PATENTS ACT 1977

IN THE MATTER OF an application
under Section 72 by Loblite Limited for
the revocation of Patent No GB
2269485 in the name of Caradon MK
Electric Limited

DECISION

1. The patent in suit, GB 2269485, was granted on 21 February 1996. It originated from patent application number GB 9215373.3, filed in July 1992 without claim to priority. The current proprietors are Caradon MK Electric Limited.

2. An application for revocation of the patent was filed on 24 February 1996 by Loblite Limited ("the applicants") on the grounds specified in section 72(1)(a), namely, that the invention is not a patentable invention. The applicants say that the claims of the patent lack novelty and inventive step in view of US Patent No 4424407 (Barbic) and US Patent No 4109095 (Kling et al). I shall refer to these as "Barbic" and "Kling". They were published in 1984 and 1978 respectively, well before the application for the present patent was made.

3. The proprietors filed a counterstatement on 7 May 1996 which included proposed amendments to the specification. Both the applicants and the examiner raised objections to the amendments, and there then followed an extended period during which successive amendments were offered and successive objections raised in respect of them. Eventually, after the amendments as they then stood had been advertised but with the applicants still objecting to them, in September 1997 I directed that the revocation action should go ahead so that the allowability of the amendments could be considered at the same time as the question of revocation.

4. The usual evidence rounds followed, and in due course the matter came before me at a hearing on 30 September 1998, at which Mr Thomas Mitcheson represented the applicants

and Mr Martin Howe represented the proprietors. Thus the issues on which I was addressed at the hearing were firstly, whether the amendments are allowable, secondly, whether the invention is new, and thirdly, whether the invention involves an inventive step. It became clear to me at the hearing that the third was the only matter of real substance. However, before turning to these three issues it will be helpful to look briefly at the technology involved, the citations and the main patent claim.

The subject matter of the patent and the citations

5. The invention relates to sealed electrical sockets. In a nutshell, it provides a socket which is environmentally sealed both when there is a plug in the socket and when there is not. It achieves this by creating an enclosure which completely contains the plug when it is in the socket. The cable from the plug has to pass through an opening in the enclosure, and to achieve the desired environmental sealing that opening has to be sealed both when there is no cable passing through it and when there is.

6. Figure A, taken from the patent specification, shows the invention embodied in a socket for a standard UK 13A plug. When the lid 5 is closed the plug is completely enclosed with the cable passing through the aperture defined by cut-outs 12 and 13. Cooperating gel sealing members 14, 15 seal around the cable if the plug is in place, but will also seal against each other if there is no plug in place.

7. Figure B shows the preferred embodiment of Barbic. The drawing is self-explanatory. It shows a different type of plug and socket 36, 25 and the arrangement is generally much bulkier than that shown in figure 1, but in principle it achieves much the same result. In particular, the so-called grommets 33 keep the enclosure waterproof when a cable is passing through an aperture 32. Finally, figure C shows the preferred embodiment of Kling. This again is a rather bulkier arrangement. It has a pair of cooperating lids 13 pivoted on pins 20 to allow access to the sockets, with sealing strips 22 to seal the join even when a cable is present.

FIGURE A

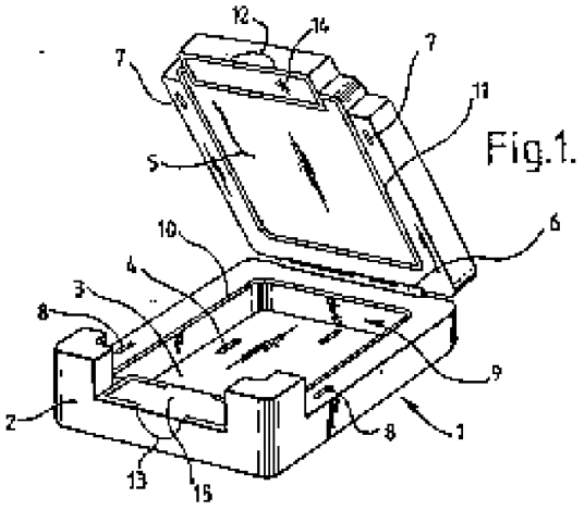

Fig.1.

