



PATENTS ACT 1977

APPLICANT Ecobunker Limited

ISSUE Whether patent application GB1902192.2 complies with section 1(1)(b) of the Patents Act 1977

HEARING OFFICER J Pullen

DECISION

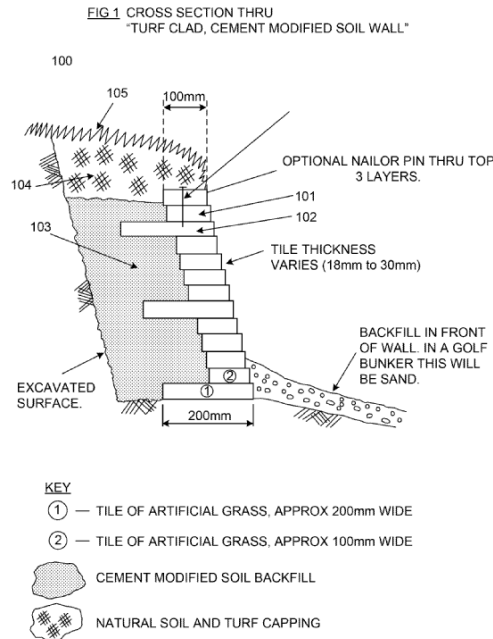
Introduction

- 1 Patent application GB1902192.2 entitled "Improved Golf Course Bunker", entered the national phase on 18 February 2019, derived from WO2018/020266 A1, with 29 July 2016 as its earliest date. It was republished as GB 2567392 A on 10 April 2019.
- 2 In the first examination report, dated 26 April 2021, the examiner raised an objection that the invention did not involve an inventive step under Section 1(1)(b) of the Patents Act 1977 ("the Act"). Third-party observations were filed on 14 May 2021 by Rhydian Lewis of Durabunker regarding the obviousness of the invention.
- 3 There followed several rounds of correspondence between the examiner and the applicant's agents, Wilson Gunn, without agreement being reached as to a form of claims which would overcome the inventive step objection. A hearing was offered in the examination report of 30 November 2021 and accepted in response on 31 January 2022.
- 4 The matter came before me at a hearing on 7 April 2022 where the applicant was represented by David Slattery of Wilson Gunn. Also present were the inventor Richard Allen, Hasti Jahangiri of Wilson Gunn, the examiner Dr Sam Stokes, my assistants Nikki Dowell and Peter Doenhoff, and observers Ian Choi and Joseph Webster. Prior to the hearing the applicant made additional submissions with their attorney's letter of 7 April 2022 which I have fully considered.
- 5 I note that the compliance date for the application, 26 April 2022, has now passed.

The application

- 6 The application relates to a method of constructing a golf course bunker using cement modified soil ("CMS") as a backfill material to secure the bunker facade tiles into place. The method involves excavating a hole; laying a plurality of tiles to create the required shape, height and gradient to face the exterior surface of the

excavation; backfilling the excavated earth behind the tiles with CMS; covering the top layer of tiles and CMS with natural soil and then turf. The resulting bunker 100 is shown in figure 1 as comprising a plurality of layers of tiles including tiles of lesser width 101 and tiles of greater width 102. The volume behind the back surface of the tiles 101 and 102 is filled with CMS 103. The top of the bunker wall and top of CMS 103 is covered with a soil layer 104 which in turn is covered with a layer of natural turf 105.



7 CMS consists of a mixture of cement, soil and water. The soil may be that of the excavated earth to create the bunker, or it may be soil taken from an off-site location. It is said that the soil used and the exact cement to soil ratio will vary on a site-by-site basis. A small proportion of CMS is cement powder. It is also said that the retaining wall described could be used as a landscaping tool in other contexts, not solely for golf course bunker landscaping.

8 There is one independent claim which reads:

1. A method of making a golf bunker, comprising the steps of:
 - excavating a hole into the ground;
 - obtaining tiles of a lesser width and tiles of a greater width, wherein the tiles comprise an artificial grass-covered surface;
 - layering tiles of a lesser width and placing one layer of tile of the greater width on top of the layers of lesser width;
 - backfilling a volume behind the tiles with cement modified soil so as to create a gravity retaining structure where its self-weight is the primary resisting force holding the turf tile wall in place;
 - repeating the steps of layering tiles and backfilling a volume with cement modified soil until a desired bunker wall height is achieved;
 - covering the top layer of tiles and the top of the cement modified soil with natural soil; and
 - covering the natural soil with natural turf.

The law

- 9 The relevant section of the Act is 1(1)(b), the most relevant provisions of which are:

1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –

- (a) ...;*
- (b) it involves an inventive step;*
- (c) ...;*
- (d) ...*

- 10 Section 3 of the Act then sets out how an inventive step is determined, and reads:

An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).

