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**Datasheet for the decision  
of 25 November 2013**

**Case Number:** T 0765/10 - 3.2.07

**Application Number:** 05734997.9

**Publication Number:** 1740359

**IPC:** B28D1/00, B26F3/00, B28D1/04

**Language of the proceedings:** EN

**Title of invention:**  
COMBINED APPARATUS FOR MACHINING OF ARTICLES, IN PARTICULAR IN  
FORM OF SLABS

**Patent Proprietor:**  
Toncelli, Dario

**Opponents:**  
Löffler Maschinenbau GmbH  
Burkhardt GmbH  
C.M.S. Costruzioni Macchine Speciali S.P.A.

**Headword:**

**Relevant legal provisions:**  
EPC Art. 56, 105  
EPC R. 89

**Keyword:**  
Intervention - admissible (yes)  
Inventive step - obvious modifications (all requests - no)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

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Case Number: T 0765/10 - 3.2.07

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.07**  
**of 25 November 2013**

**Appellant:** Burkhardt GmbH  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
3 February 2010 concerning maintenance of the  
European Patent No. 1740359 in amended form.**

**Composition of the Board:**

**Chairman:** H. Meinders  
**Members:** H. Hahn  
I. Beckedorf

## Summary of Facts and Submissions

I. The appellant (opponent 02) lodged an appeal against the decision of the Opposition Division to maintain European patent 1 740 359 in amended form on the basis of the claims 1-12 of the main request.

II. The following documents cited in the impugned decision are relevant for the present decision:

E1 = DE-A-196 03 933

E2 = EP-A-0 684 340

E8 = DE-U-920 20 23

E10 = Invoice no. 201354-1 dated 31 October 2001 for a bridge saw Schlatter BS 600-CNC/W, order no. 5432

as well as the following documents which were submitted by the intervener during the appeal proceedings:

E30 = US-A-5 934 346

E31 = US-A-3 634 975

E32 = US-A-3 776 072

III. Oppositions had been filed by opponent 01 and opponent 02 against the patent in its entirety under Article 100(a) EPC, for lack of novelty and/or inventive step.

The Opposition Division held that claim 1 of the main request met the requirements of Articles 123(2) and (3) EPC. It further considered that the alleged public prior use (including E10) is not more relevant than document E1 since the underlying machine has two separate areas for water jet cutting and for sawing respectively, so that the question whether it is proven can be left open. The subject-matter of claim 1 of the

main request was considered novel, particularly with respect to E1 and the alleged prior uses. Furthermore, the subject-matter of claim 1 of the main request - based on a yet unrecognised problem - was considered to also involve inventive step. The patent was therefore maintained in that amended form.

- IV. With letter dated 29 December 2010 an intervention was filed by the intervener "CMS Industries" who stated that infringement proceedings of the present European patent have been instituted before the court of Milan by Breton SpA, the licensee of the patent proprietor on 29 September 2010.

With letter dated 18 January 2011 the intervener's corporate name was corrected to "CMS Costruzioni Macchine Speciali S.p.A.".

With letter dated 23 February 2011 an English translation of the infringement proceedings - translated by the representative of the intervener - was filed.

With a communication dated 23 March 2011 the Board requested a certification of this document within the meaning of Rule 5 EPC to be filed within one month of receipt which was then filed with letter dated 19 April 2011, i.e. within the set time limit.

- V. With a communication dated 24 June 2013 and annexed to the summons to oral proceedings the Board presented its preliminary opinion with respect to the claims of the main request (patent as maintained) and the claims of the first, second and third auxiliary requests, the latter filed by the respondent (patent proprietor) with its reply to the statement of grounds of appeal.

It remarked amongst others with respect to the issue of inventive step that the technical problem underlying the decision to maintain the patent in amended form had no basis in the patent in suit and/or the underlying application as originally filed.

E1 appeared to represent the closest prior art for the subject-matter of claim 1 of the main request. The apparatus of claim 1 appeared to lack inventive step over a combination of the teachings of E1 and either E2, E8, E30, E31, or E32 and/or the common general knowledge of the skilled person.

Similar considerations appeared to be valid with respect to the subject-matter of the claims 1 of the first to third auxiliary requests and the - common - use of rotatable cutting disks which can be inclined (see E1) or the use of interchangeable plastic lugs, which apparently serve to solve different partial technical problems. This was raised in view of e.g. the disclosure of the pin-type elements according to E30 serving as the mount (see figure 2 and column 2, lines 16 to 24).

VI. With letter dated 25 September 2013 submitted by fax on the same date the respondent filed a new main request and new first to third auxiliary requests to replace the four requests currently on file in combination with arguments concerning the amendments made therein.

With fax of 12 November 2013 the respondent filed a corrected version of the amended main and first to third auxiliary requests to overcome a typing error noted in claim 1 of all the requests.

