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Datasheet for the decision of 17 January 2025

Case Number: T 0493/23 - 3.2.05

Application Number: 17851037.6

Publication Number: 3514431

IPC: F16L15/04, F16L15/00, E21B17/042, F16L15/06

Language of the proceedings: EN

Title of invention:
Threaded joint

Patent Proprietors:
Nippon Steel Corporation
Vallourec Oil and Gas France

Opponent:
Hydril Company

Relevant legal provisions:
EPC Art. 54(1), 54(3), 87(1), 123(2), 153(5)
RPBA 2020 Art. 12(4), 12(6), 13(2)

Keyword:
Amendments - added subject-matter (main request: yes)
Late-filed auxiliary requests - admitted (twelfth and thirteenth auxiliary requests: yes)
Priority claim valid (twelfth auxiliary request: no, thirteenth auxiliary request: yes)
Novelty (twelfth auxiliary request: no)
Late-filed objection - admitted (thirteenth auxiliary request: no)

Decisions cited:
G 0001/15

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Case Number: T 0493/23 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 17 January 2025

Appellant: (Opponent)	Hydril Company 2200 West Loop South Suite 800 Houston TX 77027 (US)
Representative:	Boult Wade Tennant LLP Salisbury Square House 8 Salisbury Square London EC4Y 8AP (GB)
Respondents: (Patent Proprietors)	Nippon Steel Corporation 6-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8071 (JP) Vallourec Oil and Gas France 54 rue Anatole France 59620 Aulnoye-Aymeries (FR)
Representative:	J A Kemp LLP 80 Turnmill Street London EC1M 5QU (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 23 December 2022 concerning maintenance of the European Patent No. 3514431 in amended form.**

Composition of the Board:

Chairman	P. Lanz
Members:	T. Vermeulen
	B. Burm-Herregodts

Summary of Facts and Submissions

I. The opponent filed an appeal against the interlocutory decision of the opposition division finding that European patent No. 3 514 431 as amended according to auxiliary request 11 met the requirements of the European Patent Convention.

II. The European patent was granted on the basis of the European patent application with number 17851037.6 which was filed on 15 September 2017, published under the PCT as WO 2018/052140 A1 ("the PCT-application"), and claims priority from the earlier application JP 2016-181176 ("the priority application").

III. The opposition was filed against the patent as a whole on the basis of the grounds for opposition under Article 100(a) together with Article 54(1) EPC (lack of novelty) and Article 56 EPC (lack of inventive step), and under Article 100(b) EPC.

IV. The following documents are relevant to the present decision.

D5: EP 3 514 432 A1
D10: a marked-up version of the English translation of the PCT-application

V. In reply to the statement of grounds of appeal the joint patent proprietors (respondents) filed a first to twenty-ninth auxiliary request.

VI. A summons to oral proceedings was issued on 4 June 2024.

VII. By letter dated 10 June 2024, the appellant (opponent) filed further submissions.

VIII. In a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) issued on 13 November 2024, the parties were informed of the board's provisional opinion on the issues of the case.

IX. By letter dated 5 December 2024 the respondents filed a thirtieth to thirty-ninth auxiliary request.

X. Oral proceedings before the board were held by videoconference on 17 January 2025. During the oral proceedings, the appellant withdrew the first to eleventh auxiliary requests.

XI. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked. It was further requested not to admit the twelfth to thirty-ninth auxiliary requests into the appeal proceedings.

The respondents (joint patent proprietors) requested that the appeal be dismissed (main request) or, alternatively, that the decision under appeal be set aside and the patent be maintained as amended on the basis of the claims of one of the twelfth to twenty-ninth auxiliary requests filed with the reply to the statement of grounds of appeal or, alternatively, on the basis of the claims of one of the thirtieth to thirty-ninth auxiliary requests filed with letter dated 5 December 2024.

XII. Claim 1 of the respondents' main request (corresponding to auxiliary request 11 which the opposition division held allowable) has the following wording (the feature numbering used by the board is in square brackets):

"[**1.1**] A threaded connection (1) for connecting a pair of pipes, comprising: a pin (10) having a male thread (11) on its outer diameter; and a box (20) having a female thread (21) on its inner diameter, the female thread (21) corresponding to the male thread (11), the box (20) and the pin (10) capable of being made up,
[**1.2**] wherein the male thread (11) includes: a constant-thread-width portion (111) having a constant thread-groove width and a constant thread-ridge width; and a varying-thread-width portion (112) having a thread-groove width equal to the thread groove width of the constant-thread-width portion (111) of the male thread (11) or larger and gradually increasing going from the constant-thread-width portion (111) of the male thread (11) toward a tip of the pin (10) and a thread-ridge width which changes,
[**1.3**] wherein the female thread (21) includes: a constant-thread-width portion (211) having a constant thread-ridge width and a constant thread-groove width; and a varying-thread-width portion (212) having a thread-ridge width equal to the thread-ridge width of the constant thread-width portion (211) of the female thread (21) or larger and gradually increasing going from the constant thread-width portion (212) of the female thread (21) toward a center of the box (20) and a thread-groove width which gradually decreases, going from the constant-thread-width portion (211) toward the center of the box (20),
[**1.4**] wherein the stab lead of the pin is the distance (D1a) between adjacent stab flanks (11c) of the male thread (11) as measured in the pipe-axis direction, the

load lead of the pin is the distance (D1b) between adjacent load flanks (11d) of the male thread (11) as measured in the pipe-axis direction, the stab lead of the box is the distance (D2a) between adjacent stab flanks (21c) of the female thread (21) as measured in the pipe-axis direction, the load lead of the box is the distance (D2b) between adjacent load flanks (21d) of the female thread (21) as measured in the pipe-axis direction,

[**1.5**] wherein in the varying-thread-width portion (112) of the male thread (11), the load lead is larger than the stab lead, and in the varying-thread-width portion (212) of the female thread (21), the load lead is larger than the stab lead,

[**1.6**] wherein in the constant-thread-width portion (111) of the male thread (11), the stab lead is equal to the load lead; in the constant-thread-width portion (211) of the female thread (21), the stab lead is equal to the load lead; the load leads of the pin (10) and the box (20) are constant over the entire thread length; and in each of the pin (10) and the box (20), the stab lead increases at the switch from the varying-thread-width portion (112, 212) to the constant-thread-width portion (111, 211),

[**1.7**] wherein each male thread (11) and each female thread (21) are constituted by tapered threads; and the thread shape of the male and female threads (11, 21) is dove-tailed,

[**1.8**] wherein in a cross section of the threaded connection (1) containing a pipe axis CL, the male thread (11) includes a plurality of chamfered surfaces (11e), each chamfered surface (11e) being an inclined surface connecting a stab flank (11c) and a thread root (11b), the angle θ of the chamfered surface (11e) relative to the thread root (11b) is in the range of 25 ° to 75 ° and the female thread (21) includes

chamfered surfaces (21e) corresponding to the chamfered surfaces (11e) of the male thread (11) and the chamfered surfaces (21e) of the female thread (21) face the chamfered surfaces (11e) of the male thread (11)."

