



PATENTS ACT 1977

BETWEEN

Carillion Construction Limited

Opponent

and

Balfour Beatty Plc

Proprietor

PROCEEDINGS

Opposition under section 27(5) in respect of an application to
amend granted patent GB2463079

HEARING OFFICER

Peter Slater

Forresters representing Carillion Construction Limited
Elkington and Fife LLP representing Balfour Beatty Plc

Decision on the papers

DECISION

Introduction

- 1 Patent number GB2463079 B (“the patent”) entitled “Retaining wall” was granted on 20 February 2013 to Balfour Beatty Plc (“the proprietor”) following an application filed under the Patents Act 1977 (“the Act”) on 2 September 2008. The proprietor filed an initial request for post-grant amendment of the specification under section 27 on 27 February 2015. Following consideration of the proposed amendments within the Office, a further set of proposed amendments was filed on 27 May 2015 which was subsequently advertised in the *Patents and Designs Journal* on 5 August 2015.
- 2 On 3 September 2015, Carillion Construction Limited (“the opponent”) filed an opposition under section 27(5) to the requested amendments. The opponent gave the following reasons for opposing the amendments:
 - the proprietor failed to disclose relevant prior-art which was in their possession at the time of the request for amendment;
 - the proposed amendments lack clarity, add subject matter and extend the scope of protection beyond that claimed in the patent as granted; and
 - the proposed amended claims lack novelty and/or inventive step.

- 3 The proprietor filed a counter-statement on 4 November 2015 which included a further set of amendments for my consideration should I find the original request for post-grant amendment to be unacceptable. The opponent responded by filing a supplementary statement on 12 December 2015. The proprietor has subsequently asked for paragraphs 3 to 38 of that statement to be dismissed, an issue which I will turn to in due course.
- 4 Both parties have agreed to have the matter decided on the basis of the papers currently on file.

The Law

- 5 The request to amend is made under section 27(1) of the Act and the opposition under section 27(5) of the Act, which read:

27(1) Subject to the following provisions of this section and to section 76 below, the comptroller may, on an application made by the proprietor of a patent, allow the specification of the patent to be amended subject to such conditions, if any, as he thinks fit.

...

(5) A person may give notice to the comptroller of his opposition to an application under this section by the proprietor of a patent, and if he does so the comptroller shall notify the proprietor and consider the opposition in deciding whether to grant the application.

- 6 Section 27(1) makes amendment subject to the provisions of section 76, the relevant part of which reads as follows:

76(3) No amendment of the specification of a patent shall be allowed under section 27(1), 73 or 75 if it

- (a) results in the specification disclosing additional matter, or
(b) extends the protection conferred by the patent.*

- 7 Guidance concerning the allowability of the proposed amendments is set out at paragraphs 27.09-27.11 of the Manual of Patent Practice:

27.09 When the amendments are proposed to distinguish the invention from specified prior-art they must be such that the invention is both novel and involves an inventive step having regard to the specified prior-art when considered in the light of common general knowledge and of the prior-art taken into account during examination of the application for the patent.

27.10 [Deleted]

27.11 The amendments must not add matter nor must they extend the protection conferred by the patent (see 76.24).....

- 8 It is clear from the wording of section 27 that the allowance of post-grant amendments is a matter for the discretion of the comptroller. In a case where amendments are proposed to cure a defect in the granted patent, for example through later discovery that the claims are not novel and/or inventive with respect to prior-art which the proprietor was not aware of at the time of grant, then case law says that the comptroller must be satisfied that the proposed amendments effect a proper cure for any defect they are intended to rectify.

The Patent

- 9 The patent is directed to a retaining wall made up of “upwardly projecting primary structures” (12) that are installed in a “supporting body” (18) with one or more “intermediate panels” (14) spanning the gap between the upward structures. The upward structures are sheet piles and the panels project down into “the supporting body”. The figures from the patent show these arrangements.

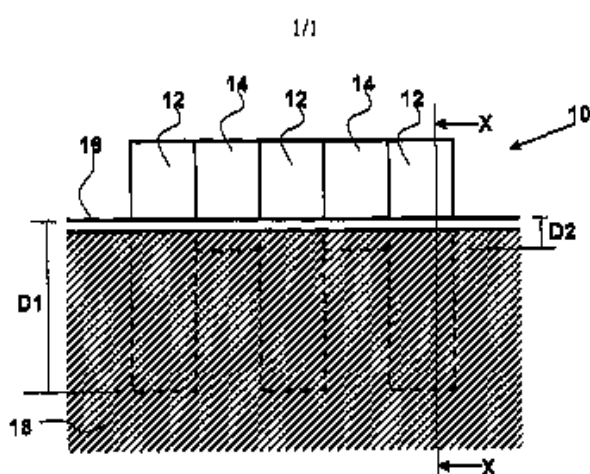


Figure 1

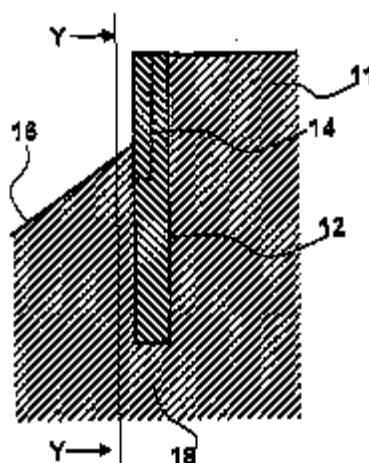


Figure 2

- 10 The claims as granted are:

1. A retaining wall for retaining matter on a side thereof comprising:

a plurality of upwardly projecting primary structural members spaced apart from each other and having first structural properties comprising at least one of weight, size, strength and depth to be installed in a supporting body;

and one or more intermediate panels of material arranged so as to span horizontally the gap between a pair of primary structural members and thus to retain the retained matter between the primary structural members;

wherein the primary structural members are sheet piles, and

wherein the one or more intermediate panels project downwardly into the supporting body and have second structural properties different from the first structural properties, such that the sheet piles are adapted to provide the main structural restraint to bending and shear in the wall.

2. *A retaining wall as claimed in claim 1, wherein the one or more intermediate panels of material comprise at least one of: a secondary sheet pile, a flexible sheet adapted to be driven into the supporting body, and a panel of rigid material.*
3. *A retaining wall as claimed in any preceding claim, wherein the one or more intermediate panels are connected to the pair of primary structural members.*
4. *A retaining wall as claimed in any preceding claim, wherein the one or more intermediate panels comprise at least two panels of material connected to each other.*
5. *A retaining wall as claimed in any preceding claim, further comprising a stopper adapted to restrict vertical movement of the one or more intermediate panels at a predetermined position.*
6. *A method of constructing a retaining wall for retaining matter on a side thereof, wherein the method comprises the steps of:*

arranging a plurality of primary structural members are spaced apart from each other and project downwardly into a supporting body, the primary structural members having first structural properties comprising at least one of weight, size, strength and depth to be installed in a supporting body;

and arranging one or more intermediate panels so as to project downwardly into the supporting body and span horizontally the gap between a pair of primary structural members and thus retain the retained matter between the primary structural members;

wherein the primary structural members are sheet piles, and

wherein the one or more intermediate panels have second structural properties different from the first structural properties, such that the sheet piles are adapted to provide the main structural restraint to bending and shear in the wall

