Comparative Study on Hypothetical/Real Cases:

Novelty

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1. Summary

Each of the Trilateral Offices presented two hypothetical/real cases relating to the requirements for novelty. For meaningful comparative study, some matters in the claims are not explicitly disclosed in prior art documents in all cases. The inquiry then becomes whether such matters are given patentable weight and if so, whether such matters are implicitly disclosed or are inherent in the prior art documents. Trilateral Offices presented their assessments of novelty with regard to the six cases on the basis of their own laws, regulations, guidelines, practices etc. In three of the six cases, the Trilateral Offices concluded different results.

Especially, the difference concerning the products defined by their use (Case 1) is noted. Official Examination Guidelines and/or court decisions determine whether a new use of a known product is able to provide novelty to the product. In these cases, the novelty assessment is independent of the examiner's personal interpretation of the claim and the prior art document, but it will remain different between the Trilateral Offices based on the respective Official Examination Guidelines and/or court decisions.

However, reviewing the case studies, it becomes clear that the general process to judge the novelty is similar among the Trilateral Offices.

2. Introduction

In order for applicants to prepare high quality patent applications, which would lead to the enhancement of examination quality, the Trilateral Offices disseminated the results of a comparative study on the requirements for disclosure and claims and of a comparative study on the inventive step/non-obviousness.
http://www.trilateral.net/projects/worksharing/study.html

In addition to the above comparative studies, the Trilateral Offices agreed to conduct the comparative study on novelty to make it easier for the applicants to understand the results of the study. The results of a comparative study will enable applicants to predict more accurately the results of an examination and to obtain worldwide stronger patents. The quality improvement of patent applications will contribute to a more timely and proper examination and to decreasing of the backlog.

The Offices have conducted a “Comparative Study on Hypothetical/Real Cases” and a “Comparative Study on Laws, the Regulations, the Guidelines etc.” as to novelty. This report describes the “Comparative Study on Hypothetical/Real Cases.” As to the result of the “Comparative Study on Laws, the Regulations, the Guidelines etc.”, please refer to the sections 3 and 4.

3. Comparative Study on Hypothetical/Real Cases

Each of the Trilateral Offices presented two hypothetical/real cases relating to the requirements for novelty. (EPO: Article 54 EPC, JPO: Article 29(1) Japanese Patent Act, USPTO: 35 U.S.C. 102) Each of the Trilateral Offices presented its assessments of novelty with regard to the six cases on the basis of the Office's laws, regulations, guidelines, practices etc.

3.1. Case 1

(1) Outline of the Application

[Claim]

Composition for use as antifouling coating applied to a ship bottom comprising a quaternary ammonium salt A.

[Description]

The composition for use as antifouling coating applied to a ship bottom comprising a quaternary ammonium salt A prevents shellfish from adhering to the ship bottom.

(2) Outline of the Prior Art

The composition for use as electrodeposition primer comprising a quaternary ammonium salt A forms an electrodeposition coating layer on a member and also improves the adhesiveness of the overcoat layer.

Note: The composition comprising a quaternary ammonium salt A of the application concerned and the invention written in the prior art document are same except for the limitation of their use. However, the attribute to prevent shellfish from adhering to the ship bottom was unknown when the application concerned was filed. Therefore, this application discovers a new use “as antifouling coating applied to a ship bottom” different from the use “as electrodeposition primer”.

(3) Assessments of Novelty by each Office

[EPO]

The conventional composition as such is identical to that of the claim. Therefore, the claimed composition lacks novelty within the meaning of Article 54 EPC.

Indeed, the EPC Guidelines for examination, C-III, 4.13, state that "... a claim to a substance or composition for a particular use should be construed as meaning a substance or composition which is in fact suitable for the stated use; a known product which prima facie is the same as the substance or composition defined in the claim, but which is in a form which would render it unsuitable for the stated use, would not deprive the claim of novelty. However, if the known product is in a form in which it is in fact suitable for the stated use, though it has never been described for that use, it would deprive the claim of novelty." Along the same lines, EPC Guidelines C-IV, 9.7 state that "for claims directed to a physical entity, non-distinctive characteristics of a particular intended use should be disregarded. For

example, a claim to a substance X for use as a catalyst would not be considered to be novel over the same substance known as a dye, unless the use referred to implies a particular form of the substance (e.g. the presence of certain additives) which distinguishes it from the known form of the substance."

In the present case, there is no indication that the conventional composition is in a form which would not render it suitable for being used as antifouling coating applied to a ship bottom. Therefore, the claimed composition lacks novelty.

However, the two following points are to be noted:

(i) An exception to the above principle of interpretation is where a claim is to a known substance or composition for use in a surgical, therapeutic or diagnostic method. In other words, where a substance or composition is already known to have been used in a first medical use, it may still be patentable under Article 54(5) EPC for any second or further use in a method for treatment of and diagnostic methods practised on the human or animal body (EPC Guidelines C-IV, 4.8).

(ii) A known product does not implicitly disclose anything beyond its composition or internal structure. According to the decision of the Enlarged Board of Appeal G1/92, "extrinsic characteristics, which are only revealed when the product is exposed to interaction with specifically chosen outside conditions, e.g. reactants or the like, in order to provide a particular effect or result or to discover potential results or capabilities, therefore point beyond the product per se [...]. Typical examples are [...] and the use of a known compound for a particular purpose, based on a new technical effect [...]. Thus, such characteristics cannot be considered as already having been made available to the public." In other words, in the present case, a so-called use claim directed to the "Use of a composition as antifouling coating applied to a ship bottom comprising a quaternary ammonium salt A" would have been novel under the EPC, but the current claim is not drafted in this form.

[JPO]

As mentioned below, the claimed invention has the novelty.

When a claim includes a limitation of use and the claimed invention can be construed as an invention based on discovering an unknown attribute of a product and finding that the product is suitable for new use due to the presence of such attribute, the limitation of use

should be regarded as having a meaning that specifies the claimed invention and it is appropriate to construe the claimed invention by including the aspect of the limitation of use. Therefore, in this case, even if the product per se is already known, the claimed invention can be novel as a use invention.

In this case, the composition itself is known, but the use “as antifouling coating applied to a ship bottom” is based on a discovery of an unknown attribute to prevent shellfish from adhering to the ship bottom, and is a new use that is based on such discovered attribute and different from known uses, this limitation of use is construed as specifying the “composition.” Therefore, the two inventions should be regarded as different inventions.

[USPTO]

The claimed invention lacks novelty.

The case study notes that the composition claimed in the application and the composition described in the cited prior art document are the same, although the compositions are described as used for different purposes. Consistent with U.S. case law, the discovery of a previously unappreciated property of a prior art composition does not render the known composition patentable to the discoverer of the new property (see MPEP 2112, subsection I.). During examination, statements in a claim reciting the purpose or intended use of the invention are evaluated to determine whether the recited purpose or intended use results in a structural difference (or, in the case of process claims, manipulative difference) between the claimed invention and the prior art. A prior art product that meets all the structural limitations of a claim anticipates that claim (see MPEP 2112.01).

In this case, the two compositions are the same, thus the prior art anticipates the claimed invention. Note, however, that the discovery of a new use for a known product might be patentable as a process of using the known product (see MPEP 2112.02).

3.2. Case 2

(1) Outline of the Application

[Claim]

A polyethylene-2,6-naphthalate film which is characterized in that the number of the protrusion whose height is h (nm) formed on the film surface is within the scope shown as follows;

1 ≦h <100 : 1,000 － 20,000 pieces/mm^2

100 ≦ h : 0 － 50 pieces/mm^2

and the film surface roughness Ra is 2 – 10 nm.

[Description]

… The film that satisfies the conditions of 1 ≦ h <100 : 1,000 - 20,000 pieces/mm^2 , 100≦ h : 0 － 50 pieces/ mm^2 is good in handling as the base film and excellent in the cursoriality when it is used as a magnetic tape. ……Also, the film whose surface roughness Ra is within the range of 2 - 10nm is good in handling as the base film and the cursoriality when it is used as a magnetic tape….

[Example]

	Ex. 1	Ex. 2	Comp. Ex. 1	Comp. Ex. 2
Number of surface protrusion 1≦h <100: 100≦h	 15,325 10	 3,480 14	 22,389 120	 21,309 21
Ra (nm)	8	6	29	12
Running Durability	Good	good	bad	Not good

(2) Outline of the Prior Art

Magnetic recording film in which ……and the surface roughness Ra is 3 – 8 nm.

… The film of this invention which satisfies the surface roughness condition is good in handling the film and the cursoriality when it is used as a magnetic tape. And, even if the range of surface roughness meets the range of the claimed invention, it is desirable not to contain a rough and large protrusion because the remarkably high protrusion may give negative effect on the cursoriality when it is used as a magnetic tape,. ……

(3) Assessments of Novelty by each Office

[EPO]

The EPO agrees with the reasoning put forward by the JPO in the sense that the examiner should prima facie object novelty of the claimed film. This objection should be withdrawn if the applicant is able to provide convincing evidence and/or counter-arguments.

The claimed film seems to differ from the conventional film only in that the protrusion height 'h' fulfils two predetermined mathematical conditions. Actually, the prior art document discloses a film roughness 'Ra' which anticipates the claimed range but remains silent about the height distribution of the film.

