Patents Act 1977 **Opinion Number** **04/18**

OPINION UNDER SECTION 74A

Patent	EP 2811470 B1
Proprietor(s)	De La Rue International Limited
Exclusive Licensee	
Requester	Lincoln IP Limited
Observer(s)	Gill Jennings & Every LLP
Date Opinion issued	12 April 2018

The request

1. The comptroller has been requested by Lincoln IP Limited ("the requester") to issue an opinion as to whether patent EP 2811470 B1 ("the patent") is valid in light of the following documents:

D1: WO 94/27254 A1 (DE LA RUE HOLOGRAPHICS LTD.)

D2: WO 2006/125224 A2 (NANOVENTIONS INC.)

D3: Excerpt from "Flexography – Principles and Practices", Flexographic Technical Association, Inc. and the Foundation of Flexographic Technical Association, Inc., 4th Edition, 1991

D4: US 6506475 B1 (HILL)

D5: US 6210776 B1 (HILL)

D6: US 2009/0322071 A1 (DICHTL)

D7: AU 2006215783 A1 (GIESECKE & DEVRIENT)

D8: "Unison™ Micro-optic Security Film", R.Steenblick and M.Hunt, Proc. of SPIE-IS&T Electronic Imaging, SPIE vol 5310 (2004), pp 321-327

D9: "The Moiré Magnifier", M.Hutley, R.Hunt, R.F.Stevens and P.Savander, Pure Appl. Opt. 3 (1994) 133-142, IOP Publishing Limited

D10: "Properties of Moiré Magnifiers", H.Kamal et al, Optical Engineering 37(ii) 3007-

3014 (1998)

D11: Screen grabs from Denmark's national bank website (www.nationalbanken.dk) showing details of 50 Kroner banknote issued on 11 August 2009.

2. Each of the documents D1 to D10 have a publication date or relate to subject matter put into the public domain prior to the priority date of the patent. D11 is undated.

Observations

3. Observations have been received from Gill Jennings & Every LLP ("the observer") detailing how the claims of the patent are not anticipated by or obvious in light of the alleged prior art filed by the requester.

Observations in reply

4. The requester has provided observations in reply. These include further documents D11a-D11f to support their argument regarding the date that the 50 Kroner banknote (D11) was issued to the public and also as supplementary evidence regarding the features of the 50 krone banknote and that other banknotes pre-dating the patent comprised moiré magnification devices. The additional documents are as follows:

D11a: Excerpt from "Standard Catalog of World Paper Money, Modern Issues", 20th Edition, 2014

D11b: Press release relating to the sale of Visual Physics LLC, a subsidiary of Nanoventions Holdings, LLC to Crane & Co.

D11c: A blog post from "The Crane Insider"

D11d: Excerpt from Wikipedia relating to the Danish krone

D11e: Article from www.banknotenews.com

D11f: Press release from Denmark's national bank relating to the new 50 krone banknote

5. I need to consider whether documents D11a-D11f are strictly observations in reply as required by Rule 96 of the Patent Rules. Whilst these documents could be considered to have been submitted in response to the observations filed by the observer, that is not in itself sufficient for them to be treated as evidence in reply. I need to consider the matter in a little more detail.

6. I note firstly that in its observations the observer questioned whether D11 is in fact prior art due to the print-out itself being undated and uncertainty whether the particular reference to a date of 11 August 2009 relates to the actual date of issue of the 50 krone banknote. Documents D11a-D11f submitted in reply are aimed in part at addressing this particular point and as such are considered allowable as evidence that the 50 kroner banknote was presented to the public before the priority date of

the patent.

7. However, having considered the matter carefully, I have concluded that these documents are not strictly evidence in reply to the extent that the requester wishes to use them as evidence regarding the features of the 50 krone banknote and that other banknotes pre-dating the patent comprised moiré magnification devices. I note that they are not directed to any evidence provided by the observer in respect of these issues but rather are intended to strengthen the case initially advanced by the requester. The requester could have provided this additional evidence in their request but did not do so. If they had then the observer would have had an opportunity to make observations on it. The observer would be denied that opportunity if I allowed the documents to be introduced at this stage. That would be unfair to the observer and hence I will not consider them in this regard in this opinion.

Further observations

8. In paragraph 21.1 of the initial request the requester has sought the opportunity to file further submissions on inventive step should I find claim to be novel. The Opinion process is intended to be a low cost and quick service. It provides for three well defined rounds of argument i.e. the request, observations and observations in reply. Consequently no further observations by either party are allowable.

Allowance of D1

9. Following the filing of the initial request the Office wrote to both the requester and observer to advise them that as D1 was cited as a category “X” citation in the European search report and accompanying European opinion it would not ab appropriate to issue an opinion based on that document.

10. The requester in their observations in reply have argued that consideration of D1 should be allowed given that the IPO and EPO have different approaches to assessing inventive step. They further argue that there is a broader public interest in the opinion considering the question of whether another tribunal has properly understood the claimed invention and prior art/

11. I am not persuaded by the requester’s argument. The EPO has considered D1 with regard to both novelty and inventive step. The fact that the Office uses a different test in assessing inventive step does not in my opinion give rise to a new question which has not already been considered. Furthermore the observer has, understandably following communication from the IPO, not provided any argument regarding D1 and hence would be inappropriate for me to consider D1 in this opinion. I would note finally that the requester is free to raise D1 in a revocation action under section 72 if it wishes to do so.

The Patent

12. The patent, EP 2811470 B1, is titled “Moiré magnification device”. It was filed on 1st March 2011, published on 10th December 2014 and granted on 4th May 2016. The

patent remains in force.

13. The patent relates to a moiré magnification device such as a security device, for example for use on security documents and other articles of value such as banknotes, cheques, passports, identity cards, certificates of authenticity, fiscal stamps and other documents for securing value or personal identity. It also relates to optical devices for use on packaging or the like.

