

OPINION UNDER SECTION 74A

Patent	GB2487996
Proprietor(s)	Jemella Limited
Exclusive Licensee	n/a
Requester	Dyson Technology Limited
Observer(s)	Marks & Clerk LLP
Date Opinion issued	04 June 2015

The request

1. The comptroller has been requested to issue an opinion as to whether GB2487996 (“the patent”) is novel and inventive in light eleven prior art documents.

Observations

2. Observations were received from Marks & Clerk LLP on behalf of the patentee and observations in reply were received from the requester.

The patent

3. Following an application filed on 19 August 2011, making no priority claim, the patent was granted with effect from 10 July 2013. It remains in force.
4. Entitled hair dryer, the patent is particularly concerned with a filter provided on the air inlet of the hair dryer. One embodiment of the hair dryer is described along with several variations of the air filter. Figure 2 shows the hair dryer in cross section, including metal filter plate 20 and Figures 3a to 4D show the filter plate in more detail, especially the various cross sections for the holes 23a to 23d in figures 4A to 4D:

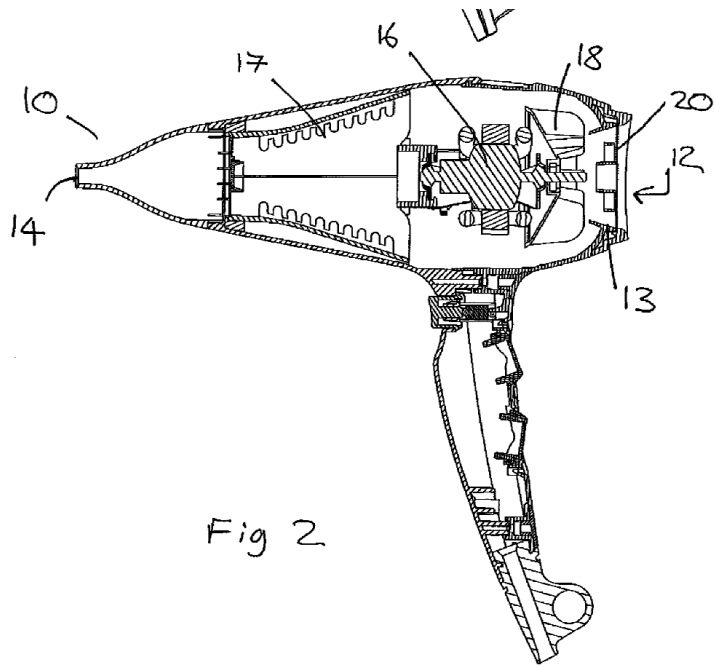


Fig 2

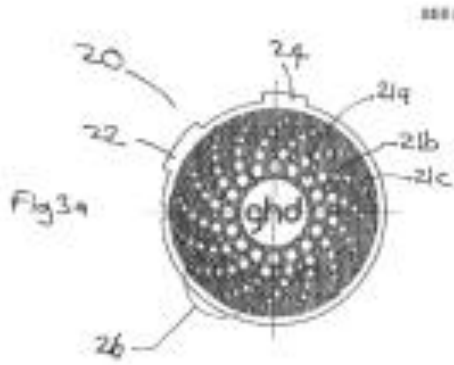


Fig 3a



Fig 3b

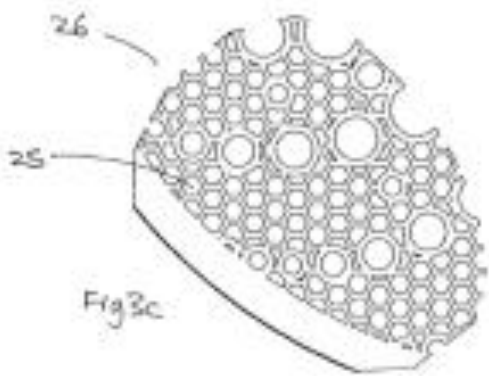


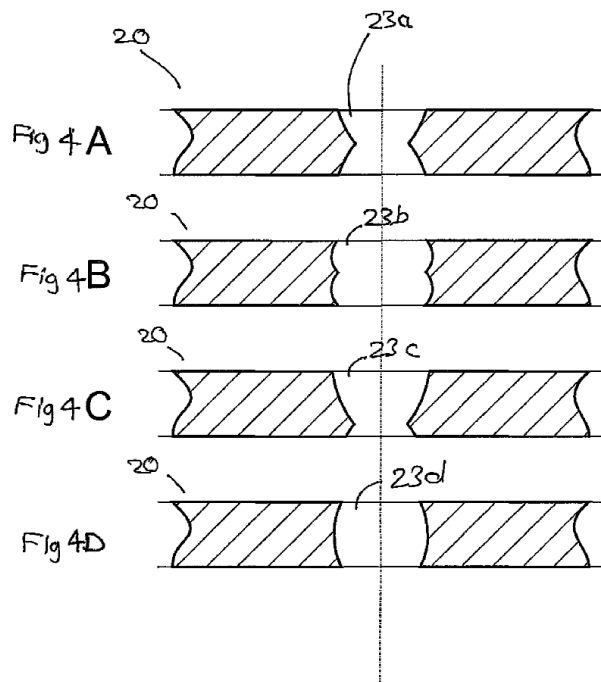
Fig 3c

SCALE 5:1



Fig 3d

SECTION B-B
SCALE 10:1



Claim construction

5. Before considering the documents put forward in the request I will need to construe the claims of the patent following the well known authority on claim construction which is *Kirin-Amgen and others v Hoechst Marion Roussel Limited and others* [2005] RPC 9. This requires that I put a purposive construction on the claims, interpret it in the light of the description and drawings as instructed by Section 125(1) and take account of the Protocol to Article 69 of the EPC. Simply put, I must decide what a person skilled in the art would have understood the patentee to have used the language of the claim to mean.
6. Section 125(1) of the Act states that:

For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.
7. And the Protocol on the Interpretation of Article 69 of the EPC (which corresponds to section 125(1)) states that:

