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Datasheet for the decision of 3 July 2012

Case Number: T 1169/09 - 3.2.07

Application Number: 99300049.6

Publication Number: 928663

IPC: B25B 5/08

Language of the proceedings: EN

Title of invention:
Clamp with internal cam action

Patentee:
Norgren Automotive Inc.

Opponent:
PHD, Inc.

Headword:
-

Relevant legal provisions:
EPC Art. 56
RPBA Art. 13(1)

Keyword:
"Inventive step (main request and first auxiliary request): no"
"Amendments (second auxiliary request): not allowable"
"Admittance into the proceedings (third (amended) auxiliary request): no"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1169/09 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 3 July 2012

Appellant: (Opponent)
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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 26 March 2009 concerning maintenance of European patent No. 928663 in amended form.

Composition of the Board:

Chairman: H.-P. Felgenhauer
Members: K. Poalas
E. Kossonakou

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the interlocutory decision of the opposition division maintaining European patent No. 0 928 663 in amended form.

II. Oral proceedings took place before the Board on 3 July 2012.

(a) The appellant requested that the decision under appeal be set aside and that European patent No. 0 928 663 be revoked.

(b) The respondent (patent proprietor) requested that the appeal be dismissed and that the patent be maintained according to the main request (patent as maintained by the opposition division) or the first, second or third (amended) auxiliary requests. The main request and the first and second auxiliary requests were submitted with the response to the grounds of appeal of 11 December 2009. The third (amended) auxiliary request was submitted at the oral proceedings.

III. Opposition had been filed against the patent as a whole based on Article 100(a) EPC (lack of novelty and inventive step).

The opposition division found that the subject-matter of claim 1 according to auxiliary request 2 filed during the oral proceedings on 5 December 2008, said claim corresponding to claim 1 of the present main request, meets the requirements of the EPC.

IV. The following documents are mentioned in the present decision:

E2: PHD, Inc. sales catalogue entitled "Series GRM Clamps"
E9: US-A-5 085 480
E10: DE-A-3 528 337
E13: US-A-886 003.

V. Independent claim 1 according to the main request and according to the first, second and third (amended) auxiliary requests reads as follows:

"A clamping apparatus comprising:
a linear reciprocal actuator (12) moveable between an extended position and a retracted position along a path of travel;
a hollow housing (14) having a guide track (16) defined on opposing inner surfaces;
a slide block (18) operably engageable with said guide track (16) capable of being driven, moved, and positioned along said guided track (16) by said actuator(12) between first and second end limits of movement corresponding to said retracted and extended positions respectively of said actuator (12);
a cam means (20) connected to said slide block (18) for movement therewith; and
at least one pivoting arm (22), each said pivoting arm (22) pivotally mounted for rotation about a pivot axis (34) with respect to said housing (14) adjacent to said guide track (16) and each said pivoting arm (22) having an elongate slot (24) adjacent to and spaced from said pivot axis (34), said cam (20) positioned within said

elongate slot (24) of each said pivoting arm (22) for converting linear reciprocal movement of said cam into pivoting rotation of each said pivoting arm (22) as said slide block is moved along said guide track;
the cam means (20) comprising a single cam member (20) operably engaged in said elongate slot of each said pivoting arm (22);
wherein the elongate slot comprises a convex arcuate shape relative to said pivot axis (34) and
each said pivoting arm (22) is in a clamped position when said slide block (18) is in said first end limit of movement whereby said cam means (20) is disposed adjacent the end of the slot (24) furthest from the pivot axis (34) and
each said pivoting arm (22) is in a released position when said slide block (18) is in said second end limit of movement whereby said cam means (20) is disposed adjacent the end of the slot (24) closest to the pivot axis (24) and wherein
said elongate slot (24) of each said pivoting arm (22) is defined by two arcuate surfaces (26, 28) extending parallel to one another with two end surfaces (30, 32) joining said arcuate surfaces (26, 28) to one another to define a closed loop,
said arcuate surfaces (26, 28) defined by convex arcuate segments with respect to said pivot axis."

Claim 1 of the first auxiliary request differs from claim 1 according to the main request in that the following feature is added: "the apparatus further comprising means (70) for encasing said elongate slot (24) of each said pivoting arm (22) and said cam (20), said encasing means attached to said housing (14) and

serving to protect said elongate slot and said cam from contamination".

