in a tube plate as can arise during the repair of shell and tube heat exchangers used in nuclear systems.

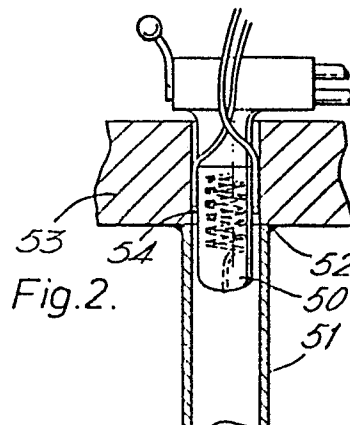


Fig. 2.



European Patent
Office

EUROPEAN SEARCH REPORT

0136810

Application number

EP 84 30 5806

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)
Y	FR-A- 620 345 (L. GRENET et al.) * Whole document *	1	C 21 D 11/00 C 21 D 9/50
Y	--- METAL PROGRESS, vol. 115, no. 4, April 1979, pages 41-43, Metals Park, OH, US; R.C. KAY et al.: "Unique heat treating technique for tube-to-tubesheet welds" * Whole document *	1	
A,D	--- EP-A-0 011 862 (GENERAL ELECTRIC)		
A,D	--- GB-A- 360 552 (HEVI-DUTY ELECTRIC CO.)		
A	--- GB-A-2 079 659 (HALLIBURTON)		TECHNICAL FIELDS SEARCHED (Int Cl 4) C 21 D
A,D	--- FR-A-2 235 372 (IRSID)		
A	--- FR-A- 487 496 (L.W. WILD et al.)		
A	--- DE-C- 866 655 (BASF)		

The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 29-08-1986	Examiner MOLLET G.H.J.

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