XIII. Claim 1 of the twelfth auxiliary request differs from claim 1 of the respondents' main request by the addition of following features immediately after features 1.7 and 1.8, respectively.

"[**1.7a**] and when the connection has been made up: (i) in the constant-thread-width portions (111, 211), a load flank (11d) of the male thread (11) is in contact with a load flank (21d) of the female thread (21), (ii) in the constant-thread-width portions (111, 211), stab flanks (11c) of the male thread and stab flanks (21c) of the female thread are not in contact with each other, and (iii) in the varying-thread-width portions (112, 212), load flanks (11d) of the male thread and load flanks (21d) of the female thread are in contact with each other and stab flanks (11c) of the male thread and stab flanks (21c) of the female thread are in contact with each other,"

"[**1.8a**] and when the connection has been made up, in the constant-thread-width portions (111, 211), chamfered surfaces (11e, 21e) are not in contact with each other and, in the varying-thread-width portions (112, 212), chamfered surfaces (11e, 21e) are in contact with each other."

XIV. Claim 1 of the thirteenth auxiliary request differs from claim 1 of the twelfth auxiliary request by the addition of following feature at the end of feature 1.3.

"[**1.3a**] to correspond to the thread-ridge width of the varying-thread-width portion (112) of the male thread (11),"

XV. The appellant essentially argued as follows.

Main request

- *Added subject-matter (Article 123(2) EPC)*

By adding the feature of the chamfered surfaces, claim 1 of the main request comprised added subject-matter contrary to Article 123(2) EPC. The amendment was based on paragraphs [0041] and [0042] of the application as filed. These paragraphs, however, also recited additional features related to the contact of a load flank of the male thread with a load flank of the female thread and a lack of contact between stab flanks in the constant-thread-width portions of the male and female thread. Also, in the varying-thread-width portions, load flanks were in contact with each other and stab flanks were in contact with each other. These features had not been incorporated into claim 1 along with the other features of this part of the disclosure. Thus, an intermediate generalisation arose. No explanation had been given by the opposition division as to why the omitted features were considered optional. It was quite clear that they were intrinsically linked to the features of the neighbouring sentences in the cited paragraphs. Though the appellant agreed with the opposition division that the chamfered surfaces were described as optional features, they were no longer optional once introduced in claim 1. Paragraphs [0041] and [0042] were unambiguous that the additional features had to be present if the male and female threads 11 and 21

include chamfered surfaces 11e and 21e. Even if claim 1 did not limit the claimed subject-matter to the state in which the connection had been made up, this was irrelevant to the question of whether technical subject-matter had been omitted from the claim in the amendment made. The pin and box of claim 1 were "configured to" achieve certain contacts between the threads. Thus, there was a technical requirement in the pin and box when not made up, which led to those disclosed contacts. Moreover, all of paragraphs [0038] to [0042] of the application as filed described the embodiment of Figures 2A and 2B. This was a single, unitary part of the disclosure. It was not allowed to decouple these paragraphs and isolate one feature therefrom, all the more so since there was no functional independence of the flanks, crests and chamfers. Since no gap was present in the varying-thread-width portions shown in Figure 2B, each of the flanks, the crests and the chamfers contributed to the functionality of an improved sealing performance. Figure 3 was a separate part of the application as filed showing the larger structure with the aim to highlight the variations in the maximum and minimum thread-groove widths. But also here, the additional features were disclosed.

Twelfth auxiliary request

- *Admittance*

The twelfth auxiliary request should not be admitted in the appeal proceedings. It could and should have been filed already during first-instance proceedings, especially in view of the appellant's objections against the claims of auxiliary request 5 raised in its letter dated 22 July 2022. Auxiliary request 11, which

the opposition division held allowable and formed the basis of the respondents' main request in appeal, had also been filed before the final date under Rule 116 EPC. It was further noted that the claims of the twelfth auxiliary request were not prima facie allowable. They had a further priority issue.

- *Right to priority*

While features from paragraphs [0048] and [0049] of the priority application (reference was made in the following to document D10) had been incorporated into claim 1, the respondents had omitted the final sentence of paragraph [0049]. This explicitly required a correspondence between the thread-groove width of the varying-thread-width portion 212 (of the female thread) and the thread-ridge width of the varying-thread-width portion 112 of the male thread 11. The verb "to correspond" implied that the widths were equal. Contrary to the view of the opposition division, the additional text in claim 1, verbose though it may be, did not require this. The discussion of varying leads on each of the pin and the box merely indicated when the thread width was increasing or staying constant. There was no indication in claim 1 of whether the widths in the varying-thread-width portions corresponded to each other. For example, it might be that the varying-thread-width portion of the male thread increased in width at a different rate compared to the varying-thread-width portion of the female thread. Also, it might be that the rate of increase in thread width of one thread was not constant along its length so that the thread widths of the opposing threads did not correspond. The additional features of claim 1 of the twelfth auxiliary request did not imply that the widths were equal. Contact between the load

and stab flanks did not necessarily imply that the width was the same. The interference of the threaded connection of claim 1 might vary along the thread, for example due to a different taper of the threads. In contrast, the threaded connection in accordance with paragraph [0049] of document D10 was made up by simultaneous interference of the engaging flanks, see paragraph [0060] of document D10. With the dove-tailed shape of the threads as in feature 1.7 of claim 1, the width could either be measured at the crest, along the pitch line or at the root. As a consequence, claim 1 of the twelfth auxiliary request did not validly claim priority. There was no case of partial priority because, unlike what was set out in Reasons 6.4 of decision G 1/15, claim 1 was not a generic "OR"-claim; it did not not define alternative features.