- 11 Matter which ‘forms part of the state of the art by virtue only of section 2(2)’ is all matter which was made available to the public before the priority date of the application in question.
- 12 The test for determining whether the invention of an application includes an inventive step is the structured approach laid down by the Court of Appeal in *Windsurfing*¹ and restated, by that Court, in *Pozzoli*². The test comprises the following steps:

(1)(a) Identify the notional “person skilled in the art”

(1)(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

Assessment

Step (1)(a): Identify the notional “person skilled in the art”

- 13 The examiner identifies the person skilled in the art to be a designer of golf courses or team that would likely consult with structural engineers to ensure the long-term durability of their product.

¹ *Windsurfing International Inc v Tabur Marine (Great Britain) Ltd* [1985] RPC 59

² *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588

- 14 Mr Slattery agreed with the examiner that the key individual is someone who's involved in the design and construction of golf courses. He expanded on this identity saying that typically this would be a golf course architect who would work with some construction staff or the local grounds keeper staff of the course.
- 15 The observations filed on 14 May 2021 by Rhydian Lewis of Durabunker Ltd note that although the skilled person may be characterised as working in landscaping or golf course construction, the problem addressed is rooted in construction and civil engineering suggesting that a broader characterisation may be appropriate.
- 16 Paragraph 60 of the application and prior art WO 2012/007741 both suggest that the retaining walls described could be used in other contexts, not solely for golf course bunker landscaping. This suggests that the disclosures would be of interest to skilled persons in fields other than golf course design.
- 17 Whilst I have concerns about taking too narrower view of the skilled person I will proceed based on the examiner's and Mr Slattery's agreement that the skilled person is a golf course architect; their field of knowledge is more pertinent than their job title.

Step (1)(b): Identify the relevant common general knowledge of that person

- 18 The examiner proposes that the relevant common general knowledge includes different ways to build in and support bunkers and retaining walls and references several documents as illustrations that backfilling a retaining wall with CMS was well known by the priority date. They also refer to WO2012/036612 A1 (STERNBERG) as illustrating the use of concrete in golf bunkers.
- 19 The observations filed on 14 May 2021 by Rhydian Lewis of Durabunker Ltd include many of the documents referenced by the examiner as illustrations that backfilling a retaining wall with CMS was well known by the priority date. They also highlight various other known methodologies to add structural strength and stabilise retaining wall structures including bonded gravel, high tensile fabric (geogrids), injection of cement-based grout, gabion baskets, fabric tie backs and platypus hooks.
- 20 The evidence provided prior to the hearing from Jonathan Gaunt of Gaunt Golf Course Design states that golf course construction tries to use natural materials wherever possible with a motivation to minimise disturbance of the land that requires structural considerations both for aesthetic and budgetary reasons. He says that cement has a high alkalinity, so greenkeepers and contractors are averse to use it in a golf course construction as fine turf grows better on slightly acidic soils.
- 21 At the hearing Mr Slattery proposed that the skilled person wouldn't know how to build retaining walls and nor would they be motivated to understand how to. He also said that some of the identified documents do not disclose the use of CMS as a backfill to any sort of retaining structure.
- 22 Mr Slattery also said that the skilled person would build on a relative to human scale things that are self-supporting to a large extent. He suggested that, in identifying the relevant common general knowledge, I need to consider the skilled persons prejudices and identified prejudices against using cement in golf course construction.

He said the skilled person would be seeking to use natural materials as much as possible, that cement, sand or concrete are outside the scope of what golf course architects want to see and there are safety concerns that golf balls may hit concrete structures and ricochet in unexpected directions. He went on to discuss resistance from greenkeeping staff who had concerns that the alkalinity of cement would negatively impact the ability to maintain natural turf.

23 He also said that the common general knowledge would not include the use of CMS in building retaining walls or other structures because of these prejudices and concerns about soil alkalinity. Lastly, he proposed there would be a general prejudice against building more complex structures which would require them to engage outside contractors, instead preferring something that they can maintain in house.

24 Prejudice was one of the defences put forward in *Pozzoli* and is discussed in paragraphs 24 to 29 of that decision. Paragraph 28 reads:

Where, however, the patentee merely patents an old idea thought not to work or to be practical and does not explain how or why, contrary to the prejudice, that it does work or is practical, things are different. Then his patent contributes nothing to human knowledge. The lion remains at least apparent (it may even be real) and the patent cannot be justified.