FIGURE B

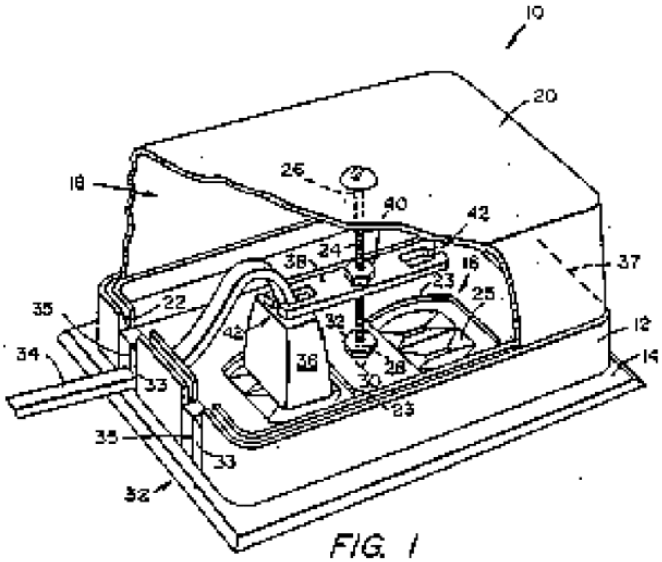

FIG. 1

FIGURE C

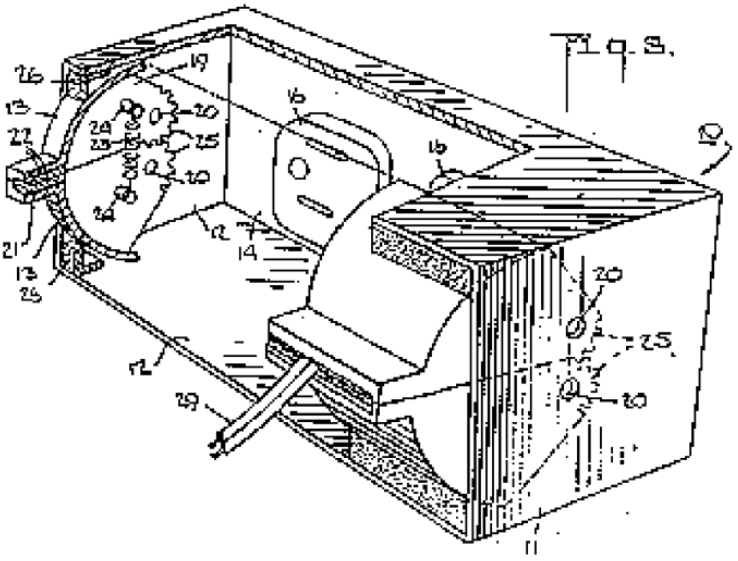

Fig. 3.

The main claim of the patent and the amendments offered

8. As granted, claim 1 of the patent read as follows:

> An electrical connector assembly comprising: a front plate provided with electrical contacts, a lid or cover moveable between an open position allowing access to the front plate and a closed position in which the front plate is covered by the lid or cover, the front plate and the lid or cover cooperating to form an enclosure adapted to accommodate an electrical connection device and an opening communicable with the enclosure, the opening being adapted to receive an electrical wire or cable, sealing means adapted to form a seal between the lid or cover and the front plate and to seal the opening, when the lid or cover is in its closed position, such that the enclosure is environmentally sealed, the arrangement being such that the enclosure is also environmentally sealed by the sealing means when the lid or cover is in its closed position and a wire or cable is positioned such that it passes through the opening.

9. The amendments offered by the time of the hearing would amend claim 1 to read as follows, the italics identifying the passages that are different from claim 1 as granted:

> An electrical *socket* assembly comprising: a front plate provided with electrical contacts, a lid or cover moveable between an open position allowing access to the front plate and a closed position in which the front plate is covered by the lid or cover, the front plate and the lid or cover co-operating *when closed* to form *firstly* an enclosure adapted to accommodate an electrical *plug* and *secondly* an opening communicable with the enclosure, the opening being adapted to receive an electrical wire or cable *for the plug*, sealing means *comprising a first and second sealing means, the first sealing means forming a seal between the lid or cover and the front plate and the second sealing means forming a seal in the opening* when the lid or cover is in its closed position, such that the enclosure is environmentally sealed *with or without the wire or cable received in the opening, the second sealing means comprising a*

resiliently deformable gel, the second sealing means arranged to be held under compression within the opening when the lid or cover is closed.

10. Amendments to the subordinate claims, description and drawings have also been offered. They are largely, if not wholly, consequential on the amendments to claim 1, so I will skip over them for the time being.

11. The amendments offered are clearly intended to avoid anticipation by Barbic and Kling. The most important limitation introduced into claim 1 by these amendments is the fact that the second sealing means must comprise a gel. There is no definition of "gel" in the specification, but the description illustrates the term by reference to a number of previous patents which, it says, describe the use of a gel under compression for sealing purposes. These patents are GB 2168363, EP 0196219, EP 0190938, EP 0189240, EP 0174165, EP 0108518 and EP 0086110. I shall refer to them as the "gel patents". They are all in the name of Raychem Corporation or one of the companies in the Raychem group.

Allowability of the amendments to claim 1

12. I will now turn to the applicants' objections to the amendments.

13. The first objection arose from the presence of a subordinate claim, claim 6, which could be read as implying the existence of a further first and second sealing means in addition to, or as a subdivision of, those in the amended claim 1. This, Mr Mitcheson argued, was unsubstantiated and introduced ambiguity. At the hearing Mr Howe acknowledged the point and offered deletion of claim 6. I am satisfied that this meets the objection, and Mr Mitcheson agreed.

14. Secondly, Mr Mitcheson argued that the new expression "a resiliently deformable gel" in claim 1 was an intermediate generalisation which extended the protection conferred by the patent. The original claims, when referring to the use of gel, referred only to "gel sealing members", whereas the new expression would cover gel which was not in the form of a

member but was simply, say, a paste. Again, at the hearing Mr Howe offered to add the words "sealing member" after "gel" in the amended form of claim 1. Subject to necessary consequential amendments to the subordinate claims and the description, I am satisfied that this avoids the objection, and Mr Mitcheson did not demur.

15. Mr Mitcheson also argued that the amendments should be refused because they clearly fail to cure the invalidity of the claims, referring me to *Smith, Kline & French Laboratories Ltd (Bavin's) Patent [1988] RPC 224*. As he acknowledged that this argument would stand or fall with his objections to novelty and obviousness, I will return to it later.

16. Since the hearing took place, the further amendments offered at the hearing, together with the necessary consequentials, have been confirmed by the proprietors in a letter dated 6 October. I shall accordingly base the remainder of this decision on the claims as so amended. I should, perhaps, say at this stage that I do not feel these further amendments deviate so far from those previously advertised as to warrant further advertisement before I decide on their allowability.

17. One further question that was raised in the pleadings and discussed extensively in the written evidence is whether the expression "gel" is itself clear. At the hearing, Mr Mitcheson indicated that he did not wish to pursue this as an objection to the amendments, though both he and Mr Howe did refer to the scope of the term when discussing obviousness. For completeness, I will consider the clarity of the term briefly now.

18. I think it is common ground that the term "gel" does not have a precisely-defined scope, but Mr Howe correctly submitted that this is not the point, referring me to the words of Somervell LJ in *The Cleveland Graphite Bronze Company and Vandervell Products Ld. v The Glacier Metal Coy. Ld. 66 RPC (1949) 157*:

> "The duty of the inventor in defining the ambit of his claim is not to ensure that it can never be difficult to decide the question of infringement, but merely to enable the Court to formulate the question to be answered."