- *Novelty over document D5 (Article 54(1) and (3) EPC)*

The embodiment of Figures 1, 2, 2A to 2D and 3 of document D5 fell within the scope of claim 1 of the twelfth auxiliary request. Reference was made to paragraphs [0036], [0041] to [0043], [0045], [0049], [0051], [0058], [0060] to [0062], and [0065] to [0068] of document D5. In fact, Figure 3 of document D5 was identical to Figure 4A of the patent; it set out explicitly the variation in leads of the pin load flank and stab flank and the box load flank and stab flank, which necessarily resulted in the claimed groove widths and thread widths of each of the male and female threads. Accordingly, every feature of claim 1 of the twelfth auxiliary request was disclosed by the embodiment of document D5. The requirements of Article 54(1) and (3) EPC were not met.

Thirteenth auxiliary request

- *Admittance*

The thirteenth auxiliary request should not be admitted in the appeal proceedings. In view of point 6.3 of the opposition division's communication sent in annex to the summons, the claims of the thirteenth auxiliary request could and should have been submitted before.

- *Late-filed objection of added subject-matter*

Claim 1 of the thirteenth auxiliary request did not require the thread crests and thread roots to be in contact in the constant-thread-width portions or in the varying-thread-width portions, contrary to the disclosure in paragraphs [0041] and [0042] of the application as filed. The requirements of Article 123(2) EPC were thus not met. This objection had already been raised on pages 7 and 8 of the appellant's letter dated 10 June 2024. In particular, point 12.5 of that letter set out that the objection also applied to the thirteenth auxiliary request in the event that it was admitted. Hence, the objection of added subject-matter should be taken into account.

- *Right to priority*

Claim 1 of the thirteenth auxiliary request did not validly claim priority for the following reasons subsumed under 'Priority Issue A' and 'Priority Issue B'.

(i) *Priority Issue A*

Compared to claim 1 of the priority application, claim 1 of the thirteenth auxiliary request was amended by adding several features taken from the detailed description of an embodiment concerning a threaded connection of the coupling-type. In this context, the use of the phrase "*toward a center of the box*" in paragraph [0049] of document D10 to define the variation of the female thread in the varying-thread-width portion referred to the axial centre of the coupling arranged between two pipes. In this context, the word "box" was used unconventionally and contrary to the explanation given in paragraph [0005] of document D10 as the coupling in its entirety. However, claim 1 of the thirteenth auxiliary request was not limited to a threaded connection of the coupling-type; it also encompassed integral-type connections. The phrase "*toward a center of the box*" in feature 1.3 of claim 1 changed in meaning for such integral-type connections. When translating the centre of the box in the same way as for the coupling-type connection, claim 1 would result in female thread variations in the direction towards the centre of the female thread. Without specifying the starting point, this could mean in both directions of the female thread. Claim 1 did not imply a correspondence between the male and female threads from which one direction could be excluded. The last sentence of paragraph [0031] of document D10 stated that the *construction* of the threaded connection described with reference to Figure 1 might also be applied to an integral-type threaded connection. But the verbatim wording of the detailed embodiment was not disclosed for an integral-type connection. The amendment of claim 1 without specifying the type of threaded connection resulted in a different technical disclosure which did not validly claim priority.

(ii) *Priority Issue B*

As a further development of the objection raised in the context of the twelfth auxiliary request, it was added that point 20 of the board's communication under Article 15(1) RPBA put forward that, in order to validly claim a right to priority, the claim wording must also reflect that the female thread-ridge width corresponded to the male thread-groove width of the varying-thread-width portions. This additional requirement was not reflected by the amended claim wording. In particular, it did not follow from feature 1.6, because the load leads might still differ between the pin and the box.

A second objection under 'Priority Issue B' concerned the differences between feature 1.5 of claim 1 and paragraphs [0054] and [0055] of document D10 on which the amendment was based. Notably, the physical location of the varying-thread-width portions disclosed in these paragraphs, i.e. "in the tip portion of the pin" and "in the central portion of the box", was not included in the claim. The abbreviation "i.e." used in the paragraphs did not make the respective phrases in between which it was used synonymous; it reflected that reference was made to the drawings. There was nothing in claim 1 to limit the location correspondingly. The phrase "tip of the pin" in feature 1.2 was merely used to indicate a direction. Maybe the order of the portions followed from the claim wording, but not their positions. Paragraph [0095] of document D10 emphasised that, without the omitted limitations, the physical location was ambiguous.

XVI. The respondents essentially argued as follows.

Main request

- *Added subject-matter (Article 123(2) EPC)*

The additional features relating to the contact and the lack of contact alleged to be missing from claim 1 were not disclosed in the same paragraphs of the description of the application as filed. Feature 1.8 was taken from paragraphs [0039] and [0040], whereas the additional features were described in separate paragraphs [0041] and [0042]. These paragraphs could be decoupled from one another, particularly since paragraphs [0041] and [0042] were not concerned with the shape in cross-section but with the interaction between male and female threads. The appellant had not shown why the features of the chamfered surfaces of paragraphs [0039] and [0040] were inextricably linked to the features of contact and non-contact. In particular, there was no link between the contact or otherwise between the various load and stab flanks and thread crest and thread roots and the presence or otherwise of chamfered surfaces. If chamfers were present, it was still possible to have contact or not between the individual crests and roots or stab flanks. In fact, the statements relating to whether or not there was contact between the chamfered surfaces were made in connection with the contact or otherwise between the other surfaces referred to in paragraphs [0041] and [0042] rather than due to the presence of the chamfered surfaces themselves. Any possible interaction between different surfaces of the threads was possible whether chamfers were present or not. This showed that the presence or otherwise of chamfers did not have a

bearing on the relative arrangement of the male and female thread or on any possible interaction that might exist between the male and female threads when the connection was made up. Also, the appellant had not shown that the overall disclosure did not justify the generalising isolation of the chamfers and their introduction into the claim. The embodiment of Figure 3 disclosed a contact between the stab flanks and the chamfered surfaces as well as gaps between male crests and female roots, contrary to what was disclosed in paragraph [0041]. The same applied to the embodiment of Figure 6. There was also no clearly recognisable functional relationship. The chamfers provided the technical effect of a reduced stress on the teeth (see the first paragraph of page 23 of the appealed decision). This technical advantage had nothing to do with whether there was contact between the load and stab flanks, the thread roots and crests or even between the chamfered surfaces. The latter served an improved sealing performance, see paragraph [0073]. This has no functional relationship with whether the chamfers were contacting or not. The comments in paragraphs [0041] and [0042] relating to contact or non-contact between chamfered surfaces were just for clearing up possible ambiguities whether the chamfered surface was treated like the stab flank or like the thread root in terms of contact and non-contact. The features of paragraphs [0041] and [0042] were presented as being advantageous over and above the presence of chamfers; they were not mandatory. They were merely part of a statement that the functions achieved by the preceding description of contact and non-contact of the thread load and stab flanks and roots and crests were achieved by arranging the chamfers as described. Therefore, no intermediate generalisation resulted from claim 1 of the main request.

