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Datasheet for the decision of 11 March 2021

Case Number: T 2202/17 - 3.2.03

Application Number: 09180696.8

Publication Number: 2189573

IPC: E01C13/08

Language of the proceedings: EN

Title of invention:
Artificial turf structure and method of manufacturing thereof

Patent Proprietor:
Italgreen S.p.A.

Former Opponent:
LIMONTA SPORT S.P.A.

Headword:

Relevant legal provisions:
EPC 1973 Art. 100(c), 100(b), 100(a), 56
EPC Art. 123(2), 76(1)

Keyword:
Divisional application - subject-matter extends beyond content of earlier application (no)
Amendments - extension beyond the content of the application as filed (no)
Sufficiency of disclosure - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 2202/17 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 11 March 2021

Appellant: (Patent Proprietor)	Italgreen S.p.A. Via Crusnigo, 11 24030 Villa d'Adda (IT)
Representative:	Bergadano, Mirko Studio Torta S.p.A. Via Viotti, 9 10121 Torino (IT)
Opponent: (Opposition withdrwan)	LIMONTA SPORT S.P.A. Corso XXV Aprile 167/B Erba (CO) (IT)
Representative:	Modiano, Micaela Nadia Modiano & Partners Via Meravigli, 16 20123 Milano (IT)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 7 July 2017 concerning maintenance of the European Patent No. 2189573 in amended form.**

Composition of the Board:

Chairman	G. Patton
Members:	V. Bouyssy
	N. Obrovski

Summary of Facts and Submissions

I. European patent No. 2 189 573 (hereinafter: "the patent") concerns an artificial-turf structure, in particular for sports fields, and a method for its manufacture.

II. The patent as a whole was opposed on the grounds that its subject-matter extended beyond the content of the application as filed (Article 100(c) EPC 1973), that it was insufficiently disclosed (Article 100(b) EPC 1973) and that it lacked novelty and inventive step (Article 100(a) EPC 1973).

1. The opposition division decided
   - that Article 100(c) EPC prejudiced the maintenance of the patent as granted because claims 1, 8 and 11 as granted introduced subject-matter extending beyond both the content of the application as filed (Article 123(2) EPC) and the content of the earlier application as filed (Article 76(1) EPC), and
   - that the patent as amended on the basis of the first auxiliary request before it, i.e. the third auxiliary request filed by letter dated 3 March 2017, met the requirements of the EPC.

2. Both the patent proprietor and the opponent appealed against this interlocutory decision.

3. As both parties are thus appellant and respondent, for the sake of simplicity the Board will continue to refer to them as patent proprietor and opponent.

III. In the statement setting out the grounds of appeal (letter dated 16 November 2017), the patent proprietor

requested that the decision under appeal be set aside and the patent be maintained as granted or, alternatively, as amended on the basis of one of the first to fifth auxiliary requests filed with the patent proprietor's statement of grounds of appeal.

IV. In a communication pursuant to Article 15(1) RPBA 2020 dated 15 May 2020 the Board indicated its preliminary opinion on the case. In particular, the Board noted that it was inclined to set aside the contested decision of the opposition division and maintain the patent as granted in accordance with the patent proprietor's main request.

V. By letter of 16 February 2021, the opponent withdrew its opposition and its appeal, in which it had requested that the decision under appeal be set aside and the patent be revoked.

VI. The Board then cancelled the oral proceedings and informed the patent proprietor that the proceedings would be continued in writing.

4. Claims of the patent proprietor's main request

4.1 Independent product claim 1 as granted reads as follows (additions compared with claim 1 of the application as originally filed have been indicated in bold and the deleted comma has been struck through):

An artificial turf structure (1), in particular for sports fields, consisting of a synthetic mat (2), having a substrate (3) from which grass-resembling filaments (4) project, and at least one filling layer (5) formed by an infill material arranged between the filaments; the structure being characterised in that

the infill material forming the filling layer (5) comprises a coconut-based vegetable material in **both** fibrous~~,~~ **form and** ground and/or shredded form.

4.2 Independent use claim 8 reads as follows (additions compared with claim 8 as originally filed have been indicated in bold and the deleted comma has been struck through):

Use of a coconut-based vegetable material in **both** fibrous~~,~~ **form and** ground and/or shredded form as infill material in an artificial turf structure **consisting of a synthetic mat (2), having a substrate (3) from which grass-resembling filaments (4) project.**

4.3 Independent method claim 11 reads as follows (additions compared with claim 11 as originally filed have been indicated in bold and the deleted comma has been struck through):

A method for manufacturing an artificial turf structure (1), in particular for sports fields, **consisting of a synthetic mat (2) having a substrate (3) from which grass-resembling filaments (4) project, the method** comprising the steps of: arranging a foundation base (7); laying on the foundation base (7) a synthetic mat (2) having a substrate (3) from which grass-resembling filaments (4) project; disposing an infill material on the substrate (3) between the filaments (4) to form a filling layer (5); the method being characterised in that the filling layer (5) comprises a coconut-based vegetable material in **both** fibrous~~,~~ **form and** ground and/or shredded form.