14. Moiré magnification has been used as the basis of security devices for a number of years. In such a device, a regular array of micro-focusing elements defining a focal plane is provided over a corresponding array of image elements located in a plane substantially aligned with the focal plane of the focusing elements. The pitch or periodicity of the array of image elements is chosen to differ by a small factor from the pitch or periodicity of the focusing elements and this mismatch means that magnified versions of the image elements are generated.

15. It is also known to provide multiple images in a moiré magnifying device. One problem with the known devices, however, is that it is very difficult to achieve multicolour effects in which two or more images are obtained in different colours. This is primarily because the difficulty of printing two microimage arrays in mutual register with one another but in different colours since this would conventionally require separate print runs.

16. With reference to figures 2(a) – 2(c) reproduced below, the patent describes a security device 10 comprising two alternating sets 11, 12 of synthetically magnified images. In this example the selected images are icons, namely the numeral '20' in the first magnified image panel 11, and a 'crest' symbol in the second magnified image panel 12. The icons are located in separate, non-overlapping zones 11, 12 and are provided in different and preferably contrasting colours, for example red and blue. The image panels 11, 12 are generated from the microimage element arrays 100. Pertaining to each respective image panel 11, 12 will be an array or lattice 110, 120 of microimage elements printed or otherwise formed in the respective colour and at its respective pitch. Each microimage array 110, 120 is formed in a separate working: thus, in one example, array 110 consisting of red "20" symbols is laid down before the blue "crest" symbols of array 120.

Fig.2.

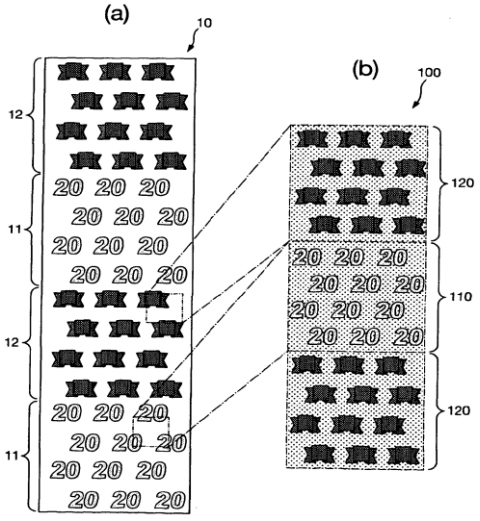
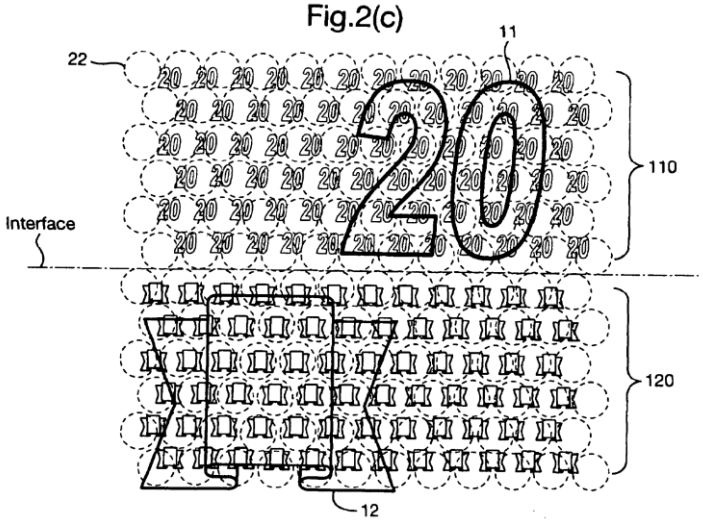


Fig.2(c)



17. Figure 4(a) – 4(c) illustrate an example of microimage array misregistration wherein the central microimage array 110 (corresponding to the image panel 11 with "20" icons) of the microimage element array 100 has shifted downwards relative to the two "crest" arrays 120' and 120" - causing a gap G to appear unintentionally between the arrays 110 and 120", and an overlap OV of the two micro image arrays 110 and 120' in the lower image zone. The misregistration between the two synthetically magnified image panels 11, 12 and the asymmetry in the appearance of the interfaces between the image panels leads to a loss or reduction in image integrity and the desired optical variable security effect.

Fig.4(a)

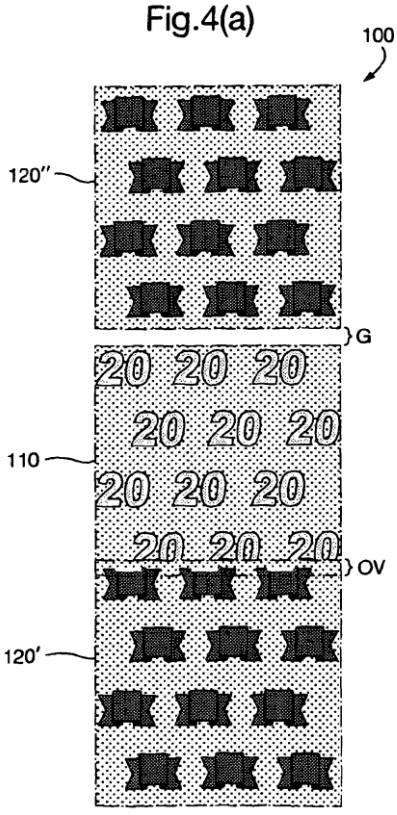


Fig.4(b)