19. The specification does not define the term but merely illustrates it by reference to the gel patents. Mr Howe argued that nevertheless with most materials the skilled person will have no problem in deciding whether or not they are "gels". There may be difficulties on the borderline, Mr Howe acknowledged, but that difficulty was recognised and accepted in the *Cleveland* case. I do not think that in the end Mr Mitcheson disagreed with this, and on that basis I must accept that the term "gel" is sufficiently clear. I do so with some unease, though, because it was clear to me that the slight uncertainties at the borderlines are likely to be a continued cause of difficulties between the parties after the current action has been disposed of. In particular, there appears to be disagreement between their respective experts as to whether the seal used in a socket that the applicants are selling is a gel. That, though, is not an issue for me to resolve now.

Novelty

20. I must now move on to the question of novelty. Mr Mitcheson submitted that, despite the amendments offered, claim 1 at least lacks novelty in view of the prior disclosures of Barbic and Kling. His arguments centred on the "resiliently deformable gel sealing member" of the amended claim 1 since, he submitted, all the other features of the claim were clearly present in both disclosures. He acknowledged that neither Barbic nor Kling actually mention gels. In Barbic the grommets 33 are said to be of "rubber or similar plastic" whilst there is also a "rubber or soft plastic" layer to seal between the cover and the faceplate 14. In Kling the seal 22 is described as a "resilient sealing strip or gasket". However, Mr Mitcheson referred me to the evidence of the proprietors' own expert Dr Dyson, a Senior Lecturer and Consultant to the Plastic and Rubber Industries, in which he said:

> "Neither Kling nor Barbic suggest material aspects other than in very general terms. The statements made include a wide range of rubbery polymeric materials which could include gelloid systems, but there are many conventional rubber or thermoplastic systems that would meet the general specification given."

21. Mr Mitcheson took this to be an admission that Barbic and Kling do cover gel systems.

Gels, he said, are commonly used materials and it would have been quite straightforward for anyone to use a gel in the sealing means of Barbic and Kling.

22. In my judgement this argument is fundamentally flawed. A claim does not lack novelty merely because a prior disclosure is broad enough to embrace what is claimed - it must contain clear directions to do what the patentee claims to have been invented. The authorities on this subject are so well known that I hardly need to refer to them, but for completeness I will quote a short extract from *General Tire v Firestone [1972] RPC 457* at pages 485 and 486:

> ". . . but if carrying out the directions contained in the prior inventor's publication will inevitably result in something being made or done which, if the patentee's patent were valid, would constitute an infringement of the patentee's claim, this circumstance demonstrates that the patentee's claim has in fact been anticipated. If, on the other hand, the prior publication contains a direction which is capable of being carried out in a manner which would infringe the patentee's claim, but would be at least as likely to be carried out in a way which would not do so, the patentee's claim will not have been anticipated, although it may fail on the ground of obviousness. To anticipate the patentee's claim the prior publication must contain clear and unmistakeable directions to do what the patentee claims to have invented."

23. Neither Barbic nor Kling suggest that the sealing means could be a gel member. They do not contain the requisite "clear and unmistakeable directions", and indeed carrying out the directions they do contain would not inevitably result in something falling within the scope of the present claim 1 as amended. Accordingly I am satisfied that claim 1 does not lack novelty when assessed against Barbic and Kling. The remaining claims are either dependent on claim 1 or omnibus claims, and since Mr Mitcheson did not make any independent challenge to their novelty I do not need to consider them further for the moment.

Inventive step: the principles

24. I now turn to the main question, that is, whether the invention involves an inventive step as required by section 1(1)(b). This requirement is amplified in section 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..."

25. Determination of inventive step is a question of fact, which has been described as a jury question. In formulating his case against the presence of an inventive step in the claims as amended, Mr Mitcheson based his arguments on the well established test for the jury question set out by Oliver L J in *Windsurfing International Inc v Tabur Marine (GB) Ltd, [1985] RPC 59*, at page 73:

> "There are, we think, four steps which require to be taken in answering the jury question. The first is to identify the inventive concept embodied in the patent in suit. Thereafter, the court has to assume the mantle of the normally skilled but unimaginative addressee in the art at the priority date and to impute to him what was, at that date, common general knowledge in the art in question. The third step is to identify what, if any, differences exist between the matter cited as being "known or used" and the alleged invention. Finally, the court has to ask itself whether, viewed without any knowledge of the alleged invention, those differences constitute steps which would have been obvious to the skilled man or whether they require any degree of invention."

26. Both sides also referred me to a number of other authorities. However, I will follow Mr Mitcheson's approach and work through each of the *Windsurfing* tests in turn, and will mention the other authorities at the appropriate points.

The first Windsurfing step

27. The first step is to identify the inventive concept. Mr Mitcheson identified it as the use of a gel sealing member in the cable opening such that the socket is sealed both with and without a cable present. I accept this is a fair statement, subject to the proviso that the context is important in this case. The inventive concept is not just using gel to seal round a cable. It is doing this in the context of a weatherproof socket which has an arrangement to totally enclose a plug which has been inserted in the socket.

The second Windsurfing step

28. The second step is to "assume the mantle of the normally skilled but unimaginative addressee in the art at the priority date and impute to him what was, at that date, common general knowledge in the art in question". I think both Mr Mitcheson and Mr Howe accepted that this notional skilled person must be assumed to be aware of Barbic and Kling, but they did not agree on the extent to which gels and their uses were "common general knowledge in the art".