Claim 1 of the second auxiliary request differs from claim 1 according to the main request through the additional feature that "the pivot axis of each pivot arm is offset from the longitudinal axis of the guide track".

Claim 1 of the third (amended) auxiliary request differs from claim 1 according to the second auxiliary request in that it includes instead of "at least one pivoting arm", "a pair of pivoting arms", and that it also includes the additional features that the pivot axis of each pivot arm is "spaced" from the guide track and from the longitudinal axis of the guide track, that "[the] linear reciprocal actuator compris[es] a pneumatic or hydraulic differential pressure motor with a cylinder housing fixedly mounted to a support structure", and that "when each said pivoting arm is in said released position, said elongate slot of each said pivoting arm extends further from said actuator cylinder housing than said pivoting axes, and when each said pivoting arm is in said clamped position, said elongate slot of each said pivoting arm is disposed closer to said actuator cylinder housing than said pivot axes, each said pivot axis being equidistant from said actuator".

VI. The appellant argued as far as it concerns claim 1 of all of the respondent's requests essentially as follows:

Main request: Inventive step - Article 56 EPC

The clamping apparatus of claim 1 differs from the one known from E13 only with respect to the shape of the slot. The slot according to E13 has two convex arcuate surface segments extending parallel to one another, while the slot according to claim 1 is defined by two arcuate surfaces extending parallel to one another with two end surfaces joining said arcuate surfaces to one another to define a closed loop.

The choice according to which the slot has a convex arcuate shape as claimed in claim 1 is based on a normal design option which the skilled person chooses depending on the circumstances without exercising an inventive activity.

Claiming in a general form a "convex arcuate shape" in claim 1 without any further details concerning the radius of curvature of the slot, the length of the slot or its exact positioning and extension within the clamping apparatus, does not automatically qualify such a convex-shaped slot as providing a more compact clamping device without compromising the provided clamping force.

First auxiliary request: Inventive step - Article 56 EPC

The additional feature of claim 1 concerning the encasing of the elongate slot and cam for protecting these from contamination has no synergistic effect with the convex shape of the slot.

Risks of contamination are present not only in industrial applications but practically everywhere. The fact that the gaff-hook of E13 is easy to disassemble does not exclude that said apparatus may also have, depending on the manner and the environment in which it is used, problems with contamination. In such a case it is obvious to the person skilled in the art to provide a cover for the parts exposed to contamination.

The provision of an encasement in order to protect parts exposed to contamination is well known to the skilled person in the field of clamping apparatuses, see for example the cover plate shown in the lower figure on page 12 of E2. The provision of an encasing for protecting the elongate slot and the cam from contamination cannot therefore be considered as involving an inventive step.

Second auxiliary request: Amendments - Article 123(2) EPC

The feature added to claim 1 does not have a basis in the description in which the longitudinal axis of the guide track is not even referred to.

In the figures there is a plurality of features which have not been taken over into claim 1, for example the presence of two distinct pivot axes, said axes being positioned at opposed sides of the longitudinal axis of the clamping apparatus and equidistantly from said axis, etc. If a basis for the added features can only be found in the drawings, then all said above-mentioned features present in the drawings must be inserted into claim 1 in order to avoid intermediate generalisation.

Third (amended) auxiliary request: Admissibility

The additional feature of claim 1 of the third (amended) auxiliary request concerning the extension of the elongated slot in relation with the actuator cylinder housing and the pivoting axes has not been disclosed in the originally filed application.

Thus, it does not meet the requirements of Article 123(2) EPC and is therefore not *prima facie* admissible.

VII. The respondent argued as far as claim 1 of all of its requests is concerned essentially as follows:

Main request: Inventive step - Article 56 EPC

The clamping apparatus of claim 1 differs from the one known from E13 through the feature that the guide track is positioned within a hollow housing and through the convex shape of the slot, said last having two convex arcuate surface segments extending parallel to one another.

The convex shape of the slot improves the cam action and allows the construction of a more compact clamping device without compromising the provided clamping force.

First auxiliary request: Inventive step - Article 56 EPC

The additional feature of claim 1 concerning the encasing of the elongate slot and cam for protecting these from contamination has a synergetic effect with the convex shape of the slot since protecting the slot from contamination avoids wear of the slot.

Furthermore, since contamination is a problem only for industrial tools and the gaff-hook known from E13 is an easy to disassemble hand-activated non-industrial tool, the skilled person cannot find in E13 any motivation for providing a casing for preventing contamination of the elongate slot and the cam of the gaff-hook described therein. There is a disincentive in E13 for providing any additional protective parts, since these parts would make the disassembly of the gaff-hook more difficult.