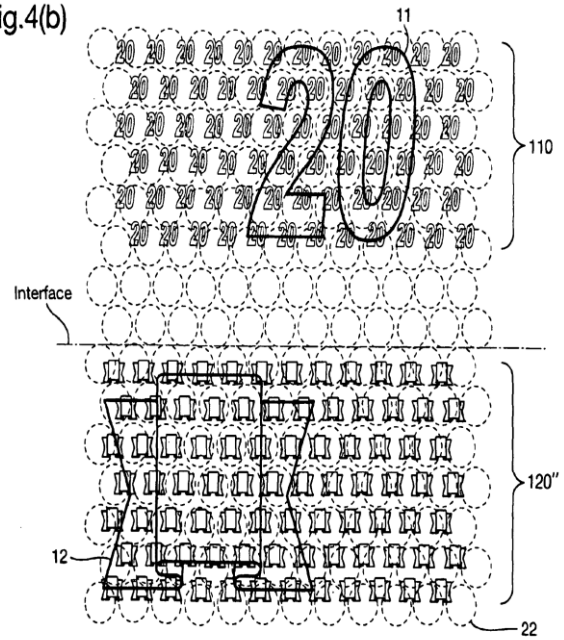
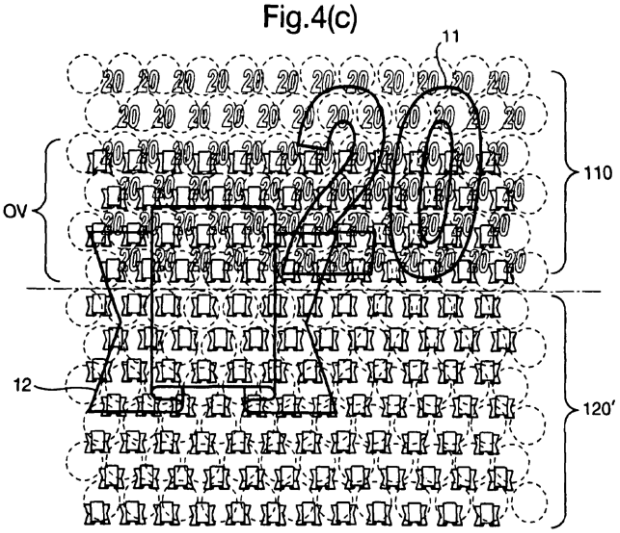


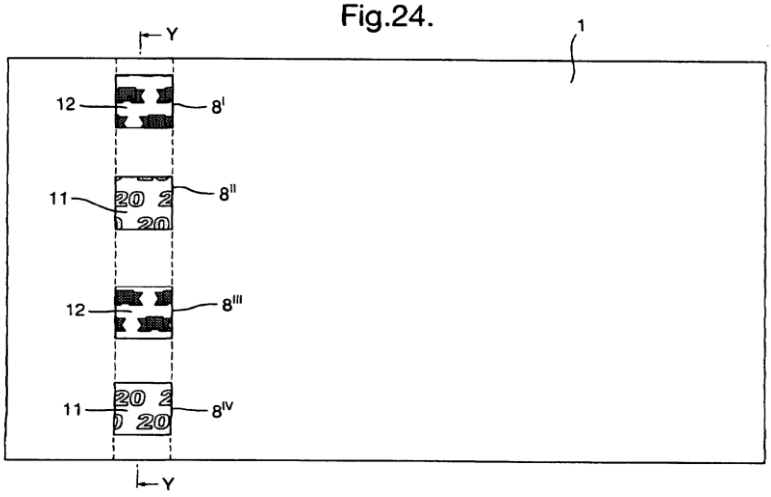
Fig.4(c)



18. The invention disclosed in the patent is aimed at providing a solution to the above problem and make it no longer necessary to achieve accurate registration of the two microimage element arrays. This is achieved by using the document substrate to hide the portion of the device where the magnified images of the two microimage element arrays approach one another i.e. the interface between the micro image arrays. In hiding the interface any gap or overlap created by poor registration as illustrated in figures 4(a) – 4(c) are not visible to the observer.

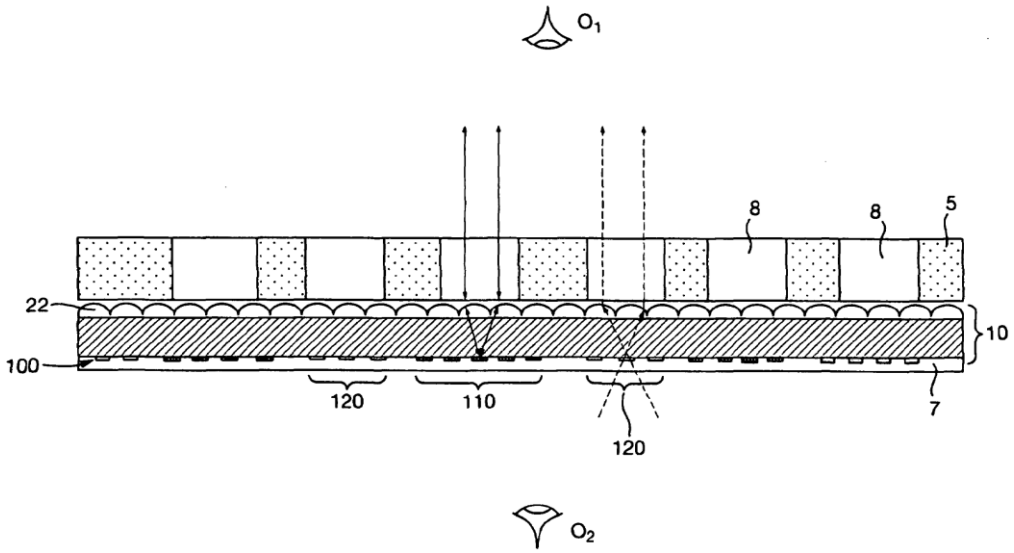
19. With reference to figures 24 and 25 reproduced below, the patent describes an embodiment which provides a device design having its vertical colour alternation registered in windowed zones 8 in the substrate 1. The uppermost window 8' reveals only image panel 12, whereas the adjacent window 8" reveals only image panel 11. The transition zones where the two image panels meet are located in the non-windowed (e.g. fully embedded) portion of the document and are thus hidden from visualisation by the viewer. As such, whether or not the two microimage arrays 110, 120 are accurately registered to one another is not critical since the affected region will be concealed. Therefore, the device could simply comprise at least two laterally spaced microimage element arrays formed in different workings and different colours, without any particular registration requirements or boundary regions etc (for example, the arrays could partially overlap one another, whether intentionally or not).

