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(71) Applicant: KABUSHIKI KAISHA KOBE SEIKO SHO also known as Kobe Steel Ltd. Kobe 651-0072 (JP)

(72) Inventor: Miyazawa, Hiroshi, c/o Okubo Plant in Kobe Steel Akashi-shi, Hyogo, 674-0063 (JP)

(74) Representative:

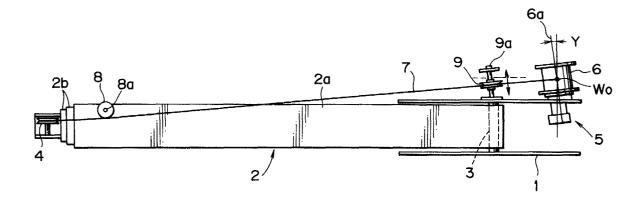
Pellmann, Hans-Bernd, Dipl.-Ing. et al Patentanwaltsbüro Tiedtke-Bühling-Kinne & Partner Bavariaring 4-6 80336 München (DE)

(54) **Crane**

(57) A fleet angle of a rope is suppressed to be small while employing a side drum type in which a winch drum is installed sideway of a boom. A drum arranging plane A which is a plane perpendicular to a drum shaft 6a

passing through an axial center point Wo of a winch drum shaft 6a is inclined with respect to a boom moving plane so that a rope contact of a main guide sheave 8 includes two points P1 and P2 formed on a boom moving plane B by the raising and lowering of a boom 2.

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EUROPEAN SEARCH REPORT

Application Number EP 99 10 5550

| | DOCUMENTS CONSID | ERED TO BE RE | LEVANT | | | | |
|---|--|-------------------------------|---|----------------------|--|--|--|
| Category | Citation of document with in of relevant pass | | ate, | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.5) | | |
| D,A | PATENT ABSTRACTS OF vol. 1996, no. 02, 29 February 1996 (1 & JP 07 267583 A (K 01), 17 October 199 * abstract * * figures * | 996-02-29) OMATSU MEC CORF | | 1–7 | B66C23/62 B66D1/36 B66C23/42 | | |
| A | DE 12 04 377 B (LEB 4 November 1965 (19 * column 1, line 31 figures 1-6 * | 65-11-04) | | 1 | | | |
| Α | DE 11 53 871 B (HOR 5 September 1963 (1 * column 3, line 65 figures * | 963-09-05) | | 1 | | | |
| | | | | | TECHNICAL FIELDS SEARCHED (Int.Cl.6) | | |
| | | | | | B66C B66D | | |
| | | | | | | | |
| | The present search report has | | | | | | |
| | Place of search | n of the search | | Examiner | | | |
| | MUNICH | 18 July | 18 July 2002 Mas | | | | |
| X : part Y : part docu A : tech O : non | ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone cutarly relevant if combined with anot ment of the same category nological background —written disclosure mediate document | E: her D: L:0 | T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filling date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document | | | | |

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

EP 99 10 5550

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18-07-2002

| ! | Patent docume cited in search re | ent eport | Publication date | | Patent family member(s) | Publication date |
|--------------|--|--------------|---------------------|------|----------------------------|---------------------|
| | JP 07267583 | А | 17-10-1995 | NONE | | |
| | DE 1204377 | В | 04-11-1965 | NONE | | |
| | DE 1153871 | В | 05-09-1963 | NONE | | |
| | PHILIP PRINT THE MANY MANY MANY MANY MANY MANY MANY MANY | | | | | |
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| 459 | | | | | | |
| O FORM P0459 | | | | | | |
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82