According to the EPC Guidelines C-IV, 9.6, a lack of novelty should be raised where there can be no reasonable doubt that, "in carrying out the teaching of the prior document, the skilled person would inevitably arrive at a result falling within the terms of the claim. [...] Situations of this kind may [...] occur when the claims define the invention, or a feature thereof, by parameters. It may happen that in the relevant prior art a different parameter, or no parameter at all, is mentioned. If the known and the claimed products are identical in all other respects (which is to be expected if, for example, the starting products and the manufacturing processes are identical), then in the first place an objection of lack of novelty arises."

The EPO agrees with the JPO that the following reasons are sufficiently strong so as to object lack of novelty:
- According to the description of the application, the effect obtained by either the condition on the height 'h' or on the roughness 'Ra' is the same.
- The table in the applications shows only four examples, all of them fulfilling simultaneously both conditions on 'h' and 'Ra'.

Further comment:
According to the EPC Guidelines C-IV, 9.6, "if the applicant is able to show, e.g. by appropriate comparison tests, that differences do exist with respect to the parameters, it is questionable whether the application discloses all the features essential to manufacture products having the parameters specified in the claims." Then an objection of insufficiency of disclosure would arise under Article 83 EPC.

[JPO]

As mentioned below, the claimed invention doesn't have the novelty unless the applicant's argument succeeds in changing the examiner's evaluation at least to the extent that it is unclear that the claimed invention is unpatentable for lacking novelty.

Where a claim includes statements defining a product by its function or characteristic, etc. and it falls under either the following (i) or (ii), there may be cases where it is difficult to compare of the claimed invention with a cited invention. In the above circumstances, if an examiner has a reason to suspect that the claimed invention would be prima facie identical with the product of the cited invention without making a strict comparison of the claimed invention with the product of the cited invention, the examiner may send the notice of reasons for refusal for lacking of novelty as far as there is no other differences. The examiner may wait for the argument or clarification from the applicant on the differences between these inventions (See, D.2.c. in the comparative table).

The above-mentioned handling, however, shall not be applied, if matters defining the cited invention fall under either the following (i) or (ii).

(i) a case where the function or characteristic, etc. is neither of the following:

- the function or characteristic, etc. is standard, in the relevant technical field by a person skilled in the art.
- the function or characteristic, etc. is commonly used in the relevant technical field by a person skilled in the art.
- the function or characteristic, etc. is not commonly used but understandable of its relation to a commonly used function or characteristic,etc. for a person skilled in the art, or

(ii) a case where each function or characteristic, etc. is either of the following, but the combination of them as a whole falls under (i).

- the function or characteristic, etc. is standard
- the function or characteristic, etc. is commonly used by a person skilled in the art in the relevant technical field.
- the function or characteristic, etc. is not commonly used but understandable of its relation to a commonly used function or characteristic,etc. for a person skilled in the art.

The applicant may argue or clarify by putting forth a written argument or a certificate of experimental results, etc. against the notice of reasons for refusal. The reason for refusal is to be dissolved if the applicant's argument succeeds in changing the examiner's evaluation at least to the extent that it is unclear that the claimed invention is unpatentable for lacking of

novelty. Where the applicant's argument does not change the examiner's evaluation to that extent, the examiner may render a decision of refusal on the ground of lacking novelty.

In this case, it is not described in the cited document that the relation between the height and the number of the protrusion satisfies the conditions of $1 \leqq h < 100$: 1,000 − 20,000 pieces/mm^2 , $100 \leqq h$: 0 − 50 pieces/ mm^2. According to the detailed description of the invention in the application concerned, the effect that is obtained by specifying the conditions of relation between the height and the number of the protrusion described above is identical with the effect obtained by specifying the range of surface roughness (improvement in film handing performance and cursoriality). In addition, it only describes the comparative examples of the inventions that satisfies neither condition of the relation between the height and the number of the protrusion, nor of the relation between the range of surface roughness. Therefore the sole effect led by specifying the relation between the height and the number of the protrusion described above cannot be confirmed.
On the other hand, the task of improving the cursoriality and the solutions of controlling both the surface roughness and the rough/large protrusion was recognized in the cited document, because it is also described in the cited document that, even if the condition of the scope of surface roughness is satisfied, a remarkably high protrusion may give negative effect on the cursoriality.

The film described in the cited document also achieves the effects concerning cursoriality and handling the tape. As it turns out, the problems and the effect of the claimed invention for specifying the height and the number are not substantially different from those of film described in the cited document.

Consequently, it can be recognized that there would be no reason to doubt that the claimed film is prima facie identical with the film described in the cited document.

Therefore, the invention doesn't have the novelty unless the applicant's argument succeeds in changing the examiner's evaluation at least to the extent that it is unclear that the claimed invention is unpatentable for lacking of novelty.

[USPTO]

The claimed invention appears to lack novelty. It would be rejected on two grounds, i.e., as being anticipated by the prior art, and as being obvious over the prior art.

The claimed invention is directed to a film characterized by an average film surface roughness (Ra) between 2 and 10 nm, wherein the height (in nm) of the protrusions on the film surface fall within defined ranges (1 ≦h <100 : 1,000 – 20,000 pieces/mm^2 ; 100 ≦ h : 0 – 50 pieces/mm^2). The prior art film has an Ra between 3 and 8 nm, and although it does not specifically describe the height of the protrusions on the surface, the prior art indicates that it is undesirable to have rough, large, or high protrusions because of possible negative effects. Both the claimed and prior art films have handling and cursoriality characteristics described as desirable when using the films as magnetic tape.

When the composition of the prior art appears to be the same as that of the claimed invention, but the prior art does not explicitly disclose a claimed function, property or characteristic (i.e., is silent as to an inherent feature), the examiner may reject the claim under both 35 U.S.C. 102 (anticipation) and 103 (obviousness), expressed as a 102/103 rejection (see MPEP 2112, subsection III.). The initial burden is on the examiner to provide a rationale to reasonably support the determination that the claimed function, property, or characteristic is necessarily present in the subject matter described in the prior art. Note that inherency may not be established by probabilities or possibilities; the mere fact that a certain thing may result from a given set of circumstances is not sufficient (see MPEP 2112, subsection IV.).

In this case, the average surface roughness of the prior art film falls entirely within the claimed range, and the prior art teaches that large protrusions are undesirable. Although “large” protrusions are not specifically defined, a size of 100nm or higher would be understood by one of ordinary skill in the art to be “large” given the fact that the average surface roughness is between 3 and 8nm. Thus the prior art at least implicitly teaches the claimed ratio of protrusions/mm^2 for protrusions greater than 100nm. Furthermore, it appears that a film having an average surface roughness between 3 and 8 nm and lacking large protrusions would inherently have a number of small protrusions (less than 100 nm)/ mm^2 falling within the scope of the claim. Thus the claimed and prior art products appear to be identical or substantially identical in structure or composition, and a prima facie case of anticipation or obviousness has been established.

Applicant can rebut the prima facie case of anticipation or obviousness based on inherency by submitting evidence showing that the claimed product and the prior art product are not the same, and that the prior art product does not necessarily possess the characteristics of the claimed product (see MPEP 2112, subsection V.).

In this case, an examiner would also reject the claim as being obvious over the prior art because a person of ordinary skill in the art would have been motivated to modify the number of small protrusions per square millimeter to optimize the desired results pertaining to cursoriality and handling of magnetic tape. This rejection could be rebutted by evidence showing that any difference between the claimed invention and the prior art would not have been obvious.

3.3. Case 3

(1) Outline of the Application (EP 0857309 and T 21/04)

[Claim]

A panel (10) for diffusing light, comprising:

a plurality of transparent elongated members (14), each member having a longitudinal axis and a cross-sectional shape is at least partially circular with a substantially smooth outer surface; and

means (12) for securing the members together such that the longitudinal axes of the members lie in a substantially single plane and are substantially parallel to one another,

characterized in that

the cross-sectional shape and size of the members are such that, for incident chief rays (I1, I2) lying in a plane normal to the longitudinal axes and having different angles of incidence, the medians of the corresponding angles of diffusion of light (T11, T12; T21, T22) are substantially perpendicular to the single plane.

[Description]

The present invention relates to a light-diffusing panel (10) which includes a sheet (12) of transparent material and a plurality of elongated members (14) on a surface of the sheet (12). The members (14) are circular or semicircular in cross section and are arranged side-by –side such that their longitudinal axes (L) are parallel to one another. Light incident on a surface of the sheet (12) is diffused along the sheet in a direction (D) normal to the longitudinal axes (L). A median of diffusion (M) remains relatively constant despite changes in the angle of incidence of the light on the sheet (12). The light-diffusing panel (12) can be utilized in a window shade or shutter, or it can be adhered directly to a window. See figure 1 below.

Figure 2 shows a panel (10) adapted to transmit light. Looking down at the top of the panel (10), two chief rays (I1 in solid lines and I2 in dashed lines) are seen striking the sheet (12) at different angles of incidence. Both chief rays I1 and I2 are transmitted by the sheet (12) and diffused along the diffusion axis D. The transmitted rays T11 and T12 corresponding to the incident chief ray I1 have a median of diffusion M1, and the transmitted rays T21 and T22 corresponding to the incident chief ray I2 have a different median of diffusion M2. It can be seen that the medians M1 and M2 are nearly coincident, even though their chief rays I1 and I2 have different angles of incidence. Moreover, both medians M1 and M2 are substantially perpendicular to the diffusion axis D.