29. Lying behind this disagreement was the question of who in this case is to be considered the skilled addressee. Mr Mitcheson assumed the addressee could be expected to know about sealing materials, but Mr Howe said the relevant addressee was an expert in plugs and sockets, not sealing materials. I agree with Mr Howe to the extent that the plug and socket expert is the prime addressee and such an expert cannot be expected to have a detailed knowledge of materials science, but that is not the whole picture. Following the approach used by the Court of Appeal in *Tetra Molectric Limited v Japan Imports Limited [1976] RPC 547* at p583, the plug and socket expert could reasonably have been expected to seek advice and assistance from a sealing materials expert if a seal was needed for a plug and socket. Thus the notional addressee must, in my view, be regarded as a team including both experts, and I think in truth Mr Howe half conceded as much. Accordingly Mr Mitcheson was right to assume the addressee should know what was going on in the sealing materials field, and to this extent Mr Howe was wrong to dismiss evidence from an expert in materials, Dr Campbell, who gave evidence on behalf of the applicants.

30. On this basis, Mr Mitcheson argued that common general knowledge included the "gel patents" mentioned in the patent in suit. In support of this, he directed me to the admission made by the proprietors in their counterstatement at paragraph 17:

> "Flexible gels, as distinct from rigid gels like silica gel, are well known and have been used for a variety of purposes including insulation and waterproof sealing as the Proprietor admits on page 6 of the Patent."

He further pointed out that the proprietors' own expert, Dr Dyson, had acknowledged that all the materials mentioned in one of the gel patents, EP 0174165, are commercially available.

31. In the light of these admissions, I accept that the disclosures in the gel patents mentioned in the patent in suit fall within the "common general knowledge" which I must attribute to the skilled addressee in this case. However, that raises the question of what these patents actually disclose, and here again the two sides disagreed. Mr Howe argued that they teach the use of gels for encapsulation, not as a replacement for a grommet to block an opening through which cable is to exit. He conceded that some of the gel patents do mention the possibility of opening up or re-entering the encapsulant in order to access what is encapsulated, but submitted this was in the context of a possible need to do this very occasionally. There was nothing to suggest that the gels were suitable for seals which would need to be opened up and reclosed frequently.

32. Mr Mitcheson took a different line. He argued the gel patents showed that the gels can be made in any shape or form, such as a member to fit a hole where a cable is to be run. Further, he said they showed these gels would permit re-entry to whatever was sealed by them many numbers of times. To underline these points, he directed my attention in particular to two of the gel patents. He referred firstly to GB 2168363, from which he quoted the following passages, amongst others:

> "In some cases, especially when electrical contacts are to be protected, it is desirable to provide a removable protective cover over the substrate, so that it is possible easily

to reenter and work on the sealed substrate."

"The encapsulant can be adherent to any suitable support member. The support member is produced by a flexible matrix. Especially when it is desirable that the encapsulant should be removable from the electrical contact which it is protecting, the encapsulant preferably has an adhesive strength to the substrate that is less than its adhesive strength to the support member and that is less than its cohesive strength, so that the encapsulant can be cleanly removed from the substrate merely by separating the support member and the substrate, leaving little or none of the encapsulant on the substrate."

33. He then turned to EP 0174165, quoting the following passage:

"The gelloid compositions can be formed into shaped articles, such as profiles shaped to accommodate an adjacent pair of conductors or cables. Shaped articles are particularly useful where a seal is necessary. A particular gelloid composition may therefore be chosen based on the particular application of the gelloid composition and on the desired properties. It is a desirable property of gelloid compositions that they are easily handled and allow reentry when used around, for example, cable splices or terminations. . . . As is readily apparent the compositions of the invention are extremely versatile in their ability to be used in a variety of situations, especially electrical."

34. I have looked at these gel patents very carefully, and have come to the conclusion that they do not go quite as far as Mr Mitcheson suggests, though they go a little further than Mr Howe suggests. The first question is what they disclose about the possible shape or form of the seal. In all of them, the embodiments described show the gel as wholly filling the spaces in a container surrounding the item to be sealed, to insulate it and/or protect it from the environment. It is going too far to say they disclose the use of gels for seals of any shape or form. In particular, they do not disclose the use of these gels merely to block an opening through which a cable is to run.

35. The second question is what they disclose about the frequency of reentry. The specific applications described in the gel patents are all to do with insulating and/or environmentally sealing such things as cable joints, crimped connectors and terminal blocks (and, in the only non-electrical application I can find, a pipe joint). In all these applications the seal is semi-permanent in the sense that one would not need to remove or displace the gel to regain access to the enclosed item on a day-to-day basis. One would only need to do so very occasionally. Having said that, there is one passage in GB 2168363 which appears to go wider than this. Mr Mitcheson did not draw my attention to it, probably because he was looking at the B document. He might have done better to look at the A document because this has a rather fuller disclosure, and in particular contains the statement:

> "If the assembly 36 is undone, and the apparatus 10 is removed from the terminal block 10, the encapsulant is cleanly removed from each of the terminals. This is a very valuable feature because the terminals are immediately ready for electrical connection or disconnection. Furthermore, the sequence of protection and removal can be frequently repeated."

This does suggest these gels are capable of allowing access to the enclosed item rather more frequently than the uses actually described might suggest. I conclude that whilst the general thrust of the gel patents is towards very occasional reentry, there is a pointer to the possibility that they might also be suitable where frequent reentry is required.

36. There is one further observation I must make. The only gels about which I have adequate evidence are those disclosed in these gel patents. The applicants' expert in materials, Dr Campbell, says in his evidence that the difference between certain liquid rubbers or soft rubber compounds and gels is merely one of degree, and Mr Mitcheson took this to imply that these rubbers are also gels. Mr Howe disagreed, saying that even if the difference is merely one of degree, that does not mean these rubbers are gels. However, even if Mr Mitcheson is right, he has given me no details of what was known about these rubbers and their possible uses. Accordingly I am able to make no finding as to what the notional addressee should be assumed to know about the use of these rubbers for seals, or indeed

about gels in general. Since the onus lies with the applicants, that means that for the purposes of this action I must in the main assume these gel patents contain all the relevant information that the addressee would have known about the use of gels for seals.