Article 69 should not be interpreted in the sense that the extent of the protection conferred by a European patent is to be understood as that defined by the strict, literal meaning of the wording used in the claims, the description and drawings being employed only for the purpose of resolving an ambiguity found in the claims. Neither should it be interpreted in the

sense that the claims serve only as a guideline and that the actual protection conferred may extend to what, from a consideration of the description and drawings by a person skilled in the art, the patentee has contemplated. On the contrary, it is to be interpreted as defining a position between these extremes which combines a fair protection for the patentee with a reasonable degree of certainty for third parties.

8. There are two independent claims, apparatus claim 1 and method claim 15, as follows:

1. A hair dryer having a hand-held housing comprising an air inlet, an air outlet, a motor between said air inlet and said air outlet to draw air in from said air inlet and drive air out from said air outlet, and a heating element located in said air flow between said air inlet and said air outlet, wherein said hair dryer further comprises a filter on said air inlet, wherein said filter comprises a flat metal filter plate bearing a plurality of holes, wherein at least some of said holes have a maximum lateral dimension of less than 1.5mm and wherein walls of said holes through a thickness of said filter plate are at least partially concave.

15. A method of filtering air for a hair dryer, the hair dryer having a hand-held housing comprising an air inlet, an air outlet, and a motor between said air inlet and said air outlet; the method comprising: forming a metal filter plate by acid etching a plurality of holes in a flat metal plate such that walls of said holes are at least partially concave, and wherein at least some of said holes have a maximum lateral dimension of less than 1.5mm; and using said metal filter plate to filter air drawn into said hair dryer.

9. Thus, the invention is characterised by a flat metal filter plate bearing a plurality of holes, at least some of which holes have a maximum lateral dimension of less than 1.5mm and walls of said holes are at least partially concave, as shown in the embodiments of figures 4A to 4D above.

