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(54) **Crane safety devices and methods**

(57) A crane safety device comprising a plurality of wind speed and direction sensors (53) and a control console (48) to display this information and to limit the operation of the crane to safe conditions. Other sensors for boom length (68) etc. are used to evaluate safe con-

ditions. The wind sensor is pivoted and has a counter-weight (65) to ensure that the sensor remains vertical at all boom angles.

A crane control decision network (66) is also disclosed for programming the setup of the crane.

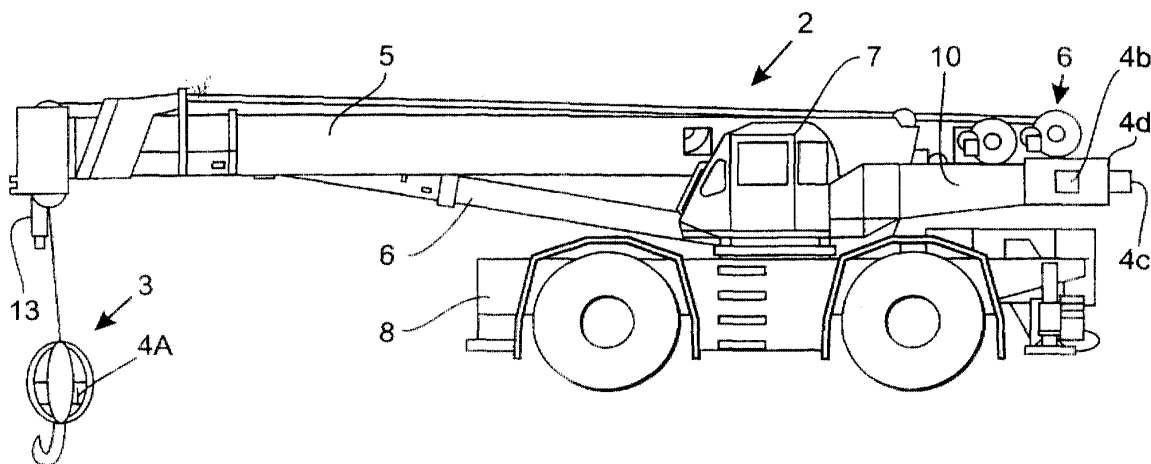


Fig. 1



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EUROPEAN SEARCH REPORT

Application Number
EP 01 20 0047

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	NL 8 503 113 A (TECHNO DIAGNOSIS BV) 1 June 1987 (1987-06-01) * the whole document *	1-6, 10, 14, 22, 23	B66C15/06 B66C23/90
X	WO 98 55388 A (SMITH KENNETH JAMES ; WILLIAM HOOK LIMITED (GB)) 10 December 1998 (1998-12-10) * abstract *	1, 6, 10, 14-17, 21-23	
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A	JP 58 042600 A (NIHON KIKAI KOGYO KK) 12 March 1983 (1983-03-12) * figures 1, 2 *	7	
		- / -	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 July 2002	Examiner Sheppard, 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 & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P04001)



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EP 01 20 0047

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:



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EUROPEAN SEARCH REPORT

Application Number
EP 01 20 0047

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	US 5 731 974 A (PIETZSCH HEINZ WERNER ET AL) 24 March 1998 (1998-03-24) * abstract *	11, 18, 24	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 July 2002	Examiner Sheppard, B
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EPO FORM 1503 (3.82 (P04001))



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 01 20 0047

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: 1-10,14-17,21-23

Crane with wind sensor. The problem to be solved is one of measuring wind speed in order to ensure safe operation.

2. Claims: 11-13,18-20,24-25

Crane control device and method with decision network. The problem to be solved is one of programming the operating parameters for a crane.

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

EP 01 20 0047

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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05-07-2002

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