VII. Prior art

In their statements of grounds of appeal, and in the replies to them, the parties relied on the following prior-art documents, which had been filed in the opposition proceedings and are cited in the decision under appeal:

D1: US 4,735,825
D2: DE 203 09 789 U1
D6: ITPI20030036 A
D7: GB 2 308 538 A
D8: EP 0 898 881 A1
E4: Evans, M. et al., "Source Variation in Physical and Chemical Properties of Coconut Coir Dust", HortScience 31(6), October 1996

VIII. The parties' written arguments, in so far as relevant for the present decision, can be summarised as follows:

(a) Added subject-matter

Opponent:

As acknowledged by the opposition division, the wording "in both fibrous form and ground and/or shredded form" used in the independent claims as granted does not have any basis in the application as filed. The original Italian wording of the PCT application as filed was "in forma fibrosa, macinata e/o sminuzzata" (page 3, line 1). In English, this reads "in fibrous form, ground and/or shredded", i.e. the part after the comma – "ground and/or shredded" – is a subordinate sub-modal portion of the phrase, used to introduce further adjectives – ground and/or shredded – related to the fibrous form. In this case, the comma between "form"

and "ground" is actually used to introduce the sub-modal portion rather than to separate adjectives in a list. To illustrate this, take the sentence "we will leave with any weather, sunny or cloudy". It is self-evident that the adjectives "sunny" and "cloudy" refer to any weather and that the comma is being used in exactly the same way as in the application in hand. Furthermore, the opponent agrees with the opposition division's interpretation since it is entirely logical considering that the term "fibrous" relates to the actual nature of the material per se while "ground" and "shredded" are features achieved after a particular operation, namely a grinding operation and a shredding operation. It would be nonsense both linguistically and technically to include in the same list a "nature" of the material and two features of that material obtained after an operation. It would be the equivalent of answering the question, "Is this water clean or hot or cold?" This question is obviously incomprehensible since the three adjectives (clean, hot, cold) are not equal alternatives: clean refers to the nature of the water while hot and cold relate to features that are obtained (by heating or cooling the water).

Patent proprietor:

Contrary to the opposition division's decision, independent claims 1, 8 and 11 as granted do not contravene Articles 123(2) EPC and 76 EPC. The patent (as a divisional application) originates from a parent application that was filed under the PCT in Italian (D0). The application as filed is thus the originally filed Italian-language PCT application. The disclosure of the original application as filed actually confirms that claim 1 as granted does not violate Articles 123(2) and 76 EPC. The expression "coconut-based

vegetable material in fibrous, ground and/or shredded form" is found throughout the application as filed. In the original Italian the expression reads: "materiale vegetale a base di cocco in forma fibrosa, macinata e/o sminuzzata". According to basic grammar rules both Italian and English, a comma is used (in particular) to separate words and word groups in a simple series of three or more items. Put simply, a comma replaces a conjunction, e.g. "and" or "or". In the sentence under discussion, there is a noun ("form") associated with a list of three adjectives ("fibrous", "ground", "shredded"). The last term of the list is introduced by the double option "and/or", meaning that the elements of the list can be linked by either the conjunction "and" or the conjunction "or". The conjunctions refer to all the elements in the list. The opposition division's interpretation (that the second and third adjectives undoubtedly refer to "fibrous form") has no grammatical basis. In the Italian text there is a comma between the first adjective ("fibrosa") and second adjective ("macinata"), so it is clear that all the adjectives are in the same list and are all individually linked to the noun "forma". If the second and following adjectives were referring to the term "fibrous form", as alleged by the opposition division, there would be no comma between "forma fibrosa" and "macinata" and the sentence would read "forma fibrosa macinata e/o sminuzzata". To sum up, the original content of the application includes an initial set of embodiments, resulting from any combination of "fibrous form", "ground form" and "shredded form". The embodiments claimed by the claims of the patent as granted are limited subsets of the larger initial set:

- "fibrous form" + "ground form";
- "fibrous form" + "shredded form";
- "fibrous form" + "ground form" + "shredded form".

(b) Sufficiency of disclosure:

Opponent:

As acknowledged by the opposition division, the patent in suit as a whole does not give the skilled person any examples or hints with respect to the ratio of coconut in both fibrous form and ground and/or shredded form that leads to the features of elasticity/compactness and drainage/moisture that are allegedly achieved at the same time according to paragraph [0007] of the original patent as granted. There is also no guidance from the patent in suit on any particular effect achieved by the individual components. According to the patent, there are various effects that have to be achieved: the infill material should give the artificial turf "suitable features of elasticity and compactness" and at the same time it must allow "a good drainage ensuring at the same time a suitable degree of humidity" (see paragraph [0007] of the patent as granted). The first feature has nothing to do with the other two, and the specification of the patent in suit is silent on the proportions of the various coconut components and the forms that are claimed, as well as on their respective effects in order to achieve features of elasticity and compactness together with good drainage and a certain degree of moisture. Finding a functional proportion of coconut in both fibrous form and ground and/or shredded form in order to solve the problem addressed by the patent in suit would constitute an undue burden for a person skilled in the art, especially since the opposed patent does not specify the contribution made by each form or give any guidance for a "trial and error process". It would thus be necessary to perform a huge number of experiments