7. *A method as claimed in claim 6, wherein the one or more intermediate panels are arranged to project downwardly into the supporting body to lesser extent than the pair of primary sheet piles so that the bottom of the one or more intermediate panels is vertically offset with respect to the bottom of the pair of primary sheet piles.*

8. *A method as claimed in claim 6 or 7, further comprising the step of connecting the one or more intermediate panels to the pair of primary structural members.*
9. *A retaining wall substantially as described hereinabove with reference to the accompanying figures.*
10. *A method of constructing a retaining wall substantially as described hereinabove with reference to the accompanying figures*

11 The amendments as originally proposed are as follows (with additions and deletions emphasised):

1. *A retaining wall for retaining matter on a side thereof comprising:*

*a plurality of upwardly projecting primary structural members spaced apart from each other and having **a first structural propertyties** comprising ~~at least one of weight, size, strength and depth to be~~ installed in a supporting body; and*

*one or more intermediate panels of material arranged so as to span horizontally the gap between a pair of **the** primary structural members and thus to retain ~~the retained~~ matter between the primary structural members;*

wherein the primary structural members are sheet piles. and

*wherein the one or more intermediate panels project downwardly into the supporting body **to a lesser depth than the primary structural members so as to** and have ~~a second-structural propertyies~~ different from the first structural propertyies,*

***and wherein the one or more intermediate panels are only adequate to retain the matter** such that the primary structural members ~~sheet piles~~ are adapted to provide the main structural restraint to bending and shear in the **retaining** wall.*
2. *A retaining wall as claimed in claim 1, wherein the one or more intermediate panels of material comprise at least one of: a secondary sheet pile, a flexible sheet adapted to be driven into the supporting body, and a panel of rigid material.*
3. *A retaining wall as claimed in any preceding claim, wherein the one or more intermediate panels are connected to the pair of primary structural members.*
4. *A retaining wall as claimed in any preceding claim, wherein the one or more intermediate panels comprise at least two panels of material connected to each other.*

5. A retaining wall as claimed in any preceding claim, further comprising a stopper adapted to restrict vertical movement of the one or more intermediate panels at a predetermined position.
6. A method of constructing a retaining wall for retaining matter on a side thereof, wherein the method comprises the steps of:

arranging a plurality of primary structural members are spaced apart from each other and project downwardly into a supporting body, the primary structural members having a first structural propertyies comprising at least ~~one of weight, size, strength and depth to be~~ installed in a supporting body; and

*arranging one or more intermediate panels so as to project downwardly into the supporting body **to a lesser depth than the primary structural members so as to have a structural property different from the first structural property** and **to** span horizontally the gap between a pair of **the** primary structural members and thus retain ~~the~~ retained matter between the primary structural members;*

wherein the primary structural members are sheet piles, and

*wherein the one or more intermediate panels ~~have second structural properties different from the first structural properties~~ **are only adequate to retain the matter**, such that the ~~sheet piles~~ **primary structural members** are adapted to provide the main structural restraint to bending and sheaer in the **retaining** wall*

~~7. A method as claimed in claim 6, wherein the one or more intermediate panels are arranged to project downwardly into the supporting body to lesser extent than the pair of primary sheet piles so that the bottom of the one or more intermediate panels is vertically offset with respect to the bottom of the pair of primary sheet piles.~~

~~87~~ A method as claimed in claim 6 ~~or 7~~, further comprising the step of connecting the one or more intermediate panels to the pair of primary structural members.

~~98~~ A retaining wall substantially as described hereinabove with reference to the accompanying figures.

~~409~~ A method of constructing a retaining wall substantially as described hereinabove with reference to the accompanying figures

- 12 The proprietor has indicated in its letter of 27 February 2015 that the main reason for requesting the post-grant amendment is that the US examiner, when examining the co-pending US application US 2011/0116876, identified some potentially relevant prior-art, and the purpose of the amendment is to more clearly distinguish the invention from this prior-art. The prior-art is identified are as follows:

D1 US 1942163 (ZOPPOLA);

- D2 US4561804 (WEATHERBY);
- D3 US3971224 (ELKUCH);
- D4 Extract from the book entitled *“The Design and Construction of Sheet Piled Cofferdams”* by the Construction Industry Research and Information Association (CIRIA), published 1993 by Thomas Telford Ltd;
- D5 Published paper entitled *“The observational Approach to design of sheet-piled retaining wall”* by YOUNG, D.K. and Ho, E.W.L., *Geotechnique*, Volume 44(4), 637-654, published 1994;
- D6 Extract from “EAU, 2004. Recommendations of the Committee for the Waterfront Structures Harbours and Waterways” 8th Edition, Translation of the 2004 10th Edition, Ernst & Sohn, Berlin;
- D7 Extract from CIRIA C580, “The Design and Construction of Sheet-Piled Cofferdams” by the Construction Industry Research and Information Association (CIRIA), published 1993 by Thomas Telford Ltd CIRIA1993.

- 13 The latter document, D7, is submitted as being indicative of the common general knowledge (CGK) of a person skilled in the art.

Preliminary issue – contents of the supplementary statement

- 14 Before addressing the allowability of the proposed amendments, I must address the issue of the supplementary statement and the proprietor’s request that I dismiss paragraphs 3 to 38 therein. In doing so, the proprietor has referred me to paragraph 9.10 of the Litigation Manual which states as follows:

*“If a defendant wishes to offer alternative amendments, he should include them in the counter-statement. He also needs to make it clear whether the offer is a firm one or is conditional upon an adverse finding on the originally requested amendments. The offer should be referred to the Deputy Director in charge of the subject matter who will direct the subsequent procedure. He will give his prima facie view on admissibility (MOPP 27.14). If the form of amendments differ materially from the original form, they should be advertised for opposition. **The claimant will be allowed to file a supplementary statement opposing the new amendments** (my emphasis added).”*

- 15 The proprietor argues that this means that the supplementary statement should be limited to observations relating solely to the conditional amendments submitted as part of the counter-statement, and should not contain any submissions in respect of the contents of its counter-statement more generally. The opponent disagrees, arguing that there is no such requirement for the supplementary statement to be strictly in reply or otherwise limited in any way to the additional amendments being proposed by the proprietor.
- 16 I have to say that I have some sympathy with the proprietor’s arguments. It is clear to me that the purpose of the supplementary statement is to give opponents an opportunity to make observations on the allowability of any additional amendments put forward by the proprietor for the first time in its counter-statement. This is what the opponent has done in paragraphs 39 to 43 of its statement. However, I do not think the supplementary statement should be used as a vehicle to further embellish, or elaborate upon the opponent’s original arguments in respect of, for example, the apparent lack of full disclosure by the proprietor (see paragraphs 3 to 10) or the

clarity of their originally proposed amendments (see paragraphs 11 to 24). In my opinion, there is an onus on the opponent to have put forward its strongest case from the outset, and to allow an additional opportunity to add further submissions which could have been raised previously would be unfair on the proprietor who has had no chance to address them. This would potentially necessitate a further round of submissions and a further delay in what have already been protracted proceedings. I therefore agree to the proprietor's request and dismiss paragraphs 3 to 38 of the opponent's supplementary statement.

