

OPINION UNDER SECTION 74A

Patent	EP (UK) 3141374 B1
Proprietor(s)	Graf Synergy S.r.L.
Exclusive Licensee	
Requester	Graf Synergy S.r.L.
Observer(s)	
Date Opinion issued	14 August 2019

The Request

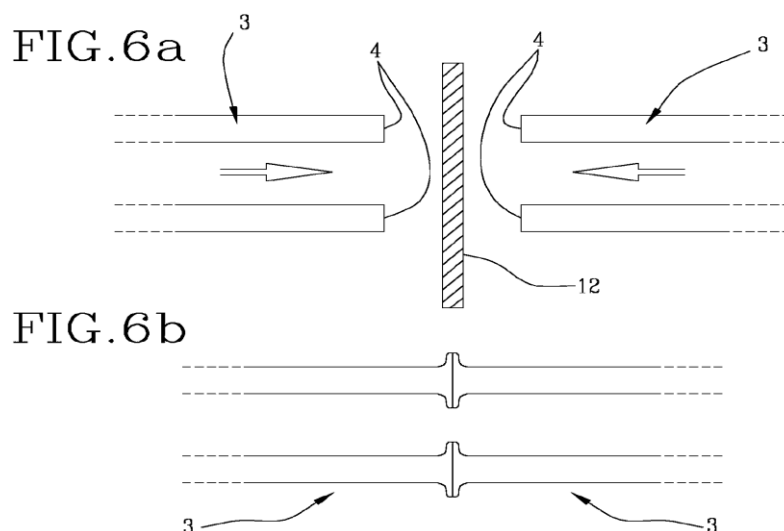
1. The Comptroller has been requested by Graf Synergy S.r.L. (the requester) to issue an Opinion on whether their patent EP (UK) 3141374 B1 (the Patent) is infringed by the hypothetical process outlined in the request.
2. An opinion is sought by the requester on the following questions:
 - (1) whether the use of, or offering the use of, the alleged infringing process in the UK without consent of the proprietor would be an infringement of claims 1-4 of the Patent under Section 60(1)(b);
 - (2) whether the supply of a complete set of machinery in the UK for performing the process when it is clear to the supplier that the machinery is intended to put the invention into effect in the UK would also be an infringement of claims 1-4 of the Patent under Section 60(2);
 - (3) whether the supply of certain machinery in the UK for performing the process when it is clear to the supplier that the machinery is intended to put the invention into effect in the UK would also be an infringement of claims 1-4 of the Patent under Section 60(2).
3. The requester has stated that it should be assumed that in the case of question (1), the person using or offering to use the alleged infringing process knows, or it is obvious to a reasonable person in the circumstances, that use of the process in the UK without the consent of the proprietor would be an infringing of the patent.
4. Similarly, it should be assumed that in the case of questions (2) and (3), the person supplying or offering to supply, the machinery knows, or it is obvious to a reasonable person in the circumstances, that the machinery is suitable for putting, and is intended to put, the invention into effect in the UK.

Observations

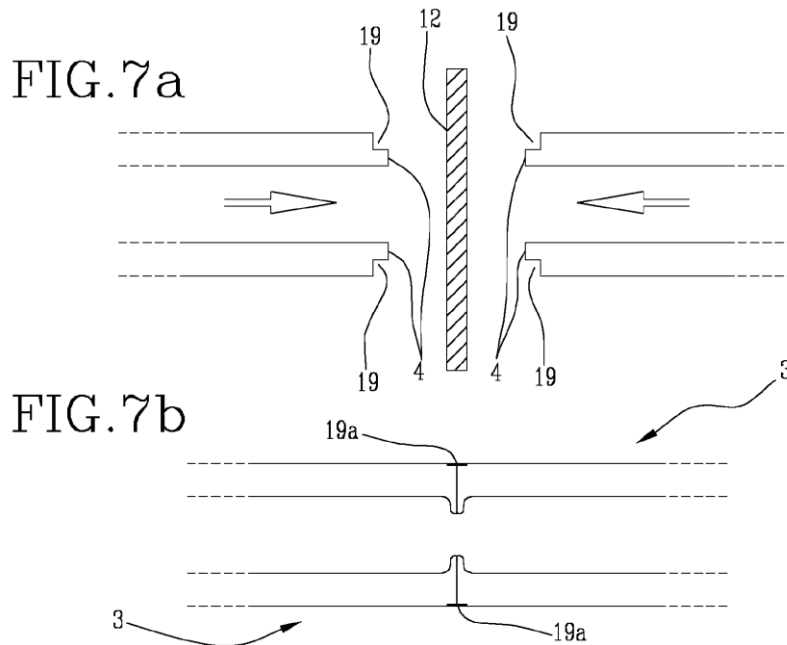
5. Unsurprisingly, as the alleged infringement is a hypothetical example of a process, no observations have been received.

