

**OPINION UNDER SECTION 74A**

Patent	<b>GB 2411367</b>
Proprietor(s)	Nationwide Filter Company (Specialist Products)
Exclusive Licensee	
Requester	Mr Berni Hambleton, on 5 December 2008
Observer(s)	
Date Opinion issued	3 March 2009

**The request**

1. The comptroller has been requested to issue an opinion as to whether claims of patent GB2411367 ("the patent") are valid in light of prior art patent documents FR2140536 and US6045600. The request suggests that claims 1 and 5 are not novel and claims 1 to 5 are obvious in light of the prior art and common general knowledge. The request also refers to several matters of clarity in claim 1 in the context of construing that claim.
2. The two prior art specifications were cited in the International Search Report on the equivalent PCT application WO2005/079951 and were considered by the UK examiner during prosecution of the present application in the UK Office, but in relation to a different version of the claims. Accordingly I consider it appropriate to proceed with the assessment for this Opinion and not refuse to do so for the reason that the matter has already been sufficiently considered.

**Observations**

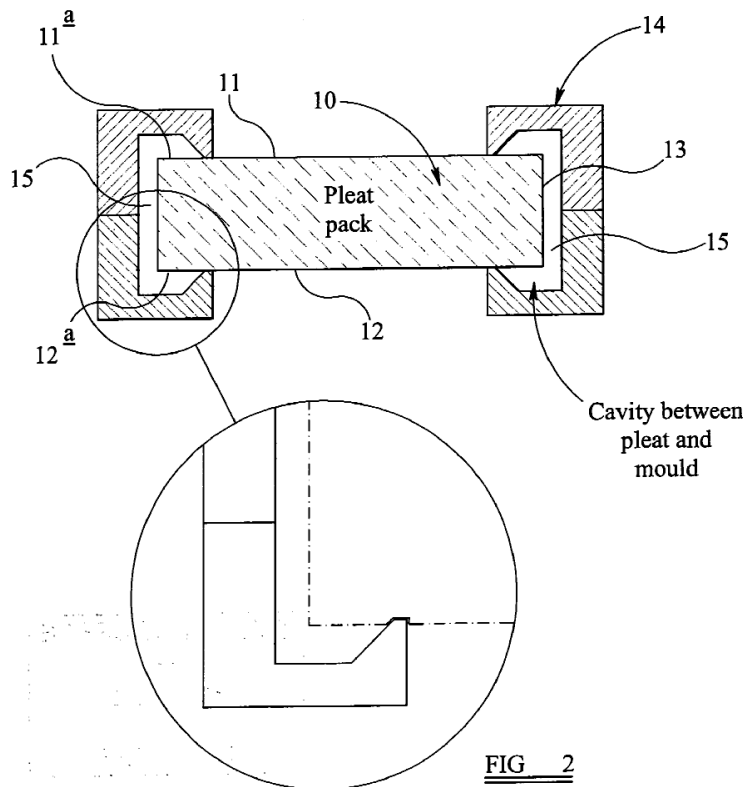
3. Observations in response to the request were received from agents acting for the patentee. No observations were received in reply. The observations referred to a request to amend the patent under Section 27 filed on the same day as the observations. The proposed amendment seeks to combine claims 1 and 2 as granted. The observations then proceed on the basis of the specification as granted and concentrate on

the argument that claim 2 as granted is obvious in light of the prior art.

4. The request to amend the patent has not been considered at the time of writing this opinion. Consequently it seems appropriate for me to issue a non-binding opinion on the validity of the unamended claims.

