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(54) **STABILIZING BASE FOR TRUCK-MOUNTED MOBILE CRANES FOR 360° WORK SITES**

(57) "Stabilizing base for truck-mounted mobile cranes 360° work sites" wherein, instead of placing the front supports perpendicularly to the longitudinal axis of the vehicle (parallel to the rear beams as indicated), they are oriented towards the truck cabin thereby forming an acute angle so that, when the front beams are

extended, the support points of the vertical cylinders are displaced towards the front part of the vehicle thereby obtaining a major longitudinal separation between the front and the rear supports and consequently an appropriate stability base. Thus, the gravity centre of the loaded crane with its boom oriented forwards is within the support base formed by the four stabilizing supports.

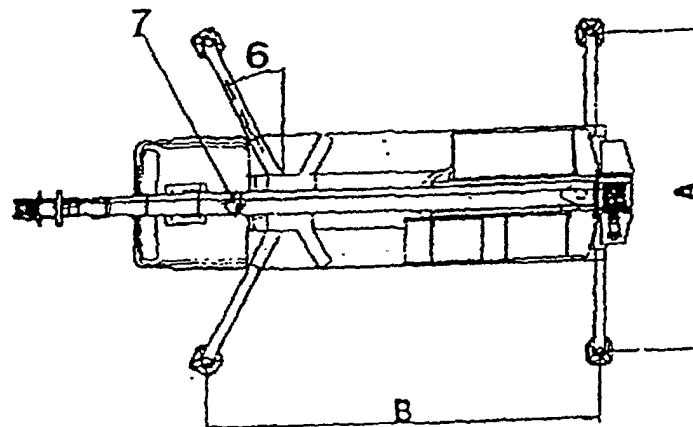


Fig.1

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## Description

[0001] The present invention refers to a stabilizing base for truck mounted mobile cranes for 360° work sites.

[0002] All mobile rotating cranes are provided with an ensemble of stabilizers hydraulically actuated that on the work static configuration must provide the necessary stability to absorb the different load capacities. All these machines have got a rotating movement on the horizontal plane.

[0003] Basically, the classic system consists of a pair of frontal beams moving parallel and horizontally in relation to a pair of rear beams. Once the four beams have been extended by means of hydraulic cylinders ( one for each beam) , other cylinders of vertical run installed on each side are the ones which suspend the ensemble of the auto-crane from the ground in order to achieve a mayor stability. The truck- carrier vehicle is usually a special chassis or even a normal truck.

[0004] In cases on with a truck must be coachwork as a truck-carrier vehicle, the usual difficulty is that the operating zone for the crane is limited to less than 360°, that is to say that on the frontal part of the vehicle, the crane is not stable when carrying loads, due to the cabin's position and other elements of the vehicle and also due to the distribution of the own weights of the truck, considering that the gravity centre of the crane ensemble with nominal loads, remains ahead the frontal stabilizers, that is to say outside the sustaining base y this causes that the stability or effective working area of the crane is reduced from the usual 360° to about 270° approximately.

[0005] The present invention consists in varying the position of the horizontal beams of the frontal supports in order to reach the 360°. Instead of being placed perpendicularly to the longitudinal axis of the vehicle (parallel to the rear beams as before mentioned) , the beams are installed facing the cabin of the truck and constituting an acute angle with the scope that when the frontal beams are extended, the support points of the vertical cylinders move towards the frontal part of the vehicle obtaining a greater longitudinal separation between the frontal and rear and accordingly of the adequate stabilizing base. This way the gravity centre of the crane with loads and with the boom facing ahead, is inside the sustenance base that is performed by the four stabilizer supports.

[0006] The evident advantage of this system is that with minor cost and weight addition, the adequate stability is achieved.

[0007] With a declarative and not limitative character we now quote the main advantages of this invention ;

- Minor costs addition.
- Minor weight addition.
- The necessary stability for the working area of 360° is achieved.

[0008] For a better understanding of the present description, we herein enclose the drawing sheets which depict the following figures also with a no limitative spirit ;

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Figure 1. Is a side view of the crane over a truck with the boom facing ahead and with the stabilizing supports fastened on the ground.

