INTELLECTUAL PROPERTY OFFICE

3 August 2010

BLO/277/10

PATENTS ACT 1977

BETWEEN

Robert Leigh	Applicant for Revocation
and	
Eurokrete Holdings Limited	Patent proprietor

PROCEEDINGS

Application under section 72(1)(a) of the Patents Act 1977
for revocation of patent number GB 2313137 B

HEARING OFFICER Phil Thorpe

Mr Michael Brown (of Alpha & Omega) for the patent proprietor
The applicant, Mr Leigh, appeared in person
Hearing date: 20th April 2010

DECISION

Introduction

1. In these proceedings, Mr Robert Leigh seeks revocation of patent GB2313137 B ("the patent"). The patent proprietor, Eurokrete Holdings Limited ("Eurokrete") maintains that the patent is valid and should not be revoked, and that should the independent claims be found to be invalid then an opportunity to amend should be allowed under Section 75.

2. Following the filing of the statements of case I issued a preliminary evaluation. This evaluation presented my initial thoughts on the key matters in issue and sought to assist the parties with the preparation of their evidence and the presentation of their arguments at the hearing.

3. Both sides subsequently filed evidence which included witness statements from Mr Leigh and Mr Roy Jenkins, the Managing Director of Eurokrete. The matter then came before at a hearing on 20 April 2010. At the hearing, Eurokrete was represented by Mr Michael Brown of Alpha & Omega although there were

occasions where I also allowed Mr Jenkins to address me directly. Mr Leigh represented himself. I should note that neither of the witnesses who had provided witness statements was cross-examined.

The Law

4. The Comptroller's powers to revoke a patent on the application of another person are set out in section 72(1). With respect to the validity of the claims, the relevant parts read as follows:

> **Power to revoke patents on application**
> 72.-(1) Subject to the following provisions of this Act, the court or the comptroller may by order revoke a patent for an invention on the application of any person (including the proprietor of the patent) on (but only on) any of the following grounds, that is to say:
> (a) the invention is not a patentable invention;
> (b) ...

5. In relation to section 72(1)(a) above, section 1(1), section 2(1) and section 3 define the appropriate requirements for a patentable invention:

> **Patentable Inventions**
> 1.-(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say:
> (c) the invention is new;
> (d) it involves an inventive step;
> (e) ....
> and references in this Act to a patentable invention shall be construed accordingly.
>
> **Novelty**
> 2.-(1) An invention shall be taken to be new if it does not form part of the state of the art.
>
> **Inventive Step**
> 3. 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).

6. The law on amendment of a patent in infringement or revocation proceedings is set out in Section 75:

> 75.-(1) In any proceedings before the court or the comptroller in which the validity of a patent may be put in issue the court or, as the case may be, the comptroller may, subject to section 76 below, allow the proprietor of the patent to amend the specification of the patent in such manner, and subject to such terms as to advertising the proposed amendment and as to costs, expenses or otherwise, as the court or comptroller thinks fit.
> .

The patent

7. The patent concerns a method of weatherproofing a building structure using a particular method of applying ferrocement. Ferrocement is a thin composite

material comprising a framework of steel mesh over which a mixture of sand, cement and water is spread. Ferrocement has a broad range of applications including in the building industry. Ferrocement has also been used to build boats.

8. Claim 1 of the patent can be broken down into 4 parts:

(A) A method of weatherproofing a building structure which comprises:
(B) securing at least three layers of metal mesh to the said structure;
(C) applying a skim of hydraulic cementitious material to the mesh; and
(D) thereafter keeping the skim wet for a continuous period of days sufficient for the skim to cure and form a water-impermeable layer.

9. I should say at this point that there is a second independent claim, claim 20 which can be similarly broken down to read:

a) A weatherproofing layer applied to a building structure;
b) which comprises at least three layers of metal mesh secured to the structure;
c) and embedded in a cured layer of hydraulic cementitious material;
d) which has been cured in such way that it is water-impermeable.

In the submissions, both parties have concentrated on claim 1, in order to set out their arguments. There is of course a difference of emphasis in the two independent claims, as a method claim and a claim to the physical layer itself.

Construction of claim 1

10. In order to decide whether claim 1 is novel and inventive it is first necessary to determine its scope and meaning. The correct approach to construing a claim is to determine what a person skilled in the art would think that the patentee was using the language of the claim to mean[1].

11. Mr Leigh argues that the skilled man might be a roofer, in the specific context of how the roof might be attached. I am however willing to consider a broader range than the common or garden roofer, such that the skilled man could be anyone and that includes a team, routinely involved in the construction of buildings, which will include roofers, tillers or builders but might also include a construction or structural engineer. The skilled person or team of persons would also have knowledge of the use of ferrocement in construction. So what would such a person or team of persons understand the patentee to have meant with the wording of claim 1?