### The patent

5. GB2411367 was filed as application GB0403413.8 on 17 February 2004 with no priority claim, it was granted on 4 June 2008 and remains in force.
6. The granted patent is concerned with a method of forming a filter unit of the type comprising a filter element located in a peripheral encasement frame with a seal between the periphery of the filter element and the frame. One specific embodiment is described and illustrated, showing a filter element 10 with marginal regions 11a, 12a on the front and rear faces 11, 12 of the element, a mould 14 defining a mould cavity 15 and having tapering projections which bite into the marginal regions of the filter element, the mould cavity 15 to be filled with a liquid curable resin system 16, which is then to be converted to a solid and the mould subsequently removed to produce a filter unit:



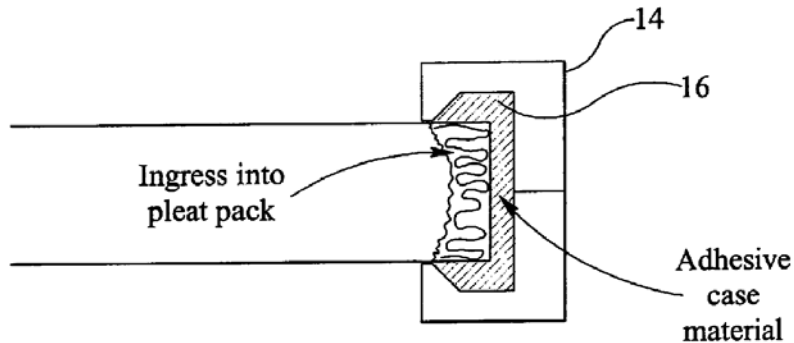


FIG 3

7. The granted claims include a single independent claim, claim 1, and a number of dependent claims, of which this opinion concerns claims 1 to 5, as follows:
  1. A method of forming a filter unit comprised of a filter element and an encircling peripheral encasement frame to which the filter element is sealed comprising the steps of:
    - (i) providing a filter element having front and rear faces and a bounding peripheral edge,
    - (ii) locating around the peripheral edge of the element a mould unit which seals against peripheral regions of the front and rear faces and which together with the peripheral edge and marginal regions of the of the front and rear faces of the filter element defines a mould cavity, said mould unit having tapering projections which bite into said peripheral regions of the of the front and rear faces so as to cause a slight depression therein,
    - (iii) filling the mould cavity with a liquid curable resin system,
    - (iv) effecting conversion of the liquid to a solid, and
    - (v) removing the mould thereby producing the filter element.
  2. A method as claimed in any one of claims 1 wherein the filter element is pleated.
  3. A method as claimed in any one of claims 1 to 2 wherein the filter element is a H.E.P.A. filter element.
  4. A method as claimed in any one of claims 1 to 3 wherein the filter element comprises U.L.P.A. (Ultra Low Penetration Air) media, ASHRAE media or a ePTFE laminate.

5. *A method as claimed in any one of claims 1 to 4 wherein the filter element comprises a foam, pad or activated carbon.*

### **Claim construction**

8. Before considering the documents put forward in the request I need to construe the claims of the patent, following the standard principles of claim construction set out in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9. I should put a purposive construction on the claims and follow section 125(1) of the Patents Act 1977 and the Protocol on the Interpretation of Article 69 of the European Patent Convention by interpreting the claims in the light of the description and drawings. In other words, the question is always what the person skilled in the art would have understood the patentee to be using the language of the claim to mean.
9. Turning first to the question of the skilled person and his knowledge. In paragraph 14, in the context of the obviousness of the claims, the opinion request suggests that the skilled person will be familiar with filters and their methods of manufacture, including suitable filter media such as those mentioned in the patent, including H.E.P.A. filter elements and U.L.P.A. filters and ASHREA media. The request goes on to assert that the skilled person would have knowledge of materials and methods for encasing the filter media, such as “spinning” and moulding. It also says that his knowledge would include a filter comprising a filter element and an encircling frame which is made by locating a peripheral edge of the filter element in a mould which, together with the peripheral edge and marginal regions of the front and rear faces of the filter element, defines a mould cavity which is then filled with a liquid moulding material, which could readily be a curable resin system and which hardens to a solid, after which the filter unit is removed from the mould in readiness for use. The request provides no basis for the knowledge of the skilled person, except to say that methods such as those exemplified in patent document US6045600 would be known.
10. The observations from the agents for the patentee make no comments on the knowledge of the skilled person. However, on pages 1 and 2 of the description the patent itself acknowledges a number of things as known. These include filter units formed of a filter element, which may be of a number of different types, located in a close fitting, preformed peripheral encasement frame with a seal between the periphery of the filter element and the frame formed by applying a sealing composition to the periphery of the filter element. All of this therefore seems to be common ground between the requester and the patentee and it seems

reasonable for me also to suppose that this would be part of the common general knowledge of the skilled person.