with all possible proportions of coconut in both fibrous form and ground and/or shredded form. Reference is made to document E4, the second page of which discloses a test on just five samples of coconut coir dust from different sources, showing different water-holding capacities. For instance, the first column on the second page of E4 states the following: "Source D contained significantly more fiber than the other samples. Increasing the particle size increases the number of noncapillary pores, increases air-filled pore space, and reduces water-holding capacity in peat". This passage thus clearly suggests that mixing fibre with the peat reduces the water-holding capacity. In the second column on the second page, it is also noted that: "Varying either the degree of grinding, the screen size, or the screening time may impact the relative proportions of particle sizes in the product and thus the physical properties of the CD [= coir dust]." This passage suggests not only that there is a distinction between fibrous and non-fibrous material, but also that, within the non-fibrous material, the particle sizes influence the physical properties of the peat. Therefore, since E4 shows a wide variability of effects when only five coir dust samples are analysed, it is apparent that, without any suitable indication in the opposed patent, the person skilled in the art would be unduly burdened when trying to find a combination of the claimed infill material components that achieves the intended effects set out in paragraph [0007]. This being the case, the invention as claimed is not sufficiently disclosed and therefore breaches Article 83 EPC.

Patent proprietor:

The opponent alleges that the skilled person would not receive sufficient information concerning the ratios of the various components of the claimed infill material. Yet once taught about the use of coconut-based vegetable material, in particular coco peat and coco fibre, the skilled person merely has to adapt the composition to the specific conditions in which the artificial turf will be used. They are able to determine, without undue burden, the effective amount of e.g. coco peat and coco fibre according to the situation: artificial-turf fields may require different compositions in different places, such as in a very cold and rainy place or a very hot and dry place. According to the invention, the skilled person merely has to combine coco peat and coco fibre to obtain the desired result in any specific condition of use. The patent therefore provides the skilled person with all the information required to carry out the invention.

(c) Inventive step.

Opponent:

D6 is considered to be the closest prior art since it relates to an artificial-turf structure in which a vegetable-based infill material is provided. D6 thus discloses an artificial-turf structure, in particular for sports fields, consisting of a synthetic mat, having a substrate from which grass-resembling filaments project, and at least one filling layer formed by an infill material arranged between the filaments. The distinguishing feature of the claimed invention compared with D6 is the composition of the infill, namely "coconut in both fibrous form and ground

and/or shredded form". On the basis of the above considerations regarding the high number of non-working embodiments, the objective technical problem to be solved has to be formulated in minimalist terms, namely merely as the provision of a specific vegetable infill material, regardless of which of its properties are likely to be useful. A specific vegetable infill material according to D6 is generally available in the prior art, such as the coir dust of E4, which, according to the second column on the first page, may contain some fibres: "After grinding the husk, the long fibers are removed and used for various industrial purposes, such as rope and mat making. The remaining material, composed of short and medium length fibers as well as pith tissue, is commonly referred to as waste-grade coir. The waste-grade coir may be screened to remove part or all of the fiber, and the remaining product is referred to as CD." In summary, therefore, the coir dust of E4 satisfies the definition of coconut in both fibrous form and ground and/or shredded form. The subject-matter of the independent claims thus lacks inventive step.

If the Board is not convinced by the above considerations on the large number of non-working embodiments, the objective technical problem may be redefined as the provision of a vegetable-based material which can improve the artificial turf's mechanical and hydrological properties, which are considered to be separate from and aggregated with each other. The person skilled in the art (a production engineer responsible for designing sports fields or playgrounds) is free to turn to related areas, such as horticulture, for guidance as part of their work. Looking for a solution to the stated technical problem, the person skilled in the art would consider E4, which

discloses using coconut coir dust with particle sizes of 0.25 mm to greater than 8 mm (E4, figure I) in order to achieve a particular water-holding capacity (E4, page 996, first column, last paragraph). The person skilled in the art would also be aware that coconut fibres provide good stability and elasticity, in addition to moisture regulation, when used as a sports ground, as taught by D2 (paragraph [0003]: "Elastizität" and paragraph [0005]). As such, the skilled person knows that the coconut fibres of the coir dust in E4 also provide elasticity; D8 discloses these elastic properties of coconut fibres too (see paragraph [0009]).

