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Datasheet for the decision of 27 May 2024

Case Number: T 0762/22 - 3.2.01

Application Number: 14830649.1

Publication Number: 3080395

IPC: E21D9/00

Language of the proceedings: EN

Title of invention:
PROCEDURE FOR THE CONSTRUCTION OF CROSS PASSAGES IN DOUBLE PIPE TUNNELS

Patent Proprietor:
SWS ENGINEERING S.p.A.

Opponents:
Körner, Andreas
HERRENKNECHT AKTIENGESELLSCHAFT

Headword:

Relevant legal provisions:
EPC Art. 100(c), 123(2)
RPBA 2020 Art. 13(2)

Keyword:
Grounds for opposition - extension of subject-matter (yes)
Amendment after communication of the Board - exceptional circumstances (no)

Decisions cited:
G 0002/10, T 0437/17

Catchword:

Europäisches Patentamt
European Patent Office
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Beschwerdekammern

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Case Number: T 0762/22 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 27 May 2024

Appellant: (Patent Proprietor)	SWS ENGINEERING S.p.A. Via della Stazione, 27 38123 Trento (TN) Frazione Mattarello (IT)
Representative:	Brunacci, Marco BRUNACCI & PARTNERS S.r.l. Via Pietro Giardini, 625 41125 Modena (MO) (IT)
Respondent: (Opponent 1)	Körner, Andreas Patentanwälte Thömen & Körner Zeppelinstr. 5 30175 Hannover (DE)
Respondent: (Opponent 2)	HERRENKNECHT AKTIENGESELLSCHAFT Schlehenweg 2 77963 Schwanau (DE)
Representative:	Klickow & Wetzel PartGmbB Jessenstraße 4 22767 Hamburg (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 1 February 2022 revoking European patent No. 3080395 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	G. Pricolo
Members:	J. J. de Acha González
	M. Millet

Summary of Facts and Submissions

I. The patent proprietor's appeal lies against the decision of the Opposition Division to revoke the European patent No. 2795055.

II. In its decision, the Opposition Division found among others that the subject-matter of the patent, according to the main request and auxiliary requests 1 and 3 to 7, extended beyond the content of the application as filed (Articles 100(c) and 123(2) EPC). In particular, the Opposition Division found that the subject-matter of claim 1 of these requests represented an unallowable generalisation of the disclosure of the preferred embodiment of the application as originally filed (see WO publication and points 18, 19, 22 and 44 of the contested decision). As regards the auxiliary request 2, the Opposition Division found that the subject-matter of claim 1 did not involve an inventive step in view of D14 (CN102644467A) in combination with common general knowledge. The Opposition Division did not decide on inadmissible extension of the subject-matter of claim 1 of the auxiliary request 2.

III. In the communication under Article 15(1) RPBA (Rules of Procedure of the Boards of Appeal OJ EPO 2024, A15), the Board set out its preliminary view of the case. In particular, the Board explained that none of the requests in appeal fulfilled the requirements of Article 123(2) EPC because the subject-matter resulting from feature IX.1 (see point V below) represented an unallowable intermediate generalisation of the description of a preferred embodiment of the invention in the originally filed documents.

IV. Oral proceedings before the Board took place on 27 May 2024 as a videoconference with the consent of the parties.

The appellant (patent proprietor) requested that the decision of the Opposition Division be set aside and the patent be maintained as granted (main request), or, in the alternative, that the patent be maintained in amended form according to one of the auxiliary requests 1 to 10 filed with the statement of grounds of appeal, or one of the auxiliary requests 11 and 12 filed during the oral proceedings before the Board.

The respondent 1 (opponent 1) by letter of 27 May 2024 informed that they would not attend the oral proceedings and requested that the decision of the Opposition Division to revoke the patent be maintained, i.e. that the appeal of the appellant be dismissed.

The respondent 2 (opponents 2) requested that the appeal be dismissed.