- VII. With letter dated 12 November 2013 submitted by fax on the same date the intervener filed three new documents and requested that they should exceptionally be introduced into the proceedings.
- VIII. With fax of 15 November 2013 the appellant submitted that it would not be represented at the oral proceedings.
- IX. With its letter dated 18 **October** 2013 [*sic*] submitted by fax on 18 November 2013 the respondent filed three new documents without any explanation.
- X. Opponent 01 neither submitted nor requested anything during the written proceedings.
- XI. Oral proceedings before the Board were held on 25 November 2013. Although having been duly summoned, the appellant (see point VIII above) and opponent 01 did not attend the oral proceedings which, in accordance with Rule 115(2) EPC and Article 15(3) RPBA, were continued without these parties.

The issue of inventive step of claim 1 of the main request was discussed with the parties in view of documents E1, E2, E8, E10, E30 to E32 and the common general knowledge and practice of the person skilled in the art. Thereafter inventive step of claim 1 of the first auxiliary request was discussed in view of the aforementioned documents and the general technical knowledge and practice of the skilled person. As a consequence of this discussion the respondent withdrew its second auxiliary request. Inventive step of the subject-matter of claim 1 of the third auxiliary request was then discussed in view of the aforementioned documents and in the light of the



knowledge and practice of the person skilled in the art.

- a) The appellant (in the written proceedings) and the intervener requested that the decision under appeal be set aside and that the patent be revoked.
- b) The respondent requested that the decision under appeal be set aside and the patent be maintained on the basis of one of the sets of claims re-filed with corrections with letter dated 12 November 2013, as main request and as first and third auxiliary requests.

At the end of the oral proceedings the Board announced its decision.

XII. Claim 1 of the main request reads as follows (amendments as compared to claim 1 of the patent as granted are in bold with deletions in strikethrough; emphasis added by the Board):

"1. Combined numerical-control apparatus, with interpolated axes, for machining an article (L) manufactured from solid stone, glass, ceramic or metallic materials, in particular a slab, comprising:  
- a frame (10) delimiting a working area (12) of the article (L) and formed by two shoulders (14) and a beam (18) perpendicular (18) to said shoulders and slidable along the said shoulders (14);  
- a spindle (22) and an associated rotary tool (24) movable vertically so as to engage with the article (L) within said working area (12);  
- a carriage (20) sliding along said beam (18) for supporting said spindle (22) which is consequently

movable in a controlled manner with respect to the article (L) in two horizontal directions (F1, F2) perpendicular to each other;

~~characterized in that it also comprises:~~

- a water emission nozzle (26) for water cutting, supported by said carriage (20);
- a tank (30) normally full of water inside said working area (12);
- means (28) for bringing the water to the desired pressure;
- means (29) for supplying said water emission nozzle (26) with the water;
- means ~~comprising an interchangeable grid (32; 52), which is preferably metallic,~~ for supporting the article (L) in a horizontal position during machining within said working area (12) above said tank (30), **characterized in that said means for supporting the article (L) during machining within said working area (12), above said tank (30), comprise** consist of an interchangeable grid (32; 52), which is preferably metallic, and disposable support means (34), arranged between said grid (32; 52) and the article (L), the said disposable support means having the function of preventing said rotary tool (24) from coming into contact with said grid (32; 52)."

XIII. Claim 1 of the first auxiliary request differs from that of the main request in that the feature "**, wherein said disposable support means consist of a series of interchangeable plastic lugs which are inserted on top of the grid (52) so as to keep the article (L) raised from the said grid during machining**" has been added at its end.

XIV. Claim 1 of the third auxiliary request reads as follows (amendments as compared to claim 1 of the patent as

granted are in bold with deletions in strikethrough; emphasis added by the Board):

"1. Combined numerical-control apparatus, with interpolated axes, for machining an article (L) manufactured from solid stone, glass, ceramic or metallic materials, in particular a slab, comprising:

- a frame (10) delimiting a working area (12) of the article (L) and formed by two shoulders (14) and a beam (18) perpendicular (18) to said shoulders and slidable along the said shoulders (14);
- a spindle (22) and an associated **rotary tool cutting disk** (24) movable vertically so as to engage with the article (L) within said working area (12);
- a carriage (20) sliding along said beam (18) for supporting said spindle (22) which is consequently movable in a controlled manner with respect to the article (L) in two horizontal directions (F1, F2) perpendicular to each other;

~~characterized in that it also comprises:~~

- a water emission nozzle (26) for water cutting, supported by said carriage (20);
- a tank (30) normally full of water inside said working area (12);
- means (28) for bringing the water to the desired pressure;
- means (29) for supplying said water emission nozzle (26) with the water;
- means ~~comprising an interchangeable grid (32; 52), which is preferably metallic,~~ for supporting the article (L) in a horizontal position during machining within said working area (12) above said tank (30), **characterized in that said means for supporting the article (L) during machining within said working area (12), above said tank (30), comprise** consist of an interchangeable grid (32; 52), which is preferably

metallic, and disposable support means (34)~~7~~ arranged between said grid (32; 52) and the article (L), the said disposable support means having the function of preventing said ~~rotary tool~~ cutting disk (24) from coming into contact with said grid (32; 52), wherein said disposable support means consist of a series of interchangeable plastic lugs which are inserted on top of the grid (52) so as to keep the article (L) raised from the said grid during machining; and in that said cutting disk (24) may be inclined between 0° and 90°, for performing full pass and incremental cuts, and is rotatable about the vertical axis of said spindle (22) for performing interpolated oblique cuts and in that said water emission nozzle (26) is supported by said movable carriage (20) so as to be moveable vertically independently from said spindle (14) [*sic*, should correctly read: (22)]".