D1 could also be considered the closest prior art. This document relates to an artificial grass, in particular for sports and playground areas, having a filling of free-flowing bulk material, provided between its pile threads such that the free ends of the pile threads project above the filling (D1, column 1, lines 7-12). D1 also acknowledges a moisture-related problem (D1, column 1, lines 48-56). Therefore, D1 discloses an artificial-turf structure, in particular for sports fields, consisting of a synthetic mat, having a substrate from which grass-resembling filaments project, and at least one filling layer formed by an infill material arranged between the filaments. D2 teaches the structure of equestrian sports grounds, the upper layer being a mixture of sand and coconut fibres. D2 clearly indicates that coconut fibres are beneficial for moisture regulation. Moreover, D2 seeks to solve the problem of durability and elasticity (paragraph [0003]), as well as of dust rising. D2 teaches selecting coconut fibres instead of well-known materials like wood shavings (paragraph [0002]) to stabilise the ground and increase elasticity. The

person skilled in the art would thus arrive at coco fibres in the infill without any inventive skill. Using coco peat to achieve a water-holding capacity would be known from either E4 or D7, in which the coco peat is used in wet areas of a sports ground (see page 3, lines 16-19). Therefore, because these documents explicitly mention the properties the skilled person is seeking, it would have been obvious for them to select the coconut fibres of D2 and a ground and/or shredded form of coconut from E4 or D7 as suitable materials with both mechanical (elasticity) and hydrological properties.

Patent proprietor:

Claims 1, 8 and 11 of the main request involve an inventive step. The prior-art documents admitted in the opposition proceedings neither disclose nor suggest the claimed invention. D6 does not mention coconut materials; it actually teaches the skilled person to use natural plant material derived from the defibration of tree plant parts having specific features, for example moisture content, that are incompatible with coconut-based materials. In particular, D6 (page 4, component C) teaches the skilled person that the plant material must have a moisture content of between 5 and 20%, yet it is well known that the moisture content of coconut materials is always much higher than 20% (in any conditions unless they are artificially dried in an oven). Therefore, not only can component C in D6 not be a coconut material, but because of the requirements stated in D6 the skilled person would not contemplate using a coconut-based vegetable material in the infill material of D6 either. D6 thus does not suggest investigating whether a coconut-based material would be a suitable material since coconut is incompatible with

the material disclosed in D6. Moreover, D6 is completely silent on any material in both a fibrous form and a ground/shredded form.

None of the other prior-art documents teaches the skilled person to use a coconut-based material in the infill material of D6. Specifically, E4 relates to a completely different use of coconut-based materials, i.e. as a plant-growing medium, and does not indicate any other use of the material. Therefore, a person skilled in the art faced with the problem of providing an effective infill material for an artificial-turf structure would not look at E4, which discloses a coconut-based material as a plant-growing medium. The features which make the coconut-based material of the invention suitable and effective as an infill material in an artificial-turf structure are not the same as those required for an effective plant-growing substrate. For example, D6 does not mention any capacity of the material to support artificial filaments in an upstanding configuration, or any drainage capacity, both of which are essential features in the field of the invention. Therefore, the skilled person would not contemplate the material of E4 for use in the turf structure of D6.

D1 does not mention any vegetable infill material. Without any direct indication to do so, the skilled person would have no reason to include a coconut material in the infill material of D1. The problem stated by the opponent appears to be an artificial construction resulting from an *ex post facto* analysis. Moisture is just one of the factors involved in an artificial turf. First of all, an artificial turf must have suitable (and long-lasting) features of elasticity, softness and compactness. The turf also has

to be highly wear-resistant and have a high drainage capacity while maintaining a suitable degree of moisture. The problem to be solved by the invention cannot be reduced to merely selecting a material having improved properties with respect to moisture because in an artificial turf this feature would not be enough to define a material suitable for use as the infill material. If it were accepted that the problem posed by D1 is to reduce moisture in the infill material of the artificial turf in order to prevent the granules from adhering to one another and to the pile threads, the question is then whether D2 actually prompts the skilled person to modify the structure in the closest prior art in order to solve the objective problem. The technical teaching of D2 concerning moisture is that "coco fibers are hollow fibers that absorb water" (paragraph [0005]) and "by means of water retention, dust rising is prevented" (paragraph [0006]). There is no other reference to moisture properties in the whole document. Therefore, D2 teaches using coco fibres in order to avoid dust rising in a sandy ground. It is clear that moisture absorbed by the fibres remains in the ground and wets the sand granules, otherwise it would be impossible to prevent the sand dust from rising. Hence, D2 teaches increasing the water content of the sandy ground by means of coco fibres. However, a high water content (moisture) is exactly what D1 wants to avoid. The skilled person would thus know from D2 that using coconut fibres in the artificial turf means that the coconut fibres would retain (and eventually release) water in contact with the granules and the pile fabrics; since D1 states that this condition would impair the properties of the turf, the skilled person would avoid coconut fibres. Moreover, D2 discloses that the mixture of sand and coconut fibres results in a very compact ground,