V. Claim 1 of the main request reads as follows (feature numbering of claim 1 according to the contested decision and a difference of claim 1 with respect to originally filed claim 1 underlined by the Board):

I Procedure for the construction of underground transport infrastructures, comprising the steps of:
II excavating at least an underground transport tunnel (1, 2) comprising a first pipe (1) and a second pipe (2) substantially parallel to one another; and
III making at least a bypass tunnel (4) connecting said first pipe (1) and said second pipe (2);
IV wherein said making at least a bypass tunnel (4) comprises the sub-steps of:
IV.1 introducing a removable launching chamber (5) along said first pipe (1) up to a first predefined position (PI) chosen along the longitudinal direction (DI) of said first pipe (1),
IV 1.1 said launching chamber (5) being configured to launch at least a tunnel boring machine (6);
IV.2 introducing a removable arrival chamber (7) along said second pipe (2) up to a second predefined position chosen along the longitudinal direction (D2) of said second pipe (2),
IV.2.1 said arrival chamber (7) being configured to receive said tunnel boring machine (6) as launched by said launching chamber (5);
IV.3 - excavating said bypass tunnel (4) making said tunnel boring machine (6) move forward from said launching chamber (5) to said arrival chamber (7) along a direction transversal (T) to said first pipe (1) and to said second pipe (2); and
IV.4 - removing, once the excavation of the bypass tunnel (4) has been completed, the launching and arrival chambers (5, 7) and the tunnel boring machine (6)
IV.4.2 by making them run along the pipes (1,2) as far as

IV.4.2.1 the outside of the underground transport tunnels (1, 2) or
IV.4.2.2 until they are repositioned in approach to a next bypass tunnel to be excavated and

wherein said excavating the bypass tunnel (4) comprises:
IV 3.1- pushing said tunnel boring machine (6) along said transversal direction (T)
IV 3.1.1 by means of a thrust system (13, 14) present in said removable launching chamber (5),
said procedure being characterized in that it comprises the steps:
IV 3.2- conveying a plurality of precast segments (26) along said first pipe (1) up to said launching chamber (5);
IV 3.3- placing said precast segments (26) one by one between said tunnel boring machine (6) and said thrust system (13, 14);
IV 3.4- excavating said bypass tunnel (4) with gradual forward movements, substantially equal to the length of said precast segments (26),
IV 3.4.1 operated by the thrust system (13, 14) pushing both the precast segments (26)

and the tunnel boring machine (6); and
IV 3.5 - pumping a carrier fluid on the material to excavate through said tunnel boring machine (6) and discharging said material to excavate mixed to said carrier fluid;
V.1 wherein the procedure additionally comprises, before starting the excavation phase of said bypass tunnel (4) by means of the tunnel boring machine (6),
the impermeabilization of said launching chamber (5) to said first pipe (1)
V.2 including the construction of a first impermeabilization structure (10)
V.2.1 consisting of a first shaped wall (11)
V.2.1.1 which substantially matches a portion (la) of the first pipe (1) and
V.2.1.2 prevents the carrier fluid pumped by the tunnel boring machine (6) from flooding the first pipe (1), and
VI the impermeabilization of said arrival chamber (7) to said second pipe (2)
VI.2 including the construction of a second impermeabilization structure (17)
VI.2.1 consisting of a second shaped wall (18)
VI.2.1.1 which substantially matches a portion (2a) of the second pipe (2) and
VI.2.1.2 prevents the carrier fluid pumped by the tunnel boring machine (6) from flooding the second pipe (2),
VII wherein the first shaped wall (11) has a first seal (12),
VII.1of circular shape,
VII.2 through which the tunnel boring machine (6) passes when moving from said launching chamber (5) for excavating said bypass tunnel (4), and
VIII the second shaped wall (18) has a second seal (19),
VIII.1 of circular shape,
VIII.2 through which the tunnel boring machine (6) passes when reaching said arrival chamber (7) while excavating said bypass tunnel (4),
VIII.3 whereby said second impermeabilization structure (17) prevents the carrier fluid pumped by the tunnel boring machine (6) from flooding the second pipe (2); and
IX wherein said removable launching chamber (5) comprises a shaped reaction wall (9),
IX.1 associated with said thrust system (13, 14),
IX.2 with said shaped reaction wall (9) substantially matching a portion of said first pipe (1) in correspondence to said first predefined position (P1).

Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that the features V.2, V.2.1.1, VI.2 and IX.2 read as follows (differences underlined by the Board):

V.2 including the construction of a first impermeabilization structure (10) in correspondence to a first side (8a) of a first base platform (8) of the launching chamber (5), the first impermeabilization structure (10);

V.2.1.1 which substantially matches a first portion (1a) of the first pipe (1) and

VI.2 including the construction of a second impermeabilization structure (17) in correspondence to a third side (16a) of a second base platform (16) of the arrival chamber (7), the second impermeabilization structure (17)

IX.2 with said shaped reaction wall (9) substantially matching a second portion (1b) of said first pipe (1), opposite to the first portioin (sic) (1a), in correspondence to said first predefined position (P1).