Twelfth auxiliary request

- *Admittance*

Claim 1 of the twelfth auxiliary request comprised further features that were introduced in order to overcome the objection of added subject-matter raised against claim 1 of the respondents' main request. Before the first-instance oral proceedings, the appellant had not raised any objections against the claims of auxiliary request 11 which was held allowable by the opposition division. The claims of the twelfth auxiliary request were therefore filed at the first possible opportunity, namely in reply to the statement of grounds of appeal. It should also be taken into account that feature 1.8 had already been added to claim 1 of some of the auxiliary requests filed in reply to the notice of opposition. Yet the opposition division had made no comments on the allowability of this amendment in the communication sent in annex to the summons for oral proceedings. Though the appellant had raised an objection under Article 123(2) EPC against claim 1 of auxiliary request 5 in its letter dated 22 July 2022, this was the last day on which submissions could be filed under Rule 116 EPC. The respondents' letter dated 31 August 2022 dealt with other matters. Hence, the twelfth auxiliary request should be admitted under Article 12(4) and (6) RPBA.

- *Right to priority*

The meaning of the expression *correspond to* in the last sentence of paragraph [0049] of document D10 was not that a correspondence between the thread-groove width of the varying-thread width portion of the female

thread and the thread-ridge width of the varying-thread-width portion of the male thread was necessary. This immediately followed from the final sentence of paragraph [0048] of document D10 which required, in very similar terms to the final sentence of paragraph [0049] of D10, that the "*thread-ridge width and thread-groove width of the constant-thread-width portion 211 correspond to the thread-groove width and the thread-ridge width, respectively, of the constant-thread-width portion 111 of the male thread 11*". Given the disclosure in paragraph [0041] of document D10, third sentence, that "*in the constant-thread width portions 111 and 211, stab flanks 11c and 21c are not in contact with each other*", it was immediately apparent that the final sentence of paragraph [0048] could not mean that the thread-ridge width of the female thread in the constant thread-width portion was exactly the same as the thread-groove width of the constant-thread width portion of the male thread. If that were the case, there would be contact at both the load and stab flanks in the constant-thread-width portion. Therefore, it must be concluded that the expression *correspond to* when used in the priority application in relation with the thread and groove widths only referred to a generic nature of the threads interacting. This was already defined in feature 1.1 of claim 1, where the female thread was said to be *corresponding to* the male thread. This was not inconsistent with paragraph [0042] of document D10, which was more specific than paragraph [0049] of document D10. The widths of a thread were normally measured at the middle point of the flanks. Furthermore, it had to be considered that paragraph [0049] of document D10 referred to the situation when the threaded connection had been made up. Hence, claim 1 of the twelfth auxiliary request was fully entitled to the claimed priority date. Even if the appellant's

objection were followed, in accordance with decision G 1/15 claim 1 enjoyed partial priority for those threaded connections where the widths were the same in the varying-thread-width portions.

- *Novelty over document D5 (Article 54(1) and (3) EPC)*

As claim 1 of the twelfth auxiliary request was entitled to priority, document D5 was not comprised in the state of the art in respect of the subject-matter of claim 1.

Thirteenth auxiliary request

- *Admittance*

The thirteenth auxiliary request should be admitted in the appeal proceedings for the same reasons as the twelfth auxiliary request. Point 6 of the opposition division's communication sent in annex to the summons referred to claim 1 as granted. Claim 1 of the thirteenth auxiliary request overcame the issue identified therein by the addition of feature 1.3a.

- *Late-filed objection of added subject-matter*

The appellant's objection under Article 123(2) EPC was late-filed and should not be admitted in the appeal proceedings. It must also be considered that claim 1 of the thirteenth auxiliary request required the load flanks and the stab flanks to be in mutual contact.

- *Right to priority*

(i) *Priority Issue A*

The priority application directly and unambiguously disclosed an integral-type threaded connection in which the varying-thread-width portion of the female thread had a thread-ridge width gradually increasing going from the constant-thread-width portion of the female thread in the direction opposite to that toward the tip of the box. In the direction "toward a centre of the box" thus meant in the direction away from the end of the box. This was in accordance with what was explicitly stated in the third sentence of paragraph [0049] of document D10. The appellant's interpretation failed because the appellant incorrectly focused on the term "center of the box" rather than construing the whole term "toward a center of the box" which was used consistently both throughout the priority document and the application as filed in the sense of away from the end of the box. Furthermore, the appellant's analysis mistakenly relied on the thread and the box being synonymous.

(ii) Priority Issue B

The further development of the objection raised by the appellant was actually a change of case. The feature objected to was already in claim 1 as granted. The first part of paragraph [0049] of document D10 had never been an issue, see point 20.1 of the reasons for the decision under appeal and point 5.2 of the statement of grounds of appeal. This objection could thus have been raised before.

Regarding the second objection under 'Priority Issue B', it was noted that the features added in claim 1 from paragraphs [0054] and [0055] of document D10 were the features given as equivalent to the features said

by the appellant to be missing. In those paragraphs, the features added were linked by "i.e.", which had the universally understood meaning "in other words", to the features said by the appellant to be missing. On this basis alone, no subject matter was added. In any case, they were implicit from the claim wording. Claim 1 defined that the stab lead "*increases at the switch from the varying-thread-width portion (112, 212) to the constant-thread-width portion (111, 211)*". Given that in claim 1 the load leads of the pin and box were "*constant over the entire thread length*" and that the thread-groove width of the varying-thread-width portion of the pin was said to be "*gradually increasing going from the constant-thread-width portion of the male thread toward a tip of the pin*" and that the thread-groove width was "*equal to the thread-groove width of the constant-thread-width portion of the male thread or larger*" meant necessarily that the varying-thread width portion of the male thread must be on the tip portion side of the pin compared to the constant-thread-width portion of the male thread which must be on the base portion side. The same analysis could be performed with reference to the box. The appellant's reference to paragraph [0095] actually undermined its own case because, if anything, this showed that the features of paragraphs [0054] and [0055] were not in fact essential.

