11 Publication number:

**0 246 922** A3

(12)

## **EUROPEAN PATENT APPLICATION**

21 Application number: 87304596.7

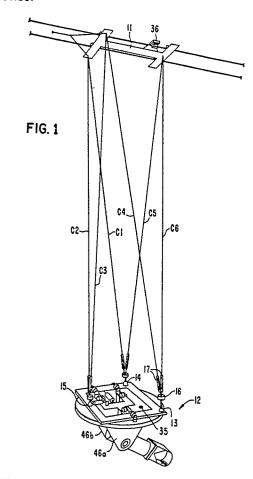
(5) Int. Cl.4: B66C 13/06 , B66C 13/08

Date of filing: 22.05.87

Priority: 23.05.86 US 866252

- Date of publication of application: 25.11.87 Bulletin 87/48
- Designated Contracting States:
  BE DE FR GB GR IT NL SE
- Date of deferred publication of the search report: 07.02.90 Bulletin 90/06
- Applicant: Albus, James S. 9520 W. Stanhope Road Kensington Maryland 20895(US)
- Inventor: Albus, James S. 9520 W. Stanhope Road Kensington Maryland 20895(US)
- Representative: JENSEN & SON 8 Fulwood Place High Holborn London WC1V 6HG(GB)
- (54) Cable arrangement and lifting platform for stabilized load lifting.
- (57) The present invention is directed to a cable arrangement and lifting platform for lifting a load in a stabilized manner. The lifting platform (12) secures loads to a securing device and the platform (12) is able to be suspended from a crane by an attachment carriage (11). The attachment carriage (11) includes a cable winch (23) onto which six cables  $(C_1, C_2,\ C_3,\ C_4,\ C_5,\ C_6)$  suspend and attach to the lifting platform (12). The attachment carriage (11) also includes cable guides (G ,  $G_2$ ,  $G_3$ ) which guide the six cables away from the winch (23) in three cable pairs  $(C_1,C_2,\ C_3,\ C_4,\ C_5,\ C_6),$  preferably equidistantly-spaced. In order to secure the cables to the lifting platform (12), the platform includes an attachment frame (41) having three cable attachment points (13, 14, 15), preferably spaced equidistantly mapart with respect to each other. The lifting platform (12) helps stabilize the lifting of loads by sensing the load's imbalance relative to the center of mass of the platform and repositioning the load to correct for the mimbalance. In addition, in order to precisely position the load and exert controlled forces on the load in all six degrees of freedom, the present invention in-Cludes a device (50) for rotating the load in a 360° angle relative to the horizontal plane, a device for adjusting the tilt position of the load up to a 90° angle relative to the horizontal plane of the platform, and a device (51) for rotating the load in a 360° angle about the longitudinal axis of the load securing

device.





## **EUROPEAN SEARCH REPORT**

87 30 4596

		SIDERED TO BE RELEV	VANT	
Category	Citation of document with of relevant p	indication, where appropriate, passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
Y	US-A-2 164 128 (M * Page 1, right-ha page 2, left-hand figures *	nd column line 3 -	1-3,5	B 66 C 13/06 B 66 C 13/08
A			14,15	
Y	US-A-3 081 884 (M * Column 4, line 1 13; figures 1-4,7	9 - column 5. line	1-3,5	
A			8,9,17	
A	US-A-3 276 602 (VE* Column 2, line 39 figures *	OGELEY et al.) 5 - column 3, line 2;	1,14	
A	DE-C- 240 627 (DI MASCHINENFABRIK AG * Whole document *	EUTSCHE )	1-3,5, 14,15	
	FR-A-2 443 996 (PC * Claim 1; figures 254 (Cat. A,D)	DTAIN) 1,3,5 * & US-A-4 350	1,7,8, 14,16	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
1	US-A-4 016 992 (L/ * Column 5, line 24 figures 1-3 *	ARSEN et al.) 4 - column 6, line 2;	7,12,16 ,20	B 66 C
	US-A-3 598 440 (RA * Abstract; column 5, line 6; figures	4. line 68 - column	6,8,9, 17	
A	DE-A-2 053 590 (SI * Pages 2,3; figure 	EMENS AG)  * -/-	6	
	The present search report has h	een drawn up for all claims		
Place of search THE HAGUE  Date of completion of the search 16-10-1989			Examiner MULLER J.A.H.	

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

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



## EUROPEAN SEARCH REPORT

Application Number

EP 87 30 4596

Category	Citation of document and	SIDERED TO BE RELEVE	ANI		
	or relevan		Relevant to claim	CLASSIFICATION OF TH APPLICATION (Int. Cl.4)	
A	FR-A-2 376 061 (FIGEE) * Claim 1; figure	B.V. MACHINEFABRIEK	1,8,9, 14,17	(Alta Ch.4)	
		S ^			
A	FR-A-2 124 940 (*HIJSCH N.V.)	WERF CONRAD EN STORK			
				TECHNICAL FIELDS SEARCHED (Int. Cl.4)	
	·				
	The present search report has	<del></del>			
	lace of search HAGUE	Date of completion of the search	j	Examiner	
			16-10-1989 GUTHM		
CATEGORY OF CITED DOCUMENTS  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		E: earlier paten after the fili other D: document ci L: document ci	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: interme	itten disclosure Ediate document	&: member of the document	ne same patent family, c	corresponding	