Fig.24.



20. Figure 25 shows the device 10 affixed to a surface of the substrate 5 in alignment with windows 8 which pass through the full document thickness. The windows 8 may be apertures or could be transparent regions (e.g. polymer) of the substrate 5.

Fig.25.



21. The patent has fifteen claims including two independent claims – claims 1 and 6. Independent claim 1 reads as follows:

> *1. A security document (1) comprising a document substrate (5) having at least two transparent or translucent windows (8) spaced apart from one another, and a device (10) comprising a transparent substrate (20) carrying:*
>
> > *i) a regular array of micro-focusing elements (22) on a first surface, the focusing elements defining a focal plane;*
> >
> > *ii) a corresponding first array of microimage elements (110) in a first colour and located in a plane substantially coincident with the focal plane of the focusing elements; and,*
> >
> > *iii) a corresponding second array of microimage elements (120), in a second colour different from the first colour, and located in a plane substantially coincident with the focal plane of the focusing elements,*
>
> *wherein the pitches of the micro-focusing elements (22) and first and second arrays of microimage elements (110, 120) and their relative locations are such that the array of micro-focusing elements (22) cooperates with each of the first and second arrays of microimage elements (110, 120) to generate respective magnified versions of the microimage elements of each array due to the moiré effect; and characterised in that at least a portion of the first array of microimage elements (110) is not overlapped by the second, and at least a portion of the second array (120) of microimage elements is not overlapped by the first;*
>
> *the device (10) being incorporated into or applied on to the document*

substrate (5) in alignment with the at least two windows (8), the device (10) being registered to the document substrate (5) such that, the magnified version (11) of the first microimage element array (110) is visible through the first of the two windows (8") and the magnified version (12) of the second microimage element array (120) is visible through the second of the two windows (8'), the transition between the two microimage element arrays being concealed by the document substrate (5) between the two windows.

Independent claim 6 reads as follows:

6. A method of manufacturing a moiré magnification device for the security document according to any proceeding claim, comprising, in any order:

a) forming a regular array of micro-focusing elements (22) on a first surface of a transparent substrate (22), the focusing elements defining a focal plane;

b) forming on a second surface of the transparent substrate, in a first working, a corresponding first array of microimage elements (110) in a first colour and located in a plane substantially coincident with the focal plane of the focusing elements; and,

c) forming on the second surface of the transparent substrate, in a second working, a corresponding second array of microimage elements (120), in a second colour different from the first colour, and located in a plane substantially coincident with the focal plane of the focusing elements;

wherein the pitches of the micro-focusing elements (22) and first and second arrays of microimage elements (110, 120) and their relative locations are such that the array of micro-focusing elements (22) cooperates with each of the first and second arrays of microimage elements (110, 120) to generate respective magnified versions of the microimage elements of each array due to the moiré effect, characterised in that the second array of microimage elements (120) is laterally offset from the first.

22. I will consider the novelty and inventive step of the dependent claims should that become necessary after my assessment of independent claims 1 and 6.

Novelty and Inventive step – the law

23. Section 1(1)(a) and (b) of the Patents Act (henceforth 'the Act') reads:

1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –
(a) the invention is new;
(b) it involves an inventive step;

24. The relevant provisions in relation to novelty are found in section 2(1) and section

2(2) which read:

> *2(1) An invention shall be taken to be new if it does not form part of the state of the art.*
>
> *2(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.*

25. The provisions in relation to inventive step are found in section 3 which states:

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

26. The Court of Appeal in Windsurfing[1] formulated a four-step approach for assessing whether an invention is obvious to a person skilled in the art. This approach was restated and elaborated upon by the Court of Appeal in Pozzoli[2]. Here, Jacob LJ reformulated the Windsurfing approach as follows:

> *(1)(a) Identify the notional "person skilled in the art"*
> *(1)(b) Identify the common general knowledge of that person;*
> *(2) Identify the inventive concept of the claim in question or if that cannot be readily done, construe it;*
> *(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed.*
> *(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps that would have been obvious to the person skilled in the art or do they require any degree of invention?*

27. I will begin by considering the validity of the invention as defined by independent claims 1 and 6. Only if I find either or both claims to be invalid will I consider the remaining dependent claims.

Claim construction

28. Before considering the documents put forward in the request I need to construe claims 1 and 6 of the Patent, that is to say I must interpret it in the light of the description and drawings as instructed by Section 125(1). In doing so I must interpret the claims in context through the eyes of the person skilled in the art. Ultimately the question is what the person skilled in the art would have understood the patentee to be using the language of the claims to mean. This approach has been confirmed in

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[1] Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd, [1985] RPC 59
[2] Pozzoli SPA v BDMO SA [2007] EWCA Civ 588

the recent decisions of the High Court in Mylan v Yeda[3] and the Court of Appeal in Actavis v ICOS[4].

29. Neither the requester nor the observer has filed any argument concerning the construction of claim 1. In my opinion the claim is clear and straightforward and a person skilled in the art would have no difficulty in construing the scope of the claim.

30. The preamble of claim 6 states that the moiré magnification device is "for the security document according to any proceeding claim". The requester has argued that the claim should therefore be construed as relating to the production of a moiré magnification device suitable for that use i.e. suitable for but not restricted to the security document according to any preceding claim. I agree with this argument.

31. The remainder of claim 6 is clear and straightforward in my opinion and a person skilled in the art would have no difficulty in construing the scope of the claim.

32. I will consider the construction of the dependent claims if necessary following my assessment of the validity of claims 1 and 6.

Does D2 disclose all of the features of claim 6?