The Opponent's case

17 The opponent's grounds for opposing the amendments are as follows:

- the proprietor has failed in its duty to provide full disclosure of the relevant prior-art having omitted to include copies of the third-party observations filed during prosecution of the corresponding European patent application, EP09785505.0;
- the proposed amendments lack clarity, add subject matter and extend the scope of protection beyond that claimed in the patent as granted; and
- the proposed amended claims lack novelty and/or inventive step.

Failure to provide full disclosure

18 The opponent alleges that the proprietor has failed in its duty to provide full disclosure of the relevant prior-art and should have included a reference to "*New Experiences in the Formation and Production of Sheet Piling Structures*" *Dipl.-ing BRAKEMAN* ("D8"), a document submitted as third-party observations during prosecution of the corresponding European patent application, EP09785505.0. It argues that this document, at least insofar as figure 13 is concerned, discloses a sheet pile wall, the configuration of which reads onto claims 1 and 6 in both their current and proposed amended forms, and as such it is clearly relevant for the purposes of novelty and inventive step. It is the opponent's view therefore that the proprietor has knowingly chosen to withhold a piece of relevant prior-art, and that on that basis alone, I should refuse to allow the amendment.

19 The proprietor disagrees, arguing that the omission of this document was an unintentional oversight on its behalf having concentrated on those documents which had already been the basis of licensing discussions between the two parties. Furthermore, the proprietor says that this document discloses nothing more than is already disclosed in document D6 which was included in the original request for post-grant amendment.

20 So, should I refuse the amendment on the grounds of a lack of disclosure of relevant prior-art? The allowance of amendments under section 27 is a matter for the discretion of the comptroller and it is clear that the onus is on the patentee/proprietor to make full disclosure of all matters material to the exercise of that discretion. However, in exercising that discretion, section 27(6) requires the comptroller to have regard to any relevant principles which are applicable to amendment or limitation proceedings under the European Patent Convention (EPC), any relevant guidelines

produced by the European Patent Office (EPO), and decisions of the Opposition Division and Boards of Appeal of the EPO. This is intended to ensure that, as far as possible, there is consistency in approach as regards post-grant amendment in national proceedings and before the EPO. The effect of section 27(6) is therefore to limit the comptroller's discretion to refuse amendments that would otherwise comply with the Act. Considerations such as the conduct and behaviour of the proprietor, which prior to the addition of paragraph 27(6) may have been sufficient to refuse amendment, are no longer relevant in UK proceedings as explicitly confirmed by Floyd L.J. in *Zipher Ltd v Markem Systems Ltd & Anor* [2008] EWHC 1379 (Pat):

"It follows that if I am to have regard to the principles applicable under the EPC, the discretion which I have to refuse amendments which comply with the Act has been limited. Considerations such as those formerly considered relevant to the discretion, such as the conduct of the patentee, are no longer relevant."

- 21 D8 clearly discloses a sheet pile wall which is similar in disclosure to D6, and as such would prima facie seem to constitute relevant prior-art. I have no doubt therefore that it would have been useful for the proprietor to have disclosed this document from the outset as part of its original request for post-grant amendment which they did not do, albeit unwittingly. However, this alone is not sufficient for me to refuse the amendment as the conduct and behaviour of the proprietor is no longer a ground on which to do so.

Claim construction

- 22 The opponent has put forward arguments on the grounds of lack of clarity, novelty and inventive step of the proposed amended claims. Further objections on the grounds of added matter and extending the scope of protection all rely heavily on how the claim is construed. It is therefore clear that I need to come to a view on what the claims mean before I can reach any decision on these objections.
- 23 In construing the claims I am guided by the well-known authority on claim construction, *Kirin-Amgen and others v Hoechst Marion Roussel Limited and others* [2005] RPC 9. This requires that I put a purposive construction on the claims, interpret it in the light of the description and drawings as instructed by section 125(1) and take account of the Protocol to Article 69 of the EPC. Simply put, I must decide what a person skilled in the art would have understood the patentee to have used the language of the claim to mean.
- 24 Section 125(1) of the Act states that:

For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.

- 25 The Protocol on the Interpretation of Article 69 of the EPC (which corresponds to section 125(1)) states that:

Article 69 should not be interpreted in the sense that the extent of the protection conferred by a European patent is to be understood as that defined by the strict, literal meaning of the wording used in the claims, the description and drawings being employed only for the purpose of resolving an ambiguity found in the claims. Neither should it be interpreted in the sense that the claims serve only as a guideline and that the actual protection conferred may extend to what, from a consideration of the description and drawings by a person skilled in the art, the patentee has contemplated. On the contrary, it is to be interpreted as defining a position between these extremes which combines a fair protection for the patentee with a reasonable degree of certainty for third parties.

- 26 Although it means taking it out of turn, I will start with the phrase “only adequate to retain the matter” as this is clearly important to the allowance of the amendment in the first place and particularly whether the proposed amended claims can be considered clear.

i) “Only adequate to retain the matter”

- 27 The opponent argues that the term “only adequate” is unclear. Indeed paragraphs 21-24 of its statement set out its view that “adequate” has no clear meaning”. To support its view it gives the example of the intermediate panels being adequate to retain matter behind a wall as some form of indistinct limitation. What then happens, the opponent asks, if the retained matter was added to or if it rained – is the wall still adequate? In essence, the opponent’s argument is that the word adequate has no real meaning within the claim and adds no limitation.
- 28 In response the proprietor argues that the term “only adequate” has a clear meaning within the context of the claim. The nub of its response is that “adequate” could not be clearer in meaning as the skilled person would interpret it in the light of established and codified design requirements which would identify a whole range of conditions.
- 29 To my mind it is a convention that the language used in a patent specification and especially a patent claim should be precise both scientifically and technically. Where the term is being used to define a suggested value, it should impart to the reader a knowledge of that value in a way that it can readily understand it by some form of measurement or actual value. In short it should not place a burden on the reader to determine that value.
- 30 The main issue here is that the opponent is asking me to look at the phrase “only adequate” in isolation, which may not give full benefit of meaning to it, whereas the proprietor suggests I should look at it as part of the wider context of the specification. The phrase appears in the claims as follows:

“Wherein the one or more intermediate panels are only adequate to retain the matter such that the primary structural members are adapted to provide the main structural restraint to bending and shear in the retaining wall”