12. I start with step A. At the hearing Mr Brown suggested that the nature of the proposed use, in repairing existing structures had lead him when drafting to

[1] Kirin-Amgen Inc v Hoechst Marion Roussel Ltd [2005] RPC 9

the thought process that a building structure was an existing structure. However, as Mr Brown acknowledged the resulting draft at the end of page 6 of the description had specifically mentioned its application to a new roof. I do not, nor would a skilled person, therefore believe that the phrase "a building structure" can be regarded as limited to an existing, old or decaying roof that may have been the driver behind the inventor's inspiration here. The term must extend also to new builds.

13. Steps B and C are clear and provide no problems in construction.

14. The final step of the claim, step D, requires keeping the skim wet "for a continuous period of days sufficient for the skim to cure and form a water-impermeable layer". This requirement together with the overall requirement that the method "weatherproofs" the building structure goes to the heart of this dispute. Central to that were the questions of what does "weatherproofing" mean and how many days of curing is sufficient to form a "water-impermeable layer".

15. Section 125 of the Act provides 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.

16. This means that it perfectly allowable to look to the description and drawings for assistance in interpreting the scope of a claim.

17. Typically the description of a patent application will describe what the problem is that the invention seeks to overcome and then go on to explain how that is done. Here the part of the description entitled "background" does refer to a number of prior art roof coatings all of which include cementitious material. The description goes on to state that:

> "An aim of the present invention may be viewed as being to provide a form of weatherproofing which is patentably different from existing weatherproofing methods applied to flat surfaces".

18. The description does not explicitly identify how the invention differs from the prior art nor does it refer to any particular problem with the prior art methods that the invention seeks to overcome.

19. The description in describing the invention focuses mainly on the features of the wire mesh support and aspects of the mix of the cementitious material. The only part of the application which really adds anything to the claim in respect of curing time are two paragraphs on page 6 of the description which read:

> "Curing is crucial to the permeability, strength frost resistance,

abrasiveness and overall quality of the cured product. Normally, the layer should not be allowed to dry out for at least twenty eight days. Under dry conditions a polythene sheet may be temporarily applied over the layers to retain moisture until the cement has fully cured. Alternatively, a known moisture sealant may be permanently painted onto the skim after the initial hardening has taken place. Under damp air conditions the material can be allowed to cure naturally without any such measures.

Further curing may take place over a period of weeks or months, but even after the initial curing period the treatment provides a permanent tough, waterproof coat which is able to flex without cracking, even under the weight of a man or a vehicle. The treatment can therefore be used on rooves and similar structures to extend its range of uses, e.g. by providing walkways or even car parks. The minimum life of the treatment will generally be measured in decades so that replacement is rarely necessary."

20. Mr Jenkins, the managing director of the patent proprietor stated in his witness statement that:

> "… we apply the cement/sand/water mixture to the mesh covered board. This gives a thickness of the order of 5 or 6 mm. We then slow down the rate of curing of the concrete by covering it with a tarpaulin or by spraying the concrete with the material sold under the trade mark "MASTERCURE" produced by BASF. This stops the formation of surface crazing and, by ensuring that curing of the concrete takes a matter of days rather than hours, we ensure a weatherproof finish is obtained".

21. So the important aspect at least as far as Mr Jenkins is concerned appears to be curing the concrete for "a matter of days rather than hours". I note however that this statement was not made in response to any specific question of how many days are sufficient?

22. So where does this leave claim 1? The stated importance of the curing to permeability is explicitly mentioned. But the statement in the description that at least 28 days drying is normal is clearly not the same as saying dried for at least 28 days. And the patentee has not chosen to specify a particular period in his claim. I believe that the skilled person would therefore not construe the claim as requiring a curing period of approximately 28 days or more. A period significantly shorter than that would be covered by the claim provided that it resulted in a layer that was waterproof to a similar level as if it had been cured for 28 days or more.

23. There was much discussion at the hearing on how waterproof such a layer would be at least compared with the methods in the prior art. That however is really a matter for the questions of novelty and obviousness rather than construction of the claim.

24. Having construed the patent I can now turn to considering the prior art.

The prior art

25. Mr Leigh has based his case on a number of documents which he details in his statement of case. I therefore turn to the disclosures in these documents. First, to the documents that were not discussed in any great detail at the hearing namely:

> "Masonry sands have become finer" available at: http://rockproducts.com/mag/rock_masonry_sands_become
>
> Mass weight, Density or Specificy Gravity of Bulk Materials available at: www.simetric.co.uk/si_materials.