11. However, it does not appear to be common ground between the requester and the patentee that the skilled person would have knowledge of moulding a peripheral frame on to a filter element, note the reference to a preformed frame on page 1 of the patent.
12. Nevertheless, in my view among the common general knowledge of a person skilled in the art of filters and their manufacture would be a knowledge of moulding using dies or moulds which define a cavity into which a liquid moulding material can be introduced, after which the material hardens or solidifies and the mould is removed to produce a finished article. I come to this view on the basis that such moulding techniques are so very well known across such a large variety of fields of application.
13. In construing the claims this is only an issue concerning the meaning of the phrase "liquid curable resin system" in claim 1, the clarity of which is queried in the request. In fact both the request and the observations from the agent for the patentee agree that the phrase encompasses "liquid, solidifiable moulding composition" and "molten thermoplastic resin that solidifies on cooling".
14. The request also queries the term "slight" which qualifies the depression required in claim 1. By contrast the observations from the agents for the patentee see no difficulty with the term and refer to figure 2 of the patent illustrating the extent of the depression in question.
15. To my mind the skilled person would have no difficulty understanding the claims on plain reading. I agree with the common interpretation that the requester and the agents for the patentee place on the phrase "liquid curable resin system" and I believe that the term "slight" would be well understood to mean small or of limited extent. One small point arises in claim 5, in which the filter element is said to comprise "a foam, pad or activated carbon". Since a pad is not a type of filter element I have assumed that the comma was not intended and that claim 5 requires the filter element to comprise either a foam pad or activated carbon.