- XV. The appellant argued in the written proceedings, insofar as relevant for the present decision, essentially as follows:

Claim 1 of the main request at least lacks inventive step in view of the water jet cutting machine of E1 (see the figures 3 and 4; column 4, lines 7 to 12 and lines 26 to 30; column 5, lines 39 to 49; and column 10, lines 11 to 17) which implicitly discloses to the person skilled in the art the interchangeable grid (compare in this context paragraph [0011] of the patent in suit).

The subject-matter of claim 1 of the main request is thus distinguished from that of E1 only by the disposable support means (arranged between said grid and the article) which has the function of preventing the rotary tool from coming into contact with said

grid. By applying his common general knowledge the skilled person would read this feature into the disclosure of E1 since it represents a common practice in stone cutting to use wooden slats or plates between the support and the article to be cut by a rotary saw. This is a self-evident measure of the skilled person. Since there exists no prejudice against it he would apply the same measure for a water jet cutting machine because the water jet would cut through the wooden slat or plate without any problem.

XVI. The respondent argued, insofar as relevant for the present decision, essentially as follows:

The subject-matter of claim 1 of the main request is distinguished from the apparatus of E1 by the interchangeable grid and the disposable support means. The technical problem to be solved is unifying the two working areas of E1. This problem is solved by the possibility of replacing the rotary disk cutting with the water jet cutting in any part of the working area when desired by the operator, thus having a single working area for both types of cut. E1 does not disclose or suggest such a solution. The same holds true with respect to E10 which discloses two separate working areas. Claim 1 represents a problem-invention based on an unrecognised problem.

E1 allows using the rotary blade only within the large openings of the grid, in order to prevent a damaging contact between the rotary blade and the beams of the grid itself with resulting damage to the grid and/or the blade. This is clearly shown in figure 2 of E1, which shows two blades 28 on opposite sides of the workpiece. In other terms, the working area consists of a framework having the longitudinal and crosswise metal

members forming rather large openings to be identified as one of said zones suitable for both types of cuts, whereby in principle the rotary sawing disk may work only on articles placed at these large openings if any contact between the rotary disk and the said metal members is to be prevented. Furthermore, the working area where both types of cut can be used (namely inside the large openings of the grid) does not have any type of support means. However, it is not possible to place the article on such an area only, because it would not be supported and it would fall in the tank.

Consequently, the articles to be cut must be supported on the whole grid and as a result thereof the complete cut of the article is not possible only with the rotary sawing disk, and the interference of the rotary disk with the metal members forming the framework is prevented by use of water jet. Therefore, claim 1 is inventive over E1.

The problem must be assessed on the basis of the features of the claim and the features of the prior art. It cannot be reduced to preventing the rotary tool from contacting the grid when the tool needs to perform a cut through the whole thickness of the workpiece. It is clear from the specification that the object of the invention is to provide a machine capable of cutting operations with a rotary blade **and** water jet on the same slab and at the same locations. The two different cutting operations may even be executed along the same cut in the sense that a cutting by means of a first cutting technology is executed and that cut is completed by means of the other cutting technology. The intervener's arguments result from an *ex-post-facto* analysis which is possible only now that the solution has been proposed, but which was not foreseeable at the priority date.

Claim 1 of the first auxiliary request has been restricted to a disposable support means consisting of a series of interchangeable plastic lugs, which are inserted on top of said interchangeable grid. This has the advantage that damaged lugs can be easily replaced without the necessity to replace the entire disposable support means. Plastic material has the advantage that it is not affected by the water of the water jet like wooden parts which with time become swollen and which would affect the precision and quality of the cut itself.

The cited prior art does not suggest such a solution. Although it may be a modest improvement it is not suggested by the prior art.

The person skilled in the art would use wooden boards as the disposable support means as argued by the intervener with respect to the main request.

E32 relates to a different technical field and it discloses plastic blocks, which are arranged similar to a board, as a support means. These blocks would fall off the grid according to the invention since they are not inserted but are just lying on the grid. If a continuous board would be used the water could re-bound from the board and damage the article. The argumentation based on E32 is flawed, as it is founded on an *ex-post-facto* analysis.

