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D E C I S I O N
of 15 May 2001

Case Number: T 0464/99 - 3.2.1

Application Number: 89904237.8

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Language of the proceedings: EN

Title of invention:
Crane safety apparatus

Patentee:
KATO WORKS CO., LTD.

Opponent:
(I) Liebherr-Werk Ehingen GmbH
(II) Deutsche GROVE GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
G 0010/91

Catchword:
-



Case Number: T 0464/99 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 15 May 2001

Appellant: Liebherr-Werk Ehingen GmbH
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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 10 March
1999 concerning maintenance of European patent
No. 0 406 419 in amended form.

Composition of the Board:

Chairman: F. Gumbel
Members: S. Crane
J. van Moer

Summary of Facts and Submissions

- I. European patent No. 0 406 419 was granted on 28 June 1995 on the basis of European patent application No. 89 904 237.8
- II. The granted patent was opposed by the present appellants (opponents I) and the other party to the proceedings (opponents II) on the main ground that its subject-matter lacked novelty and/or inventive step (Article 100(a) EPC).

Of the documents relied upon in the opposition proceedings as constituting relevant prior art only the following have played any role on appeal:

(E1) JP-A-6127896

(E6) "LICCON" operating instructions

With the notice of opposition the appellant filed a partial translation (henceforth document E1T) of document E1. Subsequently, with the statement of grounds of appeal they filed a full translation of the same document henceforth document E1T'.

Document E6 is a manual of operating instructions for the overload control unit of a crane allegedly delivered to a customer by the appellants before the priority date of the contested patent.

- III. With its decision posted on 10 March 1999 the Opposition Division held that the patent could be maintained in amended form.

- IV. A notice of appeal against this decision was filed on 28 April 1999 and the fee for appeal paid at the same time. The statement of grounds of appeal was filed on 10 June 1999.
- V. On 12 April 2001 the respondents (proprietors of the patent) filed new sets of claims according to a main and an auxiliary request.

Claim 1 according to the main request reads as follows:

"A safety apparatus for installation on a crane, said apparatus having a main unit (A, A^I, A^{II}) and a display unit (B, B^I, B^{II}), wherein:

said main unit comprises a main unit CPU (200), a terminal (207) via which crane operation status parameter data detected by a sensor is inputted to said main unit CPU (200), a terminal via which command and data are transmitted/received between said main unit CPU (200) and said display unit (B, B^I, B^{II}), and a memory for storing a limit load data for each crane operation status conforming with a crane specification;

said display unit comprises a display unit CPU (211) which runs on its own program independently from said main unit CPU, a display (212), a bit map memory for storing graphics data defining a display image including a schematic diagram of a crane to be displayed on said display (212), key means (310B) for manually inputting key input data concerning the setting of a crane mechanism such as an outrigger and boom and a terminal via which commands and data are transmitted/received between said display unit CPU (211) and said main unit (A, A^I, A^{II});

said main unit CPU (200) determines the warning condition for crane operation in accordance with the

limit load data in the memory, the crane operation status parameter data and the key input data, and transmits a crane operation status data to said display unit CPU in accordance with a said display image in a display mode selected by operation of said display unit (B, B^I, B^{II}), and

said display unit CPU (21) modifies the display image from time to time in accordance with the crane operation status data received from said main unit CPU to display motion in the crane schematic diagram on the display as the crane operation status changes."

Dependent claims 2 and 3 relate to preferred embodiments of the apparatus according to claim 1.

- V. Oral proceedings before the Board were held on 15 May 2001.

The appellants and the other party requested that the decision under appeal be set aside and the patent revoked in its entirety.

The respondents requested maintenance of the patent in amended form on the basis of the claims (main and auxiliary request) filed on 12 April 2001 together with the description and drawings as agreed by the Opposition Division.

- VI. The arguments presented by the appellants and the other party can be summarised as follows:

Appreciation of the alleged invention was hampered by the absence of any clear statement in the patent specification of the technical problem to be solved and its solution and by the fact that, although claim 1 was

directed to a "safety apparatus", all it actually defined was means for displaying information to the operator of the crane. Nevertheless, insofar as claim 1 could be understood, its subject-matter lacked novelty or at the least inventive step with respect to document E1, which was recognised by the Opposition Division as representing the closest state of the art. Any distinctions which might exist between the claimed subject-matter and the safety apparatus of document E1 where wholly conventional in the crane control art and at the free disposal of the skilled person, who would always be striving to meet statutory safety requirements in an efficient manner.

Document E6 should be seen as a technical description of the prior used LICCON overload control unit, for which prior use witness evidence had been offered in the notice of opposition. It was thus not necessary to establish whether the document itself could be considered as prior published, reference was made to it purely for convenience. On this basis it could be seen that the subject-matter of claim 1 also lacked novelty with respect to the prior used control unit.

