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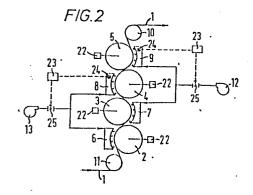
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(sa) Method of controlling the temperature of steel strip in the cooling zone of a continuous annealing furnace.

(57) The invention relates to a method of controlling the temperature of a steel strip (1) in the cooling zone of a continuous annealing furnace which is provided with a plurality of cooling rolls (2 to 5) in which a coolant is circulated via a circuit (14 to 18) for cooling the strip as it is brought into contact with the outer peripheral surfaces of the rolls, the coolant temperature being controlled via temperature control means (19 to 21), and a plurality of gas jet coolers (6 to 9) for blowing cooling gas against the strip.

In accordance with the invention, the flow rate of the cooling gas, the angle at which the strip is brought into contact with the surfaces of the rolls and the coolant temperature are controlled selectively in the order of, first, at least one of either the flow rate of coolant, or the angle, and then the coolant temperature, so that the strip may be cooled quickly and efficiently to a predetermined temperature irrespective of

any change in strip gauge during the continuous annealing of a plurality of strips which are different gauge.





EUROPEAN SEARCH REPORT

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		SIDERED TO BE RELEVA	NT		
Category	Citation of document v	vith indication, where appropriate, evant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)	
A	EP-A-O 058 607 * Claims 1,4; f:	(STEIN HEURTEY) igure *	1,2,4	C 21 E	9/573 11/00
A	GB-A-2 054 661 * Claims 1,3,6	(NIPPON KOKAN)	1,3		
A	PATENTS ABSTRACT vol.3, no.138 (0 16, 1979, page 1 118 315 (NIPPON 09.13.1979	C-64); November 130; & JP-A- 54	1		
A	ATENTS ABSTRACTS OF JAPAN, ol.6, no.94, (C-105)[972], June, 1982, & JP-A- 57 026 127 SHIN NIPPON SEITETSU K.K.) 2.02.1982		1,6	TECHN	ICAL FIELDS
A,D	JAPANESE PATENTS REPORT, Section Ch, vol.81, no.11, April 10, 1981, Metallurgy, page 6; Derwent, London, GB; & JP-B- 56 10 973 (MITSUBISHI ELECTRIC CORP.) 11.03.1981			C 21 D	IED (Int. Cl.4)
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	The present search report has b	Date of completion of the search		Examine	
T	HE HAGUE	03-09-1986	MOLLE	ET G.H.	J.
Y : parti doci A : tech O : non-	CATEGORY OF CITED DOCU icularly relevant if taken alone icularly relevant if combined wi ument of the same category nological background written disclosure mediate document	E : earlier pat after the fi th another D : document L : document	cited in the app cited for other r I the same paten	ut published lication easons	on, or