Reasons for the Decision

Main request (auxiliary request 11 underlying the decision under appeal) - added subject-matter (Article 123(2) EPC)

1. It was common ground between the parties that the chamfered surfaces of feature 1.8 were only disclosed

in the application as filed in the context of the drawings and the detailed description of paragraphs [0039] to [0042] (see the English translation of the PCT-application filed upon Entry into the Regional Phase). By adding feature 1.8 to claim 1, the respondents thus limited the claimed threaded connection by a feature taken from a specific embodiment. The text in paragraphs [0039] and [0040] essentially corresponds to the wording of feature 1.8. The issue under dispute was whether the additional features disclosed in paragraphs [0041] and [0042] and in the drawings of the application as filed are inextricably linked to feature 1.8 so that their omission from claim 1 would result in an unallowable intermediate generalisation.

2. In the appellant's view, the question should be answered in the affirmative. The relative position of load flanks and stab flanks was not described as optional in paragraphs [0041] and [0042] of the application as filed. The fact that the chamfered surfaces were optional features did not mean that any additional features that were realised in case the chamfered surfaces were present were themselves optional.

3. The respondents disagreed and pointed out that the chamfered surfaces and the additional features are in separate paragraphs of the application as filed. There was no link between a state of contact or non-contact in respect of the various thread flanks and thread crests and roots, on the one hand, and the presence of chamfered surfaces, on the other hand. The chamfers had no bearing on how the various surfaces of the threads interacted.

4. Although the chamfered surfaces are described as optional features in paragraph [0039] ("*preferably*"), the board sees no ambiguity in the disclosure of paragraph [0041] that, in the event the male and female threads comprise chamfered surfaces ("*If the male and female threads 11 and 21 include chamfered surfaces 11e and 21e,* [...]"), they are not in contact with each other in the constant-thread-width portions. The word "*either*" at the end of the sentence refers to the previous sentence, according to which the stab flanks are not in contact with each other. The conditional clause in paragraph [0042], in turn, clearly discloses that, in the event the male and female threads comprise chamfered surfaces, they are in contact with each other in the varying-thread-width portions. In the same paragraph, the stab flanks (and the load flanks) are also described in contact with each other. The drawings clearly disclose these additional features: Figure 2A illustrates a gap between the stab flanks 11c, 21c and between the chamfers 11e, 21e in the constant-thread-width portions, Figure 2B shows that there is no such gap in the varying-thread-width portions. No alternative arrangement of the stab flanks or the chamfered surfaces is disclosed in the context of this specific embodiment of the application as filed. The board is therefore not persuaded that feature 1.8 of claim 1 is not closely related to the additional features disclosed in paragraphs [0041] and [0042] of the application as filed.

5. The respondents argued that paragraphs [0039] and [0040], on the one hand, and paragraphs [0041] and [0042], on the other hand, could be decoupled because they were concerned with different aspects of the embodiment. The board disagrees. The chamfered surfaces are defined in feature 1.8 and in paragraph [0039] of

the application as filed as inclined surfaces connecting a stab flank and a thread root. These are depicted in Figures 2A and 2B of the application as filed as slanted lines 11e and 21e bevelling off a corner of the (cross-sectional view of the) male or female thread. As such, the chamfers shape the surface of both the male thread and the female thread. Through the conditional clauses in paragraphs [0041] and [0042], the application as filed expresses the requirement that a threaded connection with male and female threads having the shape as defined in paragraphs [0039] and [0040] must have the additional features of contact and non-contact in the different portions. Even if it were theoretically possible for the respective stab flanks of male and female threads to make contact in the varying-thread-width portions while preserving a gap between the chamfered surfaces, such an option would be at variance with the straightforward disclosure of paragraph [0042].

6. No other passage of the description of the application as filed indicates that the additional features paragraphs [0041] and [0042] can be considered optional in the embodiment shown in Figures 2A and 2B. The respondents have referred to Figures 3 and 6. But Figure 6 is depicted as part of a "second embodiment". Regarding Figure 3, the appellant convincingly argued that it shows a larger structure of the first embodiment with the aim to highlight the variations in the maximum and minimum thread-groove widths ("$W11_{min}$", "$W21_{max}$"). It cannot be concluded from this drawing that what is specifically described in the context of Figures 2A and 2B is no longer mandatory.

7. Also with regard to the functions of feature 1.8 and the additional features of paragraphs [0041] and [0042]

the respondents have not persuaded the board. It may very well be that chamfered surfaces reduce the stress on the teeth of the male and female threads. But through their contact in the varying-thread-width portions (and lack of contact in the constant-thread-width portions), it stands to reason that the chamfered surfaces also influence the torque build-up and the sealing performance when the threaded connection is made up.

8. It follows from the above that, by adding feature 1.8 but omitting the additional features disclosed in paragraphs [0041] and [0042] of the application as filed from claim 1 of the respondents' main request, the claim has been amended in such a way that it contains subject-matter which extends beyond the content of the application as filed (Article 123(2) EPC). The respondents' main request is thus not allowable.

Twelfth auxiliary request

9. After withdrawal of the first to eleventh auxiliary requests at the oral proceedings held before the board, the twelfth auxiliary request was the respondents' next request to be considered. The claims of the twelfth auxiliary request were filed for the first time in reply to the statement of grounds of appeal.

(a) Admittance

10. The appellant requested not to admit the twelfth auxiliary request in the appeal proceedings. Its case was essentially that the request could and should have been filed already during the proceedings before the

opposition division, especially in view of the appellant's objections against the claims of then auxiliary request 5 raised in the letter dated 22 July 2022.

11. The board notes that the passage on pages 6 and 7 of that letter, to which the appellant referred, objects against an amendment consisting in isolating features from paragraphs [0041] and [0042] of the application as filed. However, the objection was not directed to the addition of chamfered surfaces to claim 1. Claim 1 of what was then auxiliary request 5 did not define any chamfered surfaces. In fact, the only other issue with Article 123(2) EPC the appellant seemed to have had was against claim 1 of then auxiliary request 2 also filed in reply to the notice of opposition, albeit for the reason that the geometrical features of paragraphs [0037] and [0038] were missing (see page 5 of the letter dated 22 July 2022). Moreover, the opposition division had not seen any issue with Article 123(2) EPC at all in the communication sent in annex to the summons for the oral proceedings.

12. It was only at the oral proceedings held before the opposition division that the appellant raised an objection of added subject-matter against feature 1.8 of claim 1 of auxiliary request 11 arguing an intermediate generalisation in respect of paragraph [0041] and [0042] of the application as filed (see point 25 of the reasons for the decision under appeal). Filing of the twelfth auxiliary request with the reply to the statement of grounds of appeal thus constitutes a justified reaction to a new situation that had arisen only at the oral proceedings.