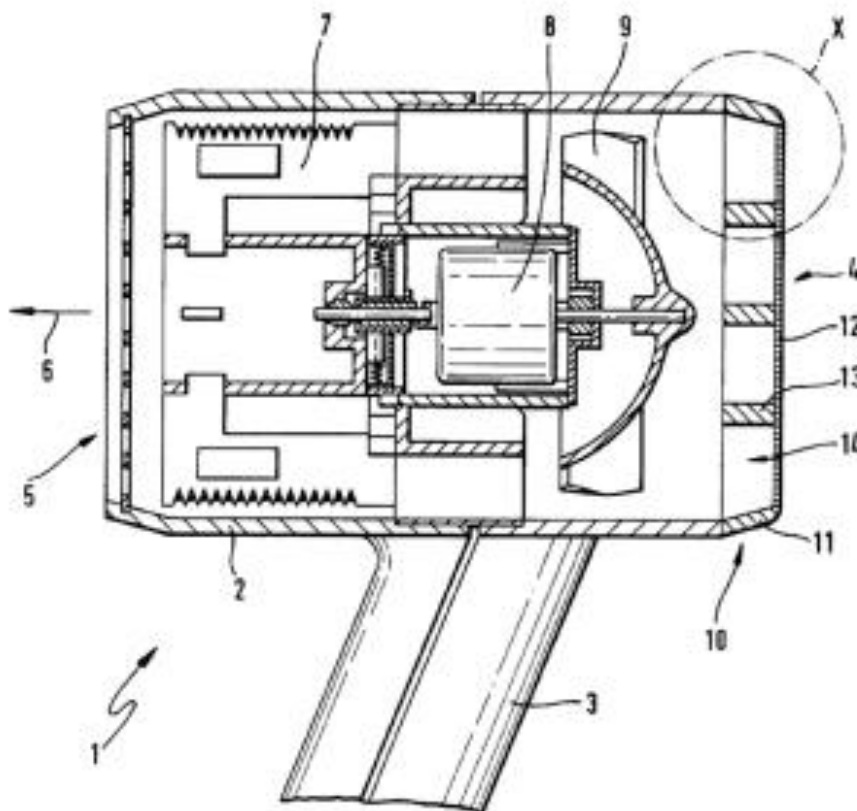
Prior art

10. The request refers to eleven documents, including seven patent documents, three European Community design registrations and two passages from a text book. Two of the patent documents are acknowledged in the request as having been considered during the pre-grant examination of the patent application. Both of these documents were cited during examination in support of novelty objections to the application. In the request both documents are used to support arguments that the invention claimed in the patent is not inventive. One of the documents is also used to attack the patent for lack of novelty. Ordinarily an opinion would not revisit an issue that has previously been considered, including considered during the pre-grant examination process. In this case, as I shall come to below, the novelty attack actually relies on the patent document and references to the two passages from a text book. Consequently I do not believe that the argument in question has been considered previously and I shall give my opinion.

Novelty

11. The request alleges that the invention claimed in the patent is not novel in light of US 5810911. US 5810911 was published on 22 September 1998, well before the filing date of the patent. It discloses a filter device for a hair care appliance such as a hair dryer. Figure 1 shows a hairdryer 1 with an air entrance opening or air inlet 4 and an air exit opening or air outlet 5, a heating device 7 and a filter element 12 which may be “a perforated foil having essentially the same functional and structural features as described in the foregoing, for example, hole size and surface structure” (see column 4 lines 4 to 6). The foregoing refers to an alternative filter configuration using screening fabric with a mesh width between 80µm and 1200µm (see column 2 line 46 and column 5 lines 66 and 67).