The Patent

6. The patent, EP (UK) 3141374 B1, is titled "METHOD FOR WELDING PROFILED ELEMENTS IN PLASTIC MATERIAL, IN PARTICULAR PVC". It was filed on 4th March 2013 with a priority date of 7th March 2012, published on 15th March 2017 and granted on 28th November 2018. The patent remains in force.
7. The patent relates to a method for welding profiled elements in plastic material, in particular PVC. PVC profiled elements, mainly used as window and door frames, are welded together by means of the melting of respective head surfaces to make a frame structure for a door or a window. The melting is done by heating the portions to be connected using suitable electric heating plates and then pressing the heated portions against one another. During the welding process, excess melted material comes out and forms a bead protruding from the visible surface of the profiled elements along the joining line of the two profiled elements. For this reason, in order to give the finished door or window frame an appreciable aesthetic appearance, once welded the profiled elements undergo a bead removal operation.
8. According to the patent, the welding zones of the PVC profiled elements are not perfectly uniform and consequently, to make the profiled elements even, a lot of material is melted with the consequent formation of an abundant bead. This means that there is a lot of waste material to be removed which can have a significant effect on the total time required to machine the door or window frame.
9. Figure 6a and 6b of the patent below illustrate traditional welding of the head extremities of the profiled elements 3. The zones 4 of each profiled element 3 are melted by a hot plate heat sealing element 12. When the profiled elements are subsequently pressed together beads are formed internally and externally of the joining line.



10. The patent proposes a method for welding two PVC profiled elements that does not produce a visible welding bead that requires removal. In the method, grooves 19 (see figures 7a and 7b below) are made in the parts to be welded. When the parts are then welded together, first and second pressers on the welding machine constrain the welded material within the grooves.



11. The patent has 14 claims including a single independent claim 1. Claim 1 of the Patent reads:

1. A method for welding profiled elements in plastic material, in particular PVC, comprising the steps of:

- preparing at least two profiled elements (3; 3a, 3b; 60, 61), arranged with respective zones to be welded (4; 62, 63) facing one another;*
- making a groove (19) in correspondence to at least one zone to be welded (4; 62, 63) of the profiled elements (3; 3a, 3b; 60, 61), said step of making the groove (19) being performed by means of a removal operation on a peripheral edge of at least one profiled element (3; 3a, 3b; 60, 61);*
- heating said zones to be welded (4; 62, 63);*
- coupling the zones to be welded (4; 62, 63) to one another, pressing the profiled elements (3; 3a, 3b; 60, 61) one against the other so as to keep the zones to be welded (4; 62, 63) in reciprocal contact;*
- said step of coupling the zones to be welded (4; 62, 63) comprising a sub-step of melting the zones to be welded (4; 62, 63) into one another in order to define a welding bead and a sub-step of making a containing compartment (19a) defined by said at least one groove (19);*

said welding bead being made internally of said containing compartment (19a);

characterised in that said step of coupling the zones to be welded (4; 62, 63) comprises the step of arranging a containing presser (27) in correspondence to said containing compartment (19a) for preventing exit of the welding bead from the compartment itself.