13. The board finds it appropriate to add that the amendments 1.7a and 1.8a to claim 1 of the twelfth auxiliary request are not complex and appear at first sight suitable to address the issues of added subject-matter raised against claim 1 of the respondents' main request.

14. Having regard to the above considerations, the board admitted the twelfth auxiliary request in the appeal proceedings (Article 12(4) and (6) RPBA).

(b) Right to priority

15. The appellant objected that claim 1 of the twelfth auxiliary request did not validly claim priority from the application JP 2016-181176.

16. Compared to the priority application, claim 1 was amended by adding, *inter alia*, feature 1.3. This requirement limited the female thread in that it should include a varying-thread-width portion having a thread-ridge width gradually increasing and a thread-groove width gradually decreasing toward a centre of the box. The parties agree that this additional feature was taken verbatim from the description of the priority application. In this respect, paragraph [0049] of document D10 was mentioned by the parties. Document D10 was filed by the appellant in the proceedings before the opposition division and marks the changes between the English translation of the PCT-application and that of the priority application. The board notes that paragraph [0049] of document D10 appears to have number [0048] in the original priority application (**"ねじ幅可変部** 2 1 2 [...]").

17. The appellant's objection was directed against the fact that the additional constraint of paragraph [0049] of document D10 that the thread-groove width of the female thread corresponds to the thread-ridge width of the male thread in the respective varying-thread-width portions was not incorporated in claim 1 of the twelfth auxiliary request. It was initially presented as the first objection under 'Priority Issue B' against claim 1 of the main request on appeal in reaction to the opposition division's conclusion in point 20.3.1 of the reasons for the decision under appeal.

18. The respondents' case was that this allegedly omitted constraint was already included in claim 1 by virtue of feature 1.1, namely the requirement that the female thread is *corresponding to* the male thread. The respondents also submitted that paragraph [0048] of document D10 required in very similar terms that the ridge width and groove width of the female thread *correspond to* the groove width and ridge width, respectively, of the male thread in the constant-thread-width portions 111, 211, despite the fact that it was immediately apparent from paragraph [0041] of document D10 that these widths were not exactly the same.

19. The respondents' position on the ambiguous meaning of the expression *correspond to* in paragraph [0048] of document D10 is convincing. It indeed follows from paragraph [0041] of document D10 that, when the threaded connection has been made up, the stab flanks 11c, 21c are not in contact with each other. Figure 2A clearly illustrates that a gap is present between the male thread 11 and the female thread 21. The respective widths of the female ridges and grooves in the constant thread-width portions 111, 211 are thus different from

those of the male grooves and ridges, respectively, even if paragraph [0048] of document D10 indicates that they correspond to each other. This view on the matter does, however, not extend to the varying-thread-width portions 112, 212 described in paragraph [0049] of document D10. Both the description and the drawings of the embodiment disclosed in the priority application indicate without ambiguity that the load flanks 11d, 21d and the stab flanks 11c, 21c are in contact with each other when the connection has been made up so that no gap is present between the male and female threads in the varying-thread-width portions (Figures 2B, 4B and paragraph [0042] of document D10). It then follows that, in the varying-thread-width portions, the widths of the female ridges and grooves is the same as those of the male grooves and ridges, respectively. The expression *correspond to* in paragraph [0049] of document D10 is thus not to be understood in a broad sense as encompassing variations that result in gaps between the thread flanks.

20. The board does not concur with the respondents either in their view that the additional constraint of paragraph [0049] of document D10 was subsumed under feature 1.1 of claim 1. In the absence of any mention of the varying-thread-width portions, the thread-groove width or the thread-ridge width in feature 1.1, and further considering the ambiguous meaning of the expression *correspond to* in the description of the constant-thread-width portions in paragraph [0048] of document D10, it cannot be concluded that feature 1.1 must be construed that the grooves and ridges along the entire length of the female thread correspond in width to the respective ridges and grooves of the male thread.

21. In point 20.3.1 of the reasons for the decision under appeal, the opposition division seems to have inferred the additional constraint of paragraph [0049] from features 1.4 to 1.6 of claim 1 of the then auxiliary request 9. However, the board is unable to derive from the general wording of these features ("*the load lead is larger than the stab lead*", "*the load leads* [...] *are constant over the entire thread length*", "*the stab lead increases at the switch*") whether or not the widths of the individual female ridges and grooves correspond to those of the male grooves and ridges, respectively, in the varying-thread-width portions.

22. Also the additional features 1.7a and 1.8a of claim 1 of the twelfth auxiliary request do not imply the constraint set by the last sentence of paragraph [0049] of document D10. The requirement that, in the varying-thread-width portions of the male and female thread, load flanks of the male thread are in contact with load flanks of the female thread and stab flanks of the male thread are in contact with stab flanks of the female thread does not entail the exact location of the respective points of contact. Thus, the width of a female thread-groove, for example, may not correspond to the width of the male thread-ridge despite there being contact between the stab and load flanks of the ridge and the stab and load flanks of the groove. This is all the more so since the male and female threads of claim 1 are limited to dove-tailed shapes and, as the respondents indicated in the oral proceedings before the board, the width is normally measured at the middle of the flanks.

23. In view of the above, the board concludes that there is no direct and unambiguous disclosure in the priority application of a threaded connection having feature 1.3

of claim 1 without the additional constraint that the thread-ridge width and the thread-groove width of the female thread correspond to the thread-groove width and the thread-ridge width, respectively, of the male thread in the respective varying-thread-width portions, as disclosed by paragraph [0049] of document D10.

24. In a further line of argument, the respondents submitted that claim 1 enjoyed partial priority for those threaded connections where the widths were the same in the varying-thread-width portions. Decision G 1/15 was mentioned in this context. The board is not persuaded. The Enlarged Board of Appeal ruled in decision G 1/15 that, under the EPC, entitlement to partial priority may not be refused for a claim encompassing alternative subject-matter by virtue of one or more generic expressions or otherwise (generic "OR"-claim) provided that said alternative subject-matter has been disclosed for the first time, directly, or at least implicitly, unambiguously and in an enabling manner in the priority document. However, in the present case, claim 1 does not contain any generic expression that can be understood to encompass alternative subject-matter. In fact, none of the features of claim 1 of the twelfth auxiliary request brings the width of the female thread-grooves in connection with that of the male thread-ridges, or the width of the male thread-grooves with that of the female thread-ridges, in the varying-thread-width portions. Therefore, claim 1 is not a generic "OR" claim in the sense of decision G 1/15.