- 31 When taken in context I am not sure that anything in my interpretation of this clause actually turns on the meaning of “only adequate”. I do not believe the skilled person would interpret this any other way than stating that the role of the intermediate panels is to retain the material and that the upwardly projecting members take the majority for the strain in the wall. In other words, any forces on the horizontal members applied by the material are transmitted to the main restraints and the primary function of the panels is that they retain the matter. This is consistent with the description at page 4 of the specification which says that the retaining panels “need only be adequate to retain the matter, and not provide the primary structural support of the wall.....”. Furthermore, on page 5 of the specification it is made clear that the sheet piles used for the upright members “have considerable surplus structural capacity which can be traded off against the structural properties of the intermediate panels”.
- 32 The proposed amended claims also make reference to “bending and shear in the retaining wall”. However, the specification provides little or no further information on what this actually entails. I have little doubt that this is of particular relevance to the skilled person who I believe would understand that it relates to the forces placed upon a retaining wall by the retained matter. In the absence of any detail I do not believe it is possible to imbue the term with anymore meaning than that. Clearly, had the proprietor wished it to mean anything more detailed or wished to comment on the forces in more detail then they would have done so, so as to inform the skilled person of the exact nature of these forces. I will therefore treat this as nothing more than a generic statement of forces operating on the retained wall by the retained matter.
- ii) “Main Structural Restraint”*
- 33 The opponent also questions the clarity of the phrase “main structural restraint” and suggests that this acts only as a qualifier to the phrase “only adequate”. It notes that the specification uses three different adjectives when describing the concept of main structural restraint, i.e. main, primary and majority, and suggests that in the context of the specification and the dictionary definition of these adjectives, the term “main” simply means “more”, i.e. the primary structural members provide more structural restraint than the intermediate panels. By way of example, the opponent suggests that the upwardly projecting members could provide just over 50% of the structural restraint and still meet the requirement for it to provide the main structural restraint. The intermediate panels would then need to take up the remaining 49% of the structural restraint even though the claims recite that these very same panels are intended only to be “adequate” in retaining matter.
- 34 The proprietor on the other hand suggests that to take such a literal view of the term “main” would be beyond a credible interpretation of what is described in the patent.
- 35 I note that page 3 of the specification states that the invention capitalises “on the use of (primary) sheet piles which are designed for a primary goal, such as drivability, strength or minimum depth required for overall wall stability, to offset against the structural properties of panels placed between a pair of (primary) sheet piles”. In my view the skilled person would understand the meaning of the phrase “main structural restraint” in precisely this context.

iii) "A retaining wall for retaining matter on a side thereof..."

36 The opponent notes that in accordance with the normal principles of claim construction, the word "for" here should be interpreted as "suitable for". Thus, the claimed invention is a retaining wall suitable for retaining matter on a side thereof but not necessarily actually retaining matter. It also notes that the specification makes clear that the matter may include, for example, soil or water but may include sand and other materials too. The proprietor agrees with this, noting also that the specification also refers to holding back soil or rock and that it may also be considered a cofferdam.

iv) "...a plurality of upwardly projecting primary structural members, having a first structural property comprising depth installed in the supporting body"

37 The opponent argues that the term "upwardly projecting" is unclear and interprets it to mean that the main structural members project upwards from beyond a ground surface, e.g. a seabed or riverbed. The proprietor on the other hand disagrees that the claim is unclear but does accept the interpretation put forward by the opponent.

38 For my part I see no reason to disagree with either party as to the meaning of the clause and have no doubt the skilled person would understand the clause in the same way as the parties..

v) "...one or more intermediate panels of material arranged so as to span horizontally the gap between a pair of the primary structural members..."

39 On a first reading of this clause my immediate concern was what is meant by "span horizontally the gap" between the pair of primary structures? Is this a comment on the orientation of the panels or does it merely refer to the gap between the primary members? As a starting point the figures clearly show an arrangement where the intermediate panels are vertically aligned, so the implication is that they are referring to the spacing between the primary structures as a "horizontal space".

40 As well as the arrangement shown in figure 1 above, the opponent argues that the wording of the claim could also encompass not only an arrangement where more than one panel is vertically aligned between two restraints but also a further arrangement where one or more panels are laid horizontally between the main supports with only the lower one in touch with the ground. It makes little comment beyond this, preferring to show what is encompassed by the claim rather than question the wording itself.

41 The proprietor on the other hand accepts that the arrangement of vertical intermediate panels proposed by the opponent falls within the scope of the claims as proposed to be amended, but denies that the arrangement of horizontal panels where only the lower panel extends into the ground falls within the scope of the claims because of the later requirement, which I deal with below, the one or more intermediate panels to project into the supporting body.

42 I agree with the proprietor that the meaning of "span horizontally" can only be determined by understanding the limitation placed on the intermediate panels from the later "requirement" for the panel to project into the supporting body.

43 My second concern is what is meant by panel? I believe in the circumstances that this is relatively easy to answer and is framed in part by the two options above. In this instance a panel is any element that will be located between two primary structures. As the specification says on page 5, the panels may be “formed from any suitable material including plastic, wood, cloth, concrete, reinforced concrete and metal for example”. The specification also states that the panels may be formed from the same material as the primary sheets piles and that in which case “the intermediate panels may also be sheet piles”.

vi) “the one or more intermediate panels project downwardly into the supporting body to a lesser depth than the primary structural members so as to have a structural property different from the first structural property”

44 The opponent notes that the figures of the patent show both primary structural members and intermediate panels extending into the supporting body, i.e. the ground. It argues that this wording could also encompass retaining walls where the intermediate panels do not extend into the ground as this would equate to the lesser depth being zero. However, as the proprietor quite rightly points out, the proposed amended claim requires that all of the one or more intermediate panels, not just one, must project into the supporting body, and a depth of zero would indicate no penetration whatsoever. The reference to “not just one” was made in the context of the opponent’s argument that a retaining wall comprising a series of intermediate members placed vertically one on top of each other and the bottom member extending into the ground, would also read onto the proposed amended claim. In my view, the type of arrangement suggested by the opponent could not be described by the proposed wording.

Clarity of the proposed amendments

45 The opponent’s first objection to the proposed amended claims is that they are unclear. It follows from my assessment on claim construction above that I find the proposed amended claims to be clear when interpreted in the light of the specification.

Added matter and extending the scope of protection

46 The opponent argues that removal of the list of structural properties has resulted in subject-matter being added to the specification. It notes that claims 1 and 6 as proposed to be amended now specify that the primary structural members have a “first structural property comprising depth installed” and that the one or more intermediate panels “project downwardly into the supporting body to a lesser depth than the primary structural members so as to have a structural property different from the first structural property”. The opponent suggests that the intermediate panels are now required to have at least one structural property different to the first structural property and argues that the patent specification as filed does not support there being only one structural property difference between the primary member and the intermediate panels. The opponent refers to a number of passages in the patent specification which say that the intermediate panels have more than one structural property different from the primary structural members, e.g. weight and depth to be installed. For example, at paragraph 2 on page 4 of the specification, it states that “the intermediate panels 14 are of lesser weight, size and/or strength than the

primary sheet piles 12 and are not driven into the ground as far as the primary sheet piles.