The standard knowledge of the skilled person is only recognised if supported by published documents. He is always trying to improve things during the innovation process but, at least based on the cited documents, he

would not have had any indication of the claimed plastic lugs.

E1 represents the closest prior art for claim 1 of the third auxiliary request. The claimed apparatus allows full pass cuts, incremental and oblique cuts. The additional features improve the efficiency of the water cutting since the additional spindle allows the water jet to be placed as close as possible to the surface of the article. If it is closer to the surface it works better but it is not a technical necessity.

E30 does not disclose any water jet while E1 is silent with respect to the independent vertical movability of the water jet nozzle. Water jet cutters are very powerful so that some water will be spread when an article of metal, stone, wood, etc. is cut.

Therefore claim 1 of the third auxiliary request involves inventive step.

XVII. The intervener argued, insofar as relevant for the present decision, essentially as follows:

The discussion of claim 1 of the main request substantially concerns the provision of an additional disposable support means for a cutting apparatus. The skilled person aims not to destroy the support means on which the article to be cut is placed and by applying his common general knowledge he would use a wooden support means to protect the interchangeable grid support, which is necessary for the water jet cutting machine and which originates from the field of the water jet machine. The use of such a "sacrificial layer" in the form of e.g. a wooden plate, etc., is obvious to the skilled person (see e.g. E2, figure 2;



E30, figure 2; or E31, figure 4). As argued by the appellant it is even known from every day life, such as the cutting of vegetables in the kitchen, if the working surfaces should be protected from being damaged.

The respondent tries to re-define the original problem of the patent in suit (see paragraphs [0018] and [0020]) which was not defined starting from E1.

The respondent's argument that the apparatus of E1 is only suitable to cut in the open grid areas is strange since no one sells a cutting machine which cannot work on the entire support means. Furthermore, claim 1 of the main request does not contain any corresponding limitation.

According to the patent in suit the interchangeable plastic lugs represent an alternative embodiment to the wooden board (see paragraph [0037]) but it is not known how it differs from the other embodiment since there exists neither a description nor a drawing which shows how these lugs are supported on the interchangeable grid. Such an alternative is, however, in any case derivable for the skilled person from the cited prior art.

The advantages of these plastic lugs are evident but the "sacrificial layer" 64 according to the cutting machine of E32 is in any case also made of plastic (see column 4, lines 3 to 17).

Claim 1 of the first auxiliary request therefore lacks inventive step.

Claim 1 of the third auxiliary request represents a mere aggregation of features which have no synergistic effect and can be considered separately for inventive step.

The independent vertical movement for the water emission nozzle according to claim 1 of the third auxiliary request is an obligatory feature, to account for different thicknesses of the workpiece. This feature was taken from dependent claim 6 of the patent as granted. It is not supported in its description and thus also not presented therein as crucial to the invention (compare in this context paragraph [0029] of the patent in suit). NC cutting devices generally allow performing a movement in the x-, y- and z-direction (see E30, column 1, line 56 to column 2, line 2). In this context it is accepted that E30 discloses no water jet.

It likewise belongs to common practice that the axis of a sawing tool or shaping tool can be inclined and/or rotated to an axis (see E30, column 4, lines 45 to 50 and lines 59 to 62) and an inclination by  $0^{\circ}$ - $90^{\circ}$  is self-admitted prior art (see patent, paragraph [0003]). The fact that the cutting disk is rotatable around the vertical axis of the spindle is a straightforward option for a skilled person, see for example E1 (column 3, lines 55 to 64).

## Reasons for the Decision

### *Admissibility of the intervention*

1. The intervention was filed after the Opposition Division had taken its interlocutory decision at the oral proceedings on 14 December 2009. It was filed exactly three months after infringement proceedings were started before the court of Milan and the opposition fee was paid on the same date.

The translated documents filed by the intervener within the time limit set by the Board prove that proceedings for infringement of the European patent 1 740 359 have been instituted against the intervener before the court of Milan by Breton SpA on 29 September 2010. Therefore the intervention is admissible in accordance with Article 105(1)(a) and Rule 89(1) and (2) EPC.

2. *Admissibility of amendments made in claim 1 of the main request and novelty (Articles 54, 84, 123(2) and (3) EPC)*

Since the Board considers that the subject-matter of the claims 1 of the main, the first and the third auxiliary requests does not involve inventive step (see point 3 below) there is no need to consider in this decision whether their subject-matter is novel (Article 54 EPC) and whether these claims comply with Articles 84, 123(2) and/or 123(3) EPC.

3. *Inventive step (Article 56 EPC)*

- 3.1 First of all, the Board remarks that the Opposition Division in its impugned decision has **not** applied the

problem-solution approach as required, based on the distinguishing feature(s) with respect to the closest prior art E1 (compare points 2.5 to 2.5.4.3 of the reasons of the impugned decision).

