Datasheet for the decision of 29 September 2016

Case Number: T 0398/13 - 3.2.06

Application Number: 08152672.5

Publication Number: 1970344

IPC: B66C23/70, E04G21/04

Language of the proceedings: EN

Title of invention:
Boom for the distribution of concrete for work vehicles and relative production method

Patent Proprietor:
Cifa S.P.A.

Opponent:
Putzmeister Engineering GmbH

Headword:

Relevant legal provisions:
EPC Art. 56, 123(2)
RPBA Art. 13(1)
Keyword:
Inventive step - main request (no)
Late-filed auxiliary requests - admitted (no)

Decisions cited:

Catchword:
Case Number: T 0398/13 - 3.2.06

DECISION of Technical Board of Appeal 3.2.06
of 29 September 2016

Appellant: Putzmeister Engineering GmbH
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Decision under appeal:
Decision of the Opposition Division of the
European Patent Office posted on 17 December
2012 rejecting the opposition filed against
European patent No. 1970344 pursuant to Article
101(2) EPC.

Composition of the Board:
Chairman: M. Harrison
Members:
M. Hannam
M.-B. Tardo-Dino
Summary of Facts and Submissions

I. An appeal was filed by the appellant (opponent) against the decision of the opposition division rejecting the opposition to European patent No. 1 970 344. It requested that the decision be set aside and the patent be revoked.

II. In its letter of response, the respondent (patent proprietor) requested that the appeal be dismissed.

III. The following documents, referred to by the appellant in its grounds of appeal, are relevant to the present decision:

D1 US-A-3 947 191

IV. The Board issued a summons to oral proceedings including a communication containing its provisional opinion, in which it indicated inter alia that the subject-matter of claim 1 appeared not to involve an inventive step when starting from D1 and combining this with the technical teaching of D3.

V. With letter of 29 August 2016, the respondent filed auxiliary requests 1 to 3.

VI. Oral proceedings were held before the Board on 29 September 2016, during which the respondent filed new auxiliary requests 1 to 4, withdrawing auxiliary requests 1 and 2 on file. It subsequently also withdrew new auxiliary request 1. The final requests of the parties were thus as follows:
The appellant requested that the decision under appeal be set aside and the European patent No. 1 970 344 be revoked.

The respondent (proprietor) requested that the appeal be dismissed, or, that the patent be maintained according to one of the auxiliary requests 2 to 4 filed during the oral proceedings or auxiliary request 3 as submitted with the letter of 29 August 2016.

VII. Claim 1 of the main request reads as follows:
"Extendable boom (10) for the distribution of concrete, able to be installed on a heavy work vehicle (11), and comprising a plurality of articulated segments (12-16), pivoted with respect to each other at respective ends, wherein at least one of the segments (12-16), or at least part of it along its length, that form the extendable boom (10) is completely made, throughout its section, of composite material defining a box-like structure (22), and characterized in that it comprises, in at least one specific position along its length, at least one metal insert (25,30,31,34) drowned in the composite material, for the connection to the segment (12-16) of at least one specific equipment chosen between a movement jack, an adjacent segment or an auxiliary equipment."

Claim 1 of new auxiliary request 2 reads:
"Extendable boom (10) for the distribution of concrete, able to be installed on a heavy work vehicle (11), and comprising a plurality of articulated segments (12-16), pivoted with respect to each other at respective ends, wherein at least one of the segments (12-16), or at least part of it along its length, that form the extendable boom (10) is completely made, throughout its section, of composite material defining a box-like
structure (22), characterized in that it comprises, in at least one specific position along its length, at least one metal insert (25, 30, 31, 34) drowned in the composite material, where to the segment (12-16) is connected at least one specific equipment chosen between a movement jack, or an adjacent segment."

Claim 1 of new auxiliary request 3 reads as per claim 1 of new auxiliary request 2 with the further feature appended: "and in that said metal inserts (25) include holes (29) for inserting fiber elements (32) to accentuate anchoring."

Claim 1 of new auxiliary request 4 reads as per claim 1 of new auxiliary request 2 with the further feature appended: "and in that said metal inserts (25) include holes (29) in which fiber elements (32) are inserted to accentuate anchoring."