26. These documents were used by Mr Leigh in his original statement of grounds as justification for the assumptions he has made about the properties that would follow from the application of the method of claim 1. These properties are the focus of claims 3, 4, 12, 13 and 17. I shall return to the question of these claims later, suffice at this point to say that in their evidence, Eurokrete and at the hearing, Mr Brown have not presented argument or evidence that casts doubt on the basis for the assumptions that Mr Leigh made in his statement of grounds, and that there is no prima facie reason to doubt the figures documented in these two sources.

27. Mr Leigh's main case is based on two further documents: US3932969 published on 20 January 1976 and an article entitled "Ferrocement in construction".

28. I turn first to "Ferrocement in construction", which Mr Leigh asserts was published in 1981. Mr Brown did not seek to challenge the date of publication.

29. This document is used by Mr Leigh in two contexts. First as evidence of the common general knowledge, that is to say the basic information that the skilled man could reasonably be expected to know. Secondly, he uses the information provided in the document on the fractional volume and therefore density of the reinforcing mesh in his assumptions made in response to claims 3 and 4. I have not been presented with evidence or argument to doubt either that this document does represent the common general knowledge or that the assumptions made by Mr Leigh on the densities and weights set out in this document are not accurate.

30. I turn next to US 3932969. This document formed the crux of discussions and I shall therefore consider it in some detail now. Eurokrete had accepted that this document was close. At the hearing Mr Leigh stated his view that US 3932969 discloses all of the steps of claim 1 of the patent, but not all of the features of the dependent claims.

US 3932969

31. US3932969 relates to a ferrocement structure, which it appears was

principally developed for the production of new buildings using a load bearing framework, covered with a strong flexible, moisture impermeable sheet and a flexible metal reinforcing material to which a cement mortar is applied.

32. Mr Leigh noted in particular the passage in column 5 between lines 24 and 51 as following the steps required in claim 1. This part of the document reads:

> “Ferrocement "covers" of this invention could be used for these structures without the problems mentioned above. Also, porches and cowlings over doorways could be simply and economically constructed by the method of this invention, and ferrocement covers of this invention could be applied directly over existing roofs, creating durable life-time roofs. These covers could be monolithic, having no joints and extending out to form gutters co-extensive with the roof shell.
>
> In the method of this invention, the structural framework is covered by a sufficiently strong moisture-impermeable sheet-like material, followed by an application of at least two and preferably four to five layers of a relatively supple wire mesh, thus forming, all at once, the "mold" and the structural reinforcing media of the concrete shell. A rich cement mortar consisting of A-1, air-entrained Portland cement, masonry sand and water is then rubber or vibrated thoroughly into the wire mat and troweled to the smoothness or texture desired. After a sufficient time of "damp curing" the main construction process is complete and the result is a very thin but strong and durable ferroconcrete structure.”

33. US932969 notes in respect of the period of curing that:

> “Curing the cement is done by a standard procedure of keeping it moist by covering with a plastic film for 7 days or more.”

and that:

> “Set cement mortar itself is not generally waterproof. It has been found that commercial masonry paints waterproof these structures quite adequately, and are relatively inexpensive, durable and readily available.”

34. Mr Brown emphasised the presence of this additional waterproofing in the form of the moisture-impermeable sheet-like material sheet and the additional waterproofing paint. Mr Leigh did not doubt that these additional layers might have been employed by US3932969, but questioned whether this took it outside of claim 1. Specifically, Mr Leigh argued that cured ferrocement is waterproof hence these additional steps are not essential to obtain the weatherproofing required of claim 1.

Novelty of claim 1

35. There is no dispute that US 3932969 discloses steps B and C of claim 1 as set out above. Mr Brown suggested at the hearing that US 3932969 was

mainly concerned with the production of a new structure, but recognised that we can pick and choose from the document depending upon what might wish to be taken from it. As I have already indicated, I do not believe that the claim1 is limited to either new or old structures; both were clearly envisaged in the description. I would add also that US 3932969 refers as noted above to the possible application of that invention to existing roofs

36. I pressed Mr Brown at the hearing on which of the steps in claim 1 was not disclosed by US 3932969. He accepted that all the steps were disclosed in this document. However he argued that the incorporation of those steps in the method of US3932969 did not constitute a process for weatherproofing a structure. Rather in US 3932969 it was necessary to use an additional weatherproof coating, something that was not necessary in the current application.