12. The request has asked for an opinion on the infringement of claim 1-4 by a hypothetical process. I shall discuss dependent claims 2-4 if I find claim 1 to be infringed.

Infringement - the law

13. Section 60 Patents Act 1977 governs what constitutes infringement of a patent:

(1) Subject to the provision of this section, a person infringes a patent for an invention if, but only if, while the patent is in force, he does any of the following things in the United Kingdom in relation to the invention without the consent of the proprietor of the patent, that is to say –

(a) where the invention is a product, he makes, disposes of, offers to dispose of, uses or imports the product or keeps it whether for disposal or otherwise;

(b) where the invention is a process, he uses the process or he offers it for use in the United Kingdom when he knows, or it is obvious to a reasonable person in the circumstances, that its use there without the consent of the proprietor would be an infringement of the patent;

(c) where the invention is a process, he disposes of, offers to dispose of, uses or imports any product obtained directly by means of that process or keeps any such product whether for disposal or otherwise.

(2) Subject to the following provisions of this section, a person (other than the proprietor of the patent) also infringes a patent for an invention if while the patent is in force and without the consent of the proprietor, he supplies or offers to supply in the United Kingdom a person other than a licensee or other person entitled to work the invention with any of the means, relating to an essential element of the invention, for putting the invention into effect when he knows, or it is obvious to a reasonable person in the circumstances, that those means are suitable for putting, and are intended to put, the invention into effect in the United Kingdom.

14. In *Actavis v Eli Lilly*¹, Lord Neuberger states that the problem of infringement is best approached by addressing two issues, each of which is to be considered through the eyes of the notional addressee of the patent in suit, i.e. the person skilled in the relevant art. Those issues are:

¹ *Actavis UK Limited and Others v Eli Lilly and Company* [2017] UKSC 48

(i) does the variant infringe any of the claims as a matter of normal interpretation; and, if not,

(ii) does the variant nonetheless infringe because it varies from the invention in a way or ways which is or are immaterial?

15. If the answer is “yes” to either question there is infringement; otherwise there is not.

Claim construction

16. Prior to considering the documents submitted by the requestor I need to construe claim 1 of the patent. 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 the recent decisions of the High Court in *Mylan v Yeda*² and the Court of Appeal in *Actavis v ICOS*³.

17. 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 protection conferred by a patent or application for a patent shall be determined accordingly.

18. The requester submits that not all the steps of the method need be carried out in the precise order in which they are recited in claim 1. There is no set sequence beyond the order required for the steps to make technical sense. The requester explains that certain steps must be carried in advance of other steps. For example, “making a groove” must occur before “heating said zones” and both “preparing at least two profiled elements arranged with respective zones to be welded facing one another” and “heating said zones” before “coupling the zones”. However, the claim places no literal or technical limitation on the relative order of the steps of “preparing at least two profiled elements arranged with respective zones to be welded facing one another” and “making a groove”.

19. The request refers to two EPO cases where according to the requester the Boards of Appeal of the EPO have confirmed that it is reasonable to interpret method claims as encompassing a method carried out with steps in an order different to that recited in the claims. It draws in particular on the following observation in T 0403/011 where it was noted that “Method steps merely define functions which can be performed at any time, unless in the context of the claimed subject matter, this were technically

² Generics UK Ltd (t/a Mylan) v Yeda Research and Development Co. Ltd & Anor [2017] EWHC 2629 (Pat)

³ Actavis Group & Ors v ICOS Corp & Eli Lilly & Co. [2017] EWCA Civ 1671

implausible". Having reviewed that decision it is clear that the quote relied on is what the respondent is arguing rather than any general finding of the Board. The Board's response to this line of argument is set out in the following sentence where it notes "In the present case, the board can see no reason why all the steps as formulated in claim 1 have to be performed in the order recited in the claim."

20. Hence there is nothing in this decision or the other decision of the EPO referred to, that even if they were binding on me, which there are not, would suggest that I should not apply a purposive or normal construction to the claims. In other words, as noted above I need to determine what the skilled person would have understood the patentee to be using the language of the claims to mean or in this case would the skilled person have understood that the patentee intended for some of the steps to be performable in a different sequence to that set out in the claim?