25 If, as Mr Slattery proposes, the skilled person has a prejudice against the use of CMS, then this application does not explain how or why, contrary to that prejudice, that it is practical. Nor does it address their concerns about the effect of cements alkalinity on nearby turf. The application also does not disclose appropriate cement to soil ratio to use to achieve the necessary structural stability in one or more exemplary conditions or when to use excavated or foreign soil which suggests that the reader is expected to know those details. Similarly, purely commercial considerations, such as aesthetic and budgetary reasons and a reluctance to employ outside contractors, do not form part of the relevant common general knowledge as was discussed in, for example, *Windsurfing*.

26 I find that the skilled person's relevant common general knowledge would include an awareness of variety of methods for increasing the structural strength of earthworks such as slopes and including CMS as part of backfill material. They would also understand the properties, advantages, and disadvantages of each of those methods and how to implement them. If that were not the case it is unlikely this application is complete enough regarding the cement to soil ratio to use in various soils and how much CMS to use in exemplary circumstances.

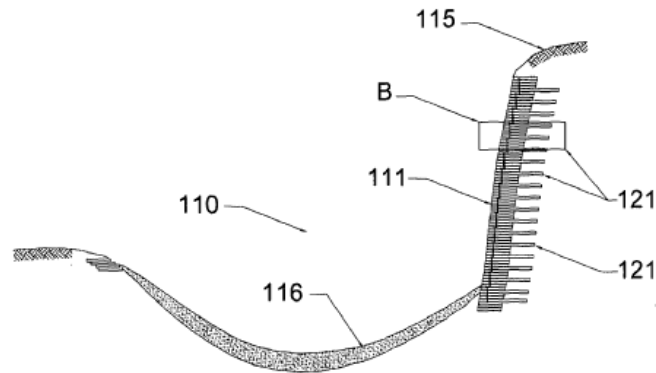
Step (2): Identify the inventive concept of the claim in question or if that cannot readily be done, construe it

27 The examiner outlines the inventive concept of the claim as a method of constructing a golf course bunker, comprising a wall of artificial turf tiles that are backfilled with cement modified soil to create a gravity retaining structure, built up until a desired height is reached.

- 28 Mr Slattery said that the inventive concept lies in having a cement modified soil backfill behind the artificial turf tile bunker face which provides sufficient self-weight to hold the bunker face up and gives it an increased structural stability.
- 29 The examiner's and Mr Slattery's characterisations of the inventive concept are broadly in agreement. Neither includes the steps of excavating a hole in the ground, obtaining tiles, covering the top layer of tiles and the top of the CMS with natural soil and covering that with natural turf. I agree that, although those steps limit the ambit of the claim, they are not part of the inventive concept.
- 30 The only point of contention arises from the phrase "...so as to create a gravity retaining structure where its self-weight is the primary resisting force holding the turf tile wall in place..." in claim 1. Mr Slattery's contention that this means the CMS backfill provides sufficient self-weight to hold the bunker face up and gives it an increased structural stability is troublingly imprecise. I asked him at the hearing whether this involved additional calculations or was just the result of using CMS, and he elaborated that it would be based on the volume of CMS and height of the wall saying that about a foot (300mm) of clearance behind it would give sufficient self-weight (for a bunker wall of an undisclosed height and situation). The description notes that the amount of CMS needed will vary with the required shape, height, gradient of the face, width of turf tiles used, the natural earth materials behind the wall, and the imposed load on the ground behind the wall. However, it does not include examples or guidance on how much to use in exemplary circumstances to achieve the result specified. I find the phrase to be prolix, opaque, and ultimately nothing more than the expected result of using CMS backfill.
- 31 I find the inventive concept of the claim to be a method of constructing a golf course bunker comprising layering artificial turf tiles and backfilling a volume behind the tiles with cement modified soil.

Step (3): Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed

- 32 The examiner has cited WO 2012/007741 as the main document forming part of the state of the art. This document discloses a method of constructing a golf bunker involving excavation, laying the artificial grass in horizontal layers, preferably staggered layers with some layers 121 wider than others 111, to create the required shape, height and gradient to face the exterior surface of the excavation and adding a layer of topsoil on the uppermost surface of the bunker and then a layer of natural turf 115 on the topsoil. Figure 4 shows a sectional view of a golf bunker according to an embodiment:



- 33 The interior of the bunker (the volume behind the tiles) is formed from infill material in the form of soil mostly, and more preferably substantially entirely, from the same material as was present in the vicinity of the bunker before the bunker was installed. It is said that under most ground conditions the self-weight of the artificial turf is sufficient to provide adequate slope stability. The document also envisages that where bunker faces are proposed to be more than 1200mm high, there may be a need for additional support/techniques of providing structural strength and/or integrity. It is also said that the revetted surface may form a retaining wall.
- 34 The observations filed on 14 May 2021 by Rhydian Lewis of Durabunker Ltd state that when constructing bunkers according to the disclosure in WO 2012/007741 various mixtures of soil and other materials like sand, gravel and crushed stone have been used as backfill. This, he says, is due to the binding nature of adding these other materials to soil and is based on local availability of material as well as the subsoil composition to improve bonding and compaction of backfill. He also proposes that the wording of WO 2012/007741 indicates that other materials, separate to those found in the ground immediately surrounding the bunker, could also be used. He goes on to say that the immediate surrounds of the bunker could also comprise various materials such as lime, chalk, rock and indeed cement, either by previous construction, natural composition of subsoils or previous foundations to bunker walls created using cement or cement soil mix.
- 35 At the hearing Mr Slattery proposed that the claim differs from WO 2012/007741 in the backfilling with CMS. He also suggested that the gravity retaining structure where the self-weight of the cement modified soil is the primary resisting force holding the turf wall in place this is said to create is a further difference as in WO 2012/007741 it is said that the self-weight of the tiles is sufficient to hold itself in place. The examiner disagrees that the self-weight of the cement modified soil being the primary resisting force holding the turf wall in place is a difference. I concluded above that the self-weight feature amounts to nothing more than using CMS backfill.
- 36 The difference between this document and the inventive concept lies in backfilling behind the tiles with cement modified soil.

Step (4): Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

- 37 Having identified the difference between the state of the art and the inventive concept, it is now for me to decide whether said differences would have been obvious to the person skilled in the art at the time of the invention or whether a certain degree of inventiveness was required on their part. In doing so, I must avoid looking at the cited prior art under the influence of the present application and should attempt to place myself in the shoes of the skilled person faced with the problem at hand. Putting it another way, I must beware of using hindsight or ex-post facto analysis to arrive at the invention.
- 38 The question that needs to be answered is:
- Would it occur to the skilled reader of WO 2012/007741 to add cement to the backfill material?
- 39 The examiner argues that the skilled person, seeking a solution to the problem of failure of steep walls of golf course bunkers, would seek to reinforce the backfill. They point to several elements of the teachings of WO 2012/007741 as highlighting the need for such reinforcement and conclude that the skilled person would be inclined to use cement modified soil as a backfill.
- 40 Mr Slattery disagrees, in his view the skilled person is not someone who's skilled in making retaining walls and so wouldn't have knowledge of the use of CMS or building of retaining walls using CMS, so the claim is inventive. I concluded above that the skilled person is aware of CMS backfill as a means of increasing structural strength of earthworks and how to use it; if not the case it is unlikely this application is complete enough to account for that lack of knowledge.
- 41 As a secondary factor, Mr slattery said that even if this were not the case, the skilled person, being cognizant of the need to grow good turf above the CMS area would be very concerned and potentially prejudice against the use of CMS due to the alkalinity of cement below the root zone. As I said above, if the skilled person has a prejudice against the use of CMS, then this application does not explain how or why, contrary to that prejudice, that it is practical; there is no invention in ignoring or tolerating disadvantages that might deter others.
- 42 The disclosure in WO 2012/007741 provides two pointers to situations when additional support would be required. Firstly, it states that bunker faces of more than 1200mm high will need additional support/techniques to provide structural strength/integrity. Secondly, the stipulation that "...under most ground conditions the self-weight of the artificial turf is sufficient to provide adequate slope stability..." implies that there are some less common ground conditions which require additional measures to provide adequate slope stability.
- 43 Cement modified soil is one way of providing such additional support and improve structural integrity and the skilled reader of WO 2012/007741 would be minded to try adding cement to the soil backfill to increase structural integrity in situations that needed it. That there are other obvious ways provide additional support and improve structural integrity does not change this conclusion. I find that the invention of claim 1 is obvious in view of the disclosure in WO 2012/007741.

44 At the hearing Mr Slattery briefly suggested that the features of claims 2 and 3 to 6 would not be obvious if I concluded that claim 1 was obvious. These concern values of the width of the CMS behind the turf tiles and the width of the greater width and lesser width tiles. I find that the values specified are also obvious as, based on the disclosure, they are all arbitrary choices. For completeness I considered the remaining claims, and I am satisfied that none involve an inventive step.

Conclusion

45 I conclude that the invention as defined in independent claim 1 lacks an inventive step in view of the disclosure in WO 2012/007741. The features in dependent claims 2 to 10 are also obvious. I therefore refuse this application under section 18(3) of the Patents Act.

Appeal

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

J Pullen

Deputy Director, acting for the Comptroller