suitable for horse riding. Yet a ground that is so compact as to not be affected or damaged by horses is manifestly too compact and hard for sports normally played on an artificial turf by humans. Softness and elasticity are essential in an artificial turf. Artificial-turf sports fields and sandy grounds for equestrian activities are designed and intended to have completely different properties: a jumping horse and a human player cannot reasonably be expected to have the same impact on the ground. Indeed, artificial-turf structures are not designed to be used by horses, and no artificial turf is used for equestrian activities. Equally, no football players would agree to play on a sandy ground designed for horse riding. This is also why, irrespective of the objective problem to be solved by the invention, the skilled person would not consider any solutions designed for sandy horse riding grounds. The structure of equestrian sports grounds and the structure of artificial turfs are technical fields with completely different requirements: the requirements for a good, long-lasting artificial turf are completely different from those for a natural-soil equestrian ground. Artificial turfs are characterised by features of compactness, elasticity and softness, while also maintaining a proper balance of drainage capability and moisture retention. Grounds for equestrian activities do not require the same properties: they are very compact in order to withstand and not be damaged by jumping and running horses. A horse would damage any artificial turf that had properties specifically designed for human sport activities. This being the case, the skilled person would not consider the disclosure of D2 when searching for improvements to an artificial-turf structure. The objective in D2 is to provide a long-lasting ground for horse riding. After years of use, the basic consistency of the traditional

covering layers is damaged by the mechanical action of the horse hooves, making it necessary to renew the covering layer. D2 teaches that coconut materials can be used, together with special kinds of sands, in order to obtain a covering layer suitable for horse riding. The result is a very compact structure that prevents the formation of holes and remains undamaged for a long time. According to D1, however, one drawback of known sand-filled turf is "a considerable compaction which may occur during use ... and is generally undesired" (column 1, lines 17-21). As such, the skilled person knows from the disclosure of D1 that high compactness is a problem in an artificial turf and would want to ensure that infill materials did not make the structure too compact. If the skilled person did contemplate the disclosure of D2, they would learn that coco fibres are unsuitable because they provide a very compact structure. Moreover, the opponent argues that, in order to obtain the claimed invention, the skilled person is expected to further modify the infill material resulting from the combination of D1 and D2 by also adding the material disclosed by E4 or D7. As already remarked E4 relates to a completely different use of coconut-based materials, i.e. as a plant-growing medium, and does not indicate any other use of the material, in particular in an infill layer of an artificial-turf structure. Therefore, a person skilled in the art faced with the problem of providing an effective infill material for an artificial-turf structure would not look at E4, which discloses a coconut-based material as a plant-growing medium. The features which make the coconut-based material of the invention suitable and effective as an infill material in an artificial-turf structure are not the same as those required for an effective plant-growing substrate. For example, E4 does not mention any

capacity of the material to support artificial filaments in an upstanding configuration, or any drainage capacity, both of which are essential features in the field of the invention.

Therefore, the skilled person would not contemplate using the material of E4 in the turf structure of D1. Similarly, D7 does not provide clear and unequivocal technical teaching that would lead the skilled person to the invention. D7 discloses the use of coir pith dust, which has been recognised (page 3, lines 8-10) as having "hydroscopic and hydrophobic qualities". The meaning of "hydroscopic and hydrophobic" is unclear, rendering the technical teaching of D7 obscure and ambiguous. D7 appears to be suggesting using coir pith dust to absorb liquids, even though "hydrophobic" means "lacking affinity for water". For example, coir pith dust is "applied to the goal mouth of sporting pitches [...] to render them less wet and to improve the playing surface, or as a covering for frosted areas" (page 3, lines 16-19). Even if it were accepted that D7 indicates to the skilled person that coir pith dust is effective in absorbing water, the skilled person would not find any suggestion in D7 to use this material in an artificial-turf structure. Indeed, the requirement in an artificial-turf structure is not to absorb water, but rather to maintain the right degree of moisture while maintaining suitable mechanical properties. There is no indication in D7 that coir pith dust is capable of giving an artificial turf suitable features of elasticity and compactness and allows for good drainage while ensuring a suitable degree of moisture. Therefore, the skilled person would not include the coir pith dust of D7 in an infill material such as that of D1.

Reasons for the Decision

1. Applicable provisions of the EPC

1.1 European patent No. 2 189 573 (hereinafter: "the patent") is based on a divisional application from earlier European patent application No. 05794309.4 (hereinafter: "the earlier application"), which was filed as international patent application PCT/IB2005/003145 in Italian (D0) on 21 October 2005, was still pending at the time of entry into force of the revised EPC (EPC 2000) on 13 December 2007 and was published as WO 2007/010324 A1 in English (P0).

1.2 According to Articles 1(1) and 6, first sentence of the Decision of the Administrative Council of 28 June 2001 on the transitional provisions under Article 7 of the Act revising the EPC of 29 November 2000 (Special edition No. 4, OJ EPO 2007, English version, 217), Articles 14(2), 56, 83, 84 and 100 EPC 1973 as well as Articles 70, 76, 123 and 150 EPC (2000) apply.

2. Withdrawal of the opposition

2.1 The withdrawal of the opposition means that the opponent ceased to be party to the proceedings as regards the substantive issues, but it has no direct procedural consequences for the appeal proceedings since the opponent was not the sole appellant and the contested patent was maintained in amended form by the decision under appeal (see e.g. Case Law of the Boards of Appeal of the EPO, 9th edition 2019, III.Q.3.3).