37. In summary, then, I find that the notional addressee would have known of Barbic and Kling, would have known of the gel patents, and would have known from the latter that these gels could be used to fill the voids in a container surrounding an item to be sealed. The notional addressee would also have known that it was possible to open up the seals and reclose them again on at least an occasional basis, and would have been pointed to the possibility that the gels would probably allow this to be done quite frequently.

The third Windsurfing step

38. The third Windsurfing step is to identify what differences, if any, exist between the matter cited as being "known or used" and the alleged invention. It was Mr Mitcheson's contention that the only difference between the known sockets of Barbic and Kling and the alleged invention is the use of a gel to seal the cable opening, but Mr Howe disagreed. I therefore need to look at Barbic and Kling more closely.

39. The present invention, as defined in claim 1 in its amended form, may for convenience be set out in this form:

> An electrical socket assembly comprising:
>
> (a) a front plate provided with electrical contacts,
>
> (b) a lid or cover moveable between an open position allowing access to the front plate and a closed position in which the front plate is covered by the lid or cover,
>
> (c) the front plate and the lid or cover co-operating when closed to form firstly an

enclosure adapted to accommodate an electrical plug and secondly an opening communicable with the enclosure,

(d) the opening being adapted to receive an electrical wire or cable for the plug,

(e) sealing means comprising a first and second sealing means, the first sealing means forming a seal between the lid or cover and the front plate and the second sealing means forming a seal in the opening when the lid or cover is in its closed position,

(f) such that the enclosure is environmentally sealed with or without the wire or cable received in the opening,

(g) the second sealing means comprising a resiliently deformable gel sealing member,

(h) the second sealing means arranged to be held under compression within the opening when the lid or cover is closed.

40. I begin with Barbic. This document describes a socket 16, (in practice a pair of such sockets) surrounded by a wall, or base, 12 along the top edge of which there is a slot which is arranged to receive, and therefore form a moisture resistant seal with, the lower edge of a top, or cover, 20. These elements define an enclosure 18. The top can be removed by unscrewing bolt 24 or, in an alternative embodiment, by moving a toggle. Apertures 32 are provided in the wall to allow the cable attached to a plug inserted into the socket to pass out of the enclosure. In each aperture there is what is described as a rubber or similar plastic grommet having a slot 35 (described as an "upwardly facing opening") for receiving the cable, which "further makes the cover resistant to entry of moisture and protects the cord against abrasion or cutting".

41. It is clear to me and not in dispute that Barbic discloses the features labelled (a), (c), (d),

(e) and (f). Mr Howe submitted that feature (b) was not present in Barbic; he argued that a cover which is removable is distinct from one which is movable between open and closed positions. I cannot agree. In this context, a removable cover is in my view just as movable between open and closed positions as a cover which is hingedly mounted. In any case, Barbic refers to the possibility of a flexible hinge 37 being provided along the edges of the top and the base remote from the edge containing the apertures. I can see no distinction here between what is disclosed in Barbic and what is claimed in the present claim 1.

42. In relation to feature (h), Mr Howe submitted that the second sealing means, that is the grommet 33, was not "arranged to be held under compression within the opening when the lid or cover is closed". It is true that there is nothing in Barbic to say expressly that the grommet is under compression, but it is inconceivable that any degree of watertightness could be achieved if there were no pressure at all on the grommet; there simply has to be some compression, however small it may be. Again, I can see no distinction here.

43. So the difference between the invention and the disclosure in Barbic resides solely in the use of a resiliently deformable gel sealing member rather than a "rubber or similar plastic grommet".

44. Turning to Kling, that describes a weatherproof housing 11 at the base of which there are two electrical sockets. The housing is sealed by a pair of lids which are biased towards each other, each lid having a recess in which there is a "resilient sealing strip or gasket" of otherwise undisclosed material. When a plug is engaged with one of the sockets, the cable attached to it will be trapped between the sealing strips.

45. Mr Howe did not dispute that features (a), (b), (d) and (e) are disclosed in Kling. He argued that (c) was not present because the opening was not formed by cooperation between the "front plate" and the lid. However, (c) does not require the opening to be formed between the lid and the front plate. It merely requires the relation between the lid and the front plate to be such that the opening exists, and on this basis I find that Kling does disclose feature (c). He also argued that the enclosure was not environmentally sealed as required by

(f) because there is no reference to any seal between the ends of the lids and the side walls of the housing. However, Kling does expressly say that the socket is weatherproof and that "rainwater, dirt, splashing water or sprays and the like are prevented from moving into the junction box from any angle", so I cannot agree that Kling does not disclose environmental sealing. So the difference between the invention and the disclosure in Kling resides solely in the use of a resiliently deformable gel sealing member rather than "resilient sealing strips or gaskets".

The fourth Windsurfing test

46. The final and crucial test is to ask whether, viewed without any knowledge of the alleged invention, those differences constitute steps which would have been obvious to the skilled man or whether they require any degree of invention. It is the applicants' case that the proprietors have done no more than use a known material in a known product to achieve a recognised goal. The requirements that the material had to meet were obvious and the material chosen was an obvious one to try. The proprietors, of course deny this. Each side has also referred to other factors which, they argue, support their respective cases. I will consider the main arguments first, and then look at the supporting factors.

Obvious requirements and obvious to try

47. Mr Mitcheson argued that the inventors settled on the use of a gel because it provides the desired functionality required in an effective seal. He drew my attention to the following statements in the patent:

> "Gel sealing members for use in the present invention should be capable of adhering to a substrate, in this case the cable attached to the plug body, but should part cleanly therefrom when separated, leaving little or none of the gel on the cable insulation. When the lid or cover of the socket assembly is brought to its closed position with the plug and cable inserted, the gel sealing members in the opening can deform and flow around the cable to form a seal. When the lid or cover is opened and the cable is

removed, the gel members will tend to return to their original shape in order to seal the opening once more."

and later:

"Suitable gel sealing members may be made by gelling components which are commercially available for the preparation of polyurethane gels..."

