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Datasheet for the decision of 8 May 2015

Case Number: T 1083/11 - 3.5.03

Application Number: 06291187.0

Publication Number: 1881384

IPC: G05B19/4093, G05B19/418

Language of the proceedings: EN

Title of invention:
Computer implemented method for defining an input product

Applicant:
Dassault Systèmes

Headword:
Shipbuilding/DASSAULT

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - eighth and ninth auxiliary requests (no)

Decisions cited:
T 0258/03

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Case Number: T 1083/11 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 8 May 2015

Appellant: (Applicant)	Dassault Systèmes 10, rue Marcel Dassault 78140 Vélizy-Villacoublay (FR)
Representative:	Bandpay & Greuter 17, rue de Vaucouleurs 75011 Paris (FR)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 27 December 2010 refusing European patent application No. 06291187.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	B. Noll
Members:	A. Madenach
	O. Loizou

Summary of Facts and Submissions

I. The present appeal is against the decision of the examining division refusing application No. 06291187.0, published as EP 1 881 384 A1, on the ground that the subject-matter of independent claims 1, 7, 8 and 12 of a main request and of auxiliary requests 1 and 2, of independent claims 1, 6, 7 and 11 of the auxiliary requests 3 and 4, of independent claims 1, 5, 6 and 10 of auxiliary requests 5 and 6, and of independent claims 1, 4, 5 and 9 of an auxiliary request 7 did not involve an inventive step (Articles 52(1) and 56 EPC) having regard to the prior art as discussed in the application and common general knowledge.

II. By the end of the oral proceedings before the board, having withdrawn its main and first to seventh auxiliary requests, the appellant's final requests were, that the decision under appeal be set aside and that a patent be granted on the basis of an eighth auxiliary request filed with letter dated 23 April 2015 or, in the alternative, a ninth auxiliary request filed during oral proceedings.

At the end of the oral proceedings, the chairman announced the board's decision.

III. Claim 1 of the eighth auxiliary request reads as follows:

"A computer executable program code adapted for running a computer implemented method for defining an input product to be manufactured into an output product, wherein the output product is at least a portion of a ship, comprising steps of:

(a) receiving specifications of the output product including attributes of the output product that include design specifications and manufacturing features specifications, and comprising specifications of at least one sub-product of the output product including attributes of the at least one sub-product that include design specifications and manufacturing features specifications;

(b) associating to said output product a manufacturing operation identified among a plurality of manufacturing operations;

(c) defining attributes of said input product, said input product attributes deriving from modification of attributes of the at least one sub-product according to the associated manufacturing operation;

wherein the program code is adapted for both the following situations:

(i)

• the output product is a stringer panel whose attributes include its plate type, the number and types of sub-products it is made of, the assembly of sub-products as where and how it is assembled, and the fact it is flat,
• the at least one sub-product comprises:
    o a plate whose attributes include its plate type, the material, grade and thickness of the raw plate it is cut from, the fact it is flat, the geometry of its external contour, the type of two oblong cut-out holes in it, and the dimensions and location of the two cut-out holes, and

o at least one straight profile whose attribute include its profile type, the material, type and dimensions of its section, the fact it is straight, and the fact it does not have any cutouts,

• the manufacturing operation is a panel joining manufacturing operation; and

• defining attributes of said input product includes providing for:

o attachment lines to help position profiles on plates,

o extra length of material to compensate shrinkage,

o edge preparation of a given type required along the edges of profiles, and

o openings being tabbed;

(ii)

• the output product is a curved plate whose attributes include its plate type, the material, grade and thickness of the raw plate it is cut from, the fact it is curved, the mathematical definition of the curved support, the geometry of its external contour, the fact it carries attachment lines,

• the at least one sub-product is the curve plate itself, and

• the manufacturing operation is a forming operation; and

• defining attributes of said input product includes providing for:

o three roll lines to apply primary curvature to a plate,

o three transverse positioning lines indicating locations for templates,

o one longitudinal line indicating location of sight plane to align the templates,
o one Burn Side Up mark indicating the plate side facing the marking and cutting tool, and
o attachment lines corresponding to those already present on the sub-product."