- 47 The proprietor disagrees with the opponent's arguments, saying that they focus on semantics and that any reasonable interpretation of what is meant by the description would be seen to be consistent with the proposed amended form of the claims which refer to only the depth differing.
- 48 I note that the original claim 1 required the primary structural member to have a property "comprising at least one of weight, size, strength and depth". The intermediate panel was then said to have "second structural properties different from the first structural property". This is quite clearly supported by the specification at page 2, line 10 where the intermediate panels "may be of lesser weight, size, cost and/or strength", although I would question cost as a structural property. As proposed to be amended, claim 1 now refers explicitly to the primary structural member as having a first structural property of depth. This is entirely within the scope of the original claim. It then refers to the intermediate panels as projecting "downwardly into the supporting body to a lesser depth than the primary structural members". This is a first structural property shared with the primary structural members. The intermediate panels are required to have "second structural properties different from the first structural properties". Clearly they do as shown by reference to the specification where they "may be of lesser weight, size, cost and/or strength".
- 49 I consider that this proposed amendment does not add matter since the changes to the claim fall entirely within the scope of the original claim and, if anything, restrict the scope of the claim.
- 50 The opponent's argument in relation to extending the scope of protection follows similar reasoning to that for added subject-matter. The opponent argues that un-amended claims 1 and 6 recite at least two different properties between the intermediate panels and the primary members, whereas the same claims as proposed to be amended recite that there need only be one different property, i.e. the depth installed in a supporting body. Furthermore, it suggests that that the proposed amendments only limit the intermediate panels to projecting downwardly into the supporting body to a lesser depth than the primary members, meaning that the intermediate panels may not extend into the supporting body at all and could cover retaining walls outside the scope of the original claims, e.g. where the intermediate panels do not extend into the supporting body but would still be a "lesser depth" of projection.
- 51 The proprietor says that the original and proposed amended claim wordings expressly require that one or more intermediate panels project downwardly into the supporting body. The claimed invention cannot therefore cover retaining walls in which the intermediate panels do not extend into the supporting body and there is no basis for the allegation that the amended claims extend the scope of protection beyond that of the granted patent.
- 52 I agree with the proprietor and find that the scope of protection would not be extended by allowing the amendment.

Novelty

- 53 I will now turn to the question of novelty of the proposed amended claims. I note at the outset that any comments in relation to apparatus claim 1 of the proposed amendments apply equally to method claim 6.
- 54 The opponent argues that the proposed amended claims would not be novel in the light of the documents identified by the proprietor in its reasons for making the application under section 27. The opponent has also referred to third-party observations raised at the EPO during prosecution of the corresponding European patent application, EP09785505. All of the documents were published before the filing date of the patent and are, therefore, citable for the purposes of novelty and/or inventive step. The list of prior-art documents is as follows:

- D1 US1942163 (ZOPPOLA)
- D2 US4561804 (WEATHERBY)
- D3 US3971224 (ELKUCH)
- D4 Design and Construction of Sheet Piled Cofferdams CIRIA 1993
- D5 The observational Approach to design of sheet-piled retaining wall (YOUNG)
- D6 Recommendations of the Committee for the Waterfront Structures Harbours and Waterways (EAU)
- D8 Third-party Observations to the EPO on EP 09785505.0

D1: ZOPPOLA

- 55 For ease of reference I have reproduced the figures from ZOPPOLA below:

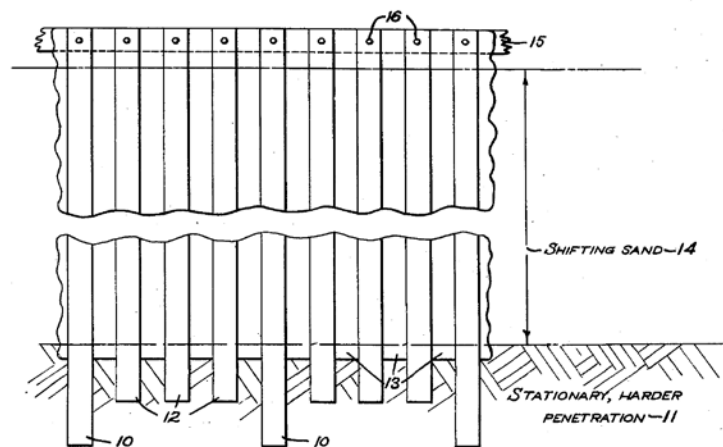


Fig. 1

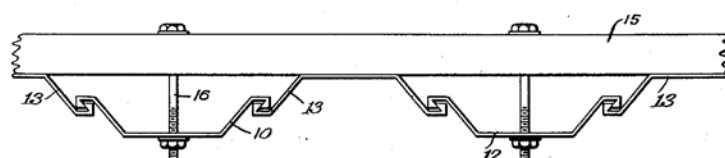


Fig. 2

56 The following table is my attempt at summarising the lengthy submission made by both sides concerning the relevance of ZOPPOLA to claim 1 as proposed to be amended.

| <i>Claims</i> | US 1942163 ZOPPOLA |
|---|---|
| <p>1. <i>A retaining wall for retaining matter on a side thereof comprising:</i></p> | <p>“a continuous, uninterrupted barrier for holding soil or sand against shifting” <i>Column 1 Lines 9-10</i></p> |
| <p><i>a plurality of upwardly projecting primary structural members spaced apart from each other and having a first structural property comprising depth installed in a supporting body; and</i></p> | <p>“the bulkhead or seawall structure comprises long and heavier pilings 10, which extend deeply into the stationary, harder penetration material 11 “ <i>Column 1 Line 45-47</i></p> |
| <p><i>one or more intermediate panels of material arranged so as to span horizontally the gap between a pair of the primary structural members and thus to retain matter between the primary structural members;</i></p> | <p>See Fig 1 “some of the piling elements of heavier weight than others to provide beam strength at given intervals with shorter elements between” <i>Column 1 Line 6-9</i></p> |
| <p><i>wherein the primary structural members are sheet piles. and</i></p> | <p>“Fig 2 is a plan view, in part cut away, illustrating a conventional form of interlocking sheet metal piling such as can be used in structures of the present invention” <i>Column 1 Line 37-39</i></p> |
| <p><i>wherein the one or more intermediate panels project downwardly into the supporting body to a lesser depth than the primary structural members so as to have a structural property different from the first structural property,</i></p> | <p>“the intermediate length 12, 12 and lighter pilings extend to a lesser depth into said harder penetration material 11” <i>Column 1 Line 47-48</i></p> |

| | |
|--|---|
| <p><i>and wherein the one or more intermediate panels are only adequate to retain the matter such that the primary structural members are adapted to provide the main structural restraint to bending and shear in the retaining wall.</i></p> | <p>““a gradation is made between the long and heavier pilings 10 , 10 which serve as master piles and beams as well as elements in the bulkhead or seawall and the short elements 13, 13 which have their chief function as elements of the bulkhead or seawall because they have little or no penetration into the harder penetration material 11. This gradation is by means of the intermediate length pilings 12, 12 which in addition to serving as the bulkhead or seawall serve also to some extent to supplement the long pilings 10, 10. By this gradation there is secured a balance between economy of the structure and the stability thereof”. <i>Column 1 Line 55- Column 2 Line 68.</i></p> <p>“intermediate shorter piling elements can be assembled to suit various conditions” <i>Column 2 Line 80-83</i></p> |
|--|---|