- 3.1.1 Secondly, the technical problem identified and acknowledged by the Opposition Division, namely "to have the possibility to switch from sawing with the circular blade to water-jet cutting and back during the execution of the same cut **at any time**" (see point 2.5.4.1 of the reasons of the impugned decision) has **neither** a basis in the quoted paragraph [0017] **nor** in any other passage of the patent in suit (or the underlying application as originally filed) **nor** in claim 1 of the patent as maintained.
- 3.1.2 The Board's conclusion is additionally based on the technical fact that the two cutting devices (which are mounted on the same carriage) are clearly spaced from each other by a certain distance so that it is technically not possible to switch - during the cutting operation for making one and the same cut in the article - from one technology **without any pause** to the second one. This is due to the fact that the second cutting device first has to be positioned at the end of the cut made by the first one. If there would not be such a spacing between the two cutting devices, the water jet would damage the rotary cutting tool at its outermost edge portion.
- 3.1.3 Consequently, the Opposition Division's conclusion "The examining [*sic*] division considers that this problem is a yet **unrecognised problem** that cannot be found or derived from in any of documents ..." (see point 2.5.4.1 of the impugned decision) **cannot** hold since it is based on erroneously established facts.

Therefore already for this reason the impugned decision has to be set aside.

- 3.1.4 Furthermore, from the Board's point of view the possibility to switch from sawing with the circular rotary blade to water jet cutting and back during the execution of the same cut was already given with the NC controlled cutting apparatus according to the prior use according to E10 which, although using two separate working areas for the two technologies, allows for the workpiece to be moved between the areas, to continue on the same cut.

*Main request*

- 3.2 The patent in suit in its description only acknowledges that both the rotary saw and the water jet NC cutting apparatuses belong to the prior art and that there exist situations and machining operations where it is desirable to be able to use both rotary saw cutting technology and water jet cutting technology on one and the same workpiece and that this possibility was realised in the past only if both apparatuses in question were available (see patent in suit, paragraph [0014] in combination with paragraphs [0002] to [0012]). It further mentions that "there exist intermediate situations where it is preferable to use both technologies and therefore both of said apparatuses for execution and completion of the same cut" (see patent in suit, paragraph [0017]) and then defines the main object as the provision of "a combined apparatus which makes it possible to use both cutting technologies for machining slabs and other articles of the type mentioned above along straight and curved lines" (see paragraph [0018]). Another object is stated

to be the provision of "the possibility of performing in a single apparatus cutting operations, using both the above mentioned technologies, as well as machining operations of the present contouring machines" (see patent in suit, paragraph [0020]).

3.3 Thus the technical problem of the patent in suit - without considering the disclosure of E1 - was seen as the provision of a compact NC machining apparatus which allows to use both cutting technologies for the execution and completion of the same cut in a workpiece of solid stone, glass, ceramic or metallic material.

3.4 E1 represents the uncontested closest prior art for disclosing such a compact NC apparatus for machining slabs, including a water cutting device and a rotary saw. These two cutting devices are mounted on one and the same carriage sliding on a beam which in turn slides along two shoulders in a direction perpendicular to the movement of the carriage on the beam and forming a working area above a water tank. The workpiece (slab) to be machined is supported in a horizontal position on a supporting frame and is fixed between a tie beam and a stop collar (see column 5, lines 15 to 49; column 6, lines 19 to 38; column 8, line 35 to column 9, line 63; and figures 3-5).

The carousel-like carrier of the water cutting device and the rotary saw is preferably rotatable on a vertical axis and can additionally be tilted in order to orient the rotary saw or the water jet such that inclined cuts can be made (see column 3, lines 55 to 64; column 10, lines 4 to 17). Said water tank can be present under the entire working area or only under those areas intended for the water cutting; the water used for the cutting operation can be recycled,

optionally after a filtration operation (see column 7, lines 56 to 65). E1 discloses that the slabs to be cut are usually cut from their upper side and it is appropriate that at the bottom side there is a counterface having sufficient hardness (see column 2, lines 61 to 66). Furthermore, it is stated in the context of cutting operations with knife-like cutting tools that, since it is not always easily possible to start the cutting at any position of the plate, preferably the cutting operation is started at a free edge and then continued into the plate (see column 6, lines 61 to 67).

E1 discloses in principle two alternatives: the movement of the cutting/sawing device relative to the workpiece or the movement of the workpiece relative to the cutting/sawing device (see column 3, lines 18 to 23).

- 3.4.1 The presence of an **interchangeable** grid support, i.e. a grid support which can be replaced by a new one, for supporting the workpiece to be cut is inherent in such machines since otherwise the grid support 3, which will one way or the other be damaged by the water jet or the rotary saw cutting device even in the presence of the claimed "disposable support means" (compare in this context the patent in suit, paragraphs [0036] and [0037]; and see E8, page 1, third paragraph to page 2, second paragraph), would only be changed by replacement of the entire apparatus with its beam, shoulders, etc.

Furthermore, such an interchangeable (metallic) grid support is stated to be usual in the field of water cutting for supporting the article to be cut above the water tank (see patent in suit, paragraph [0011]; see also E8, page 1, third paragraph).