Second auxiliary request: Amendments - Article 123(2) EPC

The added feature in claim 1 of the second auxiliary request is directly and unambiguously derivable from the originally filed figures. There is no need for introducing all the features shown in the figures into claim 1. Only the features which provide a technical solution have to be present in claim 1.

Third (amended) auxiliary request: Admissibility

The additional feature of claim 1 of the third (amended) auxiliary request that when each pivoting arm is in

released position, the elongate slot of each said pivoting arm extends further from said actuator cylinder housing than said pivoting axes is derivable from the originally filed figure 2. Said additional feature of claim 1 is thus directly and unambiguously derivable from the disclosure of the originally filed application.

Thus, amended claim 1 meets the requirements of Article 123(2) EPC and is *prima facie* admissible.

Reasons for the decision

1. *Claim 1*

1.1 *Main request: Inventive step - Article 56 EPC*

1.1.1 Concerning the understanding of the apparatus of claim 1 the Board follows the respondent's argument according to which a slot as defined in claim 1 consists of two arcuate surfaces extending parallel to one another and two end surfaces joining said arcuate surfaces to one another to define a closed loop, said arcuate surfaces defined by convex arcuate segments with respect to the pivot axis. Accordingly, the end surfaces are directly joined with the convex arcuate segments.

1.1.2 The Board judges further, in agreement with the respondent, that the clamping apparatus of claim 1 differs from the one known from E13 in that
(a) the guide track is positioned within a hollow housing and in that

(b) the slot has a convex arcuate shape as outlined under point 1.1.1 above.

1.1.3 The Board considers, as also stated by it during the oral proceedings, that the provision of a hollow housing for the positioning/encasing of a guide track as claimed in claim 1 is based on a normal design possibility which the skilled person would select, depending on the need of providing a protection/ encasing for the guide track, without applying inventive skill. This was not disputed by the respondent.

1.1.4 Nor was it disputed by the respondent that the magnitude of the clamping force applicable by a clamping machine according to either E13 or claim 1 depends only on the positioning on the ends of the slots in relation to the pivot axis.

1.1.5 Since the above-mentioned distinguishing feature (b) concerns the shape of the slot between the ends of the slot, it is obvious that said distinguishing feature defines the way in which the cam means is guided between the ends of the slot.

1.1.6 The Board considers further that it is well within the reach of the skilled person from general technical practice, for which, as indicated during the oral proceedings, no written proof is required, that for smooth guidance of the cam means via a slot from a released position to a clamped position, a smooth curved surface, which normally is of either concave or convex form, is needed. This was not disputed by the respondent.

1.1.7 Under these circumstances it is obvious that the person skilled in the art seeking to design the curvature of a cam slot for smooth transition of the cam means from one end of the slot to the other would have to select one of these two well-known forms for the slot, namely either a convex or a concave form.

1.1.8 The Board is convinced that the selection of one of these two above-mentioned possibilities does not require the person skilled in the art to exercise an inventive activity. Moreover, as referred to by the appellant, such a convex arcuate shape for a cam slot of the kind concerned is well known to the skilled person, see for example cam slot 158 in figure 8 of E9 or cam slot 11 of figures 1 and 4 of E10.

1.1.9 For the above-mentioned reasons, the subject-matter of claim 1 according to the main request does not involve an inventive step and the requirements of Article 56 EPC are not met.

1.1.10 The above holds true considering also the respondent's argument that a convex curvature allows the development of a first clamping effect before the cam means has reached the end point of the slot, allowing thereby to continuously increase the gripping force keeping at the same time the object gripped by the pivoting arm(s).

1.1.11 The Board notes that since no data concerning the radius of curvature of the slot, the length of the slot or its exact positioning and extension within the clamping apparatus is defined in claim 1, claiming only a "convex arcuate shape" in such a general form in

claim 1 does not automatically qualify such a convex-shaped slot as providing an earlier "first clamping effect". Thus, the Board cannot follow this argument of the respondent.

1.1.12 The respondent argued further that a convex cam slot enables the provision of a more compact clamping apparatus without compromising the final clamping force provided.