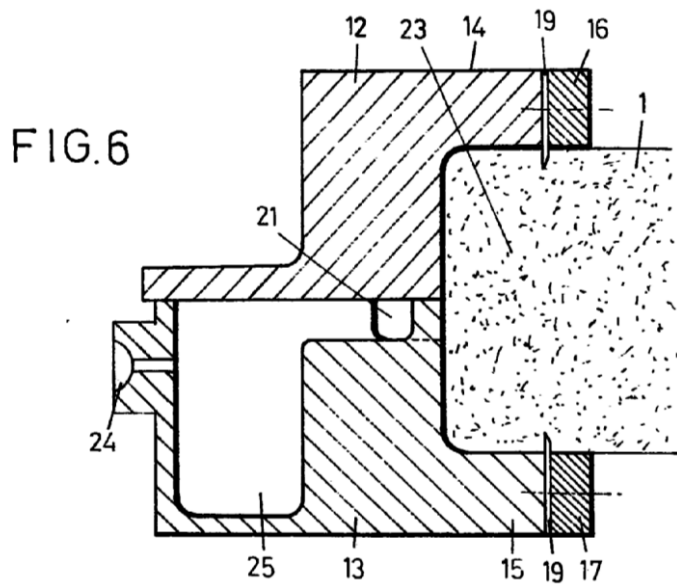


FIG. 7

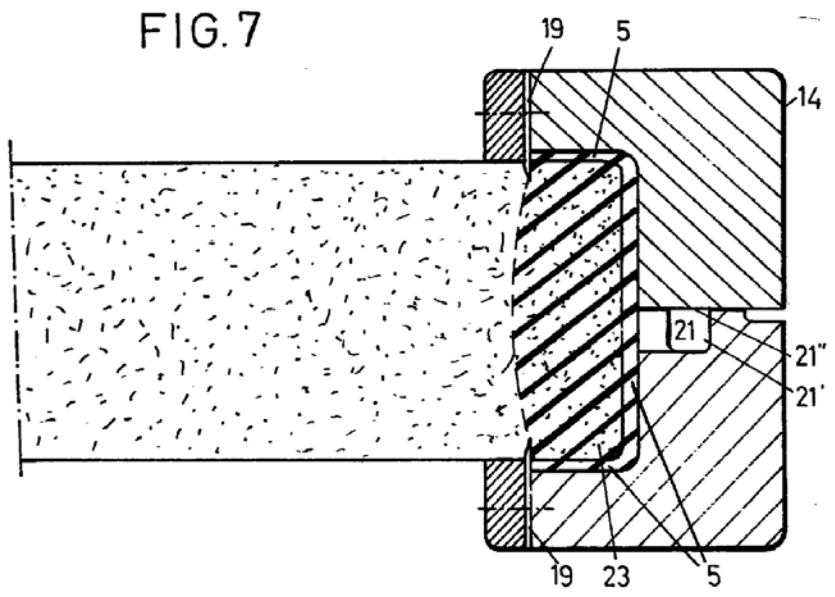
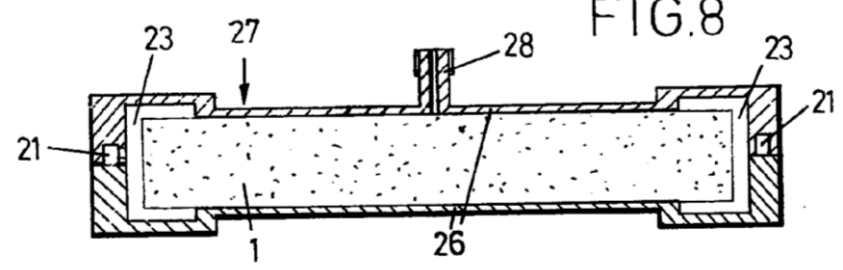


FIG. 8



17. The second prior art document referred to in the request is patent document US6045600, published on 4 April 2000, once again well before the earliest date of the patent. The document shows a filter cartridge and a method for its manufacture. The filter medium 1 is

formed from a pleated accordion fold pack 7 and is surrounded by a frame 4 and a seal 2. The frame 4 surrounds the edges of the filter medium 1 and is made by inserting the filter medium 1 and seal 2 into a die 9 (only one half of which is apparently illustrated) and injecting a liquified polymer material into a gap 3 so as to sealingly enclose the edges 5 and 6 of the filter medium 1 and seal 2, after which the liquefied polymer hardens to form frame 4.