37. Indeed, Mr Brown argued that normal ferrocement is not normally used for repairing roofs. Whilst, it might have been used for waterproof applications, such as in boats, this was not the case in the context of roofs. Mr Brown also argued that the invention has stood the test of time, with only the inventor Mr Manniex, Eurokrete and its franchisees to his knowledge having employed the method for waterproofing roofs. Mr Brown suggested that the time taken to cure was not necessarily ideal, so that builders in the modern world, faced with time pressures would simply seek an alternative quicker solution.

38. Mr Brown did however acknowledge that US 3932969 had realised that it would take time for the proposed method to cure effectively, and had therefore suggested using that time to cure the concrete. For US 3932969 this meant a period that might be a minimum of a week. Mr Brown's view was however that US 3932969 had not viewed this as leading to a waterproofing system, since it proposed the additional waterproof painting steps.

39. There was some further discussion of this point at the hearing, though I felt that neither side was able to provide convincing evidence of what the waterproofing properties of cured ferrocement per se were. Neither side had provided direct experimental evidence on what results from direct implementation of the method taught by US3932969. It is nevertheless well established fact that curing leads to increased strength and lower permeability. However, the application to a boat or a roof clearly requires a high level of confidence that water will not permeate through in significant quantities. This is relevant because it goes to the heart of whether employing the method proposed by the US application, without the additional painting step, delivers the same result as that required in the claim, and indeed whether the benefits suggested by the claim are actually achieved.

40. If the results are the same then US 3932969 anticipates claim 1. Mr Leigh expressed this directly, arguing that either US 3932969 and the patent are as waterproof as each other or that they leak as badly as each other. Mr Leigh's contention was that the additional paint layer was an additional measure taken to be doubly sure of the waterproofing quality of the result. Mr Leigh also pointed out that the methods proposed in the patent and in US 3932969

both suggested the presence of an underlayer to prevent the ferrocement drying too rapidly and therefore not properly curing. That underlayer was therefore also waterproof.

41. In order to decide whether the results are the same it is useful to look at the methods employed in a little more detail. Both sides have argued that a careful curing and mixing process is fundamentally important to the resulting qualities of the ferrocement.

42. At the hearing Mr Brown suggested that the particular choices made here, as exemplified in claims 12 and 13 for the type and volume of sand used are important. Mr Leigh in his summary of the common general knowledge of the skilled man had also emphasised the importance of mixtures in producing concrete for any builder. It seems to me that for the claims in this patent to be supported then they must follow from the method of concrete production described. This has three key features, which whilst not required by claim 1 are required by dependent claims or suggested in the application. These key features underpin the success of the proposed method in achieving a waterproofing effect. Specifically these are: curing over an extended period, having a ratio of sand to cement between 3:1 and 1:1 by volume and that the sand particles are in the range of 90 microns to 750 microns.

43. So what is the method taught by US 3932969? In column 9, lines 29 to 31, it proposes a ratio by parts of 2.5:1. I note that Mr Leigh has suggested that if this is based on parts by weight, the resulting ratio by volume would be 2.35:1. Whichever value I take this clearly falls in the range which the patentee believed would achieve the result required by claim 1.

44. US 3932969 proposes the use of Masonry sand. Mr Leigh has provided evidence that masonry sand is defined or at least commonly consists of sand particles between 300 and 600 microns, again clearly falling within the range which the patentee believed would achieve the result required by claim 1.

45. Mr Brown accepted that the curing time set out in US 3932969 was a matter of days as required by the claim. And in confirming that US 3932969 does disclose the final step of claim 1, Mr Brown added further weight to the evidence of Mr Jenkins when he noted that what was important was curing over a period of days rather than hours. Hence there is nothing before me to suggest that curing for “7 days or more” as US 3932969 suggests produces a skim that is significantly less waterproof than if it had been cured for approximately 28 days or more.

46. Taking all this into account leads me to conclude that the method proposed in US3932969 is within the range of methods envisaged in the patent. It follows therefore that performing the process of US 3932969, minus the final step of applying the masonry paint, would produce similar waterproofing and weatherproofing qualities to that of the current patent. The addition of this final step does in US 3932969 not take the method outside of claim 1.

47. Therefore US 3932969 anticipates claim 1. I am also satisfied that claim 20 is

not new having regard to US 3932969.

48. Another way of looking at this would be to ask whether claim 1 as presently worded would be infringed if the method of US 3932969 was performed. The answer is yes it would. As has been shown the method in US 3932969 includes all the steps set out in the claim and produces the same degree of weatherproofing or waterproofing prior to the application of the masonry paint. That the two inventors differ on whether that degree of weatherproofing is sufficient is neither here nor there.

