



(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 819 908 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
09.06.1999 Bulletin 1999/23

(51) Int. Cl.⁶: F28F 1/10, B21D 53/04

(43) Date of publication A2:
21.01.1998 Bulletin 1998/04

(21) Application number: 97111302.2

(22) Date of filing: 04.07.1997

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE

Designated Extension States:
LT LV SI

(30) Priority: 19.07.1996 IT MI961514

(72) Inventor: de Santo, Giuseppe
Vimercate (MI) (IT)

(74) Representative:
La Ciura, Salvatore
Via Francesco Sforza 3
20122 Milano (IT)

(71) Applicant:
Alcan Alluminio S.p.A.
20090 Pieve Emanuele (MI) (IT)

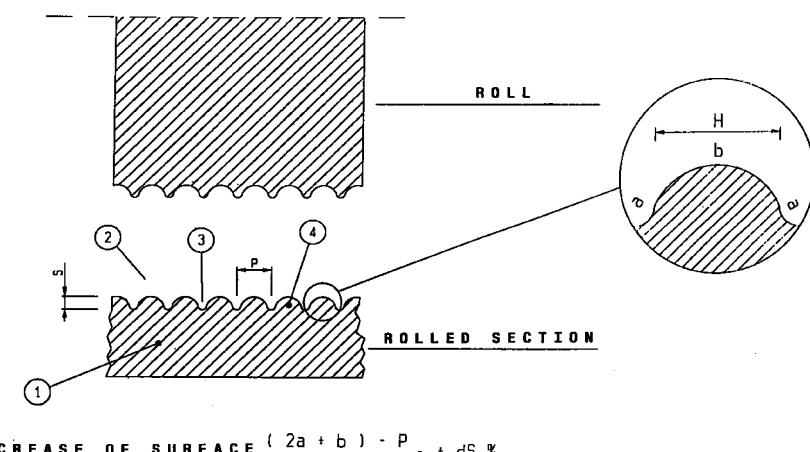
(54) Rolled section for the realization of heat exchangers and relevant production method

(57) A rolled section (1) for the production of heat exchangers, and in particular for the production of micro-fins (4) to be used in this kind of apparatus, that presents on one or both sides a series of scoring suitable to determine the same number of micro-fins (4) so as to increase the width of the corresponding exchange surface between rolled section and fluid. The process for the production of rolled sections is including the steps of:

- rolling a metallic sheet to obtain the required thick-

ness

- rolling afterwards the sheet obtained in this way by means of a rolling-mill where at least one of these rolls presents on the surface a series of engraving suitable to engrave the corresponding surface of the rolled section in order to produce said micro-fins, the surface of said roll of the second rolling-mill being worked by means of photogravure techniques.





DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
Y	EP 0 603 108 A (CARRIER CORP) 22 June 1994 * column 3, line 29 - column 5, line 6; figures 1-7 *	1,2,4-7	F28F1/10 B21D53/04
Y	EP 0 489 964 A (ALUMINUM CO OF AMERICA) 17 June 1992	1,2,4-7	
A	* column 5, line 52 - column 7, line 51; figures *	3	
A	EP 0 037 854 A (KABEL METALLWERKE GHH) 21 October 1981 * page 2, last paragraph - page 5; figures *	1,7	
A	FR 2 539 499 A (DEGROLARD RAYMOND) 20 July 1984 * the whole document *	1,7	
A	US 3 885 622 A (MCLAIN CHARLES D) 27 May 1975 * column 3, line 7 - column 7, line 54; figures 1-4 *	1,7	
P,X	EP 0 733 871 A (KM EUROPA METAL AG) 25 September 1996 * column 4, line 19 - column 6, line 28; figures *	1,2,4-8	F28F B21B
E	DE 196 36 367 A (EMITEC EMISSIONSTECHNIK) 12 March 1998 * column 1, paragraph 2 * * column 4, paragraph 2; figure 2 *	1,2,4,5, 7	
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	19 April 1999	Van Dooren, M	
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone		T : theory or principle underlying the invention	
Y : particularly relevant if combined with another document of the same category		E : earlier patent document, but published on, or after the filing date	
A : technological background		D : document cited in the application	
O : non-written disclosure		L : document cited for other reasons	
P : intermediate document		& : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 97 11 1302

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-04-1999

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 0603108	A	22-06-1994		US 5332034 A BR 9305053 A CA 2110622 A,C CN 1094157 A DE 69302668 D DE 69302668 T ES 2087695 T JP 2534450 B JP 6221788 A KR 124811 B MX 9308036 A		26-07-1994 21-06-1994 17-06-1994 26-10-1994 20-06-1996 26-09-1996 16-07-1996 18-09-1996 12-08-1994 23-12-1997 30-06-1994
EP 0489964	A	17-06-1992		CA 2028711 A,C JP 1895484 C JP 4167906 A JP 6013125 B US 4996113 A AU 620740 A AU 6573390 A DE 69016666 D DE 69016666 T		30-04-1992 26-12-1994 16-06-1992 23-02-1994 26-02-1991 20-02-1992 20-02-1992 16-03-1995 24-08-1991
EP 0037854	A	21-10-1981		DE 3010450 A		24-09-1981
FR 2539499	A	20-07-1984		NONE		
US 3885622	A	27-05-1975		US 3918626 A US 3858785 A US 3861462 A		11-11-1975 07-01-1975 21-01-1975
EP 0733871	A	25-09-1996		DE 19510124 A JP 8327273 A US 5682946 A		26-09-1996 13-12-1996 04-11-1997
DE 19636367	A	12-03-1998		AU 4617197 A WO 9809745 A		26-03-1998 12-03-1998