25. For the above reasons, claim 1 of the twelfth auxiliary request does not validly claim priority (Article 87(1) EPC). The effective date is 15 September 2017.

(c) Novelty over document D5 (Article 54(1) and (3) EPC)

26. Document D5 is a European patent application published on 24 July 2019, i.e. after the effective date valid for claim 1 of the twelfth auxiliary request. It originated as a Euro-PCT application published under the PCT as WO 2018/052141 A1 and has a priority date of 16 September 2016. Given that the requirements of Article 153(5) EPC are fulfilled, document D5 is thus comprised in the state of the art under Article 54(3) EPC in respect of the subject-matter of claim 1.

27. The appellant argued by referring to paragraphs [0036], [0041] to [0043], [0045], [0049], [0051], [0058], [0060] to [0062], and [0065] to [0068] that the embodiment shown in Figures 1, 2, 2A to 2D and 3 of document D5 comprises all features of claim 1 of the twelfth auxiliary request.

28. The respondents did not take position on the novelty objection over document D5.

29. Absent any indication to the contrary, the appellant's objection is convincing. Therefore, the board concludes that the subject-matter of claim 1 of the twelfth auxiliary request lacks novelty over document D5 (Article 54(1) and (3) EPC). The twelfth auxiliary request is thus not allowable.

Thirteenth auxiliary request

(a) Admittance

30. The appellant requested not to admit the thirteenth auxiliary request in the appeal proceedings. Its

reasons were the same as for the twelfth auxiliary request. The appellant also referred to point 6.3 of the opposition division's communication sent in annex to the summons for oral proceedings and argued that the objection raised therein should have triggered the respondents to file the thirteenth auxiliary request at an earlier stage.

31. Point 6.3 of the opposition division's communication concerned the question whether claim 1 as granted validly claimed a right to priority. More specifically, the opposition division refuted the argument put forward by the respondents that paragraph [0049] of document D10 defined the thread-ridge width of the female thread without reference to the grooves. The respondents' argument was in response to the appellant's objection that the priority application only disclosed the female thread-ridge width in combination with the female thread-groove width, so that claim 1 as granted, by defining the varying-thread-width portion of the female thread by means of the thread-ridge width but without mentioning the thread-groove width, constituted an unallowable intermediate generalisation.

32. The board cannot see how the amendments of claim 1 of the thirteenth auxiliary request are linked to this issue. The respondents added the thread-groove width to feature 1.3 of claim 1 in each of auxiliary requests 9 to 11 underlying the decision under appeal. Rather, the thirteenth auxiliary request must be considered as a reaction to an objection by the appellant raised for the first time at the oral proceedings held before the opposition division, namely that the last two lines of paragraph [0049] of document D10 had been omitted from

claim 1 (see point 20.2.1 of the reasons for the decision under appeal).

33. Further considering that the amendments to claim 1 of the thirteenth auxiliary request would, prima facie, overcome the above-mentioned objection of the appellant, the board decided to admit the thirteenth auxiliary request in the appeal proceedings (Article 12(4) and (6) RPBA).

(b) Late-filed objection of added subject-matter

34. At the oral proceedings held before the board, the appellant raised an objection of added subject-matter under Article 123(2) EPC against claim 1 of the thirteenth auxiliary request. Essentially, it was argued that the claim wording did not require any contact between the thread crests and thread roots of the male and female threads in the constant-thread-width and varying-thread-width portions. This was contrary to the disclosure of paragraphs [0041] and [0042] of the application as filed. In the appellant's view, this objection was already raised in its letter dated dated 10 June 2024.

35. The board takes notice that points 10 and 11 of the appellant's letter dated 10 June 2024 already included objections of added subject-matter referring to paragraphs [0041] and [0042] of the application as filed. Yet these were directed against claim 1 of the sixth and seventh auxiliary request, respectively. The last sentence in point 12.5 of the letter may be understood to mean that all the objections presented in the letter also apply to the thirteenth auxiliary request if it were admitted. It is, however, not sufficient to address in a substantiated manner the

specific objection against claim 1 of the thirteenth auxiliary request, as was done at the oral proceedings. In addition, the corresponding passages in points 10.3 and 11.3 of the letter are very general and contain ambiguous statements in terms of the features that were supposed to be missing from claim 1 ("*These two paragraphs define a combination of contacts and gaps in axial and radial directions between multiple claimed features, and no basis has been given for the selection*", "*contacts are mentioned but no gaps (or absence of gaps) have been mentioned in the claim*", "*[l]oad flanks and stab flanks (which are recited in the claim) are mentioned in these passages, but no associated contact (or lack of contacts) have been mentioned in the claim*").

36. It follows from the above that the objection under Article 123(2) EPC against claim 1 of the thirteenth auxiliary request is an amendment to the appellant's appeal case made only at the oral proceedings before the board and, hence, after notification of the communication under Article 15(1) RPBA. Pursuant to Article 13(2) RPBA such an amendment shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

37. No such exceptional circumstances were invoked by the appellant. They are not apparent to the board either. To the extent that the objection was directed against the amendment of the chamfered surfaces of feature 1.8, it could and should have been raised already at the beginning of the appeal proceedings in the context of the respondents' main request or, arguably, even during the proceedings before the opposition division in the

context of one of the then auxiliary requests which also claimed the chamfered surfaces.

38. The board did not admit this late-filed objection under Article 123(2) EPC (Article 13(2) RPBA).

(c) Right to priority

39. The appellant argued that claim 1 of the thirteenth auxiliary request does not validly claim right to priority. Three lines of arguments were put forward.

40. The first line of argument was initially presented as 'Priority Issue A' against claim 1 of the respondents' main request on appeal in reaction to the opposition division's conclusion in point 15.7 of the reasons for the decision under appeal. Essentially, the appellant objected that the expression *toward a center of the box* in feature 1.3 of claim 1 has a different meaning when compared to its use in the particular context of a coupling-type threaded connection in paragraph [0049] of document D10. Without an intermediary coupling element, so argued the appellant, the centre of the box could be translated to the centre *of the female thread* of the second pipe. Consequently, the addition of feature 1.3 to claim 1 of the priority application resulted in embodiments directed to an integral-type threaded connection in which the width of the female thread-ridge would increase and the width of the female thread-groove would decrease in a direction that was not necessarily *away* from the end of the box but possibly *towards* the end of the box, i.e. in the exact opposite direction. Such embodiments lacked basis in the priority application.