Consequently, the respondent's argument that the interchangeable grid would represent a further distinguishing feature with respect to E1 cannot hold.

3.4.2 Therefore the apparatus according to claim 1 of the main request (see point XII above) **is distinguished** from the embodiment of E1 using a movement of the water jet cutting/circular sawing device relative to the workpiece, the latter being supported on a supporting frame with a tank under the entire working area (see claims 1-4, 7-8, 14-16, 20-22 and 31-33) **only** by a **disposable support means** between the workpiece to be cut and the supporting frame.

3.4.3 The effect of this distinguishing feature is that this disposable support means prevents the cutting disk (or any other of the mentioned rotary tools) from coming into contact with the supporting frame during the operation of said cutting device tool when making a full cut through the material (compare patent in suit, paragraph [0034]).

3.4.4 Derived from that effect, the technical problem to be solved by the person skilled in the art is considered to be the provision of a means to prevent the underlying grid support structure to be damaged when making a full cut through the workpiece.

As discussed at the oral proceedings the respondent's formulation of the technical problem to be solved - unifying two separate working areas - cannot be accepted since it:

- is **not** based on the problem-solution approach taking account of the feature distinguishing the subject-



matter of claim 1 from the cutting apparatus according to E1 (see point 3.4.2 above), which already teaches using a single working area for both cutting techniques, above the water tank, so that this original problem (see point 3.3 above) - as evident - has already been solved by the teaching of E1 and the multi-carousel head which allows to use different cutting tools for subsequently processing the desired spot on the workpiece (see column 4, lines 26 to 30), and

- includes a pointer to the solution of the posed problem - namely to unify the two working areas - which is not in agreement with the established case law of the Boards of Appeal (see Case Law, 7<sup>th</sup> edition 2013, section I.D.4.3.1).

Furthermore, a problem-invention based on an unrecognised problem as alleged by the respondent **cannot** be recognised in view of the fact that the single distinguishing feature with respect to E1 solves a problem which is generally known: the protection of the support from the effects of cutting.

- 3.4.5 Each of the documents E2, E8, E30, E31 and E32 discloses the use of disposable support means for making full cuts with rotary saws (see E2, figures 1 and 5 to 8; column 4, lines 36 to 58; column 7, line 6 to column 9, line 14; column 10, lines 5 to 10; see E30, column 3, lines 46 to 52; see E31, column 1, lines 6 to 14; column 2, line 36 to column 3, line 8 and lines 25 to 45; column 5, line 29 to column 6, line 10; figures 1 to 4, 8 and 9; claims 1, 4, 6 and 7; and E32, column 3, line 27 to column 4, line 17; column 5, lines 45 to 56; column 7, line 53 to column 8, line 27; figures 1 and 5) or water jets (see

E2, figures 1 and 5 to 8; column 4, lines 36 to 58; column 7, line 6 to column 9, line 14; column 10, lines 5 to 10; and E8, see page 2, second paragraph). This is all done in order to protect the underlying supporting structure.

The Board thus considers that the skilled person in view of E2, or E8, or E30, or E31, or E32 and/or his common general knowledge would foresee such disposable support means in order to prevent the underlying support structure in E1 to be damaged when making a full cut in the article.

3.4.6 The respondent's further arguments to the contrary cannot hold for the following reasons.

The argument based on the specific apparatus according figure 2 of E1 having two rotary cutters 28 arranged opposite to each other for cutting the plate 29 from above and below - which would allow using the rotary blade only within the large openings of the grid in order to prevent a damaging contact between the rotary blade and the beams of the grid itself - cannot hold since claim 1 of the main request does **not** contain any corresponding feature specifying that the cutting devices can now be used in any part of the working area.

Likewise the argument that the articles to be cut must be supported on the whole grid and the complete cut of the article would not be possible only with the rotary sawing disk, and its interference with the metallic grid would be prevented by use of the water jet only cannot hold since the water jet similarly would damage the supporting grid (compare patent in suit, paragraph [00336]). Furthermore, this argument supports the

Board's view that already E1 allows that both cutting types are used for the same cut which is contrary to the Opposition Division's considerations (see point 2.5.4.1 of the impugned decision).

The argument that the working area of E1 where both types of cut can be used - i.e. the large openings of the grid being formed by a framework of longitudinal and crosswise metal members - does not have any type of support means so that it would not be possible to place the article on such zone only, because the article would not be supported and it would fall into the tank, actually leads the person skilled in the art directly to the solution of using a further support means to prevent the work piece from falling into the tank.

- 3.4.7 Therefore the subject-matter of claim 1 of the main request lacks inventive step over a combination of the teachings of E1 and either E2, E8, E30, E31, or E32. Claim 1 of the main request therefore contravenes Article 56 EPC.

The main request is therefore not allowable.