21. I am not convinced that the claim would be construed in this way. I note firstly the following parts of description which discuss the tools to shape the groove –

[0064] In other words, the purpose of the tools 21 is not only to shape the grooves 19 but these are also fundamental for evening out the walls and correcting any cutting errors. In the absence of such leveling, the zones to be welded 4 would be too irregular and therefore not weldable.

[0065] It is also underlined that the grooves 19 and the leveling of the zones to be welded 4 are made by the tools 21 of the device 1 when the profiled elements 3 are already mounted on the retaining members 2 and the zones to be welded 4 are coupled and melted together without demounting the profiled elements 3 from the retaining members 2.

[0066] In other words, the tooling of the profiled elements 3 on the retaining members 2 occurs just once and the device 1 is able to execute all the steps of the method according to the invention without the profiled elements 3 having to be prepared and/or machined on other machines.

[0067] Such peculiarity, besides ensuring very fast execution, permits avoiding welding errors due to the incorrect mounting of the profiled elements 3 on the retaining members 2.

[0068] In fact, if the zones to be welded 4 were leveled on a different machine and then mounted on the device 1 to be welded, the risk would exist of badly welding the profiled elements 3 because the zones to be welded 4 might not be perfectly facing and parallel.

22. It is I believe clear that the patentee attaches particular importance to levelling or squaring off the elements after they have been arranged facing each other on the machine which will perform the welding. The patentee highlights the potential for weak welds if the squaring off is done on a different machine with the elements then mounted on the welding machine. In the patent the groove is cut by the same tool as used for the squaring off. This is also brought out in claim 7 which reads:

7. Method according to any one of the preceding claims, characterised in that said step of making a groove (19) comprises leveling the parts of said zones to be welded (4; 62, 63) not occupied by said groove (19).

23. The requester suggests that this is an advantage of the method but not essential to the invention of claim 1. There is some merit in this argument however I believe it still reflects the overall teaching of the patent.

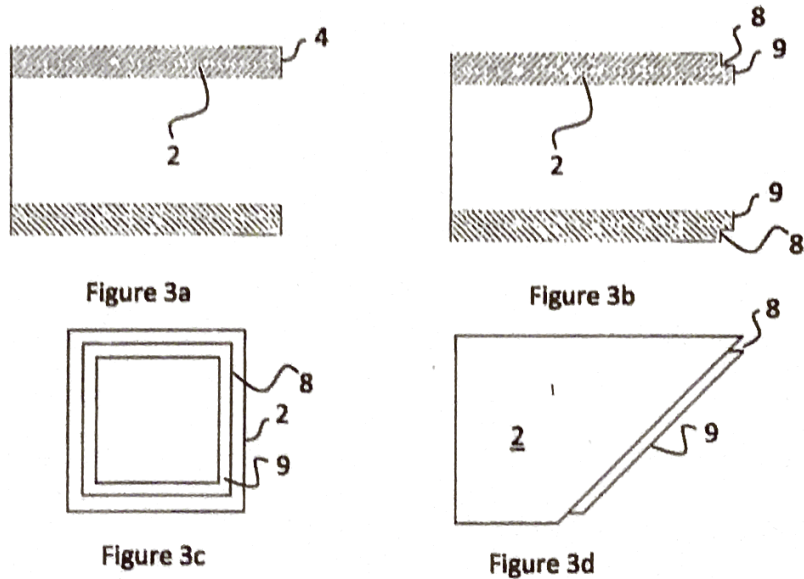
24. The requester makes two more general points about claim 1. Firstly, the requester

notes that the method steps are not numbered. This is true, but the lack of numbering does not necessarily mean the steps can be performed in any order. As I have already discussed several of the steps do need to be performed in the order they are set out in the claim. The second point relates to the prosecution history of the patent. Here the requester argues that the EPO accepted that the characterising aspect of the claim conferred novelty in the process of the invention. It goes on to note, using EPO terminology, that the “objective technical problem solved by the invention” is how to provide a new method of welding without the formation of a protruding welding beam. This was also considered by the EPO to involve an inventive step. I fully accept all of this however I’m not sure it helps the requester when it comes to construing the claim in the way the requester is arguing here. What the requester appears to be asking me to do is to give little or no weight to the parts of the claim that do not relate specifically to this “objective technical problem”. It is however important to consider the overall teaching of the patent.

