

0/16/197

PATENTS ACT 1977

Mr P Hayward
3Y46

IN THE MATTER OF an application
under section 72 by Lorient Polyproducts Limited
for the revocation of Patent No. 2155982
in the name of Mann McGowan Fabrications Limited

OPI

Bridges 2/9/97

DECISION

Revocation

Patent No. 2155982 was granted on 17 February 1988 in the name of Mann McGowan Fabrications Limited (the 'proprietors'), the patent originating from an earlier application No. 8407138 filed on 19 March 1984 and published on 2 October 1985. The patent was entitled "Fire-resistant glazing systems" and was directed to glazing for apertures in, for example, internal doors or partitions, in particular to provide a one hour fire resistance.

Claim 1 of the patent reads:

"A fire-resistant glazing system for glazing an aperture comprising a fire-resistant surround, for example a door leaf, screen or partition, having an aperture glazed by a glass pane, a hardwood bead of a density of at least 650 kg/m³ positioned on each side of a marginal edge portion of the glass pane, each bead being secured to the surround by fixings which extend thereinto under the other bead and having a chamfer of at least 110° with respect to the surface of the pane, and an intumescent strip interposed between said edge portion and a side face of each bead, the strip comprising a pressure-generating intumescent material capable of generating a pressure of up to 10 atmospheres and having properties such that on foaming it forms a hard mass which adheres to the glass and other adjacent surfaces to form both a smoke and gas seal and a support for the pane, if softened by heat, and protrudes slightly above the chamfered surface to provide a heat shield therefor, the system being such as to afford one hour fire resistance to BS 476 Part 8:1972".

On 11 May 1990 an application for revocation was filed by Lorient Polyproducts Limited (the 'applicants'), the application being accompanied by a statement setting out the grounds relied upon as lack of novelty and/or inventive step under Section 72(1)(a); insufficiency under Section

72(1)(c); and added subject matter under Section 72(1)(d). This prompted in turn the filing of a counterstatement on 13 November 1990 from the proprietors denying the invalidity of their patent on any of the three grounds stated by the applicants. Thereafter, although there was amendment of both the statement (20 September 1991) and counterstatement (4 October 1991) to excise some of the specific grounds earlier relied upon, events proceeded fairly smoothly through the usual evidence rounds up to the applicants' evidence-in-reply. Then, on 20 August 1992, the applicants first proposed a further amendment to their statement concerning the addition of subject matter to the drawing of the patent during the prosecution of the patent application through the Office, and then on 11 November 1992 withdrew it, having regard to the response received from the proprietors on 2 October 1992.

In January to April 1993, there was a first additional evidence round agreed between the parties and primarily directed to discrepancies in fire test results obtained by the respective parties in respect of their samples of respective products purported to be in accordance with the invention. The applicants' evidence pointed out that a drawing of the tested sample appeared to show that the proprietors' tested product was inconsistent with the wording of claim 1.

In October 1993, the proprietors attempted to explain this inconsistency by submitting additional evidence on the point. At a first preliminary hearing on 14 October 1993 to decide, *inter alia*, the admissibility of this additional evidence, it was held that the best way forward would be for the two parties to hold a further and joint re-test carried out by the Timber Research and Development Association (TRADA) followed by an additional evidence round each directed specifically to the re-test, and an agreed timetable was set down for this.

Unfortunately, for various reasons this timetable could not be maintained by the parties and it was not until January 1995 that the action effectively resumed. This was initiated by the applicants filing their own and separate (*ie* non-agreed) re-test (TRADA test report no. RF94002) and making reference to the, as yet unfiled joint (and supposedly agreed) re-test (TRADA test report no. IF94005). With respect to the filing of the latter, there was now a further dispute between the parties as to what should be the revised timetable, with the proprietors additionally opposing introduction of the applicants' re-test report no. RF94002. In the event, joint re-test report no.

IF94005 was finally filed by a representative of TRADA in July 1995, this being shortly followed in August 1995 by the proprietors' re-test evidence concentrating upon and drawing attention to alleged defects in test report no. IF94005.