2.2 In the context of the patent proprietor's appeal, when examining the correctness of the decision under appeal

the Board can take into account the facts, arguments and evidence submitted by the opponent prior to the withdrawal of the opposition, subject to the prohibition of *reformatio in peius*.

3. Main request - interpretation of claims 1, 8 and 11

3.1 Before turning to the questions of added subject-matter, sufficiency of disclosure and inventive step, it is necessary to construe the feature "coconut-based vegetable material in both fibrous form and ground and/or shredded form" in claims 1, 8 and 11. This issue is in dispute among the parties, with the opponent challenging how the opposition division interpreted the feature.

3.2 The Board is of the opinion that, in the context of claims 1, 8 and 11, the adjectives "fibrous", "ground" and "shredded" are clear and can only be given their normal meaning. The adjective "fibrous" normally means made of fibres. The adjectives "ground" and "shredded" must be construed as "product-by-process" features describing two different processes for obtaining the coconut-based vegetable material, namely that it has been reduced to fine particles, granules or powder by grinding, and that it has been divided, cut, or torn into shreds (see e.g. Oxford English Dictionary). In a nutshell, the disputed feature thus requires the coconut-based vegetable material to be in the form of fibres and powder, in the form of fibres and shreds, or in the form of fibres, powder and shreds.

3.3 The above understanding of the adjectives "ground" and "shredded" is confirmed by the dictionary excerpts cited by the patent proprietor in its reply to the opponent's statement of grounds of appeal.

3.4 In its statement of grounds of appeal, the patent proprietor contends that the adjective "shredded" implies that the material is in particle or powder form. The Board is not convinced because shreds are normally understood to be fragments, small pieces, strips or scraps (see e.g. Oxford English Dictionary).

3.5 The opponent alleges that it follows from the Merriam Webster online dictionary that the verb "to shred" means "to cut or tear something into long, thin pieces", and thus that the term "shredded form" may cover long fibres. The Board is not persuaded by this argument. The only information that can be gleaned from this dictionary is that "to shred" means to cut or tear something into shreds, namely long narrow strips. However, as explained above, shreds are not necessarily in the form of long narrow strips, and even if they were, they would be strip-shaped and could not be deemed to be fibres.

4. Article 100(c) EPC 1973 - general comments

4.1 For assessing whether the subject-matter of the patent extends beyond the content of the earlier application as filed (Article 76(1) EPC), the content of the earlier application as filed is that of D0 (Articles 150(3) and 70(1) EPC and Article 14(2) EPC 1973), but not that of P0. However, unless evidence is provided to the contrary, it is established practice of the EPO to assume that the content of the translation (P0) is identical to that of the original (D0). The accuracy of the translation has thus far not been disputed, so the Board will refer to P0 when assessing compliance with Article 76(1) EPC.

4.2 When assessing whether the subject-matter of the patent extends beyond the content of the application as filed (Article 123(2) EPC), the content of the (divisional) application as filed before the EPO, i.e. not of D0 or P0, must be considered.

5. Main request - Articles 100(c) EPC 1973 and Articles 123(2) and 76(1) EPC

5.1 The opposition division decided that the feature of claim 1 that the coconut-based vegetable material is "in both fibrous form and ground and/or shredded form" introduces subject-matter extending beyond the content of the earlier application as filed and that of the application as filed (point 8 of the reasons).

5.2 However, the Board agrees with the patent proprietor that this objection is not persuasive.

5.2.1 Claim 1 of the application as originally filed differs from claim 1 of P0 in that the feature

> "the infill material forming the filling layer (5) comprises a coconut-based vegetable material and/or other similar vegetable material in fibrous, ground and/or shredded form"

has been replaced by

> "the infill material forming the filling layer (5) comprises a coconut-based vegetable material in fibrous, ground and/or shredded form".

5.2.2 By way of this amendment, claim 1 has been limited to the preferred embodiment of the filling layer comprising a coconut-based vegetable material, in three possible forms out of the alternatives specified by the expression "in fibrous, ground and/or shredded form" in

P0. This limitation does not contravene Article 76(1) EPC.

5.2.3 Claim 1 of the patent as granted differs from claim 1 of the application as originally filed in that the feature that

"the infill material forming the filling layer (5) comprises a coconut-based vegetable material in fibrous, ground and/or shredded form"

has been replaced by

"the infill material forming the filling layer (5) comprises a coconut-based vegetable material in both fibrous form and ground and/or shredded form".

5.2.4 Claim 1 has thus been limited to the coconut-based vegetable material being in three of the alternative forms defined by the original expression "in fibrous, ground and/or shredded form". This limitation does not contravene Article 123(2) EPC.

5.2.5 The opposition division argued that, in the expression "in fibrous, ground and/or shredded form" used in the (earlier) application as filed, the terms "ground and/or shredded form" further defined the "fibrous" form (point 8.3.2 of the reasons). The Board is not persuaded because this interpretation contradicts the rules of English syntax. As submitted by the patent proprietor, it is instead clear that each of the adjectives "fibrous", "ground" and "shredded" is associated with the noun "form" and defines a specific form (point 5.2.4 above). It is also clear that since the three adjectives are separated by a comma and the conjunction "and/or", the expression "in fibrous, ground and/or shredded form" defines seven alternative forms. While it would also have been possible to use a serial comma before the coordinating conjunction ("in

fibrous, ground, and/or shredded form"), this is not mandatory in British English. The interpretation given by the opposition division would, on the other hand, have required a different expression such as "in fibrous, namely ground and/or shredded form".