[Drawings]

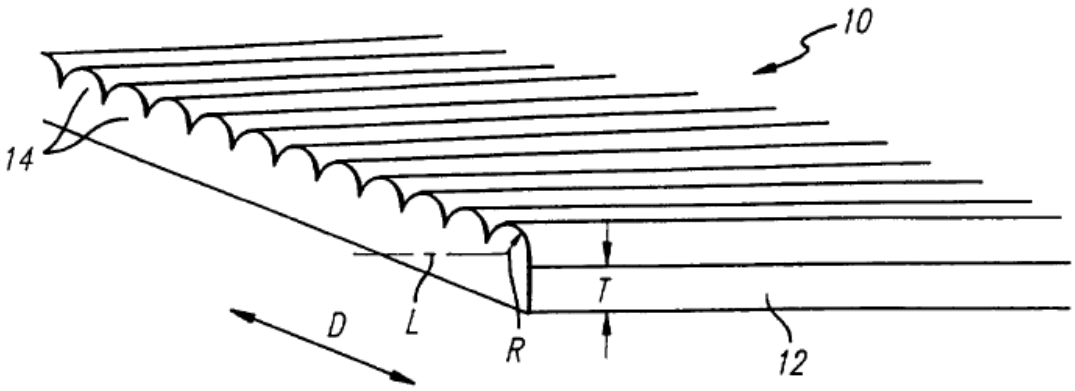


Figure 1

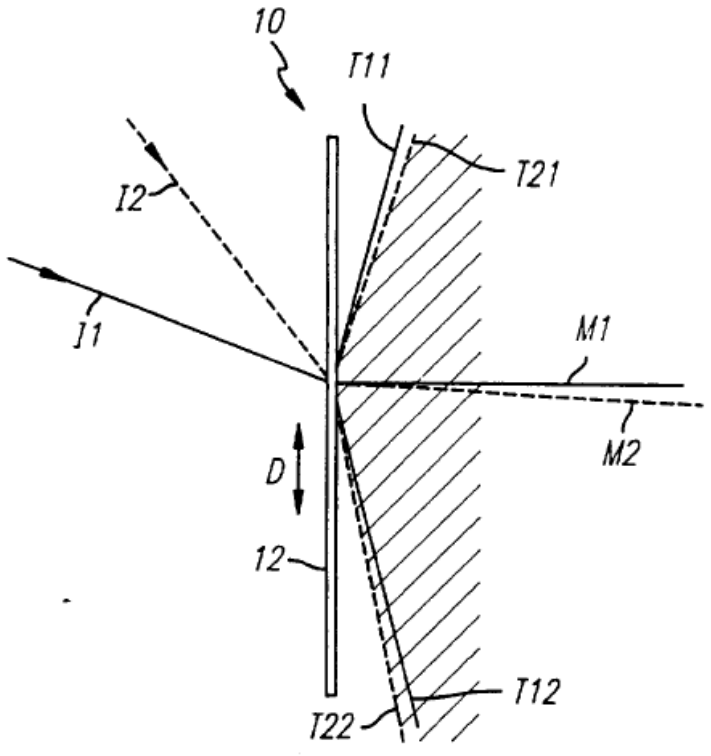


Figure 2

(2) Outline of the Prior Art (JP06033671)

The prior art document discloses a window curtain constituted by a planar panel including a plurality of transparent elongated members arranged side-by-side and secured together so that the longitudinal axes of the members lie parallel to ach other in the plane of the panel. The members have a smooth outer surface having an essentially circular cross-sectional shape.

In addition, sunlight incident on, and transmitted through the panel is diffused by members, the cross-sectional shape and the size of the members being such that the optical diffusivity of the panel in the horizontal direction is enhanced in figure 2 and 3a, and vertical direction is enhanced in figure 3b.

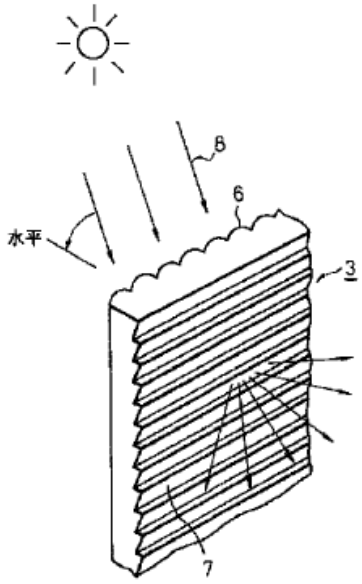


Figure 2

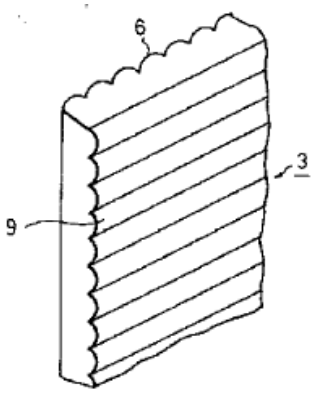


Figure 3a

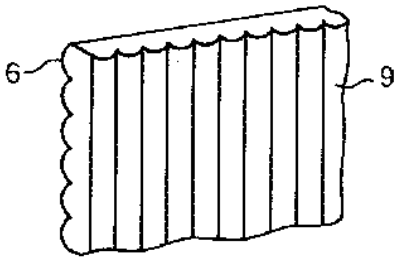


Figure 3b

(3) Assessments of Novelty by each Office

[EPO]

(1) Scope of protection of the claimed-subject matter

The wording of claim 1 is interpreted as follows:

A transparent arrangement of elongated members as specified in claim 1 refracts parallel light incident thereon so that the refracted light emerges as divergent light. Therefore, the arrangement disperses the incident light on the plane orthogonal to the elongated members

and in this sense, the arrangement operates as a light diffuser. In addition, following purely geometrical and optical considerations, it appears that light incident obliquely on this type of arrangement is diffused in such a way that the median of the effective angle of diffusion of light by each of the members is generally closer to the normal to the planar arrangement than the direction of propagation of the incident light.

Thus, in the arrangement considered above, the medians are, at least to a predetermined degree, substantially perpendicular to the panel, the degree to which the medians are substantially perpendicular to the plane of the arrangement generally depending on the shape and the size of the members.

On the one hand, one could argue that it is not sufficiently clear neither from the wording of the claim, nor from the description how the medians of the angles of diffusion are *really perpendicular* to the single plane. However, on the other hand, in view of the above considerations, this feature is sufficiently clear and supported by the description, although only to the extent that the medians of the angles of diffusion are *not strictly perpendicular* – as it could have been assumed in view of the claim's wording – but only – as actually claimed and consistently specified in the description – *substantially perpendicular* to the plane of the arrangement to the degree that can be achieved with elongated members having the cross-sectional shape and size exemplified in the application, and in particular with semi-cylindrical members having a smooth, circular cross-sectional shape. Any effect going beyond the latter would not be supported by the description and would not be sufficiently disclosed in the application.

(2) Novelty

The document D4 (JP06033671) discloses a window curtain constituted by a planar panel including a plurality of transparent elongated members arranged side-by-side and secured together so that the longitudinal axes of the members lie parallel to ach other in the plane of the panel (see English abstract of D4 and figures 2 and 4 of D4). The members have a smooth outer surface having an essentially circular cross-sectional shape (Figures 2 and 3, and [0013]).

In addition, sunlight incident on, and transmitted through the panel disclosed in D4 is diffused by members (figure 2), the cross-sectional shape and the size of the members being such that the optical diffusivity of the panel in the horizontal direction is enhanced (English abstract; [0014], [0016], [0017]). Thus, when in use the panel is located with the

longitudinal axes of the members in a horizontal direction as represented for example in Figure 3b, sunlight rays falling within different angles of incidence in a plane normal to the longitudinal axes of the members are diffused by the panel so that the medians of the corresponding angles of diffusion of the light are closer to the normal to the plane of the panel than the respective incident sunlight rays, and consequently are substantially perpendicular to the plane of the panel at least to the degree of achievement supported by the disclosure of the present application.

The counter-argument that, while in document D4 the diffusion mechanism is purely refractive, in the case of the application the diffusion mechanism is predominantly diffraction and interference of light, is not convincing. Indeed, there is no support in the application for the contention that the panels of the application diffuse light predominantly by diffraction and/or interference. In particular, the only examples in the description of the application that specify the dimensions of the members involve members having a width of 0,6 mm (page 4, lines 29-31) and members constituted by fibres of fishing line having a diameter of 0,14 mm (page 5, lines 21-23 and 31-33; page 6, lines 10-11), i.e. members having a width orders of magnitude greater than the wavelengths of visible sunlight. Thus, although diffusion effects by diffraction and/or interference can certainly not be excluded at the adjoining longitudinal edges of the members, the predominant diffusion effect would be that resulting from refraction by the members themselves as is also the case in the panels of D4. In any case, according to paragraphs [0013] and [0015] of D4 the width of the members of the panels is of 0,4 or 0,5 mm, i.e. of the same order of magnitude as in the examples of the application. For this reason, any diffusion mechanism distinct from, and any diffusion effects going beyond that intrinsically achieved by the panels of D4 would not be supported by the disclosure of the application.