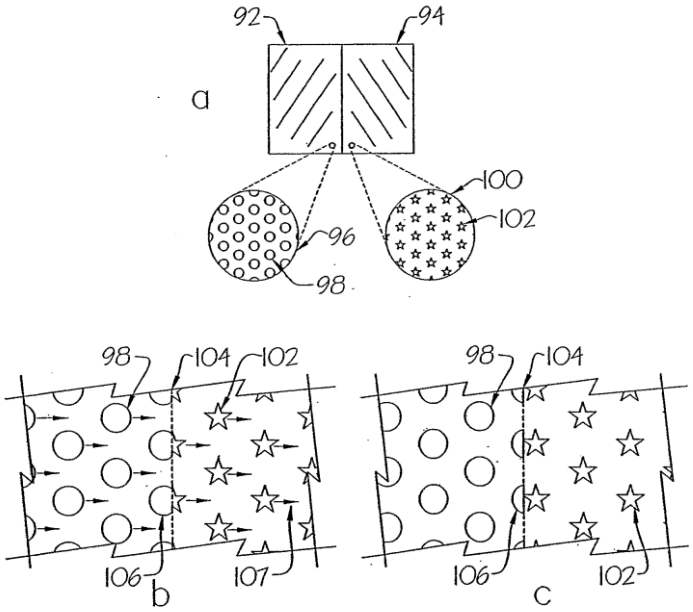
33. The requester argues that D2 discloses all of the features of claim 6. The argument focusses on the embodiment illustrated in figures 6a-c which is reproduced below.

34. Pages 50-51 describe figures 6a-c as illustrating a method for causing one synthetically magnified OPM image 98 to morph into another synthetically magnified image 102 as the first image moves across a boundary 104 in the icon element patterns 92 and 94. Icon element pattern 92 bears circle-shaped icon elements 98, shown in the magnified inset 96. Icon element pattern 94 bears star-shaped icon elements 102, shown in the magnified inset 100. Icon element patterns 92 and 94 are not separate objects, but are joined at their boundary 104. When the material is assembled using this combined pattern of icon elements the resulting OPM images will show the morphing effects depicted in Figs. 6b and c. Fig. 6b shows OPM circle images 98 moving to the right 107 across the boundary 104 and emerging from the boundary as star images 102 also moving to the right. Image 106 is in transition, part circle and part star, as it crosses the boundary. Fig. 6c of the figure shows the images after they have moved further to the right: image 98 is now closer to the boundary 104 and image 106 has almost completely crossed the boundary to complete its morphing from circle to star. The morphing effect can be accomplished in a less abrupt manner by creating a transition zone from one icon element pattern to the other, instead of having a hard boundary 104. In the transition zone the icons would gradually change from circle to star through a series of stages. The smoothness of the visual morphing of the resulting OPM images will depend on the number of stages used for the transition. The range of graphical possibilities is endless. For example: the transition zone could be designed to make the circle appear to shrink while sharp star points protruded up through it, or alternatively the

[3] Generics UK Ltd (t/a Mylan) v Yeda Research and Development Co. Ltd & Anor [2017] EWHC 2629 (Pat)

[4] Actavis Group & Ors v ICOS Corp & Eli Lilly & Co. [2017] EWCA Civ 1671

sides of the circle could appear to dent inward to create a stubby star that progressively became sharper until it reached its final design.



Figs. 6a–c

35. Claim 6 requires that the first and second microimage arrays are different colours from one another and also that they are produced in separate workings. It is regarding the disclosure of these features in D2 that disagreement between the requester and observer centres.

36. The requester draws attention to the final paragraph on page 6 and also the passage on page 8 which refers to the visual effect “Unison Morph” as disclosing the first and second microimage arrays being of different colours.

37. D2 describes a number of distinct visual effects that can be provided by the disclosed material (subsequently referred to as "Unison" for the material in general, or by the names "Unison Motion", "Unison Deep", "Unison SuperDeep", "Unison Float", "Unison SuperFloat", "Unison Levitate", "Unison Morph", and "Unison 3-D" for Unison material presenting those respective effects). The various embodiments providing each of these effects are also outlined. “Unison Motion” is described as presenting images that show orthoparallactic movement (OPM) - when the material is tilted the images move in a direction of tilt that appears to be perpendicular to the direction anticipated by normal parallax. Whereas “Unison Morph” presents synthetic images that change form, shape, or size as the material is rotated or viewed from different viewpoints.

38. The paragraph bridging pages 6 and 7 reads as follows:

> *“Multiple Unison effects can be combined in one film, such as a film that incorporates multiple Unison Motion image planes that can be different in form, color, movement direction, and magnification. Another film can combine a Unison Deep image plane and a Unison Float image plane, while yet another film can be designed to combine Unison Deep, Unison Motion, and Unison Float layers, in the same color or in different colors, those*

images having the same or different graphical elements. The color, graphical design, optical effect, magnification, and other visual elements of multiple image planes are largely independent; with few exceptions, planes of these visual elements can be combined in arbitrary ways."

39. The passage on page 8 relating to "Unison Morph" which is also relied upon reads:

> *v. transform from one form, shape, size, color (or some combination of these properties) into a different form, shape, size, or color (or some combination of these properties) (Unison Morph);*

40. The observer disagrees with the requester's interpretation of the disclosure in D2. The observer argues that when the device in figures 6a-c is tilted the magnified images move across the boundary and appear to change shape from circles to stars. It is argued that there is no disclosure of the circle-shaped icon elements 98 and star-shaped icon elements 102 being different colours from one another or provided in different workings.

41. In addressing the requester's highlighting of the passages above from pages 6 and 8, the observer argues that they are completely separate from the embodiment of figures 6a-c and make no link thereto.

42. The observer explains how the passage bridging pages 6 and 7 describes the combination of multiple "Unison" effects in a single film but on different image planes. The different colour icon elements being produced by multiple icon element patterns being provided superposed on one another. It is argued that this is completely different from the embodiment in figures 6a-c as there is no suggestion that the circle and star images could be visualised on different image planes and to do so would completely undo the effect where each circle image undergoes a smooth transformation into a star image as it crosses the boundary. Therefore the skilled person would not see the paragraph bridging pages 6 and 7 as relevant to the embodiment of figures 6a-c in the manner alleged by the requester.