49. For completeness there was no suggestion that the document Ferrocement in Construction anticipates claim 1.

Possible amendments

50. In his skeleton argument Mr Brown had set out a desire for the applicant to be able to make use of the possibility of amendment offered by section 75, should claim 1 be held invalid. I advised Mr Brown at the hearing that given the need to ensure procedural fairness, only amendments that might reasonably be predicted would normally be considered.

51. Mr Brown accepted this and went on to suggest in particular that claims 3 and 4 might provide an inventive step, were claim 1 to be found to be invalid.

52. In my preliminary evaluation, I suggested that prima facie the dependent claims appeared to cover features that would follow directly or at least could easily result without exercising any particular effort to their choice. I did so based on Mr Leigh's systematic analysis of the claims in his initial statement of grounds. At the hearing and in the evidence in reply, Mr Brown has done little to dispute this.

53. However, given that I have found claim 1 to be invalid, and that Mr Brown has indicated a willingness to amend should I find that to be the case, I believe that in fairness to the patent proprietor I should at least consider the merits of the claims 3 and 4.

54. Mr Leigh has gone to some length in his evidence and did so again in the hearing, to explain how the common general knowledge of ferrocement might be translated into a practice. In doing so, at the hearing Mr Leigh tried systematically to show what results from the prior art.

55. At the hearing, Mr Brown asserted that Mr Leigh had presented no specific evidence against claims 3 and 4. This may have been based on the impression that resulted from the numerous features that are encompassed in the various dependent claims, and Mr Leigh's decision at hearing to follow a logical sequence dictated by the disclosures in the prior art. However, in his original statement of grounds Mr Leigh did specifically go through each of the individual claims, as the alternative logical sequence for his challenge. On

claims 3 and 4, Mr Leigh cited from “Ferrocement in construction”:

> “Fraction volume of up to 8 percent in both directions reinforcement corresponding to up to 40 pounds of steel per cubic foot of concrete (630 kilograms per cubic meter)”

56. He went on to suggest that this lead to a mortar mix ratio of 29%, citing www.simetric.co.uk/si_materials.htm as evidence of the mortar density used in his calculation.

57. Mr Brown has presented no evidence or indeed argument that the assumptions made by Mr Leigh are false. For example, no argument was made that the example cited in “ferrocement in concrete” might be unrepresentative of the common general knowledge at the time the patent was filed, and I can see no apparent reason why this would not have been the case.

58. The Court of Appeal in *Pozzoli SPA v BDMO SA [2007] EWCA Civ 588*[2] provided the following steps to assist in determining whether an invention is obvious::

    (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?

59. I am satisfied on the basis of the evidence presented by Mr Leigh that applying this test in respect of claims 3 and 4 would lead to a conclusion that the inventions set out in these claims is obvious to the skilled person. The differences between the inventions set out in these claims and US 3932969 are steps that require no degree of invention bearing in mind the common general knowledge at that time.

60. I have also looked through the other claims in the process having regard to the arguments made against these by Mr Leigh. I have not been able to find anything in any of these claims that realistically might support a valid claim given the disclosures in US 3932969 alone or in combination with the common general knowledge including as exemplified by the article Ferrocement in Construction. As I made clear at the hearing it would be unfair to the applicant to allow the patent proprietor an opportunity to introduce at this stage a wholly different claim to those that have been considered. I should add that having considered the specification as a whole there is in my

[2] http://www.bailii.org/ew/cases/EWCA/Civ/2007/588.html

mind nothing that would in any event provide a saving amendment. I therefore refuse to provide any further opportunity to amend.

Conclusions

61. I have concluded that claims 1 and 20 of GB 2313137 B lack novelty having regard to US 3932969. I also find that claims 3 and 4 lack an inventive step over this piece of prior art and the common general knowledge as exemplified by the article Ferrocement in Construction. I can find nothing in the remaining claims that would support a valid claim and I therefore refuse the patent proprietor's request to amend the patent under section 75 of the Act.

62. I order that patent GB 2313137 B be revoked in accordance with Section 72(1) of the Patents Act 1977.

Costs

63. Mr Brown and Mr Leigh have both asked for a cost order in line with the comptrollers published scale if they are successful.

64. The parties have both endeavoured to keep the complexity of this case to a minimum and the evidence light and I am grateful to both sides for that. I am therefore minded to make an order at the low end of the scale. I order Eurokrete to pay Mr Leigh the sum of £1000 as a contribution to his costs. Payment to be made not later than 7 days after the expiry of the appeal period. If an appeal is lodged, payment will be suspended pending the outcome of the appeal.

Appeal

65. Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

PHIL THORPE
Deputy Director acting for the Comptroller.