25. Claim 1 is relatively brief. It consists of six steps. The description explicitly steers the reader to all these six steps being performed on a single machine. The patentee was clearly aware that the various steps could be performed on different machines. It discusses this in the description but, especially in the parts of the description referred to above, highlights the advantages of not doing this. In addition to the advantage of being able to level or square off the parts prior to welding to achieve a more reliable weld, it also notes the further advantage of speed if the parts do not need to be transferred between different machines. Hence the description clearly and explicitly teaches away from the construction argued by the requester.
26. The skilled person would in my opinion therefore understand that the patentee was seeking to direct and limit claim 1 to a method where the step of “preparing at least two profiled elements arranged with respective zones to be welded facing one another” did precede the step of cutting the groove. Indeed, it is difficult to think of any other reason for including the first step in the claim if the intention was not to signify it did precede the second step.
27. The requester has also argued that claim 1 does not require that all the steps of the method need be performed by a single piece of equipment. Again, for the reasons set out above I am not persuaded that is how the skilled person would construe the claim.

Description of alleged infringing process

28. The alleged infringing process is as noted a hypothetical process. The process is performed using two machines: a milling machine and a separate welding machine.
29. The milling machine is used to form a single groove in the end of individual PVC profiled elements with the single groove extending around the peripheral edge of the ends of the elements to be welded. This creates a stepped end in the PVC profiled element 2 as illustrated in the figures below:



30. There is nothing in the request to suggest that the two elements to be welded are arranged with the zones to be welded facing one another before the milling machine cuts grooves the elements.
31. The welding machine (shown below in figure 4) is configured to weld the elements together while avoiding formation of a protruding welding bead on the visible surface of the elements. An end of each of a pair of elements to be welded is mounted in a special type of "counter block". Each counter-block comprises a lower base 1, on which is supported one end of one profiled element 2; an upper part 3, which can move vertically to clamp the profiled element 2 between the lower base 1 and the upper part 3; and a pair of containing elements 4a, 4b which are movable horizontally between a retracted position and an extended position under the biasing force of springs 6a, 6b.

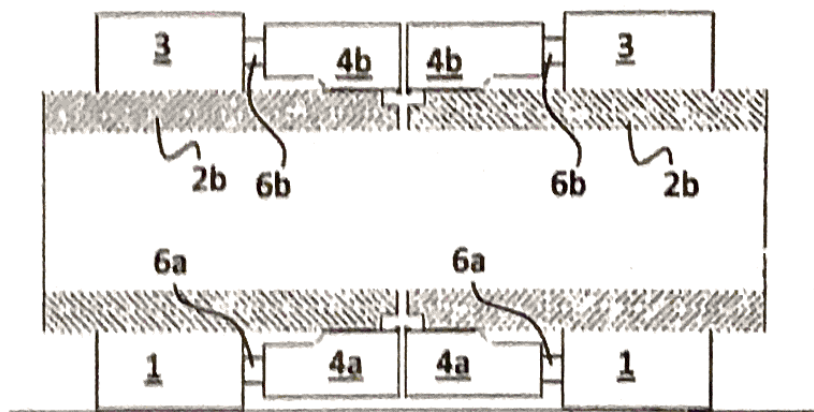


Figure 4

32. Figure 6 below shows the zones 9 to be welded being brought into contact with a heating plate 5. The zones 9 are pushed against the heating plate 5 causing the ends of the profiled element 2b to soften. Springs 6a, 6b maintains contact between containing elements 4a, 4b and the heating plate 5 to ensure softened plastic material remains inside the grooves 8.