Fig. 1

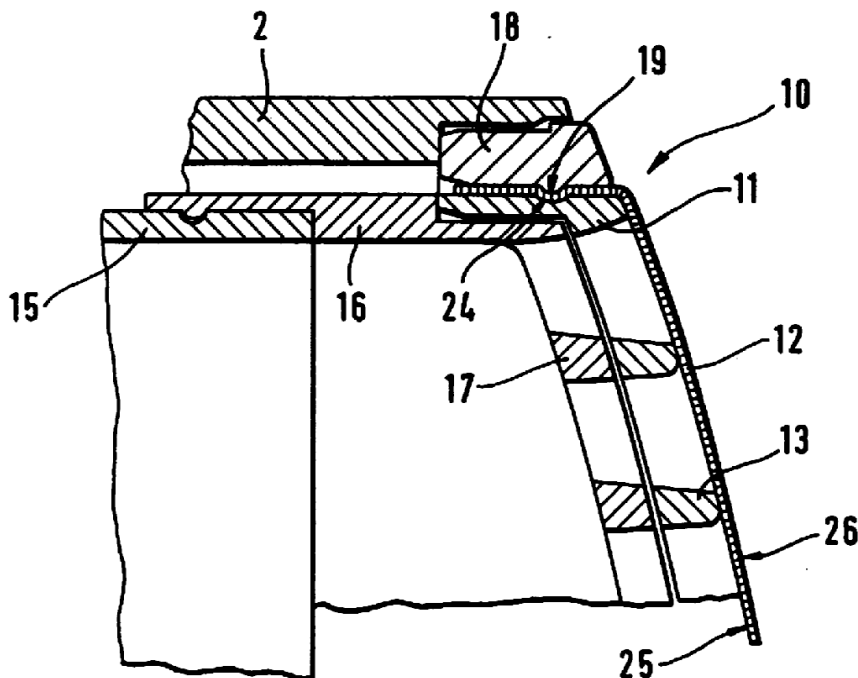


12. The request asserts that the perforated metal foil in US 5810911 corresponds with the “flat metal filter plate” of the independent claims in the patent. The observations filed on behalf of the patentee suggest that this is not the case for a number of reasons.
13. Firstly they suggest that the filter in US 5810911 is flexible and therefore cannot form a metal plate which is “generally a self-supporting structure”. The term “flexible” is used in claims 1, 11 and 68 of US 5810911, but nowhere else. There are clearly several configurations of filter element disclosed in US 5810911 and in my view the screening fabric filter element would be flexible. It is not stated that the metal foil filter would also be flexible. Whilst independent claims 1, 11 and 68 all require a

flexible filter element, independent claim 12 refers explicitly to a perforated foil filter element, but makes no mention of flexibility. Similarly independent claims 38 and 54 do not require the filter element to be flexible. Thus I take it that the filter element in US 5810911 need not be flexible. I agree that plate implies a self supporting structure, but I also believe that metal foil implies a self supporting structure.

14. Secondly the observations refer to the detail in figure 2, below, showing a filter element which is not flat, since there is a bend at the edge. In my view the margin inside clamping ring 18 shown in figure 2 does not constitute the filter element, it is the major part of the screening fabric or foil that constitutes the filter element. However, that major part of the filter in figure 2 is also clearly domed and not flat. That said, the filter element 12 in figure 1 of US 5810911, above, is clearly flat and does not show a bend at the edge.

Fig. 2



15. The observations also query the size of the holes disclosed in US 5810911. They suggest that the dimensions refer only to an alternative configuration of the mesh and not what is described as "*the foregoing*". On my reading of US 5810911 the range of dimensions referred to is suitable for all of the configurations of the filter element disclosed. I take mesh width to refer to the size of holes in the mesh since the specification refers separately to the diameter of the threads forming the mesh. Since 80-1200 μ m is less than 1.5mm, in my view the hole dimension, together with most of the features of claims 1 and 15, is explicitly disclosed in US 5810911.
16. There is one further question over US 5810911. The request identifies no explicit disclosure regarding the shape of the holes in the filter element of US 5810911. I am referred to the following passage between lines 10 and 14 of column 4: "*it is particularly advantageous for a perforated foil to be made of metal because metal is particularly well suited for the quantity production of perforated foils using, for example, an etching or photoresist process.*". The request goes on to suggest that

creating the filter in US 5810911 using an etching process “*inevitably ... would produce a metal filter plate having holes with walls through a thickness of the filter plate which are at least partially concave*”. That the result is inevitable is said to be shown by excerpts from the text book Chemical Milling – The Technology of Cutting Materials by Etching by W. T. Harris (“Harris”), especially pages 53 and 194. I take the argument to be that I should use Harris merely to construe the meaning of terms used in US 5810911, rather than combining their disclosures to question the novelty of the claims.

17. The observations for the patentee disagree with this in several ways. Firstly they point out that “*an etching or photoresist process*.” is only offered as an example and thus would not inevitably be used to form the holes in the foil. They then argue that “*an etching or photoresist process*.” is not necessarily one of the chemical milling processes described in Harris and in any event such processes can produce straight walls, referring to pages 182 to 184 of Harris. Finally they argue that combining disclosures is impermissible for a novelty attack and is more properly an inventive step attack.
18. Whilst it is true that the processes in US 5810911 are examples, they are nevertheless disclosed. I disagree that one can draw any meaningful distinction between photochemical milling and “*an etching or photoresist process*.”.
19. However, from pages 182 to 184 of Harris it seems that such a photochemical milling process can indeed produce a so-called straight wall if the etching process is continued after a hole has broken through a workpiece. Thus I take it that both concave edges and straight walls to holes are possible results of photochemical milling and neither is inevitable.
20. Had concave edges to holes been an inevitable result of photochemical milling, I might have interpreted the phrase “*an etching or photoresist process*.” from US 5810911 used in the context of hole formation as including concave edges by inevitable implication. As it is, I do not interpret the phrase in that way and I do not consider that US 5810911 anticipates claim 1.
21. Independent method claim 15 is very similar to claim 1 and what I have said above applies equally to both independent claims. Claim 15 however, differs from claim 1 in that it specifies acid etching is to be used to form the holes. There is no disclosure in US 5810911 of acid etching, only “*an etching or photoresist process*.”.
22. In my view the invention of claims 1 and 15 of the patent is not anticipated by US 5810911.

