



## PATENTS ACT 1977

APPLICANT	Kelly Green Living Ltd
ISSUE	Whether application GB2010332.1 complies with s.1(1)(b) of the Patents Act 1977
HEARING OFFICER	Dr L Cullen

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## DECISION

### Introduction

- 1 Patent application GB2010332.1 (“the application”), in the name of Kelly Green Living Ltd (the applicant), is entitled “*Dry Shampoo Head Lice Treatment*” entered the UK national phase on 3 July 2020. The application, originating from GB was initiated under the Patent Cooperation Treaty (PCT) with a filing date of 9 July 2019 and a priority date of 9 July 2018. It was published in the international phase as WO 2020/012171 A1.
- 2 The application was searched as an international application and, after entry into the UK national phase, was published as GB 2583850 A and then examined by the Intellectual Property Office. Over several rounds of correspondence and amendment the examiner maintained an objection that the invention does not involve an inventive step. The applicant and examiner having reached such an impasse, the issue came before me at an oral hearing on 28 November 2023. The applicant was represented at the hearing by Dr Philip Stephenson of Bailey Walsh & Co.
- 3 Dr Stephenson provided written skeleton arguments 7 days in advance of the hearing and I wanted to record my thanks to him for doing so. This was very helpful.
- 4 On 27 November 2023, the day before the oral hearing, the agent supplied a further set of amendments to replace those on file. My decision below is based on these latest set of claims. These amendments corrected the error in claim 8 (identified in the examiners pre-hearing report) and amended the description so that the statement of invention is consistent with claim 1.

### The Invention

- 5 As the opening paragraph of the description explains, the invention relates to “a *product or formulation for a natural product based dry shampoo that has any one or*

*any combination of head lice deterrent, repellent and/or insecticidal (including ovicidal and/or adulticidal) properties.”.*

- 6 Various compositions are described for the dry shampoo product along with the results of some tests to determine the efficacy of the product against insects.

### **The Claims**

- 7 The application as currently amended includes 14 claims of which claim 1 is the only independent claim and it reads as follows:

*1. A dry shampoo composition for treatment of head lice by deterring and killing said head lice, said composition including diatomaceous earth and 5-50 wt % cornflour.*

### **The Relevant Law**

- 8 Section 1(1) of the Patents Act 1977 (the Act) states that (my emphasis added in bold):

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

*(a) the invention is new;*

***(b) it involves an inventive step;***

*(c) it is capable of industrial application;*

*(d) the grant of a patent for it is not excluded by subsections (2) and (3) or section 4A below;*

*and references in this Act to a patentable invention shall be construed accordingly.*

- 9 Section 3 of the Act defines what is meant by ‘inventive step’ as follows:

*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).*

- 10 Section 2(2) of the Act, which refers to the state of the art, reads:

*The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.*

11 In making my assessment of whether or not the claimed invention possesses an inventive step, I will adopt the structured approach for assessing inventive step set out in *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*<sup>1</sup>, and reformulated as the “Windsurfing/Pozzoli” test in *Pozzoli SPA v BDMA SA*<sup>2</sup>. This test has 4 steps as follows:

- (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, determine whether those differences constitute steps which would have been obvious to the person skilled in the art.*

## **Analysis**

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

- 12 According to the pre-hearing report from the examiner, dated 19 October 2023, the person skilled in the art may be a chemist or formulation scientist, or a team of such people, concerned with developing treatments for treating pests or insects, especially on hair or fur.
- 13 From the pre-hearing submissions made by the applicant, their view is that the skilled person would be a chemist or formulation scientist used to developing health-care products for the consumer market. They sought to draw a distinction between the consumer market and products for industrial or agricultural purposes.
- 14 It seems to me that the skilled person would be much as the applicant suggests, that is a chemist or formulation scientist used to developing health-care products for the consumer market, especially treatments for treating pests or insects, especially those on hair. I accept the applicants argument that the products are being developed for the consumer market and that this is not the same market as that for products for industrial or agricultural purposes.