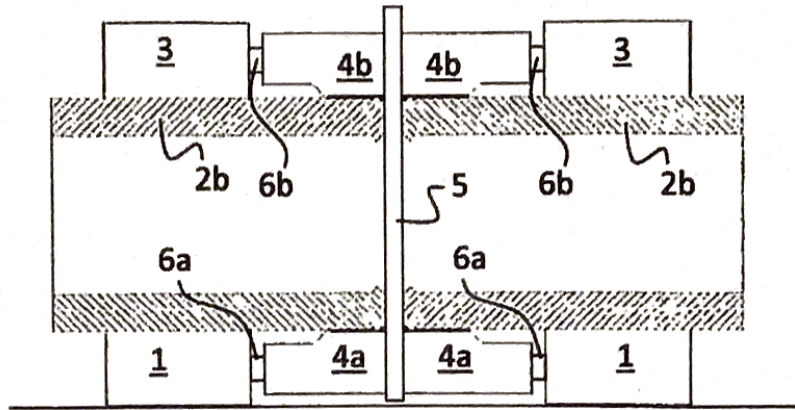


Figure 6

33. Once the heating plate 5 is withdrawn, the counter blocks are moved together. The ends of the containing elements 4a, 4b come into contact before the ends of the profiled elements 2b. As the ends of the profiled elements 2b are moved towards each other, the zones 9 to be welded come into contact and melt. The upper containing elements 4a and 4b prevent exit of the softened plastic material from the grooves 8 (no longer visible in figure 8 below).

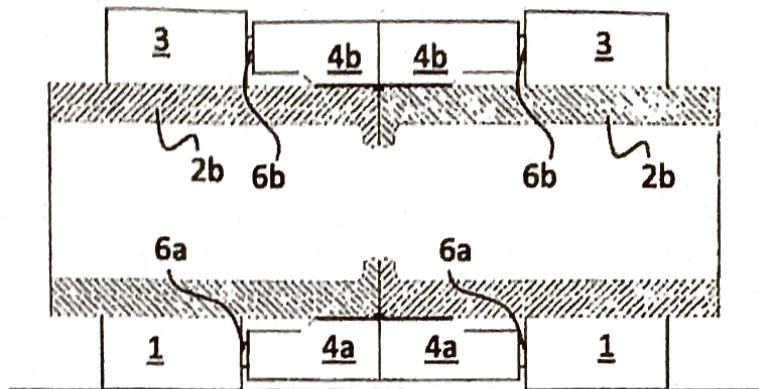


Figure 8

34. Figure 10 below illustrates the finished article of welded PVC profiled elements:

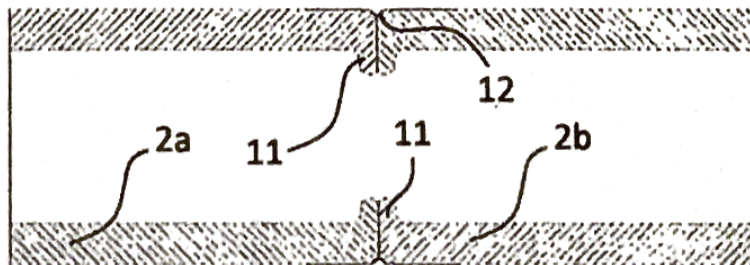


Figure 10

Does the alleged infringing process infringe the Patent as a matter of normal interpretation?

35. In the alleged infringing process, the grooves 8 are formed in the profiled elements 2 on a separate milling machine and before the step of “preparing at least two profiled elements arranged with respective zones to be welded facing one another”. The grooves 8 serve to define a containing compartment in the same manner as grooves 19 in the patent define containing compartment 19a. When the profiled elements have been heated to soften the plastic in the welding zones 9, they are pushed together to couple the elements together where containing elements 4a, 4b prevent softened plastic exiting the groove 8 in the same way as containing presser 27 prevents softened plastic exiting the containing compartment 19a.
36. Hence whilst there are clearly similarities in how the method in the patent and the hypothetical method work, there are also significant differences most notably that the hypothetical method involves two separate machines for machining the groove and for welding the elements together. That is important given how, as discussed above, I believe the skilled person would construe the claim. These differences are such as to take the described hypothetical process outside of the scope of claim 1. As such it is my opinion that the hypothetical method would not infringe the patent as a matter of normal construction. Given my conclusion on claim 1, I do not need to go on and consider claims 2-4.