Having regard to the above, the panels of D4 anticipate all the structural and functional features of the subject-matter of claim 1, at least to the extent that the claimed effect is supported by the disclosure of the application. Consequently, the claim cannot be considered to define novel subject-matter over the disclosure of document D4.

[JPO]

The claimed invention prima facie lacks the novelty.

The cited document (JP06-033671) discloses the a window curtain constituted by a planar panel including a plurality of transparent elongated members arranged side-by-side and

secured together so that the longitudinal axes of the members lie parallel to ach other in the plane of the panel. The members have a smooth outer surface having an essentially circular cross-sectional shape. This means the cited document discloses the same cross-sectional shape as the application.

The cited document also discloses that the width of each member is 0.4 or 0.5 mm while the radius of each member is 0.3 mm, i.e. the width of each member is 0.6 mm in the application. This means that the cited document discloses approximately same size of the members as the application.

On the other hand, the cited document doesn't explicitly disclose the matter of "the cross-sectional shape and size of the members are such that, for incident chief rays (I1, I2) lying in a plane normal to the longitudinal axes and having different angles of incidence, the medians of the corresponding angles of diffusion of light (T11, T12; T21, T22) are substantially perpendicular to the single plane".

In terms of that matter, the JPO agrees with the assessment by the EPO that the degree of "substantially perpendicular", i.e. how the medians of the angles of diffusion are really perpendicular to the single plane isn't sufficiently clear. Thus, the meanings of "substantially perpendicular" should be construed by referring the description and drawings (See, B.1.b. in the comparative table). The wordings of "substantially perpendicular" in the claim doesn't mean "strictly perpendicular" but merely means perpendicular to the plane of the arrangement to the degree that can be achieved with elongated members having the cross-sectional shape and size exemplified in the application.

In that meaning, the elongated members disclosed in the cited document also seems to have the cross-sectional shape and size such that, for incident chief rays lying in a plane normal to the longitudinal axes and having different angles of incidence, the medians of the corresponding angles of diffusion of light are *substantially perpendicular* to the single plane, *to the degree that can be achieved in the application*. This is because the cross-sectional shape and size of members of the panel in the cited document are approximately same and the purpose of the cited document is to diffuse the incident light as the application.

Thus, the claimed invention prima facie lacks the novelty. The prima facie lacking of the novelty may be dissolved if the applicant's argument succeeds to change the examiner's evaluation at least to the extent that it is unclear that the claimed invention lacks the novelty.

[USPTO]

The claimed invention appears to lack novelty.

The claimed invention is directed a panel for diffusing light comprising a plurality of transparent elongated members (14), each member having a longitudinal axis and a cross-sectional shape is at least partially circular with a substantially smooth outer surface; and means (12) for securing the members together such that the longitudinal axes of the members lie in a substantially single plane and are substantially parallel to one another, characterized in that the cross-sectional shape and size of the members are such that, for incident chief rays lying in a plane normal to the longitudinal axes and having different angles of incidence, the medians of the corresponding angles of diffusion of light are substantially perpendicular to the single plane.

The means plus function limitation "means (12) for securing the members together such that the longitudinal axes of the members lie in a substantially single plane and are substantially parallel to one another" recited in this claim is presumed to invoke 35 U.S.C. 112, sixth paragraph since it satisfies the 3-prong analysis set forth in MPEP 2181.

During examination, a means plus function limitation in accordance with 35 U.S.C. 112, sixth paragraph is interpreted as covering the corresponding structure described in the specification and equivalents thereof. The corresponding structure disclosed in the specification is transparent sheet 12 shown in Figures 1 and 2. Although Figures 1 and 2 only show elongated members on one side of the transparent sheet, Figure 5 of the application (see WO 97/14982) shows elongated members on both surfaces of the transparent sheet 12. Figures 1 and 5 of the application are equivalent structures for diffusing light. The application states on page 6, lines 16-20 that "[i]n view of the different embodiments above, it can be appreciated that the amount of diffusion can be controlled by changing the cross-sectional size and shape of the members…"

The application discloses the following specific example on page 4, lines 26-33 (see WO 97/14982):

> "The panel 10 can be made by an embossing process. For example, a panel 10 was made by placing a sheet 12 in a mold and pressing the sheet 12 until the ribs 14 were formed. The sheet 12 had a thickness T of 1.7 mm, and the

ribs 14 had a uniformly semi-circular cross-section, with a radius of 0.3 mm. The panel 10 had a light transmissibility of greater than 80% and a diffusion angle of approximately 160 degrees."

The prior art panel (JP 06-033671) for diffusing light comprises a plurality of transparent elongated members (6), each member having a longitudinal axis and a cross-sectional shape that is semicircular with a substantially smooth outer surface (see Figures 3a, and 3b). The elongated members are formed on a transparent sheet material 3 (means for securing the elongated members) having a thickness of 0.6 mm (paragraph 15). The panel shown in Figures 3a and 3b appears almost identical to the panel shown in Figure 5 of the application (WO 97/14982). The diameter of the elongated members (6) is 0.4 mm (paragraph 15) or 0.5 mm (paragraph 13). Therefore, the radius of the elongated member is 0.2 mm or 0.25 mm. The prior art reference shows that sunlight incident on the panel is transmitted and diffused in the horizontal direction (see Figure 2, English abstract and paragraphs 16 and 17).

The reference does not explicitly disclose that for incident chief rays lying in a plane normal to the longitudinal axes and having different angles of incidence, the medians of the corresponding angles of diffusion of light are substantially perpendicular to the single plane of the longitudinal axes of the elongated members.

When the product of the prior art appears to inherently possess the claimed characteristics, the examiner may reject the claim under both 35 U.S.C. 102 (anticipation) and 103 (obviousness), expressed as a 102/103 rejection (see MPEP 2112). The initial burden is on the examiner to provide a basis in fact and/or technical reasoning to reasonably support the determination that the claimed characteristic is necessarily present in the subject matter described in the prior art. Note that inherency may not be established by probabilities or possibilities; the mere fact that a certain thing may result from a given set of circumstances is not sufficient (see MPEP 2112, subsection IV.).

In this case, the prior art reference discloses the elongated members having the same semicircular cross-sectional shape and approximately the same cross-sectional radius as those disclosed in the application. Since the cross-sectional size of the elongated members in the prior art and in the

application is approximately the same, the panel in the prior art and in the application would diffuse sun light by the same mechanism. The application discloses that the amount of diffusion depends only on the cross-sectional size and shape (page 6, lines 16-20 of WO 97/14982). Thus, the claimed features of the medians of the corresponding angles of diffusion of light recited in the claim would be inherent characteristics of the prior art product. The prior art product which inherently possesses the claimed characteristics anticipate or render obvious the claimed invention.

Applicant can rebut the *prima facie* case of anticipation or obviousness based on inherency by submitting evidence showing that the prior art product does not necessarily possess the characteristics of the claimed product (see MPEP 2112, subsection V.).

3.4. Case 4

(1) Outline of the Application (EP 1136850 and T 991/05)

[Claim]

An optical fibre line (11) comprising:

a plurality of positive dispersion optical fibres (14) having a positive chromatic dispersion in a signal wavelength band;

a plurality of negative dispersion optical fibres (16) having a negative chromatic dispersion in the signal wavelength band;

wherein the positive dispersion optical fibres (14) and the negative dispersion optical fibres (16) are alternately arranged and coupled in the longitudinal direction of the optical fibre line (11);

characterized in that

the plurality of positive dispersion optical fibres (14) are selected from a positive dispersion optical fibre group the cumulative dispersion value of which conforms to a distribution with a first average value (D_A) which is positive and a first standard deviation;

the plurality of negative dispersion optical fibres (16) are selected from a negative dispersion optical fibre group the cumulative dispersion value of which conforms to a distribution with a second average value (D_B) which is negative and a second standard deviation;

the absolute value of the sum of the first and second average values (D_A, D_B) is not greater than 20% of the first average value (D_A) and

the absolute value of the difference between the first and second standard deviation is not greater than 20% of the first standard deviation.

[Description]

The present invention relates to an optical fibre line for transmitting a plurality of wavelengths of optical signals in a wavelength division multiplexing (WDM) transmission system.

For enhancing the transmission quality of WDM transmission systems, the optical fibre lines are required to have the two contradictory characteristics:

a) As the absolute value of chromatic dispersion in the optical fibre line in a signal wavelength band, for instance 1,55 micron wavelength band, is greater, the pulse waveform of optical signals is more likely to deform, thereby deteriorating the transmission quality. Therefore, from such a viewpoint, it is desirable that the absolute value of chromatic dispersion in the optical fibre line is smaller.

b) If the absolute value of the chromatic dispersion in the signal wavelength band is smaller, on the other hand, then four-wave mixing, which is a kind of nonlinear optical phenomena, is more likely to occur, which causes cross talk and noise, thereby deteriorating the transmission quality. Therefore, from such a viewpoint, it is desirable that the absolute value of chromatic dispersion in the optical fibre line be greater.