43. The passage on page 8 relates to the visual effect "Unison Morph" which according to the observer is not the same thing as the "morph" that is occurring in the device in figures 6a-c. The observer contends that with the visual effect "Unison Morph", displayed images change from one type to another as shown in figure 46 of D2 where image portion A might be a first colour and B in a second colour. Again it is argued that this is distinct from the embodiment of figures 6a-c.

44. In the observations in reply the requester contends that rather than being drawn into detail of image planes, what is critical is that figures 6a-c show how one synthetically magnified OPM image can morph into another synthetically magnified image. Further such images can comprise colours and by extension different colours. It is also argued that whether the synthetically magnified OPM images provides a single "Unison" effect or combines several different "Unison" effects, it is implicit that there is a first microimage array on the left and a second microimage array on the right (which can be a different colour or shape from the first), which are laterally offset, and which generate respective magnified versions due to the moiré effect.

45. Having carefully considered the arguments I find myself in agreement with the

observer regarding the relevance of D2 to the novelty of claim 6. Claim 6 requires first and second laterally offset, differently coloured microimage arrays. The first and second microimage arrays are formed in respective first and second workings and are formed in the same plane on the second surface of a transparent substrate. I do not consider these features to be disclosed in D2.

46. The device disclosed in figure 6a-c does disclose laterally offset images 98, 102. However the circle elements 98 and the star elements 102 are not disclosed as being of a different colour to one another. Whilst D2 does disclose several "Unison" visual effects which may result in images having different colours, I do not agree with the requester that it is therefore implicit that the circle and star elements may be different colours. The passage highlighted on page 6 describes images of different colours being provided by combining multiple "Unison" effects on different image planes rather than on the same plane as required by claim 6.

47. The passage on page 8 describes "Unison Morph" as transforming an image from one form, shape, size, colour (or some combination thereof) into a different form, shape, size, colour (or some combination thereof). On page 6, "Unison Morph" is described as presenting synthetic images that change form, shape, or size as the material is rotated or viewed from different viewpoints. In my opinion an image morphing from one colour to a different colour is not the same as providing first and second laterally offset, differently coloured microimage arrays.

48. Furthermore claim 6 is directed to a method of manufacturing a moiré magnification device wherein the first and second microimage arrays are formed in respective first and second workings. This feature is also not disclosed in D2.

49. Therefore I am of the opinion that D2 does not anticipate claim 6.

Do claims 1 and 6 lack an inventive step in light of D2, D6 and/or D7?

50. To determine whether or not an invention defined in a particular claim is inventive over the prior art, I will rely on the principles established in Pozzoli SPA v BDMO SA [2007] EWCA Civ 588, in which the well known Windsurfing steps were reformulated:

> *(1)(a) Identify the notional "person skilled in the art";*
> *(1)(b) Identify the relevant common general knowledge of that person;*
> *(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;*
> *(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;*
> *(4) Viewed without any knowledge of the alleged invention as claimed, determine whether those differences constitute steps which would have been obvious to the person skilled in the art.*

(1)(a) Person skilled in the art

51. The requester and observer have agreed that the person skilled in the art is one

skilled in optically variable effects and their application to security devices. I have no issue with this definition.

(1)(b) Common general knowledge

52. In its assessment of what constitutes the common general knowledge (CGK) of the person skilled in the art, the requesters alleges that all of the prior publications D1 to D11 constitute CGK. The observer disagrees with this view point. I note that the contents of individual patent specifications and isolated documents do not normally form part of the relevant common general knowledge.

53. In Raychem Corp's Patents [1998] RPC 31 Laddie J explained common general knowledge as follows:

> *"The common general knowledge is the technical background of the notional man in the art against which the prior art must be considered. This is not limited to material he has memorized and has at the front of his mind. It includes all that material in the field he is working in which he knows exists, which he would refer to as a matter of course if he cannot remember it and which he understands is generally regarded as sufficiently reliable to use as a foundation for further work or to help understand the pleaded prior art. This does not mean that everything on the shelf which is capable of being referred to without difficulty is common general knowledge nor does it mean that every word in a common text book is either. In the case of standard textbooks, it is likely that all or most of the main text will be common general knowledge. In many cases common general knowledge will include or be reflected in readily available trade literature which a man in the art would be expected to have at his elbow and regard as basic reliable information."*

54. With regard to D1, D2, D4, D5, D6 and D7 the statement by Sachs LJ in General Tire & Rubber Co v Firestone Tyre & Rubber Co Ltd [1972] RPC 457 is of particular interest because it sets out the relationship of patent specifications to the common general knowledge ("it is clear that individual patent specifications and their contents do not normally form part of the relevant common general knowledge"). With regard to patent specifications Sachs LJ explained:

> *"…it is clear that individual patent specifications and their contents do not normally form part of the relevant common general knowledge, though there may be specifications which are so well known amongst those versed in the art that upon evidence of that state of affairs they form part of such knowledge, and also there may occasionally be particular industries (such as that of colour photography) in which the evidence may show that all specifications form part of the relevant knowledge."*

55. I have no evidence before me which suggests any of D1, D2, D4, D5, D6 or D7 are patent specifications falling into the categories discussed above by Sachs LJ and thus forming part of the CGK.

56. D8, D9 and D10 are technical papers. With regard to scientific papers generally, it was said by Luxmoore J. in British Acoustic Films (53 RPC 221 at 250):

"In my judgment it is not sufficient to prove common general knowledge that a particular disclosure is made in an article, or series of articles, in a scientific journal, no matter how wide the circulation of that journal may be, in the absence of any evidence that the disclosure is accepted generally by those who are engaged in the art to which the disclosure relates. A piece of particular knowledge as disclosed in a scientific paper does not become common general knowledge merely because it is widely read, and still less because it is widely circulated. Such a piece of knowledge only becomes general knowledge when it is generally known and accepted without question by the bulk of those who are engaged in the particular art; in other words, when it becomes part of their common stock of knowledge relating to the art."