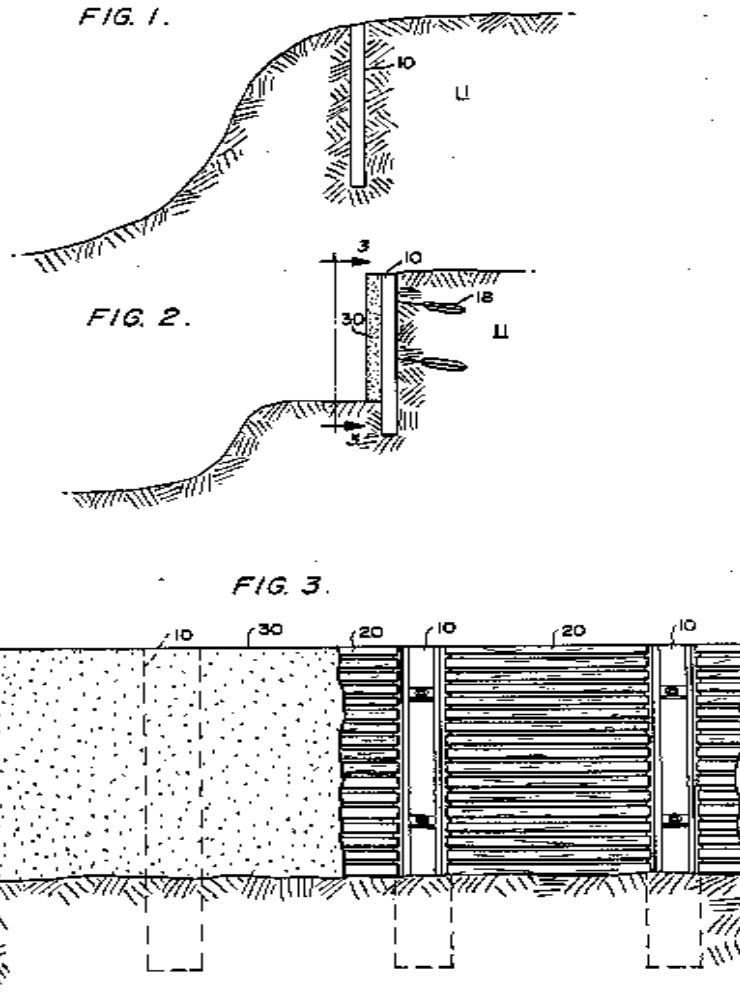
- 57 The opponent argues that ZOPPOLA shows claim 1 and 6 as proposed to be amended lack novelty. In response, the proprietor has suggested that the citation and the patent “do appear to share a number of apparent similarities” but also contends that “the knowledge of the skilled person is required to understand the apparently subtle but important differences between them”. These subtle differences relate to:
- a. the lack of clarity in ZOPPOLA and the need to interpret precisely what the description and claims in ZOPPOLA are attempting to put across and protect
 - b. the lack of technical understanding of the author of ZOPPOLA
- 58 Contrary to the proprietor’s assertion, I have found little difficulty in understanding the description and claims of ZOPPOLA. If anything, it is an admirable example of brevity in a patent specification that highlights to the skilled reader exactly the content and scope of the protection sought.
- 59 I believe the same goes for the technical understanding of the author. After a period of some 80 or so years, and knowing neither the attorney nor the applicant, I fail to see how this can be a relevant consideration of the reader. The skilled reader would view the description and figures and come to their own conclusions independently of the technical skills of the applicant or drafter.

- 60 The proprietor places a great deal of emphasis in his argument on the role of the primary structural members of the retaining wall and their difference to the "master piles" of ZOPPOLA. To my mind they are of similar structures: both are driven deeper into the ground, both support intermediate members and both are considered the main load bearing element in the retaining wall.
- 61 The proprietor also argues that the skilled reader would question the role of the master piles of ZOPPOLA, apparently suggesting that the role of the master piles is an arbitrary choice but that the main supporting piles in the current patent are a result of a carefully considered selection for a very specific purpose.
- 62 There is no doubt some attraction to the proprietor in this line of argument. However, I believe it fails due to the lack of information in their own specification as to the role of the forces acting on the main support. For example, the patent specification provides no information on what is entailed by "bending and shear in the wall".
- 63 Furthermore, the author of ZOPPOLA makes quite clear in his specification and claims that reduced cost is a key component of his design. The current patent specification also makes this suggestion at page 6 line 26, and therefore it seems clear to me that one of the main reasons for both was the need to save costs.
- 64 As I have noted in the table above, ZOPPOLA states at page 1, lines 41 to 68, that "the long and heavier pilings 10 serve as master piles ... as well as elements in the bulkhead ... and the short elements 13 ... have their chief function as elements of the bulkhead ... because they have little or no penetration into the harder penetration material". I construe this to mean the same as the proposed amended claims, i.e. that the longer piles provide the majority of the structural support and the shorter piles substantially only retain matter.
- 65 Having given due consideration to the disclosure in ZOPPOLA, I find it difficult to come to any other conclusion than that it provides an anticipation of claim 1 as proposed to be amended. Given that claim 6 is a method of constructing the retaining wall of claim 1 then this also is considered to lack novelty in the light of ZOPPOLA. This provides me with sufficient reason not to exercise the comptroller's discretion in allowing the proposed amendment as it does not overcome the defect in the patent identified by the proprietor in its application to amend. Nevertheless, I shall also consider the opponent's arguments on the novelty of the proposed amended claims with respect to the other prior-art documents for completeness.

D2: WEATHERBY

66 Figures 1-3 of the document are reproduced below for ease of reference.

U.S. Patent Dec. 31, 1985 Sheet 1 of 3 4,561,804



67 In a similar fashion to the ZOPPOLA document above, the following table is my attempt at summarising the lengthy submissions made by both sides concerning the relevance of WEATHERBY to claim 1 as proposed to be amended.

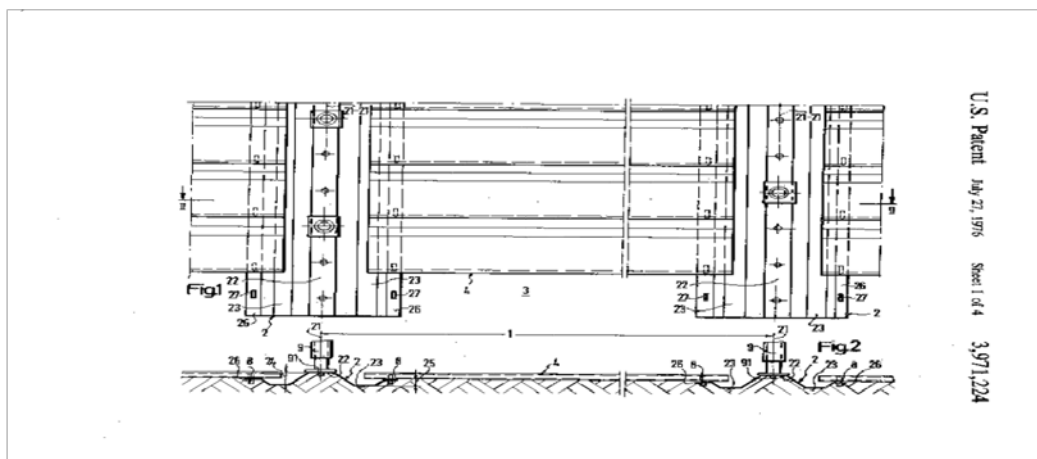
| Claims | US4561804 WEATHERBY |
|---|--|
| <p>1. A retaining wall for retaining matter on a side thereof comprising:</p> | <p>The application is directed to a method of building a retaining wall and the structure of a retaining wall. Column 1 Line 37-44</p> |