5.2.6 The opposition division also referred to the original Italian-language expression "in forma fibrosa, macinata e/o sminuzzata" in D0 and argued that the terms "macinata e/o sminuzzata" were meant to further define the "forma fibrosa". Again, the Board shares the patent proprietor's view that this interpretation also goes against the rules of Italian syntax and that the Italian expression "in forma fibrosa, macinata e/o sminuzzata" defines seven alternative forms, as does the English expression "in fibrous, ground and/or shredded form".

5.2.7 For the sake of completeness, the Board notes that the above understanding of the expression "in fibrous, ground and/or shredded form" in claim 1 of P0 is confirmed by the fact that P0 discloses preferred embodiments of the claimed invention in which the infill material comprises coconut material which is not in fibrous form (see "coco fibres and/or coco peat" in claims 3 and 12; page 4, paragraph 2; page 7, paragraph 1). The same holds true for D0 (see claims 3 and 12; page 5, paragraph 2; page 8, paragraph 4).

5.2.8 Contrary to the opponent's view, the above understanding of the expression "in fibrous, ground and/or shredded form" or "in forma fibrosa, macinata e/o sminuzzata" is technically sound in the context of claim 1 of D0, P0 and the application as filed. In particular, the adjectives "fibrous", "ground" and "shredded" define different structural features for the

coconut-based vegetable material (point 3.2 above). The Board thus sees no reason to read the terms "ground and/or shredded form" or "macinata e/o sminuzzata" as a subordinate or dependent clause. The phrases "we will leave with any weather, sunny or cloudy" and "is this water clean or hot or cold?" mentioned by the opponent cannot cast any doubt on this because they are not comparable with the disputed expression.

5.2.9 The opponent's further arguments are not convincing either. It cannot be derived from P0 – let alone from the statement on page 4, paragraph 2 of P0 – that coconut fibres may be in a ground or shredded form. The statement on page 7, lines 2 to 3 of P0 refers to a preferred embodiment of the infill material comprising various components in ground or shredded form, the possible components being those previously specified on pages 4 and 5. Although the chairman of the opposition division was a native speaker of Italian, this does not necessarily imply that the interpretation of the disputed expression used by the opposition division was correct. At any rate, the patent proprietor challenges this interpretation with convincing arguments.

5.2.10 The above reasoning applies *mutatis mutandis* to claims 8 and 11.

6. Main request - Article 100(b) EPC 1973

6.1 In the decision under appeal, the opposition division gave detailed reasons as to why the claimed subject-matter of the first auxiliary request before it was sufficiently disclosed (point 9.2 of the reasons). The opposition division essentially held that although the patent was silent on the proportions of coco fibre and coco peat required to obtain an infill material having

the desired properties (paragraph 7 of the patent specification), selecting appropriate proportions was merely a matter of routine trial and error for the skilled person.

6.2 These reasons and conclusion apply *mutatis mutandis* to the main request. It is clear, not least from the opponent's arguments on the issue of inventive step, that the skilled person - an engineer having experience in manufacturing artificial turfs as well as common general knowledge in coconut processing - would be able to reproduce the claimed invention. The desired properties of the infill material in terms of elasticity, softness, compactness, abrasion, drainage and moisture-holding capacity are defined in broad, general terms in the patent (paragraphs 7 and 10 of the patent specification). Even though it seems to follow from E4 that the physical properties of coconut coir dust, e.g. air porosity, water porosity and water-holding capacity, depend on particle size and fibre content, there is no evidence that in the context of the claimed invention selecting appropriate mixtures of coconut fibres and coconut powder and/or shreds would require an unreasonable amount of work, let alone an undue burden. Rather, the Board shares the patent proprietor's view that doing so would be a matter of routine.

7. Main request - inventive step

7.1 The opponent contends that the claimed subject-matter lacks inventive step:

(a) when starting from D6 as the closest prior art, in light of the teaching of E4 and possibly that of D2 or D8, or

(b) when starting from D1 as the closest prior art, in light of the teaching of D2 and that of E4 or D7.

7.2 With respect to line of attack (a), the patent proprietor alleges that the disclosure of D6 is too unclear and contradictory for the skilled person to infer any technical teaching from it, but has not provided any evidence in support of this assertion. The Board takes the view that D6 gives enough information to enable a skilled reader to carry out its technical teaching when also taking into account common general knowledge in the fields of artificial turfs and tree processing. Page 4 of D6 states that the infill material comprises natural plant material obtained by defibring parts of tree plants ("materiale vegetale naturale derivante dalla sfibratura di parti die piante arboree"), and it appears possible for the skilled person to put this teaching into practice, in the same way as the claimed invention (point 6 above).