Claim 1 of auxiliary request 3 reads as per claim 1 of the main request with the feature "or an auxiliary equipment" deleted and the following feature appended: "and in that said metal inserts (25) include holes (29) for inserting fiber elements (32) to accentuate anchoring."

VIII. The appellant's arguments may be summarised as follows:

The subject-matter of claim 1 of the main request lacked an inventive step (Article 56 EPC). Starting from D1, this disclosed all features of the preamble of claim 1. The objective technical problem to solve could be seen as to provide a connection in the boom for an auxiliary equipment. D3 provides the skilled person
with an obvious hint to the claimed solution with the metal head member 465 incorporated into the boom segment 46, located in a specific location appropriate for supporting the working table 8.

All of the auxiliary requests were late filed and should not be admitted. Each request introduced problems under Article 123(2) EPC and also failed prima facie to overcome the inventive step objections found to be prejudicial for the main request.

IX. The respondent's arguments may be summarised as follows:

The subject-matter of claim 1 of the main request involved an inventive step when starting from D1 and considering the technical teaching of D3 in light of the problem to be solved. D1 did not disclose a boom for the distribution of concrete since its primary function was to support the platform 32 and any concrete delivery equipment would be auxiliary to this main purpose. Based on the features in the characterising portion of claim 1, the problem to be solved was 'to maintain strength of the boom without increasing its weight'. D3 would not be considered to disclose a solution by the skilled person since it did not disclose a boom suitable for concrete distribution; it furthermore did not provide a hint to the claimed solution since it was directed to a 3-layer composite/metal construction which strengthened the entire boom segment, not just a specific position of the segment for connection to a specific equipment. The dual use of the word 'specific' in claim 1 implied that strengthening was carried out only where necessary, and not, as was achieved through the head member 465 of D3, around the entire cross-section of the segment. This
interpretation of claim 1 was evident particularly from paras. [0006] to [0007] of the patent where a maximum length at minimum weight was suggested and from [0049] and [0053] where solely a terminal zone and an intermediate position respectively were indicated as receiving the metal insert. In claim 1, the specific position, the metal insert and suitability for connection should all be read together. D3 furthermore did not disclose a specific position being strengthened since the entire segment included a 3-layer structure and a 'layer' was to be interpreted differently to an 'insert'. The skilled person would also not choose D3 as providing the hint for modification of D1 without the benefit of hindsight since several further documents were available for combination thus excluding a 'one-way street' combination of D1 with D3. Starting from D1, the most obvious solution for the skilled person would be to reinforce the outer end of the segment in the same way as the inner end was reinforced i.e. with a metal stub member 70.

The new auxiliary requests 2, 3 and 4 should be admitted under Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA). The subject-matter of claim 1 of each of these requests met the requirement of Article 123(2) EPC. Paras. [0030], [0039] and [0048] of the application as filed in combination disclosed a segment being connected to an adjacent segment. The steel terminals of the segments were not linked to the inventive concept and thus did not need to be included in claim 1.

As regards auxiliary request 3, this should be admitted. It presented a valid response to objections raised by the Board in its preliminary opinion.
Reasons for the Decision

1. Main request

1.1 Inventive step (Article 56 EPC)

The subject-matter of claim 1 does not involve an inventive step for the following reasons.

1.1.1 Starting from D1 as the most promising starting point, this discloses the following features of claim 1 (the reference signs in parentheses referring to D1): Extendable boom (20), able to be installed on a heavy work vehicle (22), and comprising a plurality of articulated segments (26, 28), pivoted with respect to each other (via pivot pin 31) at respective ends, wherein at least one of the segments (28), or at least part of it along its length, that form the extendable boom is completely made, throughout its section, of composite material (col.5, lines 27 to 37; see Figs. 9 and 10) defining a box-like structure (see Figs. 9 and 10).

1.1.2 The respondent's argument that D1 did not disclose a boom for the distribution of concrete is not convincing. As also indicated in point 3.1 of the preliminary opinion, the boom simply has to be 'suitable for' the distribution of concrete, which suitability is reached in D1 through the boom being able to support a concrete supply pipe in much the same way as the feed tube 17 of the patent is supported from the boom. To this argument in the preliminary opinion the respondent offered no further counter-argument. The Board thus confirms its preliminary opinion, that the boom of D1 is indeed suitable for the distribution of
concrete.