For satisfying the two contradictory demands, the current invention proposes an optical transmission line (10) as shown in the figure 1 below.

The transmission line is constituted by a plurality of optical cables (12) coupled to one another and is laid between optical repeaters (100). Each of the plurality of optical cables (12) contains a plurality of positive dispersion optical fibres (14) having a positive chromatic dispersion in a 1,55 micron wavelength band and a plurality of negative dispersion optical fibres (16) having a negative chromatic dispersion in the same 1,55 micron wavelength band.

Each of the positive dispersion optical fibres (14) is an optical fibre selected from positive dispersion optical fibre group whose cumulative dispersion at a predetermined wavelength, e.g. 1,55 micron, conforms to a distribution with an average value of D_A (>0) and a standard deviation of σ_A. Each of the negative dispersion optical fibres (16) is an optical fibre selected from negative dispersion optical fibre group whose cumulative dispersion at a predetermined wavelength, e.g. 1,55 micron, conforms to a distribution with an average value of D_B (<0) and a standard deviation of σ_B.

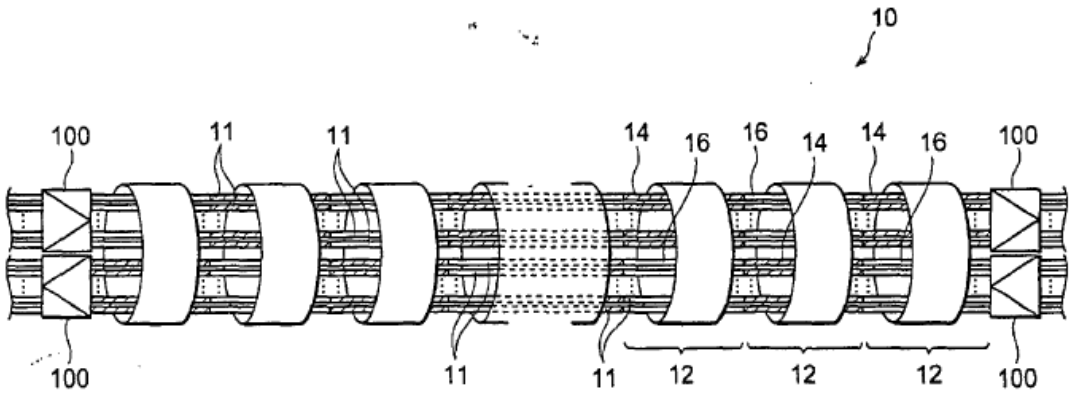
The plurality of optical cables (12) are arranged adjacent each other in the longitudinal direction thereof, such that the positive dispersion optical fibres (14) contained in a first optical cable and the negative dispersion optical fibres (16) contained in a second optical cable, adjacent to the first optical cable, are coupled to each other. As a result, the optical transmission line (10) contains a plurality of optical fibres lines (11) each comprising the positive dispersion optical fibre (14) and the negative dispersion optical fibre (16) coupled to each other.

In the positive / negative dispersion optical fibre group A / B, the cumulative dispersion conforms to a Gaussian distribution having an average value of D_A / D_B, preferably within the range of 5 to 50 ps/nm or -50 to -5 ps/nm, whereas the standard deviation σ_A / σ_B is within

the range of 0 to 5 ps/nm.

[Drawings]

Fig.1



(2) Outline of the Prior Art (WO97/20403)

The document (WO 97/20403) discloses a dispersion management system for soliton optical transmission system which comprises a plurality of positive and a plurality of negative dispersion optical fibres having respectively a positive and a negative chromatic dispersion. Furthermore, the positive and the negative dispersion optical fibres are alternately arranged and coupled in the longitudinal direction of the optical fibre line.

The arrangement of a typical system is shown in the figure 2 below and comprises a transmitter T and a receiver R lined by a length L of fibre. This fibre is divided into elements "l" comprising separate sections of fibre N with normal dispersion and fibre A with anomalous dispersion. The fibre components (N, A) have opposite sign dispersions.

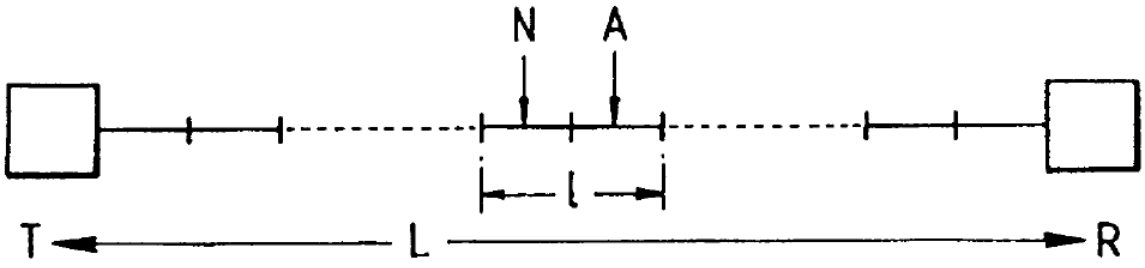


Figure 2

(3) Assessments of Novelty by each Office

[EPO]

(1) Scope of protection of the claimed subject-matter

According to claim 1, the plurality of positive dispersion optical fibres are “selected from a positive dispersion optical fibre group the cumulative dispersion value of which conforms to a distribution with a first average value (D_A) which is positive and a first standard deviation”, wherein the average value and the standard deviation satisfy the conditions specified in the claim. However, since the claim is silent as to the selection criteria, the aforementioned feature does not determine any structural or functional technical feature of the plurality of positive dispersion optical fibres because, for any arbitrary plurality of positive dispersion optical fibres, there is always a group of positive dispersion optical fibres having the features as claimed and such that the arbitrary plurality of optical fibres can be considered to result from a selection from among the fibres of this group. Therefore, the selection procedure mentioned above does not impose any structural or functional technical limitation on the plurality of positive dispersion optical fibres.

(2) Novelty

In addition, the plurality of positive dispersion optical fibres disclosed in the document D2 has the same technical features as – and therefore is technically indistinguishable from – a plurality of positive dispersion optical fibres that has been selected from a positive dispersion optical fibre group having the features specified in claim 1. Indeed, it would be enough adding the plurality of positive dispersion optical fibres of the document D2 to a series of optical fibres having the appropriate characteristics such that the resulting group of fibres satisfy the claimed conditions, and the plurality of fibres of document D2 would then constitute a “selection” from among the fibres of the group of fibres, it being noted that the group of fibres itself does not fall within the scope of protection sought by the claimed subject-matter. The same applies to the plurality of negative dispersion optical fibres defined in the claim.

Having regard to the above, claim 1 does not define novel subject-matter over the disclosure of document D2

[JPO]

The claimed invention is novel.

The cited document (WO97/20403) discloses a system which comprises a plurality of

positive and a plurality of negative dispersion optical fibres having respectively a positive and a negative chromatic dispersion. Thus, the issue is whether the cited document discloses the matters of “the absolute value of the sum of the first and second average values (DA, DB) is not greater than 20% of the first average value (DA)” and “the absolute value of the difference between the first and second standard deviation is not greater than 20% of the first standard deviation.”

(1) Concerning the matter of “the absolute value of the sum of the first and second average values (DA, DB) is not greater than 20% of the first average value (DA)”
The cited document discloses that the dispersions of fibres are +2.8 ps^2/km and -3.0 ps^2/km, and the path average dispersion is -0.1 ps^2/km. This means the absolute value of the sum of the first and second average values is 0.1 ps^2/km and it is not greater than 20 % of the first average value +2.8 ps^2/km.
Thus the matter of “the absolute value of the sum of the first and second average values (DA, DB) is not greater than 20% of the first average value (DA)” is disclosed in the cited document.

(2) Concerning the matter of “the absolute value of the difference between the first and second standard deviation is not greater than 20% of the first standard deviation”

The cited document doesn’t mention the standard deviations of the dispersions of fibres. Even though to make the standard deviation of dispersion be preferably small is well known in the relevant technical field, the matter of “the absolute value of the difference between the first and second standard deviation is not greater than 20% of the first standard deviation” isn’t disclosed in the cited document.

Thus, the claimed invention is novel over the cited document.

[USPTO]

The claimed invention appears novel over the cited prior art reference, WO 97/20403. The reference does not anticipate the claimed invention because it does not disclose every element of the claim, either expressly or inherently (see MPEP 2131).

Consistent with U.S. case law, all limitations in a claim are given the broadest reasonable interpretation that is consistent with the specification (see MPEP 2111).