VII. The respondents replied essentially with the following:

The aim of the invention was to provide to the operator of the crane an active display showing its movement and thus enabling the operator to avoid unsafe conditions before they arose. Since the data processing capacity required for this type of display was large, the invention proposed splitting the functions of generating display data and overload monitoring between a CPU in the display unit and the CPU of the main unit, thus avoiding impairment of the overload monitoring

function.

There were several distinctions between the apparatus defined in claim 1 and that disclosed in document E1, which was set up for a completely different purpose, so that the subject-matter of the claim was clearly novel.

Since the statement of grounds of appeal had been limited to this question it was improper to allow the inventive step of the claimed subject-matter to be challenged at the oral proceedings. In any case, the arguments to the effect that it would be obvious to modify the apparatus of document E1 in the sense that it corresponded with what was claimed were based on hindsight knowledge of the invention and were in direct contradiction to the specific teachings of the document itself.

Quite apart from the fact that the prior use of a control unit as described in document E6 had not been adequately demonstrated, this control unit came no closer to the claimed invention than the conventional systems described in the introduction to the patent specification.

Reasons for the Decision

1. The appeal complies with the formal requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is therefore admissible.

2. Present claim 1 has been derived from granted claim 1 by specifying that the apparatus is for installation on a crane, that the main unit CPU is responsible for

determining a warning condition in accordance with the load limit data and that the image displayed by the display unit includes a schematic diagram of the crane which is updated to show its motion in operation. Since the admissibility under Articles 123(2) and (3) EPC of the amendments made has not been challenged on appeal, the Board sees no need to go into this issue in detail. Reference is made merely to the relevant comments of the Opposition Division in the decision under appeal.

3. In the opinion of the Board the explanation given by the respondents (see section VII above) of the aim of the invention, which can be equated to the technical problem to be solved as sought by the appellants, is consistent with what is said in the patent specification, see in particular page 3, lines 22 to 24. Furthermore, the Board, as opposed to the appellants, has no difficulty with the fact that claim 1 is directed to "safety apparatus" since in its view the apparatus defined can no doubt contribute to the safe operation of the crane by the provision of appropriate display images to the operator. Although the patent specification is not drafted in the clearest of English, the Board is also of the opinion that the essential set up and mode of operation of the safety apparatus described and claimed is readily accessible to the person skilled in the art: The operator enters information via a keyboard on the display unit concerning the set-up of the crane mechanism involved, eg whether the outriggers are set or whether there is a jib extension, and the display mode which is to be displayed, eg automatic crane stopper (ACS) mode, operation range limit load etc, as explained in detail on pages 5 to 8 of the patent specification. On the basis of this information the CPU of the display unit

acts to cause the display to show an appropriate image including a schematic diagram of the crane, cf Figures 4A, 5, 6, 7, 8, 9B. The information is also sent to the CPU of the main unit in order to enable it to monitor the safe operation of the crane mechanism in its actual working set-up and to tailor the operation status data of the crane which it sends back to the CPU of the display unit to the latter's needs depending on the display mode selected. The schematic diagram on the display is updated regularly on the basis of the operational status data in order to reflect the motion of the crane mechanism. Thus in the claimed invention the functions of display data generation and load limit monitoring are split between the respective CPU's of the display unit and the main unit so that the risk of their being interference between the two is obviated.

4. Document E1 relates to a method for preventing a crane colliding with fixed constructions or other cranes when in operation. The essence of the method lies in predicting the path of the crane and the load it is hoisting, judging whether there is danger of collision and, if yes, instructing the driver how to avoid it or directly controlling the crane to this end.

The apparatus used in the method comprises a terminal control unit mounted on each crane under consideration connected to a main control unit in a central control room remote from the cranes. Each terminal control unit comprises a display unit, a sub-computer for processing data from detectors sensing movement of the crane and an interface for transmitting data to and receiving data from the main computer of the main control unit. The display unit displays schematic diagrams of the crane in relation to its surrounding (fixed

constructions and adjacent cranes) in both plan and side views, see Figures 4 and 5. Although the respondents questioned this, the Board is satisfied that the display actively represents movement of the crane involved, cf page 1, line 6 of document E1T.

From the point of view of novelty the first question which needs to be addressed is whether the apparatus of document E1 can properly be considered as being "for installation on a crane" in the normal sense, which in the view of the Board goes beyond the mere notional possibility of physically locating both the terminal control unit and the main control unit on a single crane. It is evident that there are clear technical reasons for having a central main control unit at a remote location in the apparatus specifically disclosed in document E1, since this main control unit is responsible for supervising the operation of a plurality of individual cranes. Insofar as the document can be considered as also relating to the supervision of a single crane, then there might be a case for arguing that both the control units should then be installed on that crane. However, if that were the case, then the need for having separate control units would disappear, so that the resulting apparatus would still not correspond to the terms of present claim 1 in that respect.