57. Again I have no evidence before me which suggests any of D8, D9 or D10 are technical papers falling into the category discussed above by Luxmoore J and thus forming part of the CGK.

58. D3 is an extract from a book relating to flexographic printing and D11 is an undated print-out from a website. I do not consider that either of these two isolated documents form part of the CGK.

59. I consider the person skilled in the art as defined above in paragraph 51, would have a knowledge of physics, in particular optics and optical devices for producing optically variable effects. The skilled person would also be readily aware of security documents, their design and methods of manufacture thereof.

(2) Identify the inventive concept of claim 1

60. The inventive concept of claim 1 lies in using the document substrate to hide the portion of the device where the magnified images of the two microimage element arrays approach one another i.e. the interface between the microimage arrays. In hiding the interface, any gap or overlap created by poor registration is not visible to the observer. The differently coloured first and second arrays of microimages elements are aligned with windows provided in the document substrate.

(3) What differences exist between the matter of D2 and the inventive concept of claim 1?

61. The requester argues that claim 1 is obvious in light of D2 when taken alone; in light of D2 when taken in combination with the CGK of a person skilled in the art; and /or in light of D2 when taken in combination with any of D3, D4 or D5.

62. The requester again relies on the embodiment in figures 6a-c in D2 as discussed above in relation to the novelty of claim 6. As previously discussed I do not consider D2 to disclose first and second arrays of microimage elements formed in the same plane and being of a different colour to one another. Furthermore D2 does not disclose aligning the first and second microimage arrays with windows in a document substrate such that portions of the document substrate in between the windows hide the interface between the first and second microimage arrays.

(4) Are the differences obvious to a person skilled in the art

63. I agree with the requester that providing security features in registration with windows in security documents was well known at the priority date of the patent. However this is different to aligning the interface between microimage arrays with a document substrate in order to conceal the interface.

64. Nowhere in D2 is the problem of misregistration between microimage arrays discussed. Neither is the concealment of the interface between microimage arrays. I have no evidence before me which would suggest that using the document substrate in between the windows to conceal the interface between microimage arrays and therefore any misregistration therebetween forms part of the CGK of the person skilled in the art at the priority date of the patent.

65. D3 discusses the prevention of the appearance of misregistration when printing multiple colours by use of outlines i.e. overprinting the region of overlap. The requester argues that this is analogous to providing windows in a substrate through which desirable image effects are visible while undesirable image effects are hidden. I am not persuaded by this argument. D3 teaches the skilled person to use overprinting in the region of overlap between different coloured images. Therefore in addressing the problem of misregistration in the patent, the skilled person would overprint the region of overlap and would not look to use the document substrate to conceal the interface between the microimage arrays. I agree with the observer that overprinting two misregistered colours is not equivalent to using a documents substrate to conceal an interface between two image arrays.

66. Similar to D3, both D4 and D5 disclose overprinting areas of misregistration in order to mask undesirable effects. As with D3, D4 and D5 teach the skilled person to use overprinting in the region of overlap between different coloured images to mask any misregistration therebetween. It follows that the skilled person would overprint the region of overlap and would not look to use the document substrate to conceal the interface between the microimage arrays.

67. Therefore I do not consider D2 alone, or D2 when taken in combination with the CGK of a person skilled in the art; and /or D2 when taken in combination with any of D3, D4 or D5 to teach the skilled person to modify the embodiment disclosed in figures 6a-c of D2 to include the feature of concealing the boundary 104 between the image elements 98, 102 with a document substrate as required by claim 1.

68. In my opinion it cannot be considered obvious to conceal the interface (boundary 104) between the circle images 98 and the star images 102 in figures 6a-c of D2 whether through the use of a document substrate of through overprinting a mask. The whole purpose of this embodiment would appear to lie in the morphing effect of the images from a circle to a star as they cross the boundary. To conceal the morphing effect would completely undo this purpose.

69. With regard to the second difference of the first and second arrays of microimage elements formed in the same plane and being of a different colour to one another, I am of the opinion that this is also not an obvious modification to make to the device of figures 6a-c. As discussed above D2 does disclose several “Unison” visual effects which may result in images having different colours. The passage highlighted on

page 6 describes images of different colours being provided by combining multiple "Unison" effects on different image planes rather than on the same plane as required by claim 1.

70. As discussed above in paragraph 47 the visual effect "Unison Morph" as described in D2 teaches the skilled person that an image can morph from one colour to a different colour. In my opinion the visual effect "Unison Morph" is not the same as providing first and second laterally offset, differently coloured microimage arrays. If the skilled person were to apply the "Unison Morph" visual effect to the device in figures 6a-c then the circles and stars would change colour as the device is rotated or viewed from different viewpoints. It does not teach the skilled person to provide the circles and stars as different colours to one another.

71. Therefore, in my opinion claim 1 is not obvious in light of D2.

(3) What differences exist between the matter of D6 and the inventive concept of claim 1?

72. D6 does not disclose aligning the first and second microimage arrays with windows in a document substrate such that portions of the document substrate in between the windows hide the interface between the first and second microimage arrays.

(4) Are the differences obvious to a person skilled in the art

73. The requester argues that D6 discloses the provision of an interruption zone between two arrays of differently coloured microimages. The requester considers it obvious to replace the interruption zone with a printed layer or other overlay such as a window arrangement.

74. The observer argues that D6 does not in fact disclose as interruption zone and thus there is no interruption zone to replace. The observer states that to overprint the boundary between the two microimage arrays would only highlight the boundary which is contrary to the aim stated in paragraph [0014] of D6. Again the observer argues that overprinting is quite distinct from using a document substrate to conceal the interface between microimage arrays.

75. Figure 6 of D6 is reproduced below. The micromotif elements 82, 86 may be different colours to one another. I agree with the observer that there is no disclosure of an interruption zone between the star shaped elements 82 and the circle shaped elements 86. I can see no motivation for the skilled person to conceal the boundary between the two micromotif element arrays. D6 is silent on the issue of misregistration between microimage arrays. In my opinion the skilled person would not consider modifying the disclosure of D6 to include any form of concealment of the boundary between the two micromotif element arrays without the benefit of hindsight.