*First auxiliary request*

- 3.5 Claim 1 of the first auxiliary request has been restricted to a disposable support means consisting of a series of interchangeable plastic lugs which are inserted on top of said interchangeable grid so as to keep the article raised from said grid during machining (see point XIII above). Together these features distinguish over the apparatus of E1.

- 3.5.1 The effect of this feature is that less material of the disposable support means will be damaged during the

cutting/machining of the article(s) and that each of these damaged lugs then can be easily replaced without the necessity to replace the entire disposable support means, i.e. not all the lugs made from plastic have to be replaced at once. Plastic material is advantageous in that it is not affected by the water of the water jet like wooden parts. The latter, with longer water contact, become swollen and thus affect the quality of the cut. Furthermore, such plastic lugs, which have the function of spacers between the interchangeable grid and the article(s) to be cut, can easily and cheaply be manufactured in the required dimensions and can easily be fixed or mounted on the grid.

3.5.2 The problem to be solved when starting from E1 as the closest prior art is therefore considered the provision of means to prevent the underlying grid support structure to be damaged during the full cut of the workpiece, which can easily be replaced, which is not affected by the water of the water jet and which can easily and cheaply be manufactured in the required dimensions and easily be fixed on the interchangeable grid.

3.5.3 This technical problem is solved by the subject-matter of claim 1 of the first auxiliary request.

Contrary to the respondent's arguments, however, this solution is rendered obvious by a combination of the teachings of E1 and E32 and the common general knowledge of the person skilled in the art, for the following reasons.

3.5.4 E32 relates to an apparatus for cutting sheet material which includes a support table and employs a rotary cutting tool carried by a NC controlled carriage

mechanism (see column 2, lines 49 to 68 and figure 1). The sheet material to be cut is placed on a penetrable supporting bed made of a polyethylene plastic material which is installed in blocks so that regions of the work surface, which receive repeated or particularly heavy usage, can be repaired by turning the blocks over or by replacing the old blocks with new blocks as required (see column 4, lines 3 to 17).

E32 thus teaches the person skilled in the art that plastic material can be used for making a disposable support means for making full cuts in an article and that the provision of a multiplicity of discrete blocks or elements thereof allows to replace only the damaged ones in order to save money.

3.5.5 It is within the common general knowledge of the person skilled in the art that reducing the surface of a disposable support means on which the article(s) to be cut is(are) placed will result in a reduction of the damages created therein per surface area by the rotary cutting disk or the water jet when cutting the article(s). It is also clear to him that the article(s) to be cut need not be supported by said disposable support means over its (or their) entire lower surface(s) as long as it (or they) are securely supported during the cutting (machining) process by a support in place on the grid structure.

In this context and particularly with respect to the use of a water jet cutting device for cutting the article(s) the skilled person would consider that the water of the water jet should easily reach the water tank under the interchangeable grid on which the disposable support means has to be fixed or mounted in order that this water can be recycled. This

consideration implies to him that that the disposable support means should not be continuous but instead should at least have holes or regions through which any spread water can easily flow into the water tank.

It is also clear to the person skilled in the art that cutting with a water jet implies the use of a material for the disposable support means which is not affected by that water, i.e. to use a material which does not change its dimension during its period of use - for example like wood - since this will influence the quality and evenness of the support. He knows from his general knowledge that plastic materials would be suitable for this purpose and that they easily can be manufactured in the required dimensions by an extrusion or an injection moulding process while, for example, a chip or particle board would not be suitable due to its massive swelling when contacted with water.

When asked at the oral proceedings by the Board the representative of the respondent stated with respect to these considerations that he could not make any further comments or answer any questions in this respect since he was no expert but only the representative.

- 3.5.6 Taking account of the teaching of E32 (see point 3.4.4 above) and of the general reflections in above point 3.4.5 the Board considers that the person skilled in the art would select a plastic material for producing the disposable support means by providing it in the form of discrete elements or blocks - which by the Board are considered to represent "lugs" having an unspecified shape - being arranged in an array with a certain distance between each other in order to reduce damages thereof whilst providing an easy replacement of any damaged lug. It is self-evident that these lugs

have to be fixed somehow to the interchangeable grid and that inserting them on top of the interchangeable grid, which necessitates that their shape has been adapted accordingly, represents the simplest solution for the person skilled in the art.

- 3.5.7 The respondent's arguments that E32 would relate to a different technical field cannot be accepted since E32, similarly as E1, belongs to the broad field of cutting articles including rotary cutting tools.

Even if one would attribute E32 to the field of cutting soft thin materials, as does the respondent, it still would come from a neighbouring field (see Case Law of the Boards of Appeal, 7<sup>th</sup> edition 2013, section I.D.8.2) in which the skilled person would look for suggestions, if recognising that the same or similar problems arose there. This is the case here.