1.1.13 The Board cannot follow the respondent's above-mentioned argument because firstly, from the geometrical point of view, it is the distance between the endpoints of the slot and the pivot axis which is the decisive factor for the magnitude of the applicable clamping force and thus for the compactness of the device and not the form of the intermediate part of the slot, see point 1.1.4 above, and secondly, since no data concerning the radius of curvature of the slot, its length or its exact positioning within the clamping apparatus is claimed in claim 1, claiming only a "convex arcuate shape" in general form does not automatically qualify such a convex-shaped slot to be itself "more compact" or to enable the provision of a "more compact" apparatus compared with the slot/apparatus known from E13.

1.2 *First auxiliary request: Inventive step - Article 56 EPC*

1.2.1 The additional feature of claim 1 of the first auxiliary request concerns the provision of means for encasing the elongate slot and the cam means for protecting these from contamination.

1.2.2 The respondent argued that the encasing means and the convex arcuate shape of the slot deploy a synergistic effect by minimising the wear of the internal surfaces of the slot due to the protection of the slot and the cam means from contamination.

1.2.3 The Board notes that the means encasing the elongate slot and the cam means protect said slot from contamination and accordingly minimise its wear independently from the shape of the slot. This fact was confirmed also by the respondent during the oral proceedings. The Board cannot therefore recognise any synergistic effect between the added feature and the slot having a convex arcuate shape.

1.2.4 Accordingly, since no synergistic effect exists, the effect of the encasing means is the one referred to in said added features, namely the protection of two specific parts of the clamping apparatus, i.e. the elongate slot and the cam means, from contamination.

1.2.5 The person skilled in the art confronted with the problem of avoiding contamination of the elongate slot and the cam means of the clamping apparatus known from E13 would consider, according to the Board, the simplest art of protection, namely to cover these parts so that they are not exposed any more to contamination. By using a cover, said cover has then obviously to be attached to a fixed reference part of said clamping device, namely to its tubular-formed housing and would then automatically cover, i.e. encase the said parts. The Board considers that for providing such encasing means the person skilled in the art based on its

general technical knowledge and practice does not need to exercise any inventive activity.

1.2.6 The respondent argued that since contamination is a problem for industrial tools and the gaff-hook known from E13 is an easy-to-disassemble hand-activated non-industrial tool, the skilled person cannot find in E13 any motivation for providing a casing for preventing contamination of the elongate slot and the cam of said gaff-hook. On the contrary, there is a disincentive in E13 for providing any additional protective parts making the gaff-hook more difficult to disassemble.

1.2.7 The Board considers that exposure to contamination can take place everywhere and not only within an industrial environment. Furthermore, claim 1 neither defines that the clamping apparatus is intended for such use, nor is any specific use indicated for the gaff-hook known from E13. The fact that the gaff-hook known from E13 is easy to disassemble does not hinder the skilled person from providing it with an encasing means if contamination of the slot and the cam means becomes a disadvantage needing to be avoided.

1.2.8 The respondent alleged the existence of a disincentive in E13 for providing any additional protective parts without, however, filing any supporting evidence for its allegation.

1.2.9 While it can be agreed that the addition of further parts to the gaff-hook of E13 may increase its weight and make it less easy to disassemble the Board considers that the provision of contamination-protecting means in the form of an encasing is "part of

the bargain", namely the weighing up of the advantages and disadvantages of providing such an encasing. Such an activity lies, according to the Board's judgment, within the normal activities of the person skilled in the art. The Board considers therefore the above-mentioned respondent's argument as an unsubstantiated allegation which is not to be taken into consideration for the assessment of inventive step.

1.2.10 For the above-mentioned reasons, the subject-matter of claim 1 according to the main request does not involve an inventive step and the requirement of Article 56 EPC is not met.

1.3 *Second auxiliary request: Amendments - Article 123(2) EPC*

1.3.1 The added feature in claim 1 of the second auxiliary request has indisputably no basis in the description or the claims of the originally filed application. Furthermore, a "longitudinal axis" for the guide track has neither been mentioned in the text of the originally filed application, nor has it been shown in the originally filed figures.

The Board follows the respondent insofar as to consider that figure 1 shows a centrally positioned guide track (16; depicted by a dotted line) and that said guide track obviously has a longitudinal axis parallel to the upper border line of the housing (14) and corresponding to the central longitudinal axis of the whole clamping apparatus.

The Board notes that the specific embodiment depicted in figure 1 shows a clamping apparatus having *inter alia* its front part built **symmetrically** in respect of said longitudinal axis, said apparatus having further **two pivoting arms** (22), said pivoting arms together with their slots (24) being positioned **symmetrical** to each other in respect of said longitudinal axis, **two distinct pivot axes** (34) positioned **symmetrically** at opposed sides along said longitudinal axis.