48. He invited me to compare these statements with the comments of Laddie J in *Raychem Corporation's Patents, [1998] RPC 31* at page 41:

"What has to be determined is what technical contribution to the art has been made by the patentee. If that contribution is obvious then it is not protectable under patent law. If the patent claim consists of no more than a product or process selected by reference to a set of obviously desirable parameters, then the technical contribution is the selection of those parameters. Since that selection is obvious, so is the claim. It is permissible to look at the teaching in the specification to see what the patentee has put forward as his technical contribution. Where, as Mr Silverleaf argues is the case here, the teaching indicates that nothing novel by way of materials or processing has been used, it reinforces the conclusion that the patentee has done no more than select the obviously useful products out of the range of those which can be made with existing technology. In such a case, the patent is just for any good product. On the other hand, where the invention involves the use of new materials, to achieve a known or obvious goal, the inventive concept (per *Windsurfing*) or technical contribution (per *AgrEvo*) is the materials or process. If the materials or process are not obvious, a claim of permissible width directed to or dependent on the materials or process is not obvious either. Although the claims will give protection to products or processes which meet obvious desiderata, it is the materials or methods for getting there which supports that protection. Here also, the teaching in the specification will be directed at the new materials or processes and will reinforce the conclusion that the claims are directed to a protectable technical contribution."

49. To support his argument, Mr Mitcheson invited me to consider what two of the experts had said in the present case, referring me to the principles laid down in *Mölnlycke AB and another v Proctor & Gamble Limited and others (No. 5), [1994] RPC 49* at page 113:

> "The primary evidence will be that of properly qualified expert witnesses who will say whether or not in their opinions the relevant step would have been obvious to a skilled man having regard to the state of the art. All other evidence is secondary to that primary evidence."

50. First he referred me to Dr Campbell's evidence. Dr Campbell is a Senior Lecturer specialising in materials engineering who presented two statutory declarations on behalf of the applicants. In his first declaration he says:

> " Although the Barbic and Kling et al patents do not refer to such materials it is my opinion that the choice of material is well within the knowledge of skilled designers of such socket assemblies. Indeed, a gel material is known for sealing purposes as already acknowledged in the patent in suit (see page 6 second paragraph) and to my mind would simply represent another choice of material which a designer may consider worth investigating. The claim . . . seems broad enough to cover all resiliently deformable gels when used to seal a cable or an opening and given the acknowledgement in the patent that gels have been used for sealing purposes it seems abundantly clear to me that the inventors of the patent in suit have simply adapted a known material for sealing in a slightly different application".

51. He then referred to Dr Dyson, the Senior Lecturer and Consultant to the Plastic and Rubber Industries who gave evidence on behalf of the proprietors. Dr Dyson says in his evidence that while the wording of Barbic and Kling does not suggest the use of a highly compressible resilient rubber, this might be an obvious line of development. That, Mr Mitcheson said, was an acknowledgement that the use of gels was an obvious line of development. Dr Dyson goes on to say that:

> "Reading Kling and Barbic I would probably have thought of a soft resilient rubber, (soft implies compressibility), a foam rubber product, or possibly even a plasticised PVC formulation. The range of rubber materials I would have considered would have included thermosetting rubber, or thermoplastic rubber compounds. If someone had said these did not work, then I might possibly have thought of gel systems, but until I had seen the gel seal used in the MK Masterseal socket and had read about the materials of the Toy patent *[one of the gel patents]*, I was not aware that materials of this type were commercially available. Hence I would not have recommended their use in the application described in the MK patent."

52. As further support, Mr Mitcheson referred to the evidence from a Mr Nicholson, who had developed the applicants' socket. This socket uses a polyurethane material for the seal, and Mr Nicholson says he arrived at as a result of routine trial and experiment. Mr Mitcheson invited me to infer that the gel of the present claim 1 would also have been arrived at by routine trial and experiment.

53. Mr Mitcheson then referred to *Genentech Inc's (Human Growth Hormone) Patent, [1989] RPC 613* at page 671, in which the submission was made and supported that an alleged invention is obvious "if the suitable addressee would consider it worth trying from a number of possible alternatives, even if (i) it was not the first he would have looked at and (ii) it was not obvious that it would work". He quoted Mr Mileman, who gave evidence on behalf of the proprietors, as expressing the principle "in the event of failure, try other materials", suggesting that the choice of a gel was simply natural. However, I recognise that Mr Mileman was not expressing this view as his own, but attributing it to Dr Campbell. What Dr Campbell said in his first Statutory Declaration was "Given the task of providing a seal which is better able to cope with sealing an opening whether a cable is present or not where the cable is repeatedly removed and replaced would simply involve routine experiments to find a suitable material and its mounting and this does not seem to involve any inventive facility at all."

54. Mr Howe responded to all this by first reminding me that I must not fall into the trap of

applying *ex post facto* analysis. He directed my attention to two authorities on this subject. First was *Technograph Printed Circuits Ltd v Mills & Rockley (Electronics) Ltd, [1972] RPC 346,* and in particular Lord Diplock's observations on page 362:

> "The cross-examination of the respondents' expert followed with customary skill the familiar 'step by step' course. I do not find it persuasive. Once an invention has been made it is generally possible to postulate a combination of steps by which the inventor might have arrived at the invention that he claims in his specification if he started from something that was already known. But it is only because the invention has been made and has proved successful that it is possible to postulate from what starting point and by what particular combination of steps the inventor could have arrived at his invention. It may be that taken in isolation none of the steps which it is now possible to postulate, if taken in isolation, appears to call for any inventive ingenuity. It is improbable that this reconstruction *a posteriori* represents the mental process by which the inventor in fact arrived at his invention, but, even if it were, inventive ingenuity lay in perceiving that the final result which was the object of the inventor to achieve was attainable from the particular starting point and in his selection of the particular combination of steps which would lead to that result."