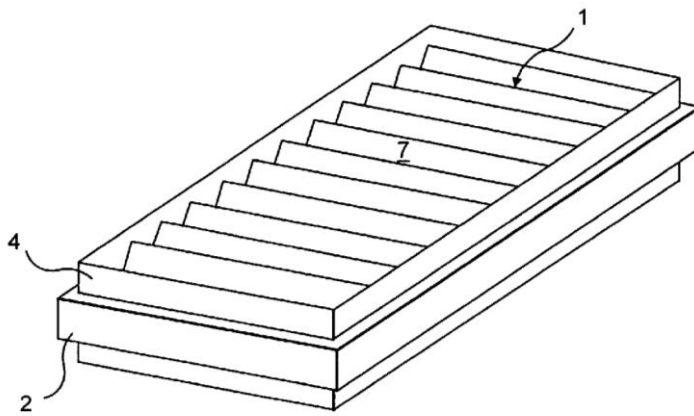


FIG. 1

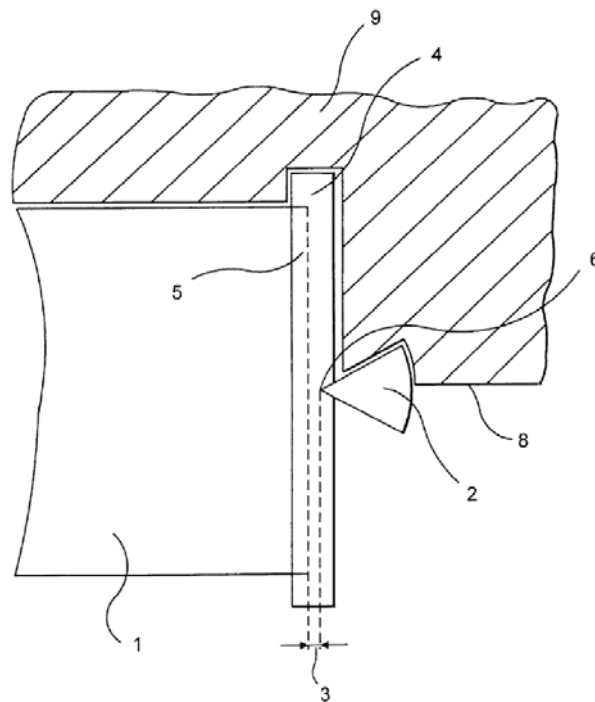


FIG. 2

## Validity – novelty

18. FR2140536 (see figures reproduced above and for example claims 1 to 4 and 15) shows a filter unit comprised of a filter element or porous body 1 and a frame 5 encircling and sealing the periphery of the filter element. It also shows the filter element located between mould halves 12 and 13, which define a mould cavity 23 and which include strip blades 19 which penetrate the filter element to a certain depth once the mould halves are closed (c.f. step (ii) of claim 1 of the patent). The blades 19 are shown as sharp edges which are said to penetrate the filter element. That differs slightly from what is shown in the embodiment of the patent where the projections are shown apparently producing a deflection in the surface material of the filter medium. However the patent does not discuss precisely how the tapering projections bite into the front and rear faces and consequently to my mind the arrangement in FR2140536 meets the requirement for “tapering projections that bite into said peripheral regions of the front and rear faces so as to cause a slight depression therein”. The mould is then filled with a liquid curable material such as an expanding elastomer (c.f. step (iii) of claim 1 of the patent), the substance is then allowed to harden (c.f. step (iv) of claim 1 of the patent) and the filter unit is removed from the mould (c.f. step (v) of claim 1 of the patent). Thus FR2140536 discloses all the requirements of claim 1, which is therefore not novel.
19. Claim 5 requires the filter element to comprise a foam pad or activated carbon. The filter element of FR2140536 is described on page 1 of that document as being composed of particles, fibres or expanded material. Both foam and activated carbon are explicitly mentioned and consequently FR2140536 discloses both alternative requirements of claim 5, which is therefore not novel when dependent on claim 1.

## Validity – obviousness

20. The request sets out a case that claims 1 to 5 of the patent are obvious in light of the prior art in terms similar to the four step test set out in *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59A and restated and elaborated upon in *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588, although the request makes no explicit reference to *Windsurfing* or *Pozzoli*. I note that the observations from the agents for the patentee offer no comments on the obviousness of claim 1, only the obviousness of claim 2. I shall follow the *Pozzoli* approach in forming my opinion. The four steps of the *Windsurfing* test have been reformulated in *Pozzoli* as follows:

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

21. I have already discussed the skilled person and his knowledge and construed the claims, see above. To reiterate, in essence I have said that the claims are clear on plain reading.
22. I must now identify the differences between the claims and the matter cited as forming part of the “state of the art”. The request begins from FR2140536, but the observations from the agents for the patentee identify US6045600 as the closest prior art, albeit closest to claim 2. Since no observations are offered by the agents for the patentee on the obviousness of claim 1, I shall treat FR2140536 as the matter cited against claim 1, but I shall consider both alternatives of FR2140536 or US6045600 as the matter cited against claim 2.
23. I can identify no differences between FR2140536 and claim 1. Given my conclusion above regarding novelty this is inevitable. Consequently claim 1 would have been obvious to the person skilled in the art.
24. Turning now to the differences between FR2140536 and claim 2, which requires the filter element of claim 1 to be pleated. A variety of filter types are identified on page 1 of FR2140536 including agglomerated particles, agglomerated fibres or expanded material with open cells, such as plastic foam. However, a pleated filter element is not mentioned in FR2140536 and that is the difference between claim 2 and FR2140536. In effect the final step of the *Windsurfing* approach is to ask: would it have been obvious for the skilled person to substitute the various types of filter element in FR2140536 with a further filter element, specifically a pleated element? The request asserts that such filter is well known in view of the patent and also US6045600. To my mind US6045600 itself is not well known, but it does illustrate a pleated filter element, something which is well known. I rely on the description of the background art on pages 1 and 2 of the patent for my conclusion here. The observations from the agents for the patentee state that there is no reason to substitute pleated media for the filter element in FR2140536. The reason for this statement seems to be that a filter of agglomerated

particles is quite different from pleated filter media. However, the differences between agglomerated particles and pleated media and especially the relevance of those differences to moulding a frame around a filter element are not explored in the observations. In any event, and as I have noted above, FR2140536 discloses other types of filter element than agglomerated particles. Consequently I do not agree with the conclusion of the agents for the patentee that substituting pleated media would not have been obvious to the skilled person. For these reasons I believe that it would have required no inventive ingenuity to employ any one of a number of well known filter media types in the filter unit and so it would have been obvious for the skilled man to employ a pleated filter element in the method shown in FR2140536 and claim 2 would have been obvious.

25. The observations from the agents for the patentee suggest that FR2140536 is not the correct starting point for considering the obviousness of claim 2 and that US6045600 is the closest of the cited prior art documents. I do not agree that any prior art document selected as the matter cited could be described as correct or incorrect in the context of the *Windsurfing/Pozzoli* test. Nevertheless I will consider the third and fourth steps again, treating US6045600 as the matter cited. The only difference between US6045600 and claim 2 is the requirement in step (ii) of claim 1 that the mould unit should have tapering projections which bite into the peripheral regions of the of the front and rear faces so as to cause a slight depression therein. I have no reason to suppose that such tapering projections would be common general knowledge for the skilled person. Such projections are shown in FR2140536, but in itself this disclosure was not part of the common general knowledge of the skilled person. Therefore I agree with the agents for the patentee that it would not have been obvious for the skilled man to modify the mould unit in US6045600 to include the tapering projections shown in FR2140536. However, this conclusion does not change my earlier view that claim 2 was obvious in light of FR2140536.
26. The request goes on to suggest that claims 3 and 4 were obvious. Those claims require the filter element to be a H.E.P.A. filter element or U.L.P.A. (Ultra Low Penetration Air) media, ASHRAE media or a ePTFE laminate. The differences between claims 3 and 4 and FR2140536 are the various specific filter media required by those claims. On pages 1 and 2 the patent itself acknowledges that H.E.P.A. filter elements and U.L.P.A. filters and ASHREA media were all known. The request is silent regarding how well known the ePTFE laminate alternative in claim 4 would have been and the patent does not mention such a laminate in the context of background art. I believe that claims 3 or 4 would have been obvious whether dependent on claim 1, 2 or 3, since there appears to be no material difference in using one or another well known type of

filter media in the filter unit required by claim 1 and the alternative filter media identified in claims 3 and 4 were well known, apart from ePTFE laminates. Since such laminates are not an essential requirement of claim 4, that claim would have been obvious.

27. There are no differences between FR2140536 and claim 5 when dependent on claim 1, since FR2140536 discloses both activated charcoal and foam as alternative filter media, as already noted. Consequently it is my view that claim 5 would have been obvious to the skilled person

### **Opinion**

28. I conclude that claims 1 and 5 are not novel in light of the cited prior art and that claims 1 to 5 would have been obvious to a person skilled in the art.

### **Application for review**

29. 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.

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### **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.*

Karl Whitfield  
Examiner