1.1.3 The subject-matter of claim 1 thus differs from D1 in that:
- said at least one segment comprises, in at least one specific position along its length, at least one metal insert
- drowned in the composite material, for the connection to the segment of the at least one specific equipment chosen between a movement jack, an adjacent segment or an auxiliary equipment.

1.1.4 As presented in the Board's preliminary opinion, and also as formulated by the appellant at oral proceedings, based on these differentiating features with respect to D1, the objective technical problem faced by the skilled person may be seen as to provide a suitable structure in the composite segment for connecting a specific equipment.

1.1.5 When aiming to solve this problem the skilled person would consider D3 which discloses a high lift work vehicle with a specific connection position on its boom for a working table 8. The working table is clearly an 'auxiliary equipment' which falls under the scope of this feature of claim 1. With reference particularly to Figs. 7 and 8 in combination with paras. [0043] to [0048] of D3, the skilled person is directed to a metal insert (465) drowned (i.e. completely embedded in composite; see Figs. 7 and 8) in composite in a specific position of a segment (at the outermost position of the outer segment) for the connection thereto of an auxiliary equipment (a working table, 8). With reference to para. [0048] of D3 it is evident that head member 465 distributes the forces acting on it from the vertical post 6 ("... can share the power of
acting on a boom tip section ..."), thus performing an identical function to the metal insert of claim 1. It would thus be obvious for the skilled person to take this teaching from D3 in order to modify the boom known from D1 in order to solve the objective technical problem and reach the subject-matter of claim 1.

1.1.6 The respondent's argument that the skilled person would not consider D3 for combination with D1 since it was not suited to concrete distribution, not least as it was a telescopic boom, is not persuasive. The objective technical problem when starting from D1 does not concern concrete distribution, as this feature is known from D1 itself, rather it concerns a suitable structure in the boom for connecting a piece of equipment. A solution to this may be found in any document disclosing a composite boom with equipment attached to it, such as is the case for D3 irrespective of its telescopic boom.

1.1.7 The technical problem formulated by the respondent of maintaining strength of the boom without increasing its weight is not objective. This problem does not reflect the technical effect achieved by the differentiating features of claim 1 identified in point 1.1.3 above, such being the distribution of forces exerted in a specific position of the segment at which a specific equipment can be connected. An objective problem reflecting such a technical effect was formulated by the Board in its preliminary opinion (see also point 1.1.4 above), yet the respondent gave no specific analysis regarding this problem and instead considered its own problem to be the objective one.

1.1.8 The respondent's contention that D3 did not provide a hint to guide the skilled person to the claimed
solution is not persuasive. The Board can concur with the respondent that D3 discloses, generally, a 3-layer composite/metal construction which strengthens essentially the entire boom segment, yet this does not detract from the clear teaching of the document in regard to how a boom segment is appropriately strengthened to provide a suitable fitting for auxiliary equipment at its end. There is also nothing that prohibits the teaching of how to provide an appropriately strengthened connection to an auxiliary equipment being taken therefrom. As regards the respondent's restricted interpretation, shared by the opposition division, of the term 'auxiliary equipment' in claim 1, this is not accepted. As indicated in the preliminary opinion and not subsequently counter-argued by the respondent, there is no basis in the patent for interpreting this term in the restricted sense put forward by the respondent, rather a broad interpretation is appropriate; the equipment can be auxiliary in any sense, not solely and specifically auxiliary to the distribution of concrete. It thus follows that the workman's basket 32 of D1 can be considered an auxiliary equipment in the sense of claim 1. A connection of auxiliary equipment to the boom is also disclosed in D3 (see below).