7.3 The subject-matter of claim 1 differs from the artificial turf disclosed in D6 in that the infill material forming the filling layer comprises "a coconut-based vegetable material in both fibrous form and ground and/or shredded form".

7.4 The parties dispute what technical effect is achieved – and thus what technical problem is objectively solved – by the feature distinguishing claim 1 from D6.

7.5 The Board agrees with the opponent that this feature does not achieve any apparent technical effect.

7.6 The patent proprietor submits that, starting from D6, the objective technical problem is to improve the performance of the artificial turf or, alternatively,

to provide a more effective infill material. However, it is not apparent that using a mixture of coconut fibres and coconut powder and/or shreds as the infill material inevitably results in the claimed turf having improved properties compared with the turf disclosed in D6.

7.7 The patent states that the effect of the infill material according to the invention is that it is easy and cost-effective to produce artificial turfs exhibiting good performance (e.g. elasticity, compactness), drainage and moisture-holding capacity. However, this does not enable any direct comparison of the properties of the claimed turf with those of the turf disclosed in D6.

7.8 In addition, it is apparent that claim 1 covers embodiments of the artificial turf in which the infill material comprises only a small quantity of coconut fibres and coconut powder and/or shreds, in combination with further components such as sand and resilient particulate material, e.g. rubber (claims 5 and 6 and paragraph [0020] of the patent specification). The Board takes the view that it is implausible that these embodiments result in improved performance compared with the turf of D6, which comprises sand, rubber particles and vegetable material obtained by defibring tree parts. In this respect, D6 states that the vegetable infill material it discloses results in turfs with good performance, drainage and moisture-holding capacity.

7.9 Since it is not possible to determine a particular technical effect for the distinguishing feature, the Board agrees with the opponent that, starting from D6, the objective technical problem to be solved can only

be considered to be providing a specific composition for the vegetable infill material disclosed in D6.

7.10 The opponent submits that the skilled person, on the expectation of solving this problem, could and indeed would consider the teaching of E4 and then modify the artificial turf of D6 in the claimed manner.

7.11 However, the Board agrees with the opposition division and the patent proprietor that the skilled person would not look for suggestions in the field of artificial substrates for horticulture, to which E4 belongs.

7.12 Contrary to the opponent's contention, artificial turfs for sports fields and artificial substrates for horticulture cannot be considered to belong to associated technical fields because they involve different technical problems, in particular:

- for sports turfs, ensuring that the grass-resembling filaments are held upright and achieving physical properties required for playing sports, such as elasticity, softness, compactness, drainage and moisture retention; and
- for horticultural substrates, achieving physical and chemical properties which promote plant growth and reduce water consumption and nutrient leaching, e.g. air porosity, water porosity, water-retention capacity, pH, electrical conductivity, contents of nutritive or ballast ions (see e.g. E4).

7.13 The opponent alleges that the skilled person would be aware that the coconut fibres of the coir dust disclosed in E4 provide good stability and elasticity, in addition to moisture regulation, when used on sports grounds. To support this assertion, the opponent refers to D2 (paragraphs 3 and 5) and D8 (paragraph 9). The

Board is not persuaded by these arguments. E4 concerns coir dust used as a peat substitute and cannot be construed to mean that the coir dust is inherently suitable for being used on sports grounds, let alone sports turfs. The opponent has not indicated – nor can the Board see – any reason why the skilled person, when reading E4, would have the teachings of D2 and D8 in mind, since these documents concern ground coverings for riding arenas including coconut fibres.

7.14 In conclusion, the Board is not persuaded by line of attack (a).

7.15 In addition, the Board agrees with the patent proprietor that since D6 discloses that the vegetable infill material has a moisture content ranging from 5 to 20% (page 4, component C), it would stop the skilled person from using coconut material, the moisture content of which is normally much higher than 20%.

7.16 In the communication pursuant to Article 15(1) RPBA 2020 the Board expressed its preliminary opinion on the alternative line of attack (b) as follows (see point 7.1 above):

"13.3 At present, the artificial turf for sports fields disclosed in D6 appears to be the most promising and relevant starting point for the assessment of inventive step, rather than the artificial turf disclosed in D1 which requires more modifications to arrive at the claimed invention. Thus, the Board intends to limit the discussion only to attack (a) which starts from D6 as closest prior art. Should the opponent nevertheless wish to pursue alternative attack (b), it would first have to be convincingly shown that D1 is a more suitable starting point than D6 when applying the problem-solution approach."

7.17 The Board has reviewed the factual and legal situation and sees no reason to depart from this preliminary opinion. Consequently, the alternative line of attack (b) was not considered any further.

7.18 In conclusion, in view of the prior art cited by the opponent, the Board is of the opinion that the subject-matter of claim 1 involves an inventive step within the meaning of Article 56 EPC 1973.

8. In light of the above, the Board concludes that the grounds for opposition raised by the opponent do not prejudice the maintenance of the patent as granted.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is maintained as granted.

The Registrar: The Chairman:

C. Spira G. Patton

Decision electronically authenticated