The argument that the plastic blocks contained in the cutting apparatus of E32 are arranged as disposable support means similar to a fibre board without any spacings cannot hold since the skilled person has to adapt this teaching to the interchangeable grid of E1 for the reasons given in point 3.4.5 above. For these reasons in order to realise the thereby predictable advantages of discrete plastic lugs the skilled person would not use a continuous support, let alone a continuous wooden board which would be affected by the water, as disposable support means.

The argument that the blocks according to E32 would fall off the grid according to the invention since they would not be inserted but just lie on top of the grid cannot hold, either, since it is self-evident to the

skilled person that these blocks (or lugs) have to be fixed on the grid.

The argument that the considerations based on E32 would represent an *ex-post-facto* analysis cannot be accepted either. The common general knowledge of the skilled person is not limited to published documents such as basic handbooks or textbooks but includes, as in the present case (see point 3.4.5 above), simple mathematical/technical reflections of the type "what happens with parameter B, i.e. the number of damages per surface area of the disposable support elements A if the number of elements A is reduced?" Such simple considerations belong to the general practice of the person skilled in the art and normally will not, but need not, be found in a textbook.

Requiring such to be supported by textbook references would mean that the "person skilled in the art" is reduced in the present case to just a "person"

- 3.5.8 Claim 1 of the first auxiliary request therefore lacks inventive step. The first auxiliary request is therefore not allowable.

*Third auxiliary request*

- 3.6 Claim 1 of the third auxiliary request differs from that of the first auxiliary request in that

a) the rotary tool has been restricted to a "cutting disk" which is further specified that it "may be inclined between 0° and 90° for performing full pass and incremental cuts" and which "is rotatable about the vertical axis of the spindle (22) for performing interpolated oblique cuts", and



b) it further specifies "the water emission nozzle is supported by said movable carriage so as to be movable vertically independently from said spindle (14) [*sic*, should correctly read: (22)]" (see point XIV above).

- 3.6.1 As correctly argued by the intervener the additional features mentioned under a) and b) solve further, partial, problems being different from that of the disposable support means according to claim 1 of the first auxiliary request (see point 3.4.2 above).

The aforementioned features of point a) allow that the cutting disk can perform full and incremental cuts as well as oblique cuts while feature of point b) allows that the water emission nozzle can be moved vertically and independently from the rotary cutting disk.

Thus it is apparent that these functionally independent features a) and b) represent a mere aggregation of separate features, solving not only **two independent partial** technical problems but are also independent from the problem defined for the first distinguishing feature over E1 as discussed in point 3.4 for the first auxiliary request. They can thus be discussed independently for inventive step.

Therefore, for the discussion of the aforementioned partial technical problems with respect to the features of points a) and b), further prior art than for the disposable support means and the lugs can be taken into account, in accordance with the longstanding practice of the Boards of Appeal (see Case Law of the Boards of Appeal, 7<sup>th</sup> edition 2013, section I.D.9.2.2).

3.6.2 The cutting apparatus of E1 according to the embodiments of figures 3 and 4 already comprises a saw which can be rotated about the vertical axis relative to the slab to be cut and which additionally can be inclined thereto (see column 3, lines 55 to 64 and column 10, lines 4 to 17). Consequently, the apparatus of E1 is suitable for performing full pass cuts and incremental cuts as well as interpolated oblique cuts.

The solution to the **first partial problem** is obvious since an inclination of the cutting disc by an angle of 0° to 90° is self-admitted prior art (see patent in suit, paragraph [0003]).

The Board thus considers that it is obvious for the person skilled in the art wishing to extend the range of oblique cuts as already provided by the apparatus of E1, to incorporate these known means into that apparatus.

3.6.3 The solution to the **second partial problem** is also obvious since the independent vertical movement for the water emission nozzle is an obligatory feature that said nozzle can properly approach the working piece, as correctly argued by the intervener at the oral proceedings. This conclusion is supported by the patent in suit where it is stated that the nozzle is moved from a raised rest position into a lowered operative position (see paragraph [0030]), so that the respondent's arguments to the contrary cannot hold. Such a vertical movement is also considered technically absolutely necessary since the articles to be cut will have different shapes, i.e. they may have different dimensions in the z-direction (their height) which requires an adaption of the spacing between the article and said emission nozzle in order to maintain the

required proper distance between the water emission nozzle and the surface of the article.

Where E1 also discusses milling of the workpiece, such a vertical movement is in any case obligatory.

Furthermore, it belongs to the common general knowledge that any NC controlled cutting apparatus allows movement in the x-, y- and z-direction as e.g. shown by E30 (see column 1, line 56 to column 2, line 2). Insofar the respondent's argument that E30 does not disclose a water jet cutting device is not particularly relevant.

The Board therefore considers it obvious that the skilled person would foresee an independent vertical movement for the water emission nozzle in the apparatus of E1 according to its embodiments of figures 3 and 4.

3.6.4 Consequently, also the subject-matter of claim 1 of the third auxiliary request lacks inventive step. The third auxiliary request is therefore not allowable.

**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. Meinders

Decision electronically authenticated