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

- 15 The examiner believes that the skilled person would understand that insecticides are effective against head lice and also how such insecticides could be applied.
- 16 In the opinion of the examiner the skilled person would also know that cornflour can be used as a carrier in dry shampoo compositions. To support their contention that it is commonly known that cornflour can be used as a carrier in dry shampoo compositions, the examiner referred to three prior art documents. The three

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<sup>1</sup> *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59

<sup>2</sup> *Pozzoli SPA v BDMA SA* [2007] EWCA Civ 588

documents in question, D10, D11 and D12 are all published patent applications: GB 2520326 A published in May 2015; CN 104666129 A published in June 2015; and US 2016/317396 A1 published in September 2016, thus well in advance of 2019 when the application in suit was applied for. There is no evidence that any of these would be unusually well known to the skilled person such that the documents themselves would be common general knowledge.

- 17 The applicant agreed that the skilled person would be familiar with insecticides for human use and the use of a carrier when formulating such insecticides to help with delivery and control of the dosage. According to paragraph 10 of their submissions provided before the hearing *“the applicant does not accept that the same skilled person would be aware that cornflour is used in dry shampoo compositions, further that the cornflour is a suitable carrier for other components of a dry shampoo”*. However, when I put it to the agent, Dr Philip Stephenson, at the hearing, he did accept that it was part of the common general knowledge that cornflour is a useful carrier in dry shampoo formulations.
- 18 Therefore I am satisfied that it is common ground that the relevant common general knowledge of the person skilled in the art includes:
- insecticides are effective against head lice
  - how insecticides may be applied to the head to be effective in such a situation
  - cornflour is a useful carrier in a dry shampoo formulation.

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

- 19 The examiner essentially re-states claim 1 as the inventive concept, emphasising that the composition has to be *“suitable for trying to treat”* head lice and without referring to the proportion of cornflour that claim 1 specifies should form part of the composition.
- 20 Despite claim 1 being directed to a composition, the applicant argues that the inventive concept is *“the treatment and deterrent of human head lice infestations by the application of a composition, most conveniently in a dry shampoo format”*. However, I do not agree with the applicant’s characterisation of the inventive concept, not only is this referring to a treatment rather than a composition, it lacks nearly all of the features of claim 1.
- 21 If I were to agree with the applicant that the inventive concept is a treatment, effectively a method of treatment or therapy, that would strongly suggest that I should consider whether such a method is excluded from patentability under section 4A of the Act. However, it is clear that the inventive concept claimed is a composition rather than a method of treatment. As such, I need not consider this matter further.
- 22 Taking account of the *“suitable for”* construction identified by the examiner, I consider that the inventive concept is essentially as worded in claim 1, that is:

A dry shampoo composition that is suitable for treatment of head lice by deterring and killing said head lice, this composition including diatomaceous earth and cornflour.

- 23 There are two further points of construction that I believe are important.
- 24 Firstly, the composition of claim 1 is explicitly a dry shampoo composition<sup>3</sup>. A dry shampoo is one that is applied to the hair, left for a period and then removed, usually by brushing out. As its name implies, it does not involve the use of water or detergent to create a lather. The remainder of this claim is focused on the feature of deterring and killing head lice rather than on the shampoo composition. Indeed the application as a whole says little or nothing about any cleaning or cosmetic effects of the composition. Nevertheless I believe that the skilled reader would understand the phrase “*dry shampoo*” to mean that the composition should have some effect on the cleanliness or appearance of hair over and above deterring and killing head lice and that the composition is applied and brushed out relatively quickly.
- 25 Secondly, it is necessary to consider exactly what type of head lice the claimed composition is suitable for treating. I note that, at the start of the application there is a reference to ovicidal properties which is repeated in a consistory clause that corresponded to a method claim that was subsequently deleted during examination of this case. These appear to be the only two references referring to use against head lice eggs. Having considered the whole of the specification including the impact of the amendments so far, I can find nothing else in the application to suggest that the composition is effective against such eggs. All of the experimental results refer to tests using adults and nymphs and not eggs and it seems to me that the skilled reader would understand “*head lice*” in claim 1 to refer to such adults and nymphs and not to eggs of head lice.