1.1.9 When faced with a particular objective technical problem, the skilled person will be looking for a solution specifically to this problem. Provided that the technical context in which such a solution is found in a document does not prohibit or teach against its adoption into the starting document, the skilled person would not, contrary to the respondent's argument, be dissuaded from adopting that teaching. In the present case, the head member 465 disclosed in D3, whilst comprising the 3-layer composite/metal construction of
the boom segment 46, is presented as an isolated portion of the segment at one of the segment's extremities. This isolation is accentuated by the insulating portion 460 which divides the head member 465 from the remainder of the 3-layer construction of the segment 46. It is thus clear to the skilled person, not least in view of the illustration in Figs. 7 and 8 of D3, that the head member is constructionally distinct from the remaining portion of the boom segment and that this head member would thus be taken as a suggestion of how to connect an auxiliary equipment to a boom segment in isolation from the overall 3-layer construction of the boom segment seen as a whole. The respondent's argument that the specific position on the segment, the metal insert and suitability for connection should all be read together changes nothing in this respect, since these three features are also disclosed in combination in D3 by the head member 465 (metal insert) being located at a distal end of the boom segment 46 (specific position) and being used to connect the working table 8 (suitable for connecting a specific equipment).

1.1.10 The respondent's reference to paras. [0006] to [0007], [0049] and [0053] of the patent also did not provide any further assistance to the respondent's arguments in this respect. From these paragraphs it is admittedly possible to deduce that the claimed metal inserts are located in isolated positions along the length of the boom segment with no reinforcing elements in the remainder of the segment, yet this limited interpretation is not reflected in the wording of claim 1. With respect to the actually claimed 'specific position' of the metal insert, this is unambiguously disclosed in D3 by way of the head member 465 being drowned in the composite layers 461, 463 at a 'specific
position' of the boom segment 46 i.e. at its distal end.

1.1.11 The respondent's argument that the dual use of the word 'specific' in claim 1 implied that strengthening was carried out only where necessary, not around the entire cross-section of the segment is not accepted. As regards the claimed 'one specific position along its length' this does not restrict the position to anything more than being located at a particular location along the length of the segment; it does not limit this location to being on just one face of the cross-section of the segment, nor indeed to the location including the entire cross-section, rather it encompasses both of these extremes. The further use of the term 'specific' in relation to 'at least one specific equipment (connectable to the metal insert)' is only related to the previously disclosed 'specific position' insofar as the metal insert is located there. There is no cumulative significance of the dual use of the word 'specific' suggesting that the specific position must therefore be on just one face of the segment cross-section. This is further underlined by the scope of claim 1 also encompassing the connection of an auxiliary equipment requiring a connection to two (or more) adjacent sides of the cross-section of the segment.

1.1.12 The respondent was furthermore unable to indicate a passage in the patent description which provides an interpretation of the claimed 'at least one metal insert' being located only where needed for connecting the specific equipment (i.e. solely on one face of the cross-section of the boom segment), rather than the metal insert, as claimed, also being able to extend around the full cross-section of the boom segment at
the chosen specific position. The references to paras. [0006] to [0007] of the patent do not directly address this issue, essentially simply identifying the desire to maximise the boom length whilst keeping its weight acceptable, thus not even implicitly suggesting a particular position or extent of the metal insert. No more successful in this respect is the reference to para. [0049], which addresses the metal insert being associated with a reinforcement structure made of fiber, or para. [0053], which with reference to Fig. 3 discusses the base of the depicted metal insert 25 being drowned in the composite, yet without giving any indication of the positioning or extent of the base within the boom segment.

1.1.13 The respondent's argument that D3 does not disclose a specific position being strengthened since the entire segment includes a layered, reinforced structure is not accepted. Insulating boom 46 of D3 includes a portion of length L (see Fig. 7(a) in particular) which has no layered, reinforced structure. The portion of the boom to the left of this in Fig. 7(a) is thus separate from and isolated from the layered structure alleged by the respondent to make up the entire boom 46. This isolated portion Furthermore has a different construction to the remainder of the boom at least due to the head member 465 having individual holes (466, 467) in its structure for accommodating the vertical post 63 and its support bosses 62 shown in Fig. 8(a). The reinforcement layer in the remaining boom has no specific function disclosed for providing a connection. The portion of the boom comprising the head member would thus be seen as a specific position of the boom due to its isolation and different structure at this point. It is precisely these differentiating features along with its function for connecting an equipment which allow the head member
465 to be interpreted as an 'insert' rather than simply a 'layer' providing reinforcement. No definition is present in the patent, let alone in the claim, which would indicate that the metal element disclosed in D3 should not be considered as an 'insert'.