Claim 1 of the ninth auxiliary request comprises the further the steps of:

"(d) receiving a sub-product as a new output product, and

(e) defining attributes of a new input product by repeating steps (b) and (c), and

wherein step (d) is repeated until no more manufacturing operation can be associated to a received output product."

Reasons for the Decision

1. *Claim 1 of the eighth auxiliary request: Inventive step (Articles 52(1) and 56 EPC)*

1.1 In the section "background of the invention" (*cf.* column 3, line 55 to column 4, line 52; reference is made to the application as published), the application describes various aspects in industrial practice in the field of shipbuilding. These aspects are considered by the board as representing common general knowledge and the cited passage is considered by the board as describing common general knowledge in the field of shipbuilding. This approach was not contested by the appellant.

1.2 Accordingly, this prior art discloses a method of defining an input product to be manufactured into an output product (column 3, lines 55 to column 4, line 1). The output product in the language of claim 1 is the "final design product" referred to in column 4, lines 1 to 6, which may be the complete ship or a portion thereof. The input product is understood as being a part which itself is not manufactured from other parts, or a portion of a ship which is used for manufacturing a higher level output product.

It is implicit to a manufacturing process in shipbuilding that specifications of the output product are received, e.g. the size of the ship. This corresponds to the planning phase for the ship and its components. The specifications include attributes of the output product, and the attributes include design specifications such as dimensions, and manufacturing feature specifications indicating for example how components are assembled (e.g. by welding). The attributes are laid down in the specification of the ship and the technical drawings specifying a particular product.

The prior art further refers to an "(interim) sub-product" (paragraphs 17 and 18) which is understood as a product including manufacturing features which may disappear when manufacturing the output product but which are necessary for a manufacturing operation. This implies that the attributes of an output product also comprise design specifications and manufacturing features of the components, *i.e.* any sub-product of the output product, from which the output product is manufactured.

It is further known that "some of the design input sub-product of the final product need to be prepared and interim sub-products need to be generated that include manufacturing features which are not present on the final design product but which are necessary to perform a subsequent manufacturing operation" (*cf.* column 4, lines 1 to 6). The manufacturing features linked to interim sub-products are process-specific (column 4, lines 7 to 12). Thus, the prior art implies the feature that a manufacturing operation identified among a plurality of manufacturing operations is associated with the output product.

Further, the known manufacturing process implies defining attributes of the input product. The attributes of an input product derive from modification of attributes of the associated sub-product according to the associated manufacturing operation. Following the example in paragraph 20 of the application, an extra length must be provided for an interim product if a welding operation is chosen as a manufacturing process in order to obtain the output product with the desired size attributes.

It is further common practice in shipbuilding that specific portions of a ship, in particular portions of the hulk, comprise a stringer panel or a curved plate. Hence, an output product in shipbuilding in the sense of claim 1 is a stringer panel (column 8, lines 41 to 46) or a curved plate (column 13, lines 26 to 31).

The board further holds that defining as attributes of a stringer panel those identified at the first bullet point in feature (i) of claim 1, specifying the sub-products relating to a stringer panel and their attributes according to the second bullet point,

specifying a manufacturing operation according to the third bullet point and defining attributes of the input product according to the fourth bullet point is common practice in the field of shipbuilding, see paragraphs 19 to 22 of the application. Similarly, defining as attributes of a curved plate those identified at the first bullet point of feature (ii), specifying the sub-product according to the second bullet point and a manufacturing operation according to the third bullet point, and defining attributes of the input product relating to the curved plate according to the fourth bullet is likewise common practice in the field of shipbuilding and therefore commonly known too. This was not contested by the appellant.

1.3 The board notes that the features identified in point 1.2 as being known in the prior art in the form of common general knowledge in the field of shipbuilding relate to what a worker in this field routinely does, *i.e.* starting from the desired final result, *i.e.* a ship, and successively sub-dividing the desired result, and the associated work for producing the result, into smaller sub-parts and sub-processes down to the level of the input parts.

1.4 Accordingly, the subject-matter of claim 1 differs from the prior art identified above in that it relates to a computer-executable program code adapted for running a computer-implemented method for defining the input product to be manufactured into the output product.