The specification states in column 10, lines 49-57 (US Patent No. 6,567,595) that "[i]f the average value of chromatic dispersion in the plurality of positive dispersion optical fibers **14** and the average value of chromatic dispersion in the plurality of negative dispersion optical fibers **16** have absolute values approximately identical to each other, then chromatic dispersion can become substantially zero in the whole optical fiber line **11** constituted by the positive dispersion optical fibers **14** and negative dispersion optical fibers **16** alternately coupled to each other." The specification also states in column 13, lines 5-9 that "if the average values D_A and D_B and standard deviations σ_A and σ_B are adjusted appropriately, then the cumulative dispersion in the optical fiber line **31** as a whole can fall within a predetermined range, whereby the transmission quality of optical transmission line **30** can be improved…"

These portions of the patent specification support the examiner's interpretation that the values of D_A and D_B in claim 1 refer to the average value of cumulative dispersion in the plurality of positive and negative dispersion optical fibers, respectively. Therefore, the following limitations in claim 1 were given patentable weight during examination because they further limit the structure of the claimed optical fibre line (11):

> "the plurality of positive dispersion optical fibres (**14**) are selected from a positive dispersion optical fibre group the cumulative dispersion value of which conforms to a distribution with a first average value (D_A) which is positive and a first standard deviation;
>
> the plurality of negative dispersion optical fibres (**16**) are selected from a negative dispersion optical fibre group the cumulative dispersion value of which conforms to a distribution with a second average value (D_B) which is negative and a second standard deviation;
>
> the absolute value of the sum of the first and second average values (D_A, D_B) is not greater than 20% of the first average value (D_A) and
>
> the absolute value of the difference between the first and second standard deviation is not greater than 20% of the first standard deviation."

The examiner indicated in the reasons for allowance that the prior art "fails to disclose two or more positive dispersion fibers and two or more negative dispersion fibers alternately arranged and in direct contact with each other, wherein the sum of average dispersion values Da (for positive fibers) and Db (for negative fibers) is not greater than 20% of the average value Da, and whereas the absolute value of a difference between standard

deviations σ_A (for positive fibers) and σ_B (for negative fibers) is not greater than 20% of σ_A."

The cited prior art reference, WO 97/20403, discloses an optical fiber line comprising a plurality of sections made up of components (N, A) of opposite sign dispersions that are concatenated together (see abstract). Figure 2 of the reference shows alternating 100 km fibres with dispersions of -3.0 ps^2/km and +2.8 ps^2/km (page 2, lines 24-26). The reference also discloses that the difference between fibre dispersions is less than 12.0 ps^2/km and that under optimum conditions, it will be 0.1 ps^2/km or less (page 3, lines 15-16). It is noted that the unit for dispersion given in the reference is ps^2/km whereas the unit for dispersion in the application is given as ps/nm. The dispersion referred to in the reference appears to be the group-velocity-dispersion (GVD) which is expressed in units of ps^2/km (see for example, U.S. Patent No. 7,151,880), in contrast to chromatic dispersion D, which is expressed in units of ps/(nm-km) discussed in the application. The group velocity dispersion β_2 is mathematically related to the chromatic dispersion D and is defined as follows:

$$\beta_2 = (\lambda^2/2\pi c)D$$

where λ is the wavelength of the pulse, and c is the velocity of light in vacuum (see col. 1, lines 37-41 of U.S. Patent No. 7,151,880). The reference does not disclose that the group velocity dispersion for each of the alternating 100 km fibres is an average value. Even if the values disclosed are assumed to be average values for the dispersion, the reference does not explicitly or inherently disclose standard deviations for the average values of the dispersions such that the absolute value of the difference between the first and second standard deviation for the dispersions D_A and D_B, respectively, is not greater than 20% of the first standard deviation.

3.5. Case 5

(1) Outline of the Application (US 08/187,111)

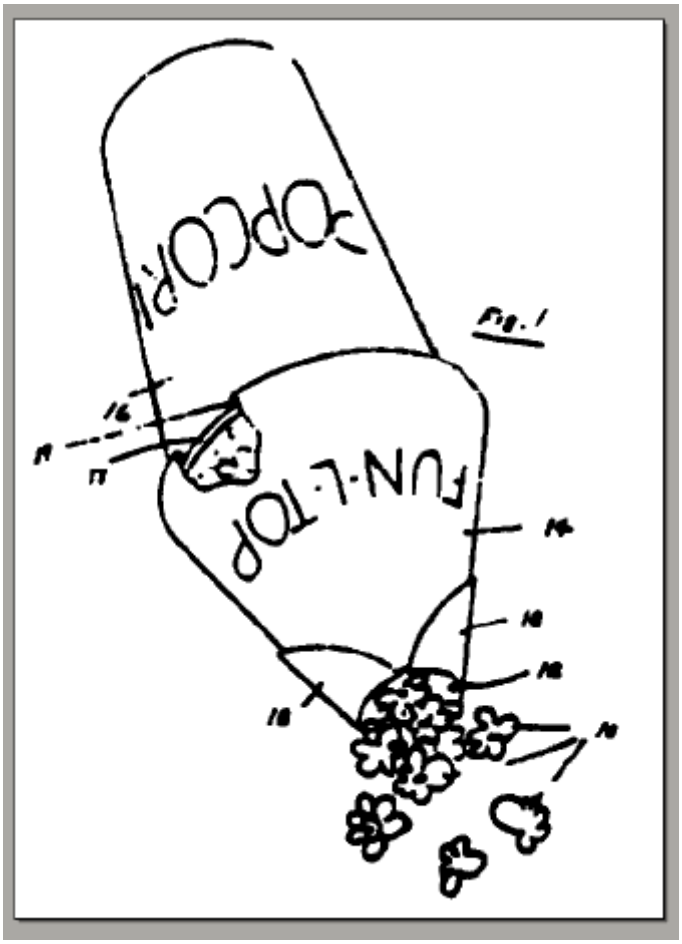
[Claim]

A dispensing top for passing only several kernels of a popped popcorn at a time from an open-ended container filled with popped popcorn, having a generally conical shape and an opening at each end, the opening at the reduced end allows several kernels of popped popcorn to pass through at the same time, and means at the enlarged end of the top to embrace the open end of the container, the taper of the top being uniform and such as to by itself jam up the popped popcorn before the end of the cone and permit the dispensing of only a few kernels at a shake of a package when the top is mounted on the container.

[Description]

The invention is directed to a device for dispensing popped popcorn. The device is conically shaped with a large opening that fits on a container and a smaller opening at the opposite end that allows popped popcorn to pass through when the device is attached to a popcorn container and turned upside down.

[Drawings]



(2) Outline of the Prior Art

Swiss Patent No. 172,689 to Harz (January 16, 1935)

The Harz patent discloses “a spout for nozzle-ready canisters,” which may be tapered inward in a conical fashion, and it states that the spout is useful for purposes such as dispensing oil from an oil can.

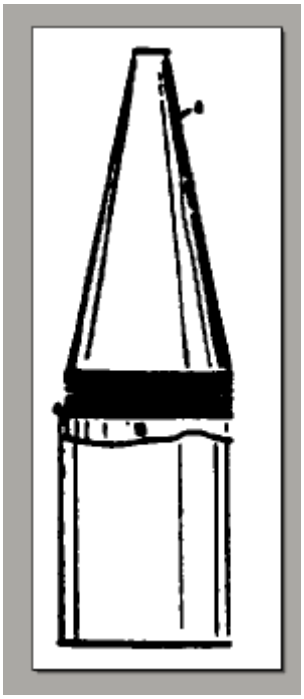


Figure 5

(3) Assessments of Novelty by each Office

[EPO]

The EPO considers that the claimed dispensing top is not anticipated by the Swiss Patent CH 172689 to Harz. This document, figure 5, discloses a dispensing top having all the technical features of claim 1, except for the following functional feature: “the opening at the reduced end allows several kernels of popped popcorn to pass through at the same time”.

Indeed, although the EPO fully agrees to the court’s statements that “the recitation of a new use for an old product does not make a claim to that old product patentable” and that “contrary to Schreiber’s suggestion, the structure disclosed in Harz is not limited to use as an oil can dispenser”, the EPO is not able to find a clear basis in the Swiss Patent for the examiner’s affirmation that “the opening of a conically shaped top as disclosed in Harz is inherently of a size sufficient to allow several kernels of popped popcorn to pass through at the same time”.

The only information given in the Harz Patent which is relevant to the above functional feature seems to be:

- … due to its cone shape, the discharge port (6) can be introduced the ingot mouth of a conventional car’s oil tank…” (page 1, left column, lines 11-14 of the Swiss Patent).

From this information, it can be deduced that the cone shape is such that not all kernels of popped popcorn pass through the dispensing top at once but is such “as to by itself jam up the popped popcorn before the end of the cone” (as claimed in the claim). However, it would appear that it cannot be deduced from the Harz patent that the size of the open end is sufficient to let several kernels of popped kernels pass through at a time, i.e. at least 10 mm.

It is noted that novelty according to Article 54 EPC is a strict and narrow concept in the sense that all claimed features must be disclosed unambiguously by the prior art document. Lack of novelty may not be based on probabilities. Inherent or intrinsic disclosure is only acknowledged in case that it would not be possible for the skilled person to interpret the feature in the prior art document in another way as claimed. However, in the present case, the skilled person could interpret the dispensing top of the Harz Patent such as to comprise an open end of less than 10 mm.

[JPO]

The JPO considers that the claimed invention seems to be novel.

The cited document (Harz patent) discloses the dispensing top whose shape is similar to the claimed invention in terms of following points:

- having a generally conical shape
- opening at each end
- having means at the enlarged end of the top to embrace the open end of the container
- the taper of the top being uniform

On the other hand, the cited document fails to disclose that the dispensing top is “permitting the dispensing of only a few kernels of popped popcorn at a shake of package” (In other word, the dispensing top allows several kernels of popped popcorn to pass through at the same time).