Inventive step

23. Whilst the request makes no inventive step argument against claims 1 and 15 based upon a combination of US 5810911 and Harris, the observations do provide some comments and I feel that I should go on to consider the question of inventive step, having dismissed the novelty argument above. I will then go on to consider the inventive step arguments raised in the request.

24. 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.*

25. The request suggests that the person skilled in the art would in fact be a team made up from a person working in fluid dynamics and a metal processing technician. The observations for the patentee suggest that knowledge of fluid dynamics is too specialised and esoteric for hair dryers and that electronics are more important. I agree that the skilled person should properly be considered to be a team and would suggest that its members would be skilled and knowledgeable in the design and construction of hair dryers and their components including, amongst other things, air flow considerations and methods of producing those components parts, such as filters and acid spray etching.

26. The request describes Harris as part of the state of the art and “*within the aforementioned field of expertise of the skilled person*”. Published in 1976, Harris was certainly part of the state of the art at the priority date in the Section 2(2) sense. I am not clear if the request intends to place Harris in the common general knowledge of the skilled person. The observations for the patentee definitely deny any such suggestion. They place photochemical milling outside the expertise of skilled person, since hair dryer technology would be his field. They also suggest that a disclosure in a text book is insufficient to prove common general knowledge, directing me to paragraphs 3.32 and 3.33 of the Manual of Patent Practice. In fact, although the passages are highly relevant to the question of common general knowledge, they are silent on the standing of text books, referring rather to patent specifications, scientific journals and papers.

27. Since I believe that the skilled team would be knowledgeable about photochemical milling I disagree with the suggestion that Harris cannot be common general knowledge simply for the reason that it is not concerned with hair dryers. That of course does not automatically make Harris common general knowledge. Neither the requester nor the patentee has adduced evidence on the question of common general knowledges. However, it seems to me that the common general knowledge of the skilled team would include knowledge of photochemical milling processes. I take it that Harris merely exemplifies what was commonly known in that field at the time it was published. There is no suggestion before me that the technology has changed hugely since then and I am prepared to take it that Harris does indeed exemplify part of the common general knowledge of the skilled team.

28. What then is the difference between US 5810911 and the inventive concept of claim

1? I came to the view above that all of the integers of claim 1 can be found in US 5810911 apart from the concave hole walls. It seems from Harris that such concave walls to holes produced by photochemical milling are conventional, although not inevitable. Thus in my view the skilled person would not think it inventive to specify a form of hole where that form is conventional. Consequently it is my view that claim 1 would be obvious to the skilled team in light of US 5810911 and common general knowledge. The observations suggest that the skilled person would not use photochemical milling to produce filters for mass-produced hair dryers as Harris teaches that such processes are suited to small numbers of parts rather than volume manufacture. I am unconvinced by this argument. US 5810911 already shows that it was known to produce a filter for a hair dryer using an etching or photoresist process, the question therefore is not the suitability of the process, but whether the form of wall in the holes formed would be inventive.