| | |
|--|---|
| <p><i>a plurality of upwardly projecting primary structural members spaced apart from each other and having a first structural property comprising depth installed in a supporting body; and</i></p> | <p><i>“installing a plurality of sheet piles (10) into the ground at laterally spaced locations along the future face of an earthen mass (11) to be retained”.</i></p> <p><i>“Piles are installed at least as deep as the predetermined bottom of the earthen mass”</i></p> <p><i>Column 3 Line 15-18 & 28-30 & Fig 3</i></p> |
| <p><i>one or more intermediate panels of material arranged so as to span horizontally the gap between a pair of the primary structural members and thus to retain matter between the primary structural members;</i></p> | <p><i>“Temporary earth retaining means are then installed between the piles against the exposed face of the earthen mass as needed to prevent the exposed face collapsing. Such temporary retaining means may comprise conventional timber lagging”</i></p> <p><i>Column 3 Line 35-40</i></p> |
| <p><i>wherein the primary structural members are sheet piles. and</i></p> | <p><i>“Sheet piles 10 are channel shaped in cross section and may be made up of pairs of interlocking steel pile segments”</i></p> <p><i>Column 3 Line 20-22</i></p> |
| <p><i>wherein the one or more intermediate panels project downwardly into the supporting body to a lesser depth than the primary structural members so as to have a structural property different from the first structural property,</i></p> | <p><i>“A first stage of earth is excavated adjacent to the piles and the earthen mass to a depth where the cut will stand without caving. Temporary earth retaining means is installed between the piles against the exposed face of the earthen mass. Excavation and installation of temporary retaining means continues in descending stages.</i></p> <p><i>Column 1 Line 58-64 & Fig 11 & 12</i></p> |
| <p><i>and wherein the one or more intermediate panels are only adequate to retain the matter such that the primary structural members are adapted to provide the main structural restraint to bending and shear in the retaining wall.</i></p> | <p><i>“A first stage of earth is excavated adjacent to the piles and the earthen mass to a depth where the cut will stand without caving. Temporary earth retaining means is installed between the piles against the exposed face of the earthen mass.”</i></p> <p><i>Column 1 Line 58-64 & Fig 11 & 12</i></p> |

68 There is no suggestion that the intermediate panels in WEATHERBY are installed to any depth in the supporting body. The method of construction of the wall makes it very clear that the intermediate panels are only placed once the cut can no longer support itself. At that point the panels are then installed and the next cut is made. Once completed the panels are then covered in concrete to form a retaining wall. Given this arrangement, WEATHERBY is not considered to read onto claim 1. As a consequence of this, claim 6 is also not anticipated since it requires the intermediate panels to be located in the supporting ground.

D3: ELKUCH

69 Figures 1 and 2 of ELKUCH are reproduced below:



70 The following table is useful in identifying the relevant features of ELKUCH

| Claims | US 3971224 |
|---|--|
| 1. A retaining wall for retaining matter on a side thereof comprising: | <p>"A pile wall"</p> <p>Column 1 Line 1 and title</p> |
| <p>a plurality of upwardly projecting primary structural members spaced apart from each other and having a first structural property comprising depth installed in a supporting body; and</p> | <p>"consisting of spaced, individual or clustered piles "</p> <p>Fig 1 & 2 & Column 1 Line 7-9</p> |

| | |
|--|--|
| <p><i>one or more intermediate panels of material arranged so as to span horizontally the gap between a pair of the primary structural members and thus to retain matter between the primary structural members;</i></p> | <p><i>“the initially free zones (3) between the driven piles (2) are to be bridged by piles (4)”</i></p> <p>Column 3 Line 14-17</p> |
| <p><i>wherein the primary structural members are sheet piles. and</i></p> | <p>The piles are “W shaped section”</p> <p>Column 3 Line 25</p> |
| <p><i>wherein the one or more intermediate panels project downwardly into the supporting body to a lesser depth than the primary structural members so as to have a structural property different from the first structural property,</i></p> | <p><i>“In development of this principle of the invention the movement or placing and locking the bridging piles is composed of an initial lifting movement with simultaneous abutment of the bridging piles against the vertical piles..”</i></p> <p>Column 1 Line 51-55</p> |
| <p><i>and wherein the one or more intermediate panels are only adequate to retain the matter such that the primary structural members are adapted to provide the main structural restraint to bending and shear in the retaining wall.</i></p> | <p>“To enable the wall to take the pressure exerted by the liquids, such as water or by substances of a behaviour similar to liquids such as river sand, peat or building materials...”</p> <p>Column 1 Line 64-68</p> |

71 It is clear that the arrangements of ELKUCK would not allow the intermediate panels to project downwardly into the ground to a lesser depth. There is no suggestion either in the specification or in the drawings that the author intended the panels to do anything more than rest on the ground surface. As a result, ELKUCH would not appear to anticipate claim 1 nor does it anticipate claim 6.

D4: The Design and Construction of Sheet Piled Cofferdams

- 72 D4 is an extract from a book entitled “The Design and Construction of Sheet Piled Cofferdams” published in 1993. As the specification makes clear, a cofferdam is considered to be a retaining wall and so is clearly of some relevance.
- 73 Much of the opponent’s argument is based on figure 42 of the book which is entitled “German Waterfront method of driving”. This diagram shows a cofferdam comprising piles of equal length with alternate pairs driven deeper than the other. The supporting text in the book suggests that the reason for doing this may be because it is difficult to extend a pile by welding, an alternative being to drive the pile down a different distance.
- 74 I do not consider that this reads onto claim 1 or claim 6. Specifically, I do not believe it discloses either primary or intermediate panels – in fact it makes no distinction between the two.

D5: The Observational Approach to design of sheet-piled retaining wall

- 75 This document relates to a trial conducted on a pile wall used at the entrance to the Channel Tunnel in an area known as “The Brickpit”. As I understand it, the key requirement for the development of this wall was to avoid disruption of the power cables linking the British and French electricity grids whilst working in an old brickpit that had been in-filled with soil from the construction of the M20.
- 76 The opponent points to one of the contingency measures identified as a result of the trial where pile lengths could be varied during installation “because of either obstruction or overdigging”. It appears to be on this basis and also the statement that variations in ground type led to some piles being shorter by up to 1.5m, that the opponent draws the conclusion that the completed structure consisted of primary structures with intermediate piles.
- 77 The proprietor disagrees with this, saying that this arrangement was not an engineering choice but one of practicality. The proprietor argues that it will be abundantly clear to the skilled person reading D5 that the designer had not considered the shorter piles would span horizontally in the engineering sense of transferring load horizontally to the adjacent piles.
- 78 Having carefully considered the document I find myself in agreement with the proprietor that it does not impugn the novelty of the claims as proposed to be amended.