Does the alleged infringing process infringe the Patent due to immaterial variation?

37. The requester has not provided any argument on possible infringement under the second immaterial variation test of *Actavis v Eli Lilly*. I will however briefly consider it given that it is now part of the assessment of infringement. The reformulated “improver questions” that are relevant to this test are:
- i) Notwithstanding that it is not within the literal meaning of the relevant claim(s) of the patent, does the variant achieve substantially the same result in substantially the same way as the invention, ie the inventive concept revealed by the patent?
 - ii) Would it be obvious to the person skilled in the art, reading the patent at the priority date, but knowing that the variant achieves substantially the same result as the invention, that it does so in substantially the same way as the invention?
 - iii) Would such a reader of the patent have concluded that the patentee nonetheless intended that strict compliance with the literal meaning of the relevant claim(s) of the patent was an essential requirement of the invention?
38. To establish infringement, where there is no infringement under normal construction, the answer to question i) and ii) must be yes and the answer to question iii) must be no.
39. The variant in this instance is having the grooves formed on a different machine to the one that welds the parts together. The variant does produce the same result in preventing a welding bead forming on the exterior surfaces of the welded parts by machining grooves into the parts and then constraining the weld material during

welding. But as noted by the patentee in the parts of the description I have referred to above, the variant does it in a different way by machining the required grooves on the same machine that performs the welding. Hence the answer to question 1 is in my opinion no. I would add that had I concluded that the answer to the first two questions is in the affirmative then I would have also answered yes to question three for the reasons set out above. In either event I would have concluded that there was no infringement due to immaterial variation.

Indirect infringement

40. The requester submits that the combination of the milling machine and the welding machine described above for performing the alleged infringing process are means relating to an essential element of the invention. The machines together provide all the tools necessary for putting all steps of the claimed process into practice. Should a supplier instruct a receiver to operate both pieces of machinery to perform the alleged infringing process, the requester argues that such supply of or offer to supply the milling machine and the welding machine in the UK for use in the UK would also infringe claims 1-4 of the Patent under section 60(2).
41. The requester further submits that the welding machine is itself a means relating to an essential element of the invention. The welding machine (comprising the counter blocks with containing elements) provides the operator with means for welding profiled elements that prevent formation of a protruding welding bead on the visible surface of the welded PVC profiled elements. Should a supplier instruct the receiver to operate the welding machine to weld grooved PVC profiled elements according to the alleged infringing process, the requester argues that such supply of or offer to supply the welding machine in the UK for use in the UK would also infringe claims 1-4 of the Patent under section 60(2).
42. Given that I have construed the claims as requiring all the steps to be performed in the order set out in the claim and on the same machine, then it follows that the welding machine described above in relation to the alleged infringing process, whether supplied alone or in combination with the milling machine, would not be considered means relating to an essential element of the invention. Should a supplier instruct a receiver to operate the welding machine alone or in combination with the milling machine to perform the alleged infringing process as is suggested by the requester above, then that too would not infringe claims 1-4 of the Patent under section 60(2).

Opinion

43. It is my Opinion that the alleged infringing process of the request does not fall within the scope of claims 1-4 of the Patent as a matter of normal interpretation. Accordingly, it is my opinion that the alleged infringing process does not infringe EP (UK) 3141374 B1 under section 60(1)(b).
44. Further I do not consider the supply (or offering supply) of the welding machine in the UK, alone or in combination with the milling machine, with the knowledge that it is

intended for performing the alleged infringing process, constitutes secondary infringement under section 60(2).

Application for Review

45. 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

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.