1.1.14 The respondent's argument regarding no 'one-way street' guiding the skilled person to the claimed solution is not accepted. When using the problem-solution approach and wishing to solve the objective technical problem in view of the differentiating features over the document presenting the most promising starting point, the skilled person is not limited in how many documents may be looked at in order to find at least one document containing an obvious solution. A myriad of documents may provide a solution, any one of which can be selected by the skilled person to deprive the claimed subject-matter of an inventive step provided that the solution selected is obvious to the skilled person. The respondent's argument that there was no reason to choose D3 for combination with D1 when a large number of other documents were on file is thus not well-founded and not relevant in the context of the problem solution approach.

1.1.15 The respondent's argument that hindsight motivated the inventive step attack starting from D1 for combination with the technical teaching of D3 is also not accepted. As detailed above, particularly in points 1.1.8, 1.1.9 and 1.1.12, the technical teaching that the skilled person would gain from D3 includes the provision of a specific position on a composite boom segment at which a metal insert is drowned for connecting auxiliary equipment. Using this teaching to modify the extendable boom known from D1 whilst solving the objective technical problem is, as detailed above, obvious for
the skilled person and thus does not involve an inventive step.

1.1.16 The respondent's further argument that the skilled person would reinforce the end of the segment in the same way as the inner end was reinforced in D1, i.e. with a metal stub member 70, rather than using the insert known from D3, is not persuasive. Such a modification to the segment of D1, is doubtlessly available to the skilled person and provides one way of solving the objective technical problem. The skilled person is however not limited to just this possible solution even if, as suggested by the respondent, it is one obvious solution. In trying to solve the objective problem the skilled person would seek not only one amongst the several obvious solutions, but would select that which when used to modify the starting document would result in the claimed subject-matter being reached without resorting to inventive activity. In the present case the problem is evidently solved and the claimed subject-matter is reached in an obvious manner when starting from D1 and modifying this with the technical teaching of D3.

1.1.17 It thus follows that the subject-matter of claim 1 does not involve an inventive step (Article 56 EPC) when starting from D1 and combining this with the technical teaching of D3 in order to solve the objective technical problem. The main request is thus not allowable.

2. New auxiliary request 2

Admittance (Article 13(1) RPBA)
2.1 The respondent filed this request during oral proceedings. The request thus represented a change to the respondent's complete case as defined in Article 12(2) RPBA and its admittance is to be considered at the Board's discretion under Article 13(1) RPBA, such discretion being exercised *inter alia* in view of the need for procedural economy. As is established case law of the Boards of Appeal, such procedural economy implies that amended requests should at least be *prima facie* allowable in order to be admitted.

2.2 The amendment made to claim 1 in this request removes the 'for the connection' wording, replacing this with 'is connected'. This has the consequence that the metal insert can no longer be understood simply as 'suitable for the connection' of a specific equipment, rather now it is claimed to physically be connected thereto.

2.3 As a basis for the adjacent segment to be connected to the metal insert the respondent referred to paras. [0039] and [0048] of the application as filed. The first of these paragraphs discloses the pivoting of the five articulated segments of the boom to each other at respective ends without any detail regarding how the connection at the ends is achieved. The second paragraph conversely does disclose the metal insert 25 implicitly providing a connection between the respective segments of the boom, however specifically in combination with this insert being located in 'correspondence with' or in 'proximity with' the terminal zones (of the articulated segments). It is thus apparent that the metal insert being connected to an adjacent segment is disclosed solely in combination with at least these further features, such that the extraction of solely the metal insert being connected to the adjacent segment for inclusion in claim 1
amounts to an inadmissible intermediate generalisation of the original disclosure.