Claim 1 of auxiliary request 2 differs from claim 1 of the auxiliary request 1 in that the features IV.3.1.1 and IX.1 read as follows (differences underlined by the Board):

IV.3.1.1 by means of a thrust system (13, 14) present in said removable launching chamber (5) and fitted to a first base platform (8) comprised by said removable launching chamber (5),

IX.1 associated with said thrust system (13, 14) by means of linear actuators (13) of the thrust system (13, 14) associated with the first base platform (8) in correspondence to a second side (8b) of the first base platform (8), opposite to the first side (8a),

Claim 1 of auxiliary request 3 differs from claim 1 of the main request in that features IV.1.2, IV.2.2 and VI.3 have been added, and the features IV.3.1.1, V. 2.1.1, VI.2.1.1 and IX.2 have been modified as follows (differences underlined by the Board):

IV.1.2 comprising a first base platform (8) on which is fitted a thrust system (13, 14) and having a first side (8a) which, in use, is turned towards a first portion (1a) of said first pipe (1) through which said tunnel boring machine (6) will pass to excavate said bypass tunnel (4) and a second side (8b), opposite to said first side (8a);

IV.2.2 comprising a second base platform (16) having a third side (16a) which, in use, is turned towards a third portion (2a) of said second pipe (2) through which said tunnel boring machine (6) will pass to excavate said bypass tunnel (4);

IV.3.1.1 by means of said thrust system (13, 14) present in said removable launching chamber (5),

V.2.1.1 which substantially matches said first portion (1a) of the first pipe (1) and

VI.2.1.1 which substantially matches said third portion (2a) of the second pipe (2) and

VI.3 wherein at least one of said first impermeabilization structure (10) and said second impermeabilization structure (17) is associated to the respective first base platform (8) and/or to the respective second base platform (16);

IX.2 with said shaped reaction wall (9) substantially matching a second portion (1b) of said first pipe (1) in correspondence to said first predefined position (P1).

Claim 1 of auxiliary request 4 differs from claim 1 of the auxiliary request 3 in that the feature VI.3 has been modified as follows:

VI.3 wherein said first impermeabilization structure (10) is associated to the respective first base platform (8) and said second impermeabilization structure (17) is associated to the respective second base platform (16);

Claim 1 of auxiliary request 5 differs from claim 1 of the auxiliary request 4 in that the feature VI.3 has been removed and the features V.2 and VI.2 have been modified as follows (differences underlined by the Board):

V.2 including, in correspondence to said first side (8a) of said first base platform (8), the construction of a first impermeabilization structure (10)

VI.2 including, in correspondence to said third side (16a) of said second base platform (16),

Claim 1 of auxiliary request 6 differs from claim 1 of the auxiliary request 5 in that the following feature VI.3 has been added:

VI.3 wherein at least one of said first impermeabilization structure (10) and said second impermeabilization structure (17) is associated to the respective first base platform (8) and/or the respective second base platform (16),

Claim 1 of auxiliary request 7 differs from claim 1 of the auxiliary request 6 in that the feature VI.3 has

been modified as follows (differences underlined by the Board):

VI.3 wherein said first impermeabilization structure (10) is associated to the respective first base platform (8) and said second impermeabilization structure (17) is associated to the respective second base platform (16),

Claim 1 of auxiliary request 8 differs from claim 1 of the main request in that feature V.2.1.3 has been added and the features IV.3.1.1, V.2, V.2.1.1, VI.2, IX.1 and IX.2 read as follows (differences underlined by the Board):

IV.3.1.1 by means of a thrust system (13, 14) present in said removable launching chamber (5) and fitted to a first base platform (8) comprised by said removable launching chamber (5),

V.2 including the construction of a first impermeabilization structure (10) in correspondence to a first side (8a) of the first base platform (8), the first impermeabilization structure (10)

V.2.1.1 which substantially matches a first portion (1a) of the first pipe (1) and

V.2.1.3 wherein a first pressurization system is associated with the first shaped wall (11) which pressurizes the first impermeabilization structure (10) to ensure its seal, and

VI.2 including the construction of a second impermeabilization structure (17) in correspondence to a third side (16a) of a second base platform (16) of

the arrival chamber (7), the second impermeabilization structure (17)

IX.1 associated with said thrust system (13, 14) by means of linear actuators (13) of the thrust system (13, 14) associated with the first base platform (8) in correspondence to a second side (8b) of the first base platform (8), opposite to the first side (8a),

IX.2 with said shaped reaction wall (9) substantially matching a second portion (1b) of said first pipe (1), opposite to the first portion (1a), in correspondence to said first predefined position (P1).

