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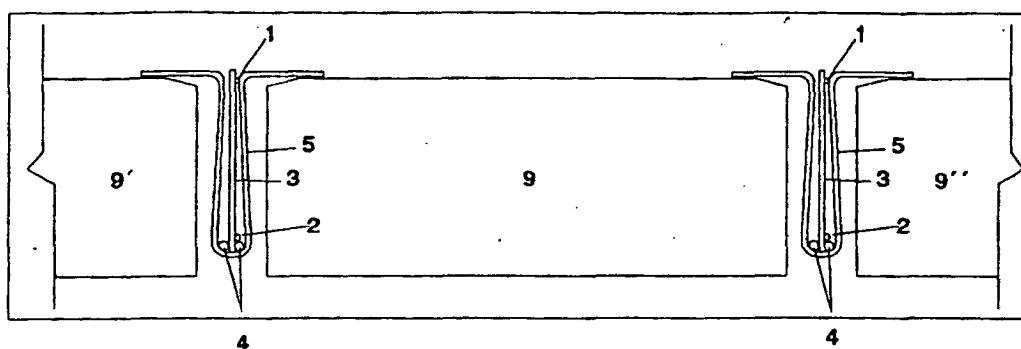
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(54) **Steel reinforcement frame for reinforced concrete**

(57) Steel reinforcement frame for the construction of unidirectional and bi-directional forgings for reinforced concrete, in which the frame is formed of an upper longitudinal round rod (1), a lower longitudinal round rod (2) and a transverse frame formed by U-shaped elements (3), (3'), (3''), which join the upper and lower longitudinal round rods. This frame is positioned inside two

or more pieces which we call a supporting piece-separator. The shapes of these pieces are as follows: open trapezoidal (5), open trapezoidal but with the width at its lower base equal to the separation of the lightening elements (5'), open rhomboidal (6), closed trapezoidal (7), closed trapezoidal but with the width at its lower base equal to the separation of the lightening elements (7') and closed rhomboidal (8).



**FIG 13**



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# EUROPEAN SEARCH REPORT

Application Number  
EP 03 38 0309

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)
X	US 3 964 226 A (HALA ALFRED A ET AL) 22 June 1976 (1976-06-22) * column 3, line 21 - line 40; figure 4 *	1,2	E04C5/065 E04B5/32 E04C5/18 E04C5/06 E04C5/16
X	DE 23 29 943 A (RHEINBAU GMBH) 9 January 1975 (1975-01-09) * page 8, paragraph 4 - page 8, paragraph 2; figures 6,7 *	1,2	
X	DE 28 05 971 A (UTH GEB SCHNEIDER DOROTHEA) 16 August 1979 (1979-08-16) * page 12, paragraph 4 - page 13, last paragraph; figures 2,3 *	1,2	
A	FR 966 210 A (METAL DEPLOYE LE) 4 October 1950 (1950-10-04) * figures *	1	
A	FR 2 588 899 A (RON ELI) 24 April 1987 (1987-04-24) * figures 1,2 *	1	
A	US 5 317 846 A (MICHLOVIC JOHN J) 7 June 1994 (1994-06-07) * figures 7,9,10 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.7) E04C E04B
A	BE 700 663 A (OSCAR PFEFFERMANN) 1 December 1967 (1967-12-01) * figures 1,10 *	1	
A	US 1 379 625 A (HARTMAN RUDOLPH B) 31 May 1921 (1921-05-31) * figures 1-18,29 *	1	
<del>The present search report has been drawn up for all claims</del>			
Place of search <b>The Hague</b>		Date of completion of the search <b>15 April 2004</b>	Examiner <b>Demeester, J</b>
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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 &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P04C01)



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### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-2 (and claims 3-8 in combination with claim 1)



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**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
EP 03 38 0309

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-2 (AND claims 3-8 in combination with claim 1)

a steel reinforcement frame with a lower and an upper rod  
and with U-shaped elements AND

a steel reinforcement frame as defined in claim 1 in  
combination with at least one of the piece separators  
defined in claims 3-8

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2. claims: 3-8

a steel reinforcement frame with a supporting piece  
separator having horizontal branches

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

EP 03 38 0309

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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15-04-2004

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