*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.*

- 26 The “*matter cited*” by the examiner is any one of five prior art documents, which comprise two published patent applications D6 and D7, a journal article D13 and two web pages D14 and D15 (for more detail of these citations, see below). All of these pre-date the application. Documents D13, D14 and D15 were newly cited in the examiner’s pre-hearing report.
- 27 D6 or WO 2018/026901 A1, entitled “*Methods and compositions for killing of insect pest eggs*”, is particularly, but not exclusively, concerned with killing the eggs of head lice and discloses a variety of dry shampoo compositions. It discloses the use of diatomaceous earth as a carrier in such compositions. It also refers to starch (once)

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<sup>3</sup> A dry shampoo, also referred to as a hybrid shampoo, is a type of shampoo which reduces hair greasiness without the need for water. A dry shampoo can be administered as (a) a powder, where all the ingredients are combined together and applied to the head by hand, or (b) an aerosol where the dry shampoo is sprayed directly onto the head. Dry shampoos are generally composed of a carrier agent, depending on whether they are being formulated as an aerosol or a powder, and an active powder such as starch (e.g., corn or rice starch) which provides the cleansing/degreasing effect by absorbing the sebum which gives the greasy effect to hair. Other components may also be included such as essential oils.

in a list of potential agents, auxiliaries and additives for such a composition. It is clear that the active component of these compositions, i.e., that which is used for killing the insect eggs, is 2-undecanone and/or 2-tridecanone, rather than diatomaceous earth. The description ends with a description of a test of the effect of diatomaceous earth on the hatching of cotton bollworm eggs. The result of this testing is that diatomaceous earth on its own “*has the same effect on bollworm egg hatching as no treatment at all*”, although it goes on to note that diatomaceous earth “*appears to synergize the ovicidal activity of 2-undecanone*” (2-undecanone being the active component of the composition) and that diatomaceous earth “*persists to continue controlling the larval and adult stages for as long as the application site (e.g., head) is not washed. Thus, this residual activity of the mechanical insecticide can reduce re-infestation by killing any insect pests that may later attempt to re- infest the site*”.

- 28 D7 or US 2002/0010156 A1 is entitled “*Composition for mitigation of insects and/or mollusca*”. It concerns the mitigation of insect infestation in animals, mainly livestock such as cattle, rather than in humans. The composition is described as being applied in a variety of ways including, in one instance, “*applied to the coat (hair or fur) of the animal, the composition being applied using a dust or spray or other means thereby mitigating pests on the outside (skin) of the animal*”. Diatomaceous earth is disclosed as an active component, along with borates, in the composition.
- 29 D13 is a paper from the journal ‘Medical and Veterinary Entomology’, entitled “*Housing and dustbathing effects on northern fowl mites (Ornithonyssus sylviarum) and chicken body lice (Menacanthus stramineus) on hens*”. It discloses the effects of dust materials, including diatomaceous earth, on ectoparasites<sup>4</sup> of hens. The study was carried out in a dustbox used by hens.
- 30 D14 is an article by Jennifer Allen Newton in ‘Natural Child Magazine’ found online and entitled “*Mutant Super Lice - On a Scalp Near You?*”. It discusses the use of diatomaceous earth for treating head lice. In the method described, the diatomaceous earth is applied on its own rather than as part of a composition, it is massaged into the hair and scalp of the individual and then left *in-situ* overnight and is then removed using a normal wet shampoo (a tea-tree based wet shampoo was suggested).
- 31 D15 is an article by Halle Cottis from the website Whole Lifestyle Nutrition and is entitled “*Finally An All-Natural Head Lice Treatment!*”. This article also discusses the use of diatomaceous earth for treating head lice. In the method described, diatomaceous earth is mixed with a number of components, in this case witch hazel and several essential oils (tea-tree, eucalyptus and rosemary), before being applied to the hair and scalp, left *in-situ* overnight and washed out the following morning.
- 32 The examiner argues that the difference between the “*matter cited*” and the inventive concept of claim 1 is the use of cornflour as a carrier.
- 33 I note that claim 1 does not refer to cornflour as a carrier. In fact I can find nothing in the application that explains or refers to the role of the cornflour in the composition. From the applicant’s submissions, I can infer that cornflour is present in the composition of interest in the present application as part of the dry shampoo feature

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<sup>4</sup> a parasite, such as a flea or head louse, that lives on the outside, e.g., skin or hair, of its host.

of the composition rather than as part of the deterring and killing insects feature. This is also consistent with the disclosure in some of the prior art documents (see D12).