Figure 2 is a ground plan view of figure 1.

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Figure 3 is a side view of the ensemble formed by the cranes frame and the stabilizers, installed over a conventional truck. In this figure the stabilizers are gathered.

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Figure 4 is a ground view of figure 3 but with the four supports extended.

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Figure 5 is a section view of one of the four supports, showing the component elements; Displaceable horizontal beam (1 or 2) and its housing (4), horizontal (5) and vertical (7) cylinder, both extended and the ground supporting shoe (6).

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[0009] According to the present designs, the rear supports (1) are extended as usually, that is, perpendicularly to the longitudinal axis of the vehicle and the front supports (2) are placed in such a way that the axis are moved towards the front part of the truck, delimitating a acute angle (3) in relation with the usual position. The horizontal housings (4) of the expanding beams (1 and 2) are part of the framework. These horizontal extensible beams (1 and 2) are actuated by the hydraulic cylinders (5). Finally, the effective support of the crane on the ground is operated by means of shoes (6) over which lay the vertical hydraulic cylinders (7).

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[0010] With said disposition, the distance between the front and rear (A) supports is bigger than the distance (B) that would result with the usual position and the gravity centre (C) is situated inside the sustentation base performed by the four support shoes (AXD).

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## Claims

1. "Stabilizing base for truck-mounted mobile cranes for 360° work sites" that consists on a rear supports (1) and that is **characterised in that** the axis of the frontal supports (2) are moved towards the front part of the truck, performing an acute angle (3) in relation with the ordinary position.

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Component members of the framework are the horizontal housings (4) of the extensible beams (1 and 2). These horizontal extensible beams (1 and 2) are actuated by the hydraulic cylinders (5). The effective support of the crane on the ground is operated by shoes (6) over which the vertical hydraulic cylinders are seated (7).

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2. "Stabilizing base for truck-mounted mobile cranes for 360° work sites" , according to claim number 1,

**characterised in that** the distance existing between the frontal and rear supports (A) is superior to the distance (B) that would result of the conventional position and the gravity centre (C) is placed inside the sustentation base that is performed by the four supporting shoes (AXD). 5

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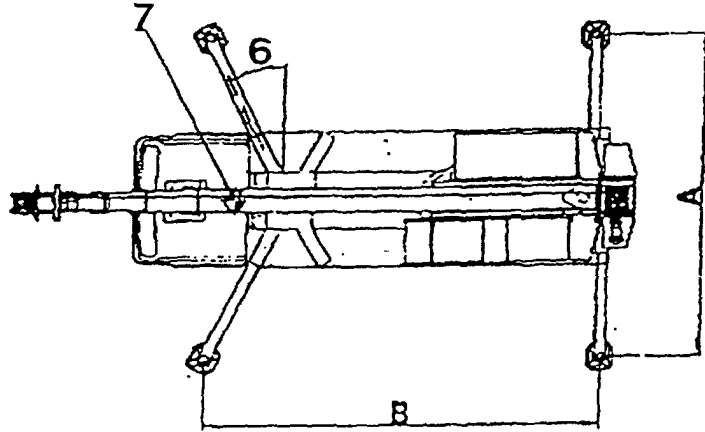