Claim 1 of auxiliary request 9 differs from claim 1 of the auxiliary request 8 in that it further includes the following feature:

IX.3 the shaped reaction wall (9) consisting of a circular cylinder stretch if the first pipe (1) has a tube shape with a circular cross section.

Claim 1 of auxiliary request 10 differs from claim 1 of the auxiliary request 9 in that it further includes the following features:

IV.1.2 the tunnel boring machine (6) consisting of an outer metal shield (21) shaped like a straight cylinder and having, at an axial extremity, a rotating head (22) bearing actual excavation tools (23);

IV.3.6 wherein during the excavation of the bypass tunnel (4), the carrier fluid is mixed to the excavation material outside the tunnel boring machine (6), fills a space between the outer metal shield (21) and a profile of the land and is kept at a pressure

such as to ensure the stability of the front and prevent the penetration of ground water, if present, ensuring the excavatability and safety of the excavation;

Claim 1 of auxiliary request 11 differs from claim 1 of the auxiliary request 2 in that it further includes the following feature IX.3:

IX.3 with said thrust system (13, 14) being in the form of two linear actuators (13), associated with said shaped reaction wall (9) of the launching chamber (5), and a pusher block (14) fittable on the linear actuators and movable with them.

Claim 1 of auxiliary request 12 differs from claim 1 of the auxiliary request 2 in that it further includes the following features IV.1.2, IV.3.6, V.2.1.3, IX.3 and IX.4:

IV.1.2 the tunnel boring machine (6) consisting of an outer metal shield (21) shaped like a straight cylinder and having, at an axial extremity, a rotating head (22) bearing actual excavation tools (23);

IV.3.6 wherein during the excavation of the bypass tunnel (4), the carrier fluid is mixed to the excavation material outside the tunnel boring machine (6), fills a space between the outer metal shield (21) and a profile of the land and is kept at a pressure such as to ensure the stability of the front and prevent the penetration of ground water, if present, ensuring the excavatability and safety of the excavation;

V.2.1.3 wherein a first pressurization system is associated with the first shaped wall (11) which pressurizes the first impermeabilization structure (10) to ensure its seal,

IX.3 the shaped reaction wall (9) consisting of a circular cylinder stretch if the first pipe (1) has a tube shape with a circular cross section,

IX.4 with said thrust system (13, 14) having two linear actuators (13), of the type of two hydraulic jacks fitted horizontally at a predefined height with respect to the first base platform (8), associated with said shaped reaction wall (9) of the launching chamber (5) by means of the linear actuators (13) associated with the first base platform (8) in correspondence to the second side (8b) of the first base platform (8), and a pusher block (14) fittable on the linear actuators (13) and movable with them.

Reasons for the Decision

1. *Main request - inadmissible extension*

1.1 The subject-matter of claim 1 extends beyond the content of the application as originally filed (Articles 100(c) and 123(2) EPC).

1.2 The basis given by the appellant for the subject-matter resulting from feature IX.1 of claim 1 of the main request is figures 2 to 6 and their corresponding description in the application as originally filed (see WO-publication).

The appellant argued that feature IX.1 was clearly and unambiguously disclosed by figures 3 to 6, since it ensued from these figures that the thrust system acted between the tunnel boring machine and the shaped reaction wall. The linear actuator, which was part of the thrust system, was attached to and supported by the shaped reaction wall. Accordingly, the shaped reaction wall was disclosed in association with the thrust system. In this sense, despite the description of the detailed thrust system in the preferred embodiment, it was clear to the skilled person that the decisive features for the proper functioning of the invention were a general thrust system for applying a pushing force to the boring machine which was supported by the shaped reaction wall 9. The skilled person would understand that the other allegedly omitted features were merely design choices for realising the invention, in particular the thrust system, and were not essential parts of the invention.
Essential were merely the shape reaction wall and a thrust system to which the reaction wall was associated by supporting it and for providing a reaction force to enable the thrust system to push the boring machine. It was therefore not necessary to include the linear actuators and the pusher block of the thrust system.

1.3 According to the established case law, the criterion for assessing whether the patent incurs in an inadmissible extension of subject-matter is the "*gold standard*", namely whether the claimed subject-matter is derivable directly and unambiguously for the skilled person from the application as originally filed (see e.g. point 4.3 in the Decision of the Enlarged Board of Appeal G 2/10, OJ EPO 2012, 376).