55. The second was *British Westinghouse Electric and Manufacturing Company Ld v Braulic, 27 RPC (1910) 209,* and the words of Lord Fletcher Moulton on page 230:

> "I confess that I view with suspicion arguments to the effect that a new combination, bringing with it new and improved consequences in the shape of practical machines, is not an invention, because, when it has once been established, it is easy to show how it might be arrived at by starting from something known, and taking a series of apparently easy steps. This *ex post facto* analysis of invention is unfair to the inventors, and in my opinion it is not countenanced by English Patent Law."

56. Mr Howe then turned to Barbic and pointed out that the seal in the opening in the Barbic assembly is in the form of a vertically split member into which the cable is inserted before the

cover is replaced. He said this required a fairly rigid member and so would not work with a gel - one would need a horizontal break between the two halves rather than a vertical one because it would not be possible to push a cable into a vertical split in a gel. Having seen a sample of the gels mentioned in the patent specification, I accept that this is almost certainly true if all gels have the consistency of that sample. Thus it was not, Mr Howe continued, a simple question of selecting a suitable material for the so-called grommet in Barbic. The skilled person would first have to recognise that the seal could be of a quite different form, such as that adopted by the proprietors of trapping the cable between two sealing members during the action of closing the cover, and that changing the form would allow a different range of materials to be considered.

57. As for Kling, Mr Howe put it to me that a gel was not an obvious or even practical choice for the sealing strips because their large surface area meant that the compressive force necessary to form an adequate seal around a cable would be so large that it would be too great for the two covers to be prised apart satisfactorily. However, as he subsequently acknowledged that the same problem could be said to arise whatever the material used, I attach no significance to this allegation.

58. Mr Howe also drew my attention to the evidence about the reaction of Raychem, the manufacturers of the gels mentioned in the patent specification, to the proposal from the proprietors that they be used in these sockets. First, though, I must consider the admissibility of this evidence. The evidence does not come from Raychem themselves, probably, as Mr Mitcheson surmised, because they have launched an action in respect of entitlement to the present invention. It comes instead from the proprietors' Technical Manager, Mr Mileman, and one of the inventors, Mr Bateman, who report what Raychem said to them during discussions of the proprietors' proposal. Mr Mitcheson said this was inadmissible as hearsay. Mr Howe disagreed, arguing that it was admissible as evidence of how Raychem reacted to the proposal. Mr Howe is right. As evidence of what Raychem said in response to the proprietors' proposal this evidence is clearly admissible. I also observe it is backed up by a letter subsequently sent by Raychem to the proprietors.

59. It would appear from the evidence, then, that when Raychem were told of the purpose for which the gel was required and given a specification which it would have to meet, they expressed "fundamental reservations about the design concept" and said they would not be prepared to supply the material as the proprietors' requirements were beyond their expectations for the material. It is clear from their subsequent letter that they were concerned not only with the specification which the seal was expected to meet but with the feasibility of manufacturing the gel-filled "half shells" that would be required. In the end, Raychem's concerns were overcome, partly as a result of more experiments and testing but partly also because the proprietors agreed to reduce their requirements, eg by accepting a shorter lifetime for the seals. Nevertheless, Mr Howe submitted, the reaction of Raychem to the proposal suggests strongly that the proposed use was significantly different from those previously contemplated and therefore far from obvious. Mr Mitcheson disagreed, arguing that the only thing Raychem were bothered about was the very demanding specification that MK were insisting on.

60. I have very carefully considered the arguments from both sides. I fully accept the need to avoid *ex post facto* analysis, and believe I should start with Barbic and Kling and work forwards. At one point Mr Howe did try to suggest that they were not a suitable starting point for the design of the 13A socket that the proprietors are now making, but that seems to me irrelevant. I am not trying to determine whether their 13A socket is obvious, but whether their claim is obvious.

61. On this basis, it seems to me that the crucial question I must consider is whether it would have been obvious to use a gel for the cable seal in either Barbic or Kling. I accept Mr Mitcheson's submission that, in general terms (and I am not here referring to the detailed technical specification on lifetime, temperature range and the like that the proprietors' sought to meet) it is obvious what is required of the seals in Barbic and Kling. Further, I accept his submission that there would be a range of resilient materials that it would be obvious for the skilled person to try, and that if their first choice turned out to be unsatisfactory they would be expected to try another. The question is whether gels fall within that range of materials.

62. I have come to the conclusion that the gels disclosed in the gel patents were not materials that it would have been obvious to try. My main reason for doing so is that the gels had not been proposed for any similar use in the past. It was known that these gels could be used to fill the voids in a container surrounding an item to be sealed, but that is not what one is looking for in Barbic and Kling. One needs what I might loosely describe as a free-standing seal, not an encapsulant or the like, and I do not feel it would have been obvious to the skilled person at the relevant time that these gels were suitable for such a purpose. The fact that the prior uses for these gels described in the gel patents do not require the seal to be opened and closed nearly as frequently as the seals in Barbic and Kling is another factor that tends to make the use of these gels non-obvious, though it is one to which I attach rather less weight in view of the pointer to the possibility of more frequent opening in one of the gel patents.

63. I am reinforced in my view that the use of these gels for this purpose was not obvious by Raychem's reaction to the proprietors' proposal to use the gels. The evidence does not, in my view, suggest Raychem were only concerned about an over-demanding specification. Rather, it suggests they needed considerable convincing that their own product was suitable for this type of application.

64. I have also come to the conclusion that the evidence available to me does not lead to the conclusion that there are other gels that it would have been obvious to try. This is largely because the evidence does not satisfactorily identify any other materials that were known at the priority date which would clearly fall within the scope of the term "gel", let alone identify what was known about their properties and possible uses.

65. So far as Barbic is concerned, I accept that the skilled person would have an additional step to make in getting from what is disclosed there to what is now claimed in that they would also have to change the seal configuration, and this further reinforces my view that Barbic does not make the present invention obvious. This consideration does not apply to Kling - and I am unconvinced by Mr Howe's argument that the relatively-large surface area of the seals here is a significant factor - but for the reasons given in above I still do not consider the step from Kling to the present claim 1 as amended to be obvious.