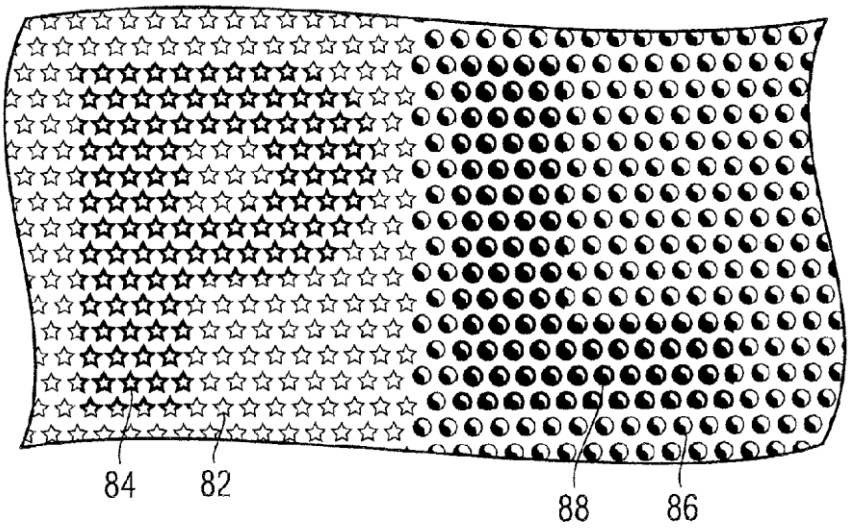


Fig. 6

76. Therefore, in my opinion claim 1 is not obvious in light of D6.

(3) What differences exist between the matter of D7 and the inventive concept of claim 1?

77. D7 does not disclose first and second arrays of microimage elements being of a different colour to one another. D7 also does not disclose aligning the first and second microimage arrays with windows in a document substrate such that portions of the document substrate in between the windows hide the interface between the first and second microimage arrays.

78. The requester has focussed on the embodiment shown in figure 22 which shows microstructures 242 separated by a diffraction grating 224. The requester asserts that the diffraction grating 224 forms an interruption zone between the arrays. The arrays may be of a different colour as a different embodiment with reference to figure 15 discloses that the printed microstructures may comprise two or more patterns having different colours. As with D6, the requester considers it obvious to replace the interruption zone with masking or overprinting.

79. The observer explains that the diffraction device 224 is not being used as an interruption zone to separate two differently coloured arrays to avoid misregistration. Rather it is provided to achieve an additional secure visual effect. As such the skilled person would not consider concealing it, or replacing it since this would reduce the security level achieved. The observer also argues that it is clear from the embodiment in figure 15 that the two microimages extend together across the whole device and are not formed in different areas thereof.

80. Figure 22 of D7 is reproduced below. It shows microstructures 242 separated by diffraction grating 224. D7 does disclose that the microstructures can comprise two or more patterns having different colours. However, as with D6 I agree with the observer. I can see no motivation for the skilled person to replace the diffraction grating with an overlay to conceal the boundary between the two microstructures. D7 is silent on the issue of misregistration between microimage arrays. In my opinion

the skilled person would not consider modifying the disclosure of D7 to include any form of concealment of the boundary between the two microstructures without the benefit of hindsight.

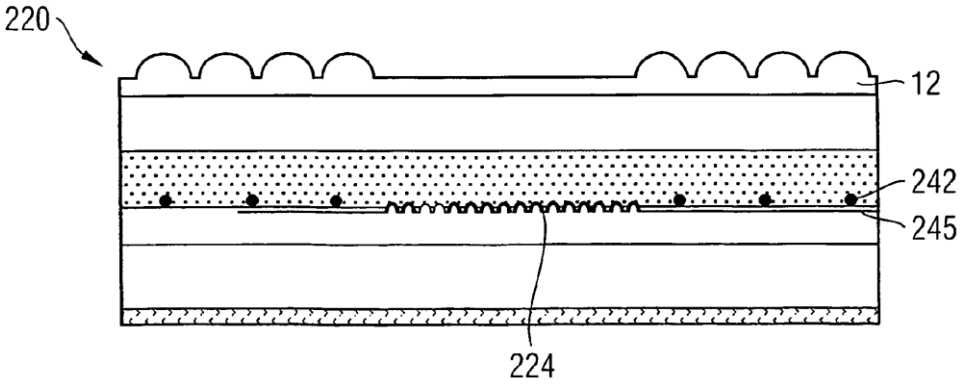


Fig. 22

81. Therefore, in my opinion claim 1 is not obvious in light of D7.

82. Having considered claim 6 to be novel in light of D2 I will now consider whether claim 6 is obvious.

(2) Identify the inventive concept of claim 6

83. The inventive concept of claim 6 lies in a method of manufacturing a moiré magnification device where laterally offset first and second microimage arrays are formed in the same plane and of a different colour.

(3) What differences exist between the matter of D2 and the inventive concept of claim 6?

84. As previously discussed I do not consider D2 to disclose laterally offset first and second arrays of microimage elements formed in the same plane and being of a different colour to one another.

(4) Are the differences obvious to a person skilled in the art

85. The argument, as before, centres on the embodiment in figures 6a-c and whether it is obvious to provide the circle and star elements in different colours. I believe I have answered this question above in paragraphs 69 and 70 when considering the obviousness of claim 1. I do not consider the differences between claim 6 and D2 to be obvious.

86. Therefore, in my opinion claim 6 is not obvious in light of D2.

Dependent claims

87. As I have found independent claims 1 and 6 to be novel and inventive, by view of their dependency so are claims 2-5 and 7-15.

Conclusion

88. I consider that the invention as defined by claims 1-15 is novel and inventive over the prior art.

Marc Collins
Examiner

NOTE

This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.