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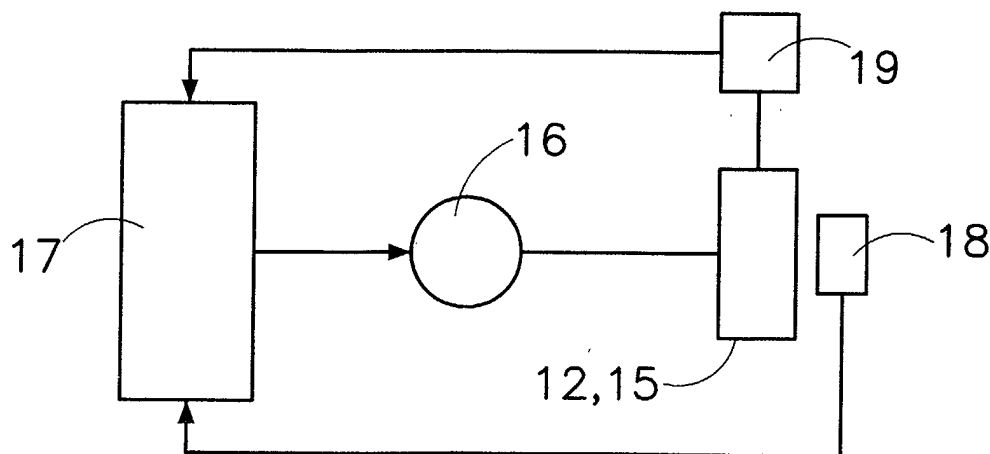
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(54) **High performance machine with thermal compensation for programmed sheet bending with constant bending angle**

(57) A sheet metal bending machine is provided with a bending unit (8) moved by hydraulic cylinders (12, 15) with sliding pistons (20, 21). The cylinders (12, 15) are controlled by a closed loop control system comprising temperature measuring means (18) for measuring the

cylinder temperature, position detecting means (19) for detecting the piston position and a control unit (17) for varying the rate of hydraulic fluid fed to the cylinders (12, 15) according to the measured cylinder temperature and the detected piston position.

FIG.3





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 02 07 9262

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.7)
D,A	EP 0 293 964 A (SALVAGNINI TRANSFERICA S.P.A; SALVAGNINI S.P.A) 7 December 1988 (1988-12-07) * the whole document *	1-3	B21D5/00
A	US 6 240 758 B1 (NAGAKURA SEIJU) 5 June 2001 (2001-06-05) * the whole document *	1-3	
A	PATENT ABSTRACTS OF JAPAN vol. 010, no. 375 (M-545), 13 December 1986 (1986-12-13) & JP 61 169118 A (AMADA CO LTD), 30 July 1986 (1986-07-30) * abstract *	1-3	
A	FR 2 750 625 A (JEANDEAUD JEAN CLAUDE) 9 January 1998 (1998-01-09) * page 1, line 16 - page 1, line 28 *		
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B21D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 February 2005	Examiner Peeters, L
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			

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

EP 02 07 9262

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
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21-02-2005

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0293964	A	07-12-1988	IT	1204674 B	10-03-1989
			AT	95091 T	15-10-1993
			DE	3884462 D1	04-11-1993
			DE	3884462 T2	19-05-1994
			DE	293964 T1	13-07-1989
			EP	0293964 A2	07-12-1988
			ES	2005534 T3	01-02-1994
			JP	1768151 C	11-06-1993
			JP	4055762 B	04-09-1992
			JP	63303624 A	12-12-1988
			US	4843862 A	04-07-1989

US 6240758	B1	05-06-2001	NONE		

JP 61169118	A	30-07-1986	JP	1847796 C	07-06-1994
			JP	5063246 B	10-09-1993

FR 2750625	A	09-01-1998	FR	2750625 A1	09-01-1998
			AT	195447 T	15-09-2000
			DE	69702860 D1	21-09-2000
			DE	69702860 T2	01-03-2001
			EP	0918580 A1	02-06-1999
			WO	9801244 A1	15-01-1998