Fig.1

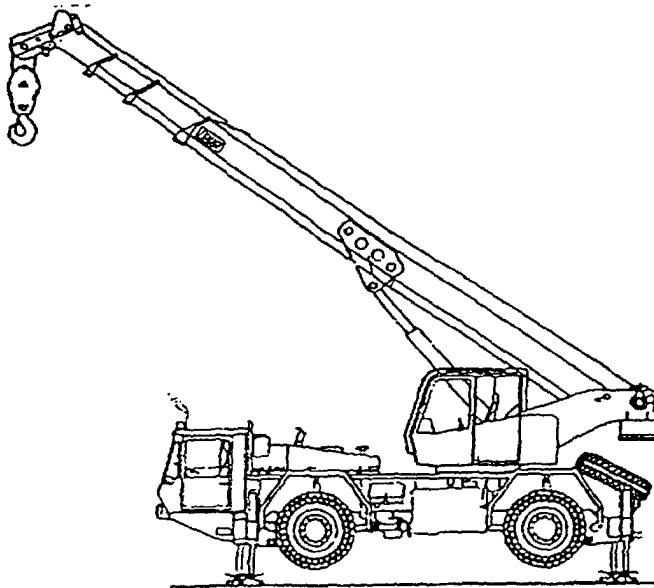


Fig.2

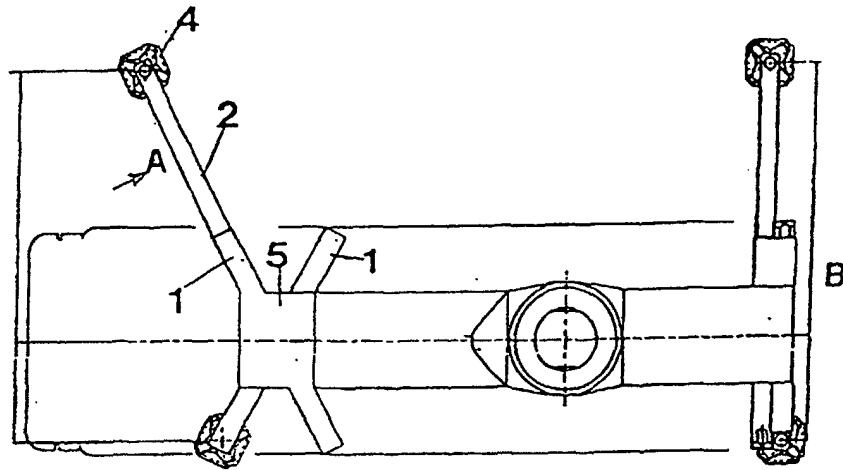


Fig.3

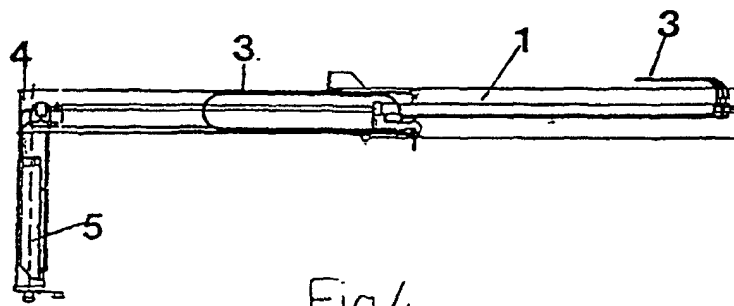


Fig.4

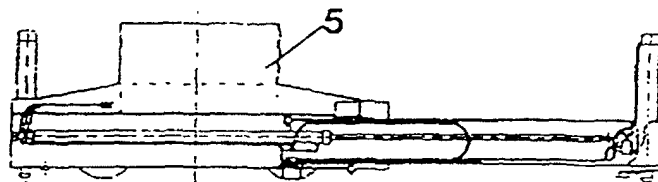


Fig.5

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT / ES 00/00362

A. CLASSIFICATION OF SUBJECT MATTER IPC <sup>7</sup> : B66C 23/78, B60S 9/04 <i>According to International Patent Classification (IPC) or to both national classification and IPC</i>		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC <sup>7</sup> : B66C, B609  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 3122725 A (FENZL) 23 December 1982 (23.12.82) the whole document	1,2
X	DE 3124029 A (STETTER G.M.B.H.) 17 March 1983 (17.03.83) the whole document	1,2
X	EP 0357988 A (PUTZMEISTER-WERK MASCHINENFABRIK G.M.B.H.) 14 March 1990 (14.03.90)	1,2
<input type="checkbox"/> Further documents are listed in the continuation of box C.		<input checked="" type="checkbox"/> Patent family members are listed in annex.
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
Date of the actual completion of the international search 05 December 2000 (05.12.00)		Date of mailing of the international search report 18 January 2001 (18.01.01)
Name and mailing address of the ISA/ SPTO		Authorized officer  Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International Application No  
PCT/ES 00/00362

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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