The sequence was completed by the applicants filing their own re-test evidence in September 1995 and making reference to both test report nos. IF94005 and RF94002. This prompted further objection from the proprietors and a dispute between the parties as to what was or was not within the directions set down at the first preliminary hearing. This matter was resolved by a preliminary view of the Office that the parties should regard all evidence so far filed as admissible and the proprietors should have one further evidence round in reply before the evidence rounds should be finally closed. The parties agreed and the proprietors' further evidence was filed on 13 December 1995.

However, there was a further difficulty to be resolved since the proprietors' further evidence was accompanied by a Civil Evidence Act Notice giving notice of numerous items of evidence of hearsay nature. The applicants filed a Counter Notice and after some protracted correspondence, the matter came before the Hearing Officer at a second preliminary hearing on 4 November 1996. At this hearing, proposed compromise directions submitted on behalf of the proprietors were discussed and finally established in Official letters dated 20 and 25 November 1996. Final expert evidence on behalf of the applicants was filed on 11 December 1996.

This protracted sequence of events finally led to a substantive hearing to decide the issue of revocation which was held on 2 June, 3 June and 10 July 1997. Mr Nicholas Bragge instructed by Eric Potter & Clarkson appeared for the applicants for revocation, and Mr Peter Colley instructed by Gee & Co appeared for the proprietors. For the applicants, Messrs. Mann, McDougall and Williams were available for cross-examination. For the proprietors, Messrs. Patterson, Jackman and Richmond were available for cross-examination. Messrs. Williams and Jackson were present as expert witnesses.

(1) Novelty/Obviousness

In support of their application for revocation, the applicants have alleged that the invention is not a patentable invention in view of disclosures in the following documents:

- (i) "CDB Doorsets Mark 3" ('CDB') dated July 1983 and published by Leaderflush Doors Ltd. (Exhibit BM1);
- (ii) pages C4.3 and C4.4 of a publication issued by the DHSS as part of a series entitled "Component Data Base" ('DHSS') dated 1979;
- (iii) an extract from the Society of Architectural and Allied Technician's News ('SAAT') dated January 1983; and,
- (iv) UK patent application No. 2144166A ('166 patent') published on 27 February 1985 and having a priority date of 28 July 1983.

The applicants contend that the invention as claimed is not novel and is obvious in view of the above documents and common general knowledge.

I should like to consider first the applicants' ground of lack of novelty.

a) Lack of novelty

Claim 1 of the patent in suit requires a hardwood bead (22 - see figure 1 below) of a density of at least 650 kg/mm^3 which is required to be positioned on each side of a marginal edge portion of the glass pane (18) of the fire-resistant glazing system and secured to the frame surround (10) by fixings (26) which extend into the frame to a sufficient extent to end beneath the other bead. Each bead must have a chamfer of at least 110° with respect to the surface of the pane, and an intumescent strip (20) must be interposed between the edge portion of the pane and a side face of each bead. The strip comprises a pressure-generating intumescent material capable of generating a pressure of up to 10 atmospheres and having properties such that on foaming it forms a hard mass which adheres to the glass and other adjacent surfaces to form both a smoke and gas seal and a support for the pane. The glazing system is such as to afford one hour-fire resistance to British Standard 476 Part 8: 1972.