A further issue of contention between the parties is whether in the apparatus of document E1 the display data is generated by the sub-computer of the terminal control unit, as is the case in the claimed invention, or in the main computer of the main control unit. Here the appellants point in particular to page 1, lines 6 to 8, of document E1T, where it is stated that the

display shows the moving crane "according to the data transmitted from said detecting part and processed by the sub-computer". The respondents rely instead on points G and H of document E1T' where it is stated that the display data is received by the terminal control unit from the main control unit. That passage of the description is backed up by what is to be found in the flow chart of Figure 6 where the function "calculated display data" is listed under those of the main control unit and "receive display data" under those of the terminal control unit. Thus the interpretation of the respondents that it is the main control unit rather than the terminal control unit which generates the display data is the one which has more weight and is furthermore the one which appears more consistent with the demands of the system since, as can be seen from Figures 4 and 5, the display unit at each crane may also show the movement of adjacent cranes.

As for the at least implicit requirement of present claim 1 that there be a plurality of selectable display modes, cf "a display mode selected by operation of said display unit", the Board can find nothing equivalent in document E1. As far as can be determined, Figures 4 and 5 merely appear to show the crane involved in two different positions. The argument of the appellants that the plan and side views of the crane represent respective "display modes" ignores the fact that they are not individually selectable but are always displayed together.

Lastly, the appellants in fact conceded that document E1 did not specifically disclose a load limit monitoring system but argued that the presence of such would be implicit to the person skilled in the art,

since it is a universal safety requirement. However, even if that were the case, the question would remain open as to whether this function was to be performed by the sub-computer of the terminal control unit or the main computer of the main control unit. Within the overall context of the system of document E1 the former would appear the more consistent, whereas as presently claimed it is the latter.

Having regard to the above the Board is therefore satisfied that the subject-matter of present claim is distinguished in a number of respects from the prior art according to document E1.

As for the alleged prior art represented by document E6, the position is even clearer. The display unit of this overload control unit merely displays a number of static symbols representing various functions and items of equipment of the crane together with a bar or variable length indicating the load as a percentage of what is permissible. Those images are not comparable with the moving schematic diagram of the crane as required by present claim 1. In these circumstances any further investigation as to the status of this alleged prior art would not be justified.

5. The arguments put forward at the oral proceedings against the inventive step of the claimed subject-matter consisted of little more than bald assertions that it would be obvious for the person skilled in the art, for reasons of general convenience in the processing of the data involved, to modify the teachings of document E1 and divide up the functions in the manner set out in the claim. However, that approach ignores the very different nature of what the claimed

invention and the prior art according to document E1 set out to achieve, as explained above. To modify the latter in the sense required to arrive at the subject-matter claimed would appear to run counter to its teachings and cannot be considered as obvious.

The Board cannot accept the contention of the respondents that it was unfair and improper of it to allow the issue of inventive step to be discussed at the oral proceedings.

This contention is based in the main on what is stated in the second paragraph of item 1.2.1 of the "Guidance for Parties to Appeal Proceedings and their Representatives" appearing at pages 342 to 356 of OJ EPO 6/1996, namely that the statement of grounds "should be a succinct but full statement of the appellant's arguments". Since in the view of the respondents the statement of grounds was restricted solely to the question of novelty they argued that the appellants had thus been improperly allowed to introduce "new grounds of appeal" at the oral proceedings.

It is important to note here that the issue of inventive step was fully discussed in the opposition proceedings so that the situation envisaged in Opinion G 10/91 of the Enlarged Board of Appeal (OJ EPO 1993, 420) does not obtain here. What the respondents seem to be wanting to do is to extend the principles developed in that opinion to the "grounds of appeal". In fact it is implicit from the reasoning found in the Opinion that a Board has at least the power, if not the obligation, to deal with all grounds of opposition raised in the opposition proceedings, irrespective of

whether they are argued in the statement of grounds of appeal, and accordingly to invite the parties to present their comments on them. The quoted "Guidance" is no more than that and cannot serve to take away the essential rights of the parties as governed by the EPC and the case law of the Boards of Appeal.

The complaint of the respondents that the Board according to item 3.2 of the "Guidance" should have made it clear that inventive step would be discussed at the oral proceedings (the Board "will give any necessary directions for the parties to present further arguments") is also unjustified. A close reading of the statement of grounds of appeal shows that although lack of novelty with respect to the state of the art was indeed alleged, distinctions over this art were in fact acknowledged, albeit ones which in the view of the appellants could not justify a patent, see for example page 6, second paragraph where it is said that the display of a moving image is not a feature suitable for substantiating the inventive step of an apparatus claim. It was therefore apparent that if the novelty of the claimed subject-matter was established on such distinctions that the appellants would argue on inventive step.

6. In summary the Board concludes that the subject-matter of claim 1 is novel and involves an inventive step (Articles 54 and 56 EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:
 - claims 1 to 3 according to the main request filed on 12 April 2001;
 - description and drawings as agreed by the Opposition Division.

The Registrar:

The Chairman:

S. Fabiania

F. Gumbel