1.4 In the case at hand, the amendments made to claim 1 by the addition of feature IX.1, in particular, the relationship between the shape reaction wall and the thrust system, are not disclosed as generally as claimed in the application as originally filed.

The basis given for the amendment is page 7, lines 18 to 25, and figures 2 to 6 of the application as originally filed, which describe a preferred embodiment of the invention. The embodiment comprises a specific thrust system with two linear actuators of the type of two hydraulic jacks fitted horizontally at a predefined height with respect to the first base platform, and a pusher block, fittable on the linear actuators and movable with them, the thrust system being fitted in a first base platform of the launching chamber. These features are in functional and technical relationship with the shaped reaction wall of the launching chamber because the reaction wall is connected to the pusher block via the linear actuators. Accordingly, the omission of these features constitutes an unallowable intermediate generalisation of that preferred embodiment (see Case Law of the Boards of Appeal of the EPO, 10th Edition 2022, II.E.1.9).

The criterion for assessing compliance with the requirements of Article 100(c) EPC is the gold standard and not - contrary to the appellant's arguments - whether the features omitted from the original disclosure of the preferred embodiment are explained as being essential (see e.g. T 0437/17, point 3.3.5).

2. *Auxiliary requests 1 to 10 - inadmissible extension*

2.1 Since none of the auxiliary requests 1 to 10 can solve the above-mentioned problems under Articles 100(C) and

123(2) EPC, in particular due, among others, to the omission of the pusher block, these requests are also not allowable.

3. *Auxiliary requests 11 and 12 - admissibility*

3.1 The auxiliary requests 11 and 12 were not admitted into the appeal proceedings under Article 13(2) RPBA.

3.2 The auxiliary requests 11 and 12 were filed during the oral proceedings before the Board.
Claim 1 of each request differs from claim 1 of auxiliary request 2 in that it also includes the features of granted claim 4 and, in the case of auxiliary request 12, further features taken from the description (see above).

Auxiliary requests 11 and 12 therefore constitute an amendment of the appellant's appeal case after notification of the Board's communication under Article 15(1) RPBA.

3.3 Pursuant to Article 13(2) RPBA any amendment to a party's appeal case made after notification of a communication under Article 15, paragraph 1, shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

3.4 The appellant essentially alleged that there were two reasons for filing these requests during the oral proceedings before the Board.
On the one hand, they were filed in response to the Opposition Division's surprising view that D14 was relevant for novelty and inventive step for the first time only during the oral proceedings in the opposition

proceedings. On the other hand, they were filed in response to the Board's view in its communication under Article 15(1) RPBA that none of the requests on file overcame the issue of unallowable intermediate generalisation.
The appellant did not provide any specific reasons as to why these requests were not filed as soon as possible after the Board's communication under Article 15(1) RPBA.

3.5 The Board judges that the reasons put forward by the appellant do not qualify as cogent, which justify the existence of exceptional circumstances.

What is decisive in the present case is the fact that the appellant waited to file these requests at the very last stage of the appeal proceedings, i.e. during the oral proceedings before the Board, and not as soon as possible after notification of the Board's opinion in the communication under Article 15(1) RPBA. In the latter case, the respondent would have had the opportunity to study and prepare its case in response to the late filed requests. Admitting the requests at this stage would be counter the principle of a fair proceedings towards the respondent 2 (opponent 2). The appellant was unable to provide any justification for such conduct.

The objection under Article 100(c) EPC directed to feature IX.1 was also raised by the respondent 2 as early as possible in the appeal proceedings (with the reply to the statement of grounds of appeal, see point 5.1) and at the earliest possible stage in the opposition proceedings (with the notice of opposition, see point III.3).

The Board agrees that it is not possible for the appellant to respond to all objections raised by an opponent with all contingent requests, as this could give rise to a very large number of auxiliary requests to be dealt with. However, the key objection under Article 100(c) EPC raised by the respondent 2 concerning the unallowable intermediate generalisation of the preferred embodiment disclosed on page 7 was at the centre of the discussion in both the opposition and the appeal proceedings. The appellant considered that it was not necessary to include all the features which the respondent 2 considered to have been omitted in order to overcome the objection. The Appellant should bear in mind that the Board may be persuaded by the arguments of respondent 2 in this regard when filing auxiliary requests as a fallback position.

4. It follows that the appeal of the patent proprietor is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Schalow G. Pricolo

Decision electronically authenticated