When a claim includes a limitation of use and the claimed invention can be construed as an invention based on discovering an unknown attribute of a product and finding that the product is suitable for new use due to the presence of such attribute, the limitation of use should be regarded as having a meaning that specifies the claimed invention and it is appropriate to construe the claimed invention by including the aspect of the limitation of use (See, (2) of 2.b. in the comparative table). In such case, the claimed invention is novel unless the cited document discloses the limitation of use. However the claimed invention in

Case 5 isn't considered to be such case (See, Note 1 of 2.b. in the comparative table).

Instead, the claimed invention is construed as having a structure which is suitable for permitting the dispensing of only a few kernels of popped popcorn at a shake of package. Thus, if the cited document discloses the suitable structure, even though the limitation of use is not literally disclosed, the claimed invention lacks the novelty (See, (1) of 2.b. in the comparative table). As mentioned above, the shape of dispensing top in the cited document is similar to the claimed invention. So, whether the size of the dispensing top in the cited document is suitable for permitting the dispensing of only a few kernels of popped popcorn at a shake of package is an important issue.

However, the cited document merely discloses the dispensing top is introduced the ingot mouth of a conventional car's oil tank and its size isn't clear. As a result, the cited document can't be considered to disclose the structure which is suitable for permitting the dispensing of only a few kernels of popped popcorn at a shake of package and the claimed invention seems to be novel.

Note that in the case if the cited document can be considered to disclose the suitable structure by referring the common technical knowledge in the relevant technical field, the novelty of the claimed invention is taken over by the cited document.

[USPTO]

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Harz. In Figure 5, Harz discloses a dispensing top for an open ended container. The top is conical in shape with means at the enlarged end to embrace the container shown as threads in Figure 5. The taper of the top is uniform to each end. The dispensing top of Harz is capable of functioning and of being used to dispense popped popcorn in the manner set forth in claim 1.

Note that the examiner's rejection was affirmed by both the Board of Patent Appeals and Interferences and the Federal Circuit in *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997). The court stated that "[t]o anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently…the question whether a claim limitation is inherent in a prior art reference is a factual issue on which evidence may be introduced." The court went on to say that "[a]lthough Schreiber is correct that Harz does not address the use of the disclosed structure to dispense popcorn,

the absence of a disclosure relating to function does not defeat the Board's finding of anticipation. It is well settled that the recitation of a new intended use for an old product does not make a claim to that old product patentable." *Schreiber* at 1431. The court stated that "[t]he examiner and the Board both addressed the question whether the functional limitations of Schreiber's claim gave it patentable weight and concluded that they did not, because those limitations were found to be inherent in the Harz prior art reference…an embodiment according to Harz (Fig. 5) and the embodiment depicted in figure 1 of Schreiber's application have the same general shape. For that reason, the examiner was justified in concluding that the opening of a conically shaped top as disclosed by Harz is inherently of a size sufficient to 'allow [ ] several kernels of popped popcorn to pass through at the same time' and that the taper of Harz's conically shaped top is inherently of such a shape 'as to by itself jam up the popped popcorn before the end of the cone and permit the dispensing of only a few kernels at a shake of a package when the top is mounted on the container.' The examiner therefore correctly found that Harz established a *prima facie* case of anticipation." *Schreiber* at 1432. In addition, the court stated that "contrary to Schreiber's suggestion, the structure disclosed in Harz is not limited to use as an oil can dispenser. While that use is given as the principal example of the uses to which the invention could be put, nothing in the Harz patent suggests that the invention is in any way limited to that use. In sum, Schreiber's declaration fails to show that Harz inherently lacks the functionally defined limitations recited in claim 1 of the application. Accordingly, we agree with the Board that Schreiber has failed to rebut the *prima facie* case of anticipation identified by the examiner. The Board's factual finding on the issue of anticipation is therefore *affirmed*." *Schreiber* at 1433.

3.6. Case 6

(1) Outline of the Application (US 06/223,840)

[Claim]

A method of enhancing in a predetermined way color effects produced by ambient light while controlling light intensity produced thereby, comprising the following steps:

reflecting with a phase change substantially equal to pi radians between 1 and 25% of the ambient light at an interface while permitting substantially all of the remainder to continue as transmitted light,

permitting said transmitted light to travel without reflection and with absorption insufficient to mask the desired enhancement to an absorbing layer and then

reflecting a portion of said transmitted light at said absorbing layer while permitting the remainder to continue as retransmitted light,

the distance between said interface and said absorbing layer being not less than that required to produce interference, between light reflected from said interface and light reflected from said absorbing layer and subsequently transmitted back through said interface, at some wavelength in the visible spectrum capable of influencing the desired enhancement and not greater than that at which such interference occurs at so many wavelengths in the visible spectrum that color effects are negligible.

[Description]

The invention relates to the use of interference effects to provide control of intensity and color in the transmission of light through solid panes of substantially transparent material such as windows and eyeglass lenses. The article disclosed in the specification comprises a substantially transparent substrate first coated with a semi-reflective material, such as silver, to a thickness of 500-5,000 angstroms and then coated with a metal oxide material (a dielectric), such as titanium oxide, over the semi-reflective coating. By varying the thickness of the metal oxide layer and the amount of semi-reflective material deposited on the glass (substrate), the color of the light reflected from the glass toward the light source can be varied and, importantly, so can the degree to which that color is enhanced, respectively. If the metal oxide coating is thick, the color is deep. If the semi-reflective coating is too meager, light incident on the backside of the glass (e.g., from inside a building) will be transmitted through the glass and wash the color out. If the semi-reflective coating is too substantial, too

much light incident the front side of the glass will be reflected back toward the natural light source also tending to wash out the chosen color as viewed from the light-side of the glass.

Certain wavelengths of visible light (i.e., colors) are enhanced because light rays reflecting off the outside of the metal oxide layer interfere constructively with (i.e., add to) rays that pass through the metal oxide layer but that are reflected off the semi-reflected layer. Constructive interference occurs because some of the rays at a given wavelength that reflect off the semi-reflective layer and come back toward the light source through the metal oxide layer are in phase with those of the same wavelength reflecting off the metal oxide layer, a result dependent upon the indices of refraction of both layers and the thickness of the metal oxide layer. Thus, certain colors can be created in a calculable way by varying the thickness and composition of the metal oxide layer and enhanced by varying the degree to which the semi-reflective layer reflects light, an effect in turn dependent upon that layer's composition and quantity. Applicant discloses the relevant scientific formulae of interference and reflection of light waves in his application.

(2) Outline of the Prior Art

U.S. Patent No. 3,978,272 to Donley (August 31, 1976)

The Donley patent (no drawings) discloses an article of manufacture comprising a transparent glass substrate, a film containing silver bonded to the substrate, and a second film of metal oxide of 200-800 angstroms, formed over the first film. The resultant article provides, according to the abstract, "solar energy control and production of architectural colors." The ratio of light transmitted to that reflected, as well as the transmitted and reflected colors of the article, can be altered "by varying the thickness of the films and/or the selection of the metal oxide overcoat." Donley does not disclose that the above effects are due to interference of light waves reflecting from the metal oxide overcoat and the silver film layer.

(3) Assessments of Novelty by each Office

[EPO]

The EPO agrees with the findings of the USPTO on lack of novelty of the claimed method with respect to the disclosure of US 3,978,272 to Donley.

Indeed, as stated by the USPTO, not only, "the Donley device inherently performs the function disclosed in the method claims on appeal when that device is used in 'normal and usual operation', but the Donley device even states explicitly that "varying solar control

properties and colors can be attained by proper selection of the film thicknesses and the metal oxide overcoat" (column 3, lines 65-67), i.e. the Donley patent points rather explicitly to "a method of enhancing [...] color effects produced by ambient light while controlling light intensity". If the Donley patent would have been completely silent on the possibilities of selecting various thicknesses and materials for achieving various colors, hues and intensities (see Donley, column 4, lines 13-23; table 1), then novelty of the claimed method might have been acknowledged.

In particular, it is to be noted that the technical features of a phase change of pi and the reflection coefficient in the range of 1% to 25% are inherent properties of a titanium oxide layer and independent from its thickness. The further steps in claim 1 merely describe the reflection, transmission and interference effects which inherently occur when solar radiation falls onto a glass substrate comprising the dual layer film as described in the Donley patent.

[JPO]

The claimed invention lacks novelty.

The cited document (Donley Patent) discloses a manufacture comprising a transparent glass substrate, a film containing silver bonded to the substrate, and a second film of metal oxide such as titanium oxide, formed over the first film. The cited document also discloses that the ratio of light transmitted to that reflected, as well as the transmitted and reflected colors of the article, can be altered by varying the thickness of the films and/or the selection of the metal oxide film.

The following matters are considered to be essentially described, though not literally, in the cited document (See, C.8. in the comparative table):

- The rays are reflected off the interface of metal oxide film and the degree of phase change and ratio of reflection are identical to the claimed invention, i.e. reflecting with a phase change substantially equal to pi radians and between 1 and 25 % of the ambient light at an interface while permitting substantially all of the remainder to continue as transmitted light. The reason is because the composition metal oxide film such as titanium oxide is identical to the application concerned.
- The transmitted light travels in the metal oxide film without reflection and with absorption insufficient to mask the “desired” enhancement to the silver film layer (absorbing layer). It is because that the reflection can only be occurred necessarily at the interface of the film, and that the amount of absorption should be small enough to achieve the effect of

"solar energy control and production of architectural colors".