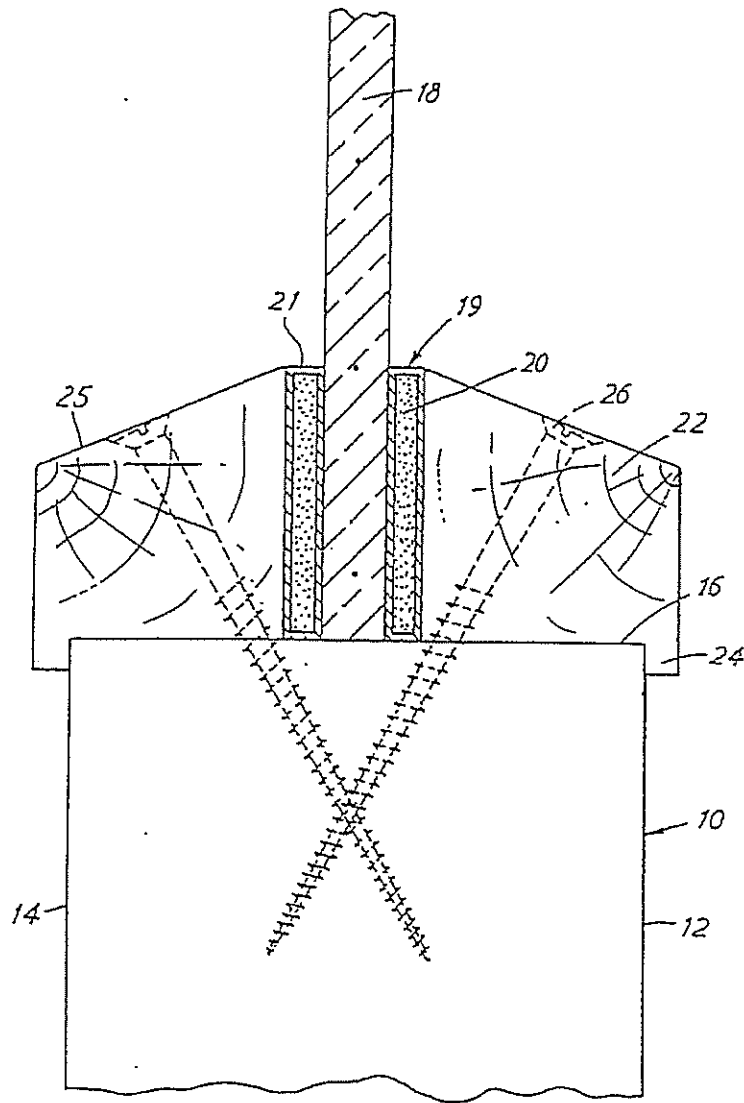


Figure 1

Both parties have acknowledged the general direction of **General Tire and Rubber Co. vs. Firestone** [1972] RPC 457 at page 486, viz. that "to anticipate a patentee's claim the prior publication must contain clear and unmistakable directions to do what the patentee claims to have invented....a signpost, however clear, upon the road to the patentee's invention will not suffice. The prior inventor must be clearly shown to have planted his flag at the precise destination before the patentee." I will consider the cited documents in this light.

CDB describes a range of doorsets available on the market offering various fire-resistance properties. The closest constructionally to the proprietors' claim is that illustrated on page 10 (see figure 2 below) which is a 30/30 grade doorset, *ie* one offering 30-minute integrity to BS 476 Part 8: 1972.