- 34 Having reviewed the 5 above mentioned citations, I am satisfied that 4 of them fail to disclose the use of cornflour, i.e., D7, D13, D14 and D15. These four citations also fail to disclose dry shampoo compositions as I have construed them.
- 35 Of the "*matter cited*", the applicant focused their arguments, correctly in my view, on D6 or WO 2018/026901 A1 but they did not explicitly identify any differences between this document and the inventive concept. However, the arguments made by the applicant in their submissions, do in my view, show that they accept that the absence of cornflour is a difference between the "*matter cited as forming part of the state of the art*" and the *inventive concept of the claim as construed*".
- 36 I agree with the examiner and the applicant that the absence of cornflour is a difference between the inventive concept and D6 or WO 2018/026901 A1. I see no reason to add "*as a carrier*" as the examiner argues. There is a further difference in that the composition disclosed in D6 is not suitable "*for treatment, deterring and/or killing head lice*" as I have construed the requirement, but rather for treatment and/or killing of head lice eggs.

*Step (4): Viewed without any knowledge of the alleged invention as claimed, determine whether those differences constitute steps which would have been obvious to the person skilled in the art.*

- 37 Presented with the two documents concerned with treating insects on livestock, D7 and D13, I do not believe that the unimaginative person skilled in the art of health-care products for the consumer market would appreciate their relevance to deterring and killing head lice. Even if I am wrong on that point, there is no evidence to suggest that the addition of cornflour to the compositions disclosed would be obvious to such a person nor that they would consider using the resulting composition as a dry shampoo.
- 38 D14 and D15 are from the field of health-care products for the consumer market, albeit not products in the sense of commercial products, as they are recipes for making hair treatments against head lice. They both disclose compositions that are left in place overnight to be effective. This is significantly longer than the time for which a shampoo would normally be applied. Both compositions also require washing out as a separate step, unlike a dry shampoo. There is nothing that leads me to conclude that the person skilled in the art would use these compositions as the basis of a dry shampoo composition. Since the two disclosures do not suggest dry shampoo compositions, it seems to me that the addition of cornflour to the compositions disclosed would not be obvious to the skilled person.
- 39 I turn finally to D6 or WO 2018/026901 A1 and the absence of cornflour and treatment of head lice rather than head lice eggs as the differences between the inventive concept and this citation.
- 40 As noted above, the use of cornflour in dry shampoo compositions is part of the common general knowledge of the person skilled in the art. It follows that including cornflour in the dry shampoo compositions disclosed in WO 2018/026901 A1 would

have been obvious to a skilled person, not least in light of the suggestion in the document itself that starch might be added to the composition.

- 41 I have no evidence to suppose that the skilled person presented with WO 2018/026901 A1 would conclude that the compositions disclosed might be effective against, or suitable for, treatment of head lice rather than against head lice eggs when applied as a dry shampoo. As I noted above there is a reference in WO 2018/026901 A1 to the potential efficacy of diatomaceous earth against insects, but only for as long as the application site is not washed. This is not a dry shampoo application and seems to me little more than a statement that diatomaceous earth can act as a mechanical insecticide. Thus, I do not consider that the person skilled in the art if presented with the disclosure in WO 2018/026901 A1 and aware that cornflour can be used in dry shampoo compositions would have concluded that such a composition could be used as a dry shampoo and for treatment of adult head lice.

### **Clarity**

- 42 Under a heading of clarity in the pre-hearing report, the examiner objected to two statements in the description, as amended, that, in their view, relate to “*unallowable methods of treatment by therapy*” and so are not in-line with the claims, as amended.
- 43 However, as discussed already above, I consider that the claims of this application (as most recently amended) all relate solely to a composition and not a method. There is a single independent claim, claim 1, to a composition and all the other claims are dependent (directly or indirectly) on claim 1. I am satisfied that, the person skilled in the art reading these claims, as amended, and the description will be satisfied that the invention as disclosed does not relate to a method of treatment but to a composition.

### **Conclusion**

- 44 Taking all of the above into account, it is my view that this patent application, as currently claimed, involves an inventive step under Section 1(1)(b) of the Act.
- 45 It is also my view that the application discloses the claimed invention in a manner which is clear enough for the person skilled in the art.
- 46 As such, I consider that the application complies with the requirements of the Act and Rules and it is remitted back to the examiner for completion of the necessary steps for grant of a patent.

**Dr L Cullen**

Deputy Director, acting for the Comptroller