41. The board concurs with the appellant that the centre of the box could have a different meaning in the context of an integral-type connection compared to a coupling-type connection. If the box is understood as being restricted to the female threaded region of one of the connecting pipes, as paragraph [0005] of document D10 implies, it would be legitimate to question where its centre should lie. Nevertheless, it must be considered that feature 1.3 of claim 1 also defines the starting point of the varying-thread-width portion of the female thread: the width of the ridge gradually increases and the width of the groove gradually decreases *going from* the constant-thread-width portion. Given that the corresponding changes of the width of the male thread defined in feature 1.2 of claim 1 occur *going from* the constant-thread-width portion of the male thread in a direction *toward a tip of the pin*, it stands to reason that, in a threaded connection of the integral-type, the changes of the female thread width of feature 1.3 also occur in a direction toward a tip of the pin, i.e. a direction away from the end of the box.

42. The appellant submitted that claim 1 did not imply a correspondence between the male and female threads from which one direction of the female thread variations could be excluded. The board disagrees. In a threaded connection with constant load leads of the pin and the box over the entire thread length (feature 1.6), the gradual increase of the thread-ridge width of the female thread must occur in the same direction as the gradual increase of the thread-groove width of the male thread. As the respondents convincingly argued, the appellant's line of argument considered the *position of* a centre of the box rather than the *direction* expressed by the claimed expression *toward a center of the box*.

43. In view of the above, the board concludes that, compared to the priority application, the meaning of the expression *toward a center of the box* did not change by adding it to a claim which did not specify the type of threaded connection. Also for embodiments of the integral-type connection there is basis in the priority application for the claimed changes of the female thread width towards the centre of the box. The board thus disagrees with the appellant that the right to priority is invalid in view of 'Priority Issue A'.

44. The appellant's second line of argument built further on the objection raised in the context of the twelfth auxiliary request (see point 17. above). While claim 1 of the thirteenth auxiliary request contained a further limitation in accordance with the last sentence of paragraph [0049] of document D10, the requirement of the last-but-one sentence of that paragraph was, in the appellant's view, not reflected by the claim wording.

45. In the board's view, a threaded connection with the following features

- a female thread corresponding to the male thread (feature 1.1),
- with a thread-groove width of the varying-thread-width portion of the male thread gradually increasing going from the constant-thread-width portion of the male thread toward a tip of the pin (feature 1.2),
- with a thread-ridge width of the varying-thread-width portion of the female thread gradually increasing going from the constant thread-width portion of the female thread toward a center of the box (feature 1.3)
- with a thread-groove width of the varying-thread-width portion of the female thread which gradually

decreases, going from the constant-thread-width portion toward the center of the box to correspond to the thread-ridge width of the varying-thread-width portion of the male thread (feature 1.3a),
- with constant load leads of the pin and box over the entire thread length (feature 1.6), and
- with contacting load flanks, contacting stab flanks and contacting chamfered surfaces in the varying-thread-width portions of the male and female threads (features 1.7a, 1.8a)

must also comply with the requirement that the thread-ridge width of the varying-thread-width portion of the female thread gradually increases to correspond to the thread-groove width of the varying-thread-width portion of the male thread. In other words, it is *not* apparent how the load lead could remain constant when the width of the female thread-groove corresponded to the width of the male thread-ridge but the width of the female thread-ridge did *not* correspond to the width of the male thread-groove. When asked at the oral proceedings, the appellant was not able to produce any counterexample.

46. Hence, it must be concluded that the various restrictions in claim 1 of the thirteenth auxiliary request are such that also the feature disclosed in the last-but-one sentence of paragraph [0049] of document D10 was implicit. The board thus disagrees with the appellant that the right to priority is invalid in view of its second line of argument.

47. The appellant's third line of argument was initially presented as a second objection under 'Priority Issue B' against claim 1 of the main request on appeal in reaction to the opposition division's conclusion in point 20.3.2 of the reasons for the decision under

appeal. It was directed against the omission from claim 1 of the physical location of the constant-thread-width portions and the varying-thread-width portions, despite it being disclosed in paragraphs [0054] and [0055] of document D10 on which the amendments of features 1.5 and 1.6 were based.

48. The respondents' view was that the requirements of feature 1.2 of claim 1 necessarily imply that the varying-thread width portion of the male thread was on the tip-portion side of the pin compared to the constant-thread-width portion of the male thread. This argument is convincing. If the width of the thread-groove of the varying-thread-width portion of the male thread gradually increases *going from* the constant-thread-width portion of the male thread *toward a tip of the pin* (feature 1.2), this can only mean that the constant-thread-width portion of the male thread lies on the base-end or proximal side of the pin and the varying-thread-width portion of the male thread on the tip-end or distal side. Similarly, it follows from the fact that the thread-ridge width of the varying-thread-width portion of the female thread gradually increases *going from* the constant-thread-width portion of the female thread *toward a center of the box* (feature 1.3), that the constant-thread-width portion of the female thread lies on the tip-end side of the box and the varying-thread-width portion of the female thread lies on the base-end side of the box which, in the case of a coupling-type connection, is the central portion of the box. The board further notes that the terms used in paragraphs [0054] and [0055] ("tip portion", "base portion") do not imply a precise location on the pin. Rather, they express arrangement of the different thread portions relative to one another. Consequently, the addition of features 1.5 and 1.6 to claim 1 did not

omit any information from paragraphs [0054] and [0055] of document D10 that was inextricably linked thereto. Also the third line of argument is not persuasive.

49. In sum, the appellant did not convincingly argue that claim 1 of the thirteenth auxiliary request does not validly claim priority from the earlier application JP 2016-181176 under Article 87(1) EPC. The effective date of the claim is thus 16 September 2016.

(d) Novelty over document D5

50. As a consequence of the foregoing, document D5 is not comprised in the state of the art under Article 54(2) or (3) EPC in respect of the subject-matter of claim 1 of the thirteenth auxiliary request.

51. The appellant did not present any further objections under Article 54(1) or 56 EPC against the thirteenth auxiliary request. The board thus concludes that the thirteenth auxiliary request is allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent as amended on the basis of following documents
   - Claims: claims 1-3 filed as auxiliary request 13 on 12 September 2023,
   - Description:
     - paragraphs 1-11, 13-40, 43-97, 99-111 of the patent specification,
     - paragraphs 41, 42 and 98 filed as auxiliary request 11 on 21 July 2022,
     - paragraph 12 filed as auxiliary request 13 on 12 September 2023,
   - Drawings: sheets 1-9 of the patent specification

The Registrar: The Chairman:

N. Schneider P. Lanz

Decision electronically authenticated