- The transmitted light is reflected off the silver film layer (absorbing layer) while permitting the remainder to continue as retransmitted light. This is what necessarily occurs at a silver film layer.
- The distance between the said interface of metal oxide film and the silver film layer (absorbing layer) equals to the distance in the claim. This is because the distance must be appropriate for the color effect caused by the interference of light waves reflecting from the metal oxide film and the silver film layer.

Thus, all matters stated in the claim are described or essentially described, though not literally, in the cited document and the claimed invention lacks novelty.

[USPTO]

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Donley.

Note that the examiner's rejection was affirmed by both the Board of Patent Appeals and Interferences and the Federal Circuit in In re King, 231 USPQ2d 136 (Fed. Cir. 1986). The issue considered by the court was whether an article of manufacture in the prior art can be used to support an anticipation rejection of method claims that, in essence, simply define what happens when that article of manufacture is placed in the environment in which the article will be used. The court noted that "the law is, and long has been, that 'if a previously patented device, in its normal and usual operation will perform the function which an appellant claims in a subsequent application for process patent, then such application for process patent will be considered to have been anticipated by the former patented device.'…Donley 'clearly discloses the same article of manufacture disclosed in appellant's specification' – a substrate covered by a silver-containing film and by a titanium metal oxide; that, as the appellant concedes in his brief before us, the thicknesses specified in the Donley reference are the same as those in the instant application over a nontrivial range, namely 500-800 angstroms; and that claim 1 'merely recites steps describing the effect of ambient light transmitted to and through appellant's optical apparatus' and therefore that the Donley device inherently performs the function disclosed in the method claims on appeal when that device is used in 'normal and usual operation.' We hold that the board made out a prima facie case of anticipation under the principles of inherency of appellant's claimed method." King at 138.

4. Summary of Results and Analysis

4.1. Summary of Results

The results of case studies are shown in the table below. With regard to the Cases 1, 4 and 5, the Trilateral Offices have different views.

	EPO results	JPO results	USPTO results
Case 1	Not Novel	Novel	Not Novel
Case 2	Prima Facie Not Novel	Prima Facie Not Novel	Prima Facie Not Novel
Case 3	Not Novel	Prima Facie Not Novel	Prima Facie Not Novel
Case 4	Not Novel	Novel	Novel
Case 5	Novel	Novel	Not Novel
Case 6	Not Novel	Not Novel	Not Novel

4.2. Analysis

In all six cases, some matters in the claims are not explicitly disclosed in prior art documents. The inquiry then becomes whether such matters are given patentable weight and if so, whether such matters are implicitly disclosed or are inherent in the prior art documents. The Trilateral Offices share the view that even though the matters in a claim are not explicitly disclosed in a cited document, the claimed invention may lack the novelty over the document. However, the results of Cases 1, 4 and 5 are different among Trilateral Offices.

There may be two categories as to the reasons why the claimed invention may lack the novelty even though a matter in a claim is not explicitly disclosed in a cited document.
(Category 1) The matter not explicitly disclosed in the cited document doesn't limit the claimed invention, i.e. the matter in the claim is not given any patentable weight. In this category, the claimed invention lacks the novelty.
(Category 2) The matter not explicitly disclosed in the cited document limits the claimed invention. In this category, if the matter is implicitly disclosed or inherent in the cited document, and therefore, the claimed invention lacks the novelty. On the other hand, if the matter is not disclosed even implicitly nor inherently in the cited document, the claimed invention is novel.

With regard to Case 1, the claimed invention and prior art invention are both compositions comprising a quaternary ammonium salt A. The matter in terms of "for use as antifouling coating applied to a ship bottom" is not explicitly disclosed in the cited document. However, the EPO and the USPTO consider the case to fall into Category 1 because the discovery of a new use of a known composition does not render new the composition per se. On the other hand, the JPO considers the case to fall into Category 2 because the limitation of use should be regarded having a meaning based on discovering of an unknown attribute of a product and finding that the product is suitable for new use due to the presence of such attribute, and the claimed invention is novel. This difference may be the result of differences in claim interpretation, difference of Offices' examination guidelines, and difference in court decisions (See, B.2.b. in the comparative table).

With regard to Case 2, the claimed invention and prior art invention are both films having surface roughness of 3-8 nm. The matter in terms of the number of protrusion is not explicitly disclosed in the cited document. However, all three Offices consider the case to fall into Category 2 and the claimed invention prima facie lacks novelty because the cited document discloses that it is desirable not to contain a rough and large protrusion.

With regard to Case 3, the claimed invention and prior art invention are both planar panels including a plurality of transparent elongated members arranged side-by-side and secured together so that the longitudinal axes of the members lie parallel to each other in the plane of the panel. The matter in terms of “the cross-sectional shape and size of the members are such that, for incident chief rays (I1, I2) lying in a plane normal to the longitudinal axes and having different angles of incidence, the medians of the corresponding angles of diffusion of light (T11, T12; T21, T22) are substantially perpendicular to the single plane” is not explicitly disclosed in the cited document. However, all three Offices consider the case to fall into Category 2 and the claimed invention lacks novelty because the cited document discloses the elongated members having the same semicircular cross-sectional shape and approximately the same cross-sectional radius as those disclosed in the application.

With regard to Case 4, the claimed invention and prior art invention are both optical fibre lines comprising a plurality of positive and a plurality of negative dispersion optical fibres having respectively a positive and a negative chromatic dispersion. The matter in terms of the averages and standard deviations of the optical fibre groups is not explicitly disclosed in the cited document. However, the EPO considers the case to fall into Category 1 because the groups having such features always exist, and the claimed invention lacks the novelty. On the other hand the JPO and the USPTO consider the case to fall into Category 2, and the claimed invention is novel.

With regard to Case 5, the claimed invention and prior art invention are both dispending tops having generally conical shapes and an opening at each end. The matter in terms of “allow several kernels of popped popcorn to pass through at the same time” is not explicitly disclosed in the cited document. All three Offices consider the case to fall into Category 2, because the matter limits the claimed invention that the dispensing top has a suitable structure for allowing several kernels of popped popcorn to pass through at the same time. However, the JPO and the EPO are of the opinion that the structure is not disclosed in the cited document, whereas, the USPTO considers the structure is disclosed in the prior art document.

With regard to Case 6, the claimed invention and prior art invention are both articles comprising a transparent glass substrate, a silver film bonded to the substrate and a second film of metal oxide. The matter in terms of functions disclosed in the method claim is not explicitly disclosed in the cited document. However, all three Offices consider the case to fall

into Category 2 and the claimed invention lacks novelty because the device disclosed in the cited document inherently performs the function disclosed in the method claims when that device is used in normal and usual operation.

Summarizing the analyses concerning the Cases 1 to 6, the judgment of the novelty may differ in following situations:
(A) The judgment on whether a case falls into Category 1 or 2, i.e. whether the matter not explicitly disclosed in the cited document limits the claimed invention, is different (Cases 1 and 4).
(B) When the case falls into Category 2, i.e. when the matter not explicitly disclosed in the cited document limits the claimed invention, the judgment on whether the matter is substantially disclosed in the cited document is different (Case 5).

Especially, the difference concerning the products defined by their use (Case 1) is noted. Official Examination Guidelines and/or court decisions determine whether a new use of a known product is able to provide novelty to the product. In these cases, the novelty assessment is independent of the examiner's personal interpretation of the claim and the prior art document, but it will remain different between the Trilateral Offices based on the respective Official Examination Guidelines and/or court decisions.

5. Conclusion

The Trilateral Offices share the view that even though the matters in a claim are not explicitly disclosed in a cited document, the claimed invention may lack the novelty over the document.

However, the results of three of six cases are different among three Offices. Especially, the difference concerning the products defined by their use (Case 1) is noted. Official Examination Guidelines and/or court decisions determine whether a new use of a known product is able to provide novelty to the product. In these cases, the novelty assessment is independent of the examiner's personal interpretation of the claim and the prior art document, but it will remain different between the Trilateral Offices based on the respective Official Examination Guidelines and/or court decisions.

The difference of results may be caused in following two situations:
(A) The judgment on whether the matter not explicitly disclosed in the cited document limits the claimed invention is different.
(B) When the matter not explicitly disclosed in the cited document limits the claimed invention, the judgment on whether the matter is implicitly disclosed or inherent in the cited document is different.

In other words, the Trilateral Offices judge the novelty according to the following process. Whether the matter not explicitly disclosed in the cited document limits the claimed invention is judged firstly. If it doesn’t limit the claimed invention, the invention lacks the novelty. Otherwise, whether the matter is implicitly disclosed or is inherent in the cited document is judged next. If it is implicitly disclosed or is inherent, the claimed invention lacks the novelty, otherwise, the claimed invention is novel.

Consequently, the general process to judge the novelty is similar even though the results of specific cases are different among Trilateral Offices.