D6: Recommendations of the Committee for the waterfront Structures Harbours and Waterways

- 79 This document shows a staggered sheet-pile wall having vertical piles alternatively installed to first and second depths. The opponent refers to those installed to a longer depth as the primary piles and those to a shorter depth as the intermediary panels. The proprietor accepts this interpretation but draws distinctions between the retaining wall of the patent and of this document - its argument is that while superficially it might look like the retaining wall of the patent, the comments regarding

how the forces operate on the wall are different and could not be considered bending and shear forces.

- 80 In my view, document D6 makes clear that if you use staggered sheet piling then it is possible that a failure zone can develop at the toes of the panels. Using this knowledge you then need to take account of the stresses caused by the staggering and that there is a bending moment that occurs at the foot of the short piles that must be absorbed by the longer piles. For this reason the alternate long/short option is preferred to limit the stresses. It also comments that a length of 1m is usual for staggering, since anything greater will require a structural check of the longer piles to verify their capacity to handle the stresses combined with longitudinal and shear forces.
- 81 D6 clearly describes a retaining wall. There are longer primary piles and shorter intermediary piles, the piles of which are both sheet piles. There is also a clear and fairly unequivocal statement that the longer piles will support the weight of the shorter ones – in fact, this is key factor in considering how to structure this wall so as not to overbear the longer piles. It seems to me that D6 provides a disclosure that would render claim 1 anticipated and by the same token would also render claim 6 anticipated.

D8 Third Party Observations on EP 09785505.0 (Neue Erfahrungen über Ausbildung und Herstellung von Spundwandbauwerken – BRACKEMANN)

- 82 Although this document was not mentioned by the proprietor in its application to amend, the question of whether it is appropriate to consider this document has not been raised by the proprietor in these proceedings and therefore I will give it due consideration.
- 83 As one might expect from the title, this is a document originally in German for which the opponent has provided a translation. Insofar as the proprietor has not commented on the accuracy of the translation, neither shall I and I shall make no further comment in that regard.
- 84 The document shows in “fig 13” a sheet-piled retaining wall that has short piles arranged between longer piles. On the second page of the translation it is made clear that “every second or third double pile” can be driven deeper into the subsoil. Whilst a conventional wall is sufficient to transfer the vertical load into the substrate this arrangement allows the user to take advantage of accessing load supportable subsoil at a greater depth without losing the integrity of the wall. This can be of great advantage for wide abutment banks. On this basis it would appear to me that this document does indeed anticipate claim 1 as proposed to be amended and consequently claim 6.

Novelty - conclusion

- 85 I have carefully considered the evidence supplied by the opponent and find that claims 1 and 6 of the proposed amended claims lack novelty over D1, D6 and D8. This provides sufficient basis to refuse the application to amend without needing to consider the further attacks on the claims advanced by the opponent. The proprietor has filed a further set of amendments for my consideration should I find the original

request for post-grant amendment to be unacceptable. I shall deal with these conditional claim amendments next.

Conditional Claim Amendments

- 86 The proprietor has offered further claim amendments which are conditional upon an adverse finding in the requested post-grant amendments. These are:
1. *A retaining wall for retaining matter on a side thereof comprising:

a plurality of upwardly projecting primary ~~structural members~~ **sheet piles** spaced apart from each other and having a first structural property comprising depth installed in a supporting body; and

one or more ~~intermediate panels of material~~ **upwardly projecting secondary sheet piles** arranged so as to span horizontally the gap between a pair of the ~~primary structural members~~ **sheet piles** and thus to retain matter between the primary ~~structural members~~ **sheet piles**;

~~wherein the primary structural members are sheet piles. and~~

wherein the one or more **secondary sheet piles** ~~intermediate panels~~ project downwardly into the supporting body to a lesser depth than the primary ~~structural members~~ **sheet piles** so as to have a structural property different from the first structural property

and wherein the one or more intermediate panels are only adequate to retain the matter such that the primary structural members are adapted to provide the main structural restraint to bending and shear in the retaining wall.*
 2. ~~A retaining wall as claimed in claim 1, wherein the one or more intermediate panels of material comprise at least one of: a secondary sheet pile, a flexible sheet adapted to be driven into the supporting body, and a panel of rigid material.~~
 3. *A retaining wall as claimed in any preceding claim, wherein the one or more ~~intermediate panels~~ **secondary sheet piles** are connected to the pair of primary **sheet piles** ~~structural members~~.*
 4. *A retaining wall as claimed in any preceding claim, wherein the one or more ~~intermediate panels~~ **secondary sheet piles** comprise at least two ~~panels of material~~ **sheet piles** connected to each other.*
 5. *A retaining wall as claimed in any preceding claim, further comprising a stopper adapted to restrict vertical movement of the one or more ~~intermediate panels~~ **secondary sheet piles** at a predetermined position.*
 6. *A method of constructing a retaining wall for retaining matter on a side thereof, wherein the method comprises the steps of:*

arranging a plurality of primary ~~structural members~~ **sheet piles to be upwardly projecting so that the primary sheet piles** are spaced apart from each other and project downwardly into a supporting body, the primary ~~structural members~~ **sheet piles** having a first structural property comprising depth installed in a supporting body; and

arranging one or more ~~intermediate panels~~ **secondary sheet piles to be upwardly projecting so as and** to project downwardly into the supporting body to a lesser depth than the primary ~~structural members~~ **sheet piles** so as to have **a at least one** structural property different from the first structural property and to span horizontally the gap between a pair of the primary ~~structural members~~ **sheet piles** and thus retain matter between the primary ~~structural members~~ **sheet piles**;

~~wherein the primary structural members are sheet piles, and~~

wherein the one or more ~~intermediate panels~~ **secondary sheet piles** are only adequate to retain the matter, such that the primary ~~structural members~~ **sheet piles** are adapted to provide the main structural restraint to bending and shear in the retaining wall

- 7 A method as claimed in claim 6, further comprising the step of connecting the one or more ~~intermediate panels~~ **secondary sheet piles** to the pair of primary ~~structural members~~ **sheet piles**.
- 8 A retaining wall substantially as described hereinabove with reference to the accompanying figures.
- 9 A method of constructing a retaining wall substantially as described hereinabove with reference to the accompanying figures

87 The effect of these amendments is to restrict the scope of the claims such that they refer only to sheet piles for both the primary supporting uprights and for the panels between the main uprights. The opponent argues that claim 1 is unclear and that it is neither novel nor inventive because the scope of the claim has not changed.

88 On balance I disagree with the opponent that the claim is unclear but see nothing in the conditional claim that alters my view that the claim either lacks novelty and/or an inventive step with respect to documents D1, D6 and D8.

Conclusion

89 I have found that claims 1 and 6 as proposed to be amended lack novelty with respect to the prior-art identified by the proprietor in its application to amend under section 27. I have found the same to be true for the conditional amendments. I agree with the opponent that the proposed and conditional amendments do not effect a proper cure for the defect they are intended to rectify and therefore I refuse the application to amend.

Costs

- 90 Having succeeded in its opposition to the proprietor's application to amend under section 27, the opponent is entitled to its costs based on the standard scale applicable in proceedings before the comptroller. I shall allow both sides a period of 28 days to make submissions on costs before making an Order in favour of the opponent.

Appeal

- 91 Any appeal must be lodged within 28 days after the date of this decision.

Peter Slater

Deputy Director, acting for the Comptroller