2.4 The respondent's argument with reference to para. [0030] of the patent that the terminals 23 were not inextricably linked to the invention as claimed is not accepted. This paragraph does identify the terminals at each end of a segment as allowing articulation but fails at all to mention the metal insert. This paragraph is thus unable to provide a basis, even in conjunction with the further paragraphs referred to by the respondent, for the generalisation that the metal insert is simply connected to an adjacent segment in isolation from the metal insert necessarily then being located in the terminal zones of the segment. The respondent's further suggestion that the terminals were not part of the inventive concept and so could be omitted was also not convincing given the disclosure in the application as filed. Of importance for an amendment to meet the requirement of Article 123(2) EPC is for the resulting subject-matter to be directly and unambiguously disclosed to the skilled person in the application as filed. As to whether or not a specific feature is comprised in the 'inventive concept' does not affect the skilled person's application of this requirement.

2.5 The Board furthermore notes that the amendment made to claim 1 is also particularly complex as regards analysing whether the requirement of Article 123(2) EPC is met. This is inter alia indicated by the respondent having to refer to multiple separate paragraphs in the application as filed in order to provide the basis for the amended subject-matter, requiring a time-consuming and detailed analysis to determine whether or not certain features disclosed in the context of the now
claimed connection may or may not be inextricably linked to other features. At least prima facie the respondent was unable to show that the requirement of Article 123(2) EPC was met.

2.6 The subject-matter of claim 1 thus at least prima facie fails to meet the requirement of Article 123(2) EPC. Therefore, the subject-matter of claim 1 is not prima facie allowable, which would be necessary for fulfilling the need for procedural economy and consequently admitting the request into the proceedings. Accordingly, the Board exercised its discretion under Article 13(1) RPBA not to admit this request.

3. New auxiliary requests 3 and 4

Article 13(1) RPBA

3.1 Claim 1 of both these requests includes the wording 'is connected' present in claim 1 of new auxiliary request 2 and found prima facie to extend the subject-matter of claim 1 beyond the content of the application as filed. The additional features added to claim 1 of both these requests do not address the prima facie lack of allowability existing with new auxiliary request 2, neither did the respondent argue this to be the case. The Board thus sees no reason to change its finding and concludes that the subject-matter of claim 1 of both new auxiliary requests 3 and 4 at least prima facie does not meet the requirement of Article 123(2) EPC. Since claim 1 of these requests was at least not prima facie allowable, the Board exercised its discretion under Article 13(1) RPBA not to admit these requests into the proceedings.
4. **Auxiliary request 3**

*Article 13(1) RPBA*

4.1 The respondent's argument that the request presented a valid response to objections in the preliminary opinion does not convince the Board on the matter of admittance. In fact, the appellant had argued extensively in its grounds of appeal with objections under Article 56 EPC, particularly starting from D1 and combining this with the technical teaching of D3. The respondent could thus, with its response to the grounds of appeal, have filed an auxiliary request as a fallback position in the event that the main request were to have been found not allowable. With the present auxiliary request, however, having only been filed at a later date, it represents an amendment to the respondent's complete case as defined in Article 12(2) RPBA and its admittance is thus again subject to the exercise of the Board's discretion under Article 13(1) RPBA.

4.2 Having been filed prior to oral proceedings at which the 'is connected' wording was adopted in the new auxiliary requests 2, 3 and 4, claim 1 of this request then reverts back to the previous 'for the connection to' wording. Since by introducing a series of auxiliary requests in front of the requests which were filed in response to the Board's preliminary opinion, the respondent caused the Board to examine requests going in a different direction, claim 1 of this request thus now lacks convergency at least with regard to claim 1 of the three previously considered requests. The procedural complexity associated with a non-convergent set of requests, which would require the opponent and the Board to consider requests of a broader scope in at
least this sense than previously considered ones, is one factor in the Board exercising its discretion in not admitting this request.

4.3 Moreover, however, the subject-matter of claim 1 is at least not prima facie inventive. With its submission accompanying the filing of the present request, no arguments were presented justifying the presence of an inventive step. The respondent's submission essentially exhausted itself on the issue of inventive step by arguing (in referring to previous requests) that the features were not known from D1, D2 or D3 and thus provided an inventive step. On such a basis, the Board cannot recognise prima facie why an inventive step is present and admitting such a request into the proceedings would have been the first time arguments for inventive step would have been made, thus opening a new set of issues.

4.4 The Board thus exercised its discretion not to admit auxiliary request 3 into the proceedings (Article 13(1) RPBA).
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:

M. H. A. Patin M. Harrison

Decision electronically authenticated