66. Mr Mitcheson urged me to take account of the evidence from the experts, and he was quite right to do this. When it is examined carefully, though, I do not feel it contradicts the conclusions I have reached. I turn first to Dr Campbell. True, he asserts that a gel would be a material that a designer may consider worth investigating, but he makes this assertion in the light of the references to gels in the present patent, because he refers to those references in the very same sentence. He does not say that use of a gel would have been obvious to him (a) without having seen the present patent and (b) at the priority date of the patent rather than at the date on which he made his declaration. Thus as evidence of obviousness his assertion carries very little weight because it his views are clearly tainted by a strong element of *ex post facto* analysis. I am also aware from comments made in his second declaration that his views were coloured by what he personally considered to be "equitable", and this casts doubt on how dispassionate his evidence is. Also, as Mr Howe pointed out, Dr Campbell was asked the wrong questions in that he was invited to consider what changes he might make to Barbic and Kling, thereby skipping the question of whether the skilled person would have considered making any changes in the first place. Whilst I have no doubt Dr Campbell gave his evidence in good faith, it does not provide a sound basis for an obviousness argument against the present claim 1.

67. On a first glance, Dr Dyson's assertion that he might possibly have thought of gel systems looks more damaging to the present claim 1. However, when one looks at the context a different picture emerges. Firstly, he only said he might have thought of gel systems if none of the materials he first thought of did not work. I have no reason to suppose those materials would not have worked, even though they might not have worked quite as well as gels. Secondly and more importantly, he says that he was unaware that suitable gels were available until he saw the gel used in the proprietor's socket and read one of the gel patents, and once again this taints his views with a strong element of *ex post facto* analysis. Thus I do not feel Dr Dyson's evidence suggests claim 1 was obvious at the relevant time.

68. Finally, taken at face value Mr Nicholson's evidence tells me that the choice of material used by the applicants in their own socket (which, the applicants argue, is not a gel) was obvious, but it does not follow from this that the choice of any particular material must be

obvious. In any case, Mr Nicholson was designing his socket after the MK socket was already on the market, so his evidence tells me nothing about what would have been obvious at the priority date.

Supporting factors

69. Before concluding, though, I must look at the supporting factors put forward by each side. First, Mr Mitcheson drew my attention to the evidence as to how the invention was actually arrived at. It would appear that after the basic design of the socket had been conceived, they had to find a practical solution to the question of the seal. The design team had a brainstorming session in which they listed possible solutions to the problem. One of the team suggested using silicon breast implant material, and this led to the idea of a gel. Mr Mitcheson suggested that the ease with which the team came up with a large number of solutions, including this one, is an indication of lack of inventive step.

70. I disagree. It is not sufficient to allege that because a design team came up with the idea as one of many in a brain-storming session that any man skilled in the art would have done so without the application of invention. To argue thus would be to deny that an invention could ever arise from a brainstorming session, and I do not think that is right. In any case, as Mr Howe rightly submitted, evidence of how the invention actually came about is of little use in determining whether it involved an inventive step. If the invention was arrived at quickly, that may merely indicate that the inventor was an inventive genius.

71. Secondly, Mr Howe argued that the commercial success of the invention pointed to the fact that it could not have been obvious, especially since he considered there was evidence of a long felt want. Mr Mitcheson suggested that any commercial success may well be attributable more to the tightening of health and safety regulations referred to in the evidence than to any merits of the invention.

72. I have, in fact, been provided with no documentary evidence of commercial success, let alone with evidence that such success is due to the invention rather than health and safety

regulations or design features that have nothing to do with the invention, so on that basis alone I can attach no weight to Mr Howe's submission. Besides, even if I had evidence of commercial success, I would need to treat it with caution in the light of the comments in *Raychem Corporation's Patents, [1998] RPC 31* at page 66 that:

> "In practice the commercial performance of products or processes covered by a patent rarely is a reliable indicator of non-obviousness. Even when there has been commercial success usually it is difficult to demonstrate that it is attributable to inventiveness rather than some other commercial consideration, such as improved marketing. The result is that adding a plea of commercial success normally only adds time and expense to the proceedings and serves no other useful purpose."

73. Finally, Mr Howe attached some importance to the evidence presented by one of the inventors, Mr Bateman, that seals around cables are subject to the "smile effect" whereby a gap appears at each side of the cable where two seals meet, and that an advantage of gel sealing members is that this smile effect is avoided. This is not however described in the patent specification, and I have not ascribed any weight to this argument.

Conclusion

74. In conclusion, I find that claim 1 as proposed to be amended is novel and not obvious in the light of the prior art that has been cited. Of the remaining claims as proposed to be amended, one is merely an omnibus claim and all the rest are dependent on claim 1, so it follows that these too are novel and not obvious. As these amendments, together with the related amendments in the description, do indeed cure the defect that they are intended to overcome, the applicants' pleading that they should be rejected because they do not do so also fails.

75. Accordingly, I hereby order that in the specification of the patent (a) the description and drawings are amended as shown in red ink on the attached copy thereof, and (b) the claims are replaced by the claims appended to the attached copy of the description and drawings. I

decline to order revocation of the patent.

Costs

76. Both sides have requested costs. I have upheld the patent and to that extent the proprietors have won. However, Mr Mitcheson made the valid point that the action of the applicants has at least resulted in a significant reduction in the scope of the claims, and Mr Howe acknowledged this. I am also aware that it took the proprietors several goes before they came up with a satisfactory set of amendments, and this led to work for the applicants which could have been avoided. Indeed, the final amendments were only offered at the hearing itself. Taking all this into account, I have concluded that the reasonable claims of each side to costs more or less balance out. Accordingly I make no order for costs.

77. As this decision is not on a matter of procedure, under the Rules of the Supreme Court any appeal from this decision must be lodged within six weeks.

Dated this 13th day of November 1998

P HAYWARD
Superintending Examiner, acting for the comptroller

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