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(54) **System and method for forming and heat treating metal castings**

(57) A system and method for forming and heat treating metal castings is provided with a vertical heat treatment unit positioned adjacent and downstream from a pouring station at which a series of molds are filled with a molten metal to form the castings. The vertical heat

treatment unit includes a vertically oriented furnace chamber in which the castings are received, and which has a reduced footprint to reduce the manufacturing floor space required for the vertical heat treatment unit, and to enable the vertical heat treatment unit to be positioned in close proximity to the pouring station.

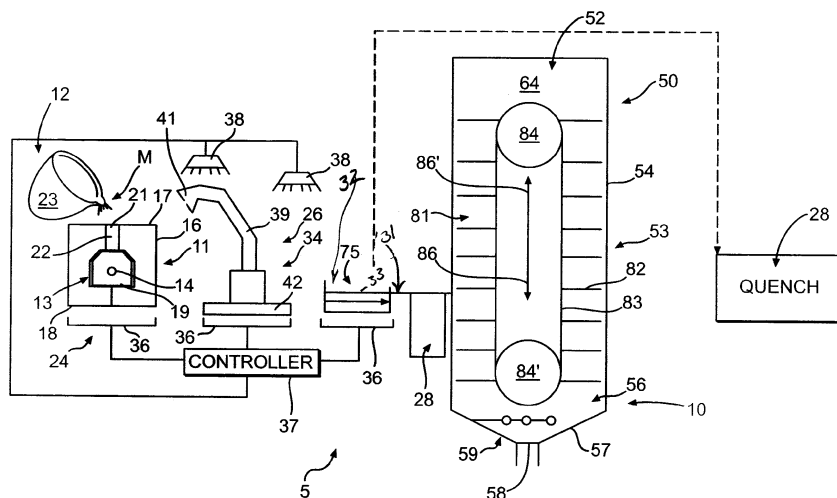


FIG. 2A



EUROPEAN SEARCH REPORT

Application Number
EP 12 16 7544

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2006/050209 A (CONS ENGINEERING COMPANY INC [US]) 11 May 2006 (2006-05-11)	10,11, 13-15	INV. B22D47/02 C21D9/00 F27B9/02 F27B9/10 F27B9/24 F27B9/16
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X	* the whole document *		
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 22 March 2013	Examiner Scheid, Michael
<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</p> <p>& : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04C01)



Application Number

EP 12 16 7544

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due 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 those claims for which no payment was due.

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:

☐ The present supplementary 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 (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 12 16 7544

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: 1-9

A system for forming a heat treated metal casting

2. claims: 10-15

A method for forming and treating castings

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

EP 12 16 7544

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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22-03-2013

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