1.5 The technical effect of this difference consists in the automation of a hitherto manual process which is expressed in a corresponding program code. However, this board judges that the mere automation of a hitherto manual process does not involve an inventive

step. This is in accordance with established case law (*cf.* T 258/03, Auction method/HITACHI, OJ 2004, 575).

1.6 The appellant argued as follows:

(a) The restriction of the subject-matter of claim 1 to two specific output products, *i.e.* a stringer panel and a curved plate, each having specific sub-products and input products and specific associated attributes and manufacturing processes, was the result of the inventive insight that exactly this combination of features allowed for the claimed automation.

(b) A "sub-product" in the sense of the claim should be understood as an abstract concept which does not necessarily correspond to a tangible sub-product in the real word. The workshop practice of a shipbuilder would, therefore, not lead to a process including such more general sub-products having such a general nature. Reference was made to column 4, lines 7 to 14 of the application.

(c) The automation of the hitherto manual shipbuilding process would require not only the input of a team of shipbuilders but also the expertise of a team of automation specialists. Therefore, the process of automation would go well beyond what the skilled person, even considered as a team, would be able to do.

1.7 The board does not accept these arguments for the following reasons:

(a) According to column 8, lines 22 to 37 of the application, the output products specified in claim 1 are only considered as illustrative examples ("... it will easily be understood by the ones skilled in the

art that any other more complex design product are concerned by the invention"). Hence, in the absence of any support in the application, the appellant's argument amounts to a mere assertion.

(b) The sub-products of present claim 1, *i.e.* a plate and a straight profile if the output product is a stringer panel, and a curved plate if the output product is a curved plate, are "real" sub-products in shipbuilding, see also Figures 5 and 18 of the application. The fact that attributes of an input product, like attachment lines, extra material which is consumed, *etc.*, may disappear when the input product is used for the manufacturing of the sub-product, has to be routinely taken into account by the skilled person in shipbuilding and cannot justify an inventive step.

(c) The claimed automation of what was a hitherto manual process is only of a declaratory nature. There is no particular feature apparent in claim 1 which would reflect the allegedly complex nature of this process.

1.8 For these reasons the board concludes that the subject-matter of claim 1 of the eighth auxiliary request does not involve an inventive step having regard to the common general knowledge in the field of shipbuilding. The eighth auxiliary request is consequently not allowable (Articles 52(1) and 56 EPC).

2. Claim 1 of the ninth auxiliary request: Inventive step (Articles 52(1) and 56 EPC)

2.1 The further features of claim 1 of the ninth auxiliary request derive essentially from claims 5 and 6 of the original application. These features provide for a

recursive process in which a sub-product is defined as an output product at a different hierarchical level of the manufacturing process and is associated with a manufacturing operation comprising an input product. Such process is repeated until no further manufacturing operation can be associated with a product.

2.2 Such a recursive process is, however, what the skilled person would routinely consider for the manufacture of a complex output product such as, like in the present case, a portion of a ship: he would sub-divide the output product into smaller units, *i.e.* sub-products, which become output products at the next hierarchical level of the manufacturing process, and sub-divide these output products into even smaller units, which are sub-products at the next hierarchical level, and so on, until the lowest level at which no further sub-dividing is possible is reached. Reversely, starting from the input products, a corresponding recursion leads to the final output product with which no further manufacturing operation can be associated. This process of recursively sub-dividing the product does not require inventive skill. Further, the mere automation of this process by providing a computer executable program code for running the process implemented on a computer does not involve an inventive step.

2.3 The appellant referred to column 12, lines 15 to 20 of the application and argued that the claimed recursion improves the productivity of an assembly operation and avoids cost-ineffective feedback loops between shops.

2.4 The board does not accept this argument since the cited passage is not specific to the claimed recursive process but relates to a downstream assembly activity (*ibidem*).

2.5 The board concludes that the subject-matter of claim 1 of the ninth auxiliary request does not involve an inventive step having regard to the common general knowledge in the field of shipbuilding. The ninth auxiliary request is consequently not allowable (Articles 52(1) and 56 EPC).

3. As there is no allowable request, it follows that the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Rauh B. Noll

Decision electronically authenticated