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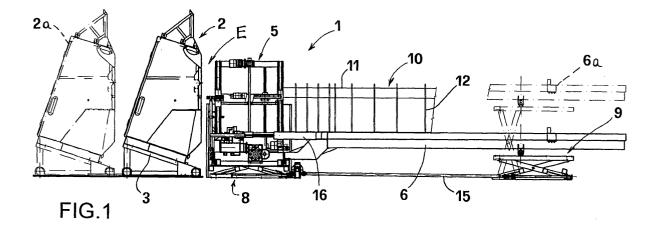
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## (54) Method and apparatus for forming metal frames for reinforced concrete

(57) A method for forming metal frames for reinforced concrete comprises picking in succession individual stirrups (12) having a closed or open profile at a front input region (E), and transferring each individual stirrup (12) from the input region (E) by way of grip means (51) that can move along a longitudinal direction. The picked stirrup (12) is transferred to welding means (80) associated with traction means (74) that can move along the longitudinal direction. At least one longitudinal

auxiliary rod (11) is fixed externally to each bracket (12) and is retained by the welding means (80). At the same time, the welding means (80) are moved alternately into a forward position, by the actuation of the traction means (74), in order to produce the stepwise traction of the auxiliary rod (11) and of the stirrups (12) during coupling thereto by the welding means (80), so as to form an intermediate lattice (10) for the final production of a frame. The invention also relates to an apparatus for forming metal frames.





## **EUROPEAN SEARCH REPORT**

Application Number EP 03 01 4545

	DOCUMENTS CONSID	ERED TO BE RELEVA	NT	
Category	Citation of document with ir of relevant passa	idication, where appropriate, ges	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
D,A	EP 0 667 195 A (SCH 16 August 1995 (199 * the whole documen	5-08-16)	1,2,7,25	B21F27/12
D,A	WO 85/05053 A (BRUC 21 November 1985 (1 * the whole documen	985-11-21)	1,2,7,25	
Α	EP 0 811 442 A (SCH 10 December 1997 (1 * the whole documen	997-12-10)	1,2,7,25	
				TECHNICAL FIELDS SEARCHED (Int.CI.7) B21F
	The present search report has b	peen drawn up for all claims		
	Place of search	Date of completion of the se	arch	Examiner
	Munich	26 July 2004	Rit	ter, F
X : part Y : part docu A : tech O : non	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with anoth iment of the same category inological background -written disclosure rmediate document	T : theory or E : earlier pa after the fi D : documen L : documen	principle underlying the ir tent document, but publis ling date t cited in the application cited for other reasons of the same patent family,	nvention hed on, or

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

EP 03 01 4545

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.

26-07-2004

cited in search report		Publication date		Patent family member(s)	Publication date
EP 0667195	A	16-08-1995	IT AT AU DE DE EP ES JP US	B0940053 A1 168295 T 688829 B2 1164695 A 69411699 D1 69411699 T2 0667195 A1 2085248 T1 7252942 A 6216766 B1	10-08-19 15-08-19 19-03-19 17-08-19 20-08-19 22-04-19 16-08-19 01-06-19 03-10-19 17-04-20
WO 8505053	Α	21-11-1985	AU WO EP JP	4297185 A 8505053 A1 0179820 A1 61502106 T	28-11-19 21-11-19 07-05-19 25-09-19
EP 0811442	Α	10-12-1997	IT EP	B0960306 A1 0811442 A1	09-12-19 10-12-19

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82