1.3.2 The wording of claim 1 of the second auxiliary request covers *inter alia* a clamping apparatus having only one ("at least one") pivoting arm, whereby, according to the added feature, the pivot axis of said one pivoting arm has to be positioned offset from the longitudinal axis of the guide track.

1.3.3 According to the Board's judgement from the information disclosed in figure 1, said figure depicting a clamping apparatus having *inter alia* **two pivoting arms**, said pivoting arms including their cam slots being positioned **symmetrically** to each other in respect of said longitudinal axis, and further having **two distinct pivot axes** positioned **symmetrically** at opposed sides along said longitudinal axis, it is not directly and unambiguously derivable that in case of a clamping apparatus having only **one pivoting arm,** the **pivot axis** of said one pivoting arm also has to be positioned offset from the longitudinal axis of the guide track.

1.3.4 For this reason, the Board follows the appellant's argument that the features added to claim 1 result in an inadmissible generalisation since also a clamping apparatus having only one pivoting arm with its pivot

axis positioned offset from the longitudinal axis of the guide track is now covered by the wording of claim 1. The argument of the respondent that only important features need to be added to a claim cannot be considered valid, since the relevant disclosure in the originally filed application, see point 1.3.3 above, concerns only a clamping apparatus with two pivoting arms and two symmetrically positioned pivot axes. Therefore, there is no direct and unambiguous disclosure for a clamping apparatus having one pivoting arm with its pivot axis positioned offset from the longitudinal axis of the guide track in the originally filed application.

1.3.5 In view of that, the requirements of Article 123(2) EPC are not met.

1.4 *Third (amended) auxiliary request: Admissibility*

1.4.1 The third (amended) auxiliary request was submitted for the first time at a very late stage in the oral proceedings before the Board. The respondent's argument that it wanted to first have a final opinion from the Board on its requests filed during the written proceedings before submitting an additional request is not a legitimate reason to justify a late filing of amendments that would prompt the Board to exercise its discretion under Article 13(3) RPBA in favour of the respondent.

1.4.2 The Boards of Appeal of the EPO have developed several criteria for exercising their discretionary power to admit amended claims submitted for the first time during oral proceedings. Claims which are *prima facie*

clearly not allowable will normally not be admitted. Claims are clearly allowable if the Board can quickly ascertain that they overcome all outstanding objections and do not give rise to new objections under the EPC. This means that there must be no doubt that the late-filed request meets at least the formal requirements of the EPC, see CLBA, 6th edition, 2010, VII.E.16.4.1.

1.4.3 The amendments to claim 1 of the present request comprise *inter alia* the feature that "when each said pivoting arm is in said released position, said elongate slot of each said pivoting arm extends further from said actuator cylinder housing than said pivoting axes". The respondent stated that the basis for said feature was to be found in the originally filed figure 2.

1.4.4 Following the respondent's definition, the actuator cylinder housing is the first block depicted at the left-hand side of figure 2. The Board notes, as indicated also during the oral proceedings, that figure 2, said last illustrating the pivoting arm(s) in the released position, shows that **only a part** of the slot(s) (24) "extends further" from said actuator cylinder housing (12) than said pivoting axes (34). Since the feature added to claim 1 comprises the expression "extends further ... than" without any additional limitation, said added feature not only covers the case where **only a part** of the slot(s) "extends further from said actuator cylinder housing 12 than said pivoting axes" but it also covers the case where **the complete** slot(s) "extends further from said actuator cylinder housing 12 than said pivoting axes". Said last configuration is, as indicated by the Board

during the oral proceedings, not obtainable from figure 2 and accordingly said added feature of claim 1 is in its broadness not directly and unambiguously derivable from the originally filed figure 2. For the sake of completeness and as indicated during the oral proceedings it is noted that the originally filed abstract referred to by the respondent as basis for the amendments cannot be considered as a support for these amendments according to Article 85 EPC.

1.4.5 The requirements of Article 123(2) EPC are therefore not met and said request is thus not *prima facie* allowable.

1.4.6 For the above reasons, the Board exercising its discretion according to Article 13(1) RPBA decides not to admit the respondent's third (amended) auxiliary request into the proceedings.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

G. Nachtigall H.-P. Felgenhauer