29. Once again my comments above regarding claim 1 also apply to claim 15. Claim 15 includes the additional requirement that acid etching is to be used to form the holes. As I said above there is no disclosure in US 5810911 of acid etching. Based upon Harris I believe that acid etching is part of the common general knowledge of the skilled team and hence it is my view that claim 15 is also obvious.
30. As I have said, the request made no argument regarding the inventive step of claim 1 in light of US 5810911 and Harris or common general knowledge. However, there are inventive step arguments regarding some of the dependent claims based upon this combination.
31. Claim 2, requiring the wall of a hole to comprise at least one concave section, essentially repeats a requirement of claim 1 and is also not inventive in light of US 5810911 and common general knowledge.
32. Claim 3 requires the wall to comprise a pair of sections, a first concave section and a second substantially straight section. Despite the argument in the request I can find no evidence of such a wall in US 5810911 or Harris. My attention is drawn to fig. 8.19(a) in Harris, but this appears to show a conventional bevel edge produced by single sided etching and not an edge having the two sections of claim 3. Claim 3 is inventive.
33. As an alternative argument the request suggests that claim 3 is obvious in light of a combination of US 5810911 and another patent document, US 3359192. Figure 7 of US 3359192 is said to show holes with the two sections of claim 3. Whilst one section is certainly concave, there is no explicit disclosure of a straight section and indeed from figures 1 to 6, which show the stages in producing the finished article shown in figure 7, it seems that both sections are probably concave. However, this is beside the point. The request gives me no reason why the skilled person or team would consider these two patent documents together. In the absence of any justification for combining the documents I cannot reasonably do so.
34. The request goes on to combine various pairs of patent or registered design documents together to show that several claims are not inventive. Once again there is no argument offered as to why the skilled person would consider these documents together and I cannot reasonably combine them. I will not consider such combinations further.

35. However, there remain some inventive step arguments to consider which do not rely on impermissible combinations of documents. Claim 5 requires at least some of the holes to have a maximum lateral dimension of less than 1 mm and a thickness of the filter plate to be less than 0.5mm. US 5810911 discloses a mesh width of 80-1200µm and a foil thickness smaller than or equal to 600µm. These dimensions appear to meet the requirements of claim 5 which is therefore not inventive. Claim 6 requires the motor to be coupled to an impeller. This is clearly shown in US 5810911 and hence claim 6 is also not inventive.
36. Claim 13 requires “*a filter mount for mounting said filter, wherein said filter mount is user-detachable from said hair dryer, and wherein said filter plate is user-detachable from said filter mount.*”. All of these features are disclosed in US 5810911, especially column 5 and figure 2. Thus claim 13 is not inventive.
37. Claim 14 requires the holes to be formed by acid spray etching. US 5810911 only refers to an etching or photoresist process. However, in light of Harris I believe that acid spray etching would be part of the common general knowledge of the skilled team and its use to form the holes of claim 14 would be obvious.
38. Previously I have discounted the arguments from the request based upon combinations of prior art documents. There is one other combination upon which I should comment. The patent begins with a section describing the field of the invention which includes a description of features of a typical hair dryer. The request suggests that this in combination with EP 0476664 or GB 1202416 demonstrates that claim 1 was obvious. The argument seems to be that the passage from the patent represents common general knowledge and this seems to me to be reasonable. EP 0476664 and GB 1202416 are concerned with chemical milling and make no mention of hair dryers. They both show holes formed in workpieces, those holes having concave walls. In the case of GB 1202416 the point of the disclosure is that the concave walls are subsequently worked to remove the concave surfaces. So the differences between EP 0476664 or GB 1202416 and the inventive concept of claim 1 include almost all of the requirements of claim 1 and in the case of GB 1202416 also the retention of the concave wall of the holes. To my mind GB 1202416 teaches away from the concave walls of the inventive concept of claim 1, which would therefore not be obvious. EP 0476664 is specifically concerned with creating holes for a shadow mask to be used in a cathode ray tube and dimensions of 145µm and 75µm for the holes are discussed. So the skilled man presented with EP 0476664 would have to consider that using the method disclosed to make holes significantly larger than those disclosed would be obvious and then that applying the product of the method so-modified to a hair dryer filter would also be obvious. In addition the features described as typical of a hair dryer in the patent include a filter in the form of a plastic injection moulding or a metal mesh, but not a plate, as required by claim 1. In my view all of these differences together would not be obvious to the skilled team.

Opinion

39. It is my view that claims 1 and 15 are novel in light of US 5810911. However, to my mind claims 1, 2, 5, 6, 13, 14 and 15 are not inventive in light of US 5810911 and common general knowledge.

Application for review

40. Under section 74B and rule 98, the proprietor may, within three months of the date of issue of this opinion, apply to the comptroller for a review of the opinion.

Karl Whitfield
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.