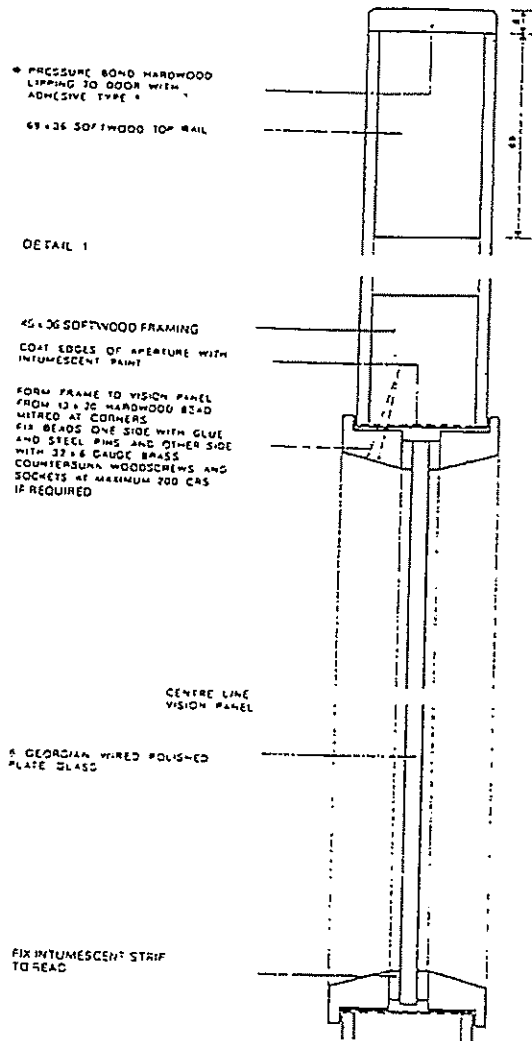


Figure 2

Whilst the hardwood bead and the intumescent strip are not explicitly stated to satisfy the respective density and pressure-generation conditions required by claim 1 of the patent in suit, the applicants point to the materials specified in CDB for use as these integers in the construction of figure 2, *ie* dark-red meranti wood and Palusol intumescent material, as inevitably satisfying the claim criteria. The proprietors deny this is so and there was much evidence and debate about the properties of certain hardwoods and of Palusol to which I must return with regard to the consideration of inventive step. Even, however, if I give the benefit of the doubt to the applicants in this respect for the purpose of considering novelty, the illustrated doorset on page 10 of CDB clearly fails to teach either of two additional requirements of claim 1, *ie* a bead chamfer of at least 110° (this angle is unspecified in CDB but measurement of it in the figure 2 drawing gives an angle of *circa* 106°), and fixings which are long enough and so angled as to extend under the opposite bead.

Whilst the applicants' novelty attack concentrated primarily on the CDB document which I have already dismissed, I will briefly refer to the other cited documents for completeness.

DHSS offers fire resisting glazing to achieve 30 minutes stability and integrity. The glazing system described and illustrated with reference to page C4.3 utilizes chamfered hardwood beads of unspecified wood and density, PVC-sheathed Palusol intumescent material between each between the bead and the glass, and (non-illustrated) pins or screws of specified length for fixing each bead to the frame. Again there is no disclosure either of the fixings extending under the opposing bead or of a bead chamfer of at least 110° .

SAAT shows a range of fire-resistant glazing systems for satisfying BS CP153: Part 4: 1972 or BS 476 Part 8: 1972 test to 30/30 or 30/20 requirement. The constructions use hardwood beads of unspecified wood and density, and unspecified intumescent material between the beads and glass. There is again no clear disclosure of the degree of bead chamfer or of the manner of fixing of the beads.

The 166 patent discloses a fire-resistant glazing system which comprises a glazing strip for mounting a pane in a surrounding frame, the strip including an extrusion of U-shape cross-section to define a channel for receiving a marginal edge portion of the pane to be mounted, the extrusion being hollow to define a U-shaped void in which intumescent material (preferably Palusol) in the form of a U-shaped strip is housed to partially fill the void and define a cavity between the strip and the internal side walls of the extrusion. Hardwood beads are located on opposite sides of the extrusion to sandwich the extrusion and are secured to the surround of the glazed aperture. The inventors claim that adopting such an extrusion provides a glazing system which retains integrity of a glazed aperture for at least 60 minutes in accordance with the 1972 test. The drawing shows a countersunk fixing passing through a bead to about the centre point of the surround of the glazed aperture, *ie* it does not show fixings extending to beneath the opposite bead. The nature and density of the hardwood beads are not disclosed. The chamfer of the beads is unspecified, but the drawing appears to show a chamfer considerably exceeding 110° . However, the chamfered portion of the bead is preceded on the glass side by a flat portion.

In the light of the above, it seems clear to me that there is no evidence that an inventor has planted his flag at the destination before the priority date of the patentee's patent in that the essential features of the main claim of the patent in suit are not described or implicit *in toto* in any single document cited. I find that the applicants fail in respect of the pleaded ground of lack of novelty.

b) Obviousness

Both parties were agree that the correct test to be applied was the four steps set out in **Windsurfing International v Tabor Marine [1985] RPC 59** at page 73 as more recently approved *inter alia* in **PLG Research v Ardon International [1995] RPC 287** at page 313 and **Biogen v Medeva [1997] RPC 1** at page 43, *ie*

(i) identifying the alleged inventive concept;

(ii) assuming the mantle of the skilled but unimaginative addressee in the art at the priority date and imputing to him what was, at that date, common general knowledge in the art in question;

(iii) identifying any differences which exist between the cited art and the alleged invention; and,

(iv) asking whether (viewed without knowledge of the claimed invention) those differences constituted steps which would be obvious to the skilled man or whether those steps required invention.

Where the parties differed, however, was in the relevance of certain additional authorities to the case in hand. Basically, the applicants maintain that the proprietors have obtained a 60/60 grade system by non-inventive "beefing up" of a known 30/30 grade system in particular that as illustrated on page 10 of CDB (figure 2 above). In this regard the applicants pointed my attention to the principle set out in the **Windsurfing** decision (at 'Held 3') and again in **Brugger and Ors v Medic Aid [1996] RPC 635** at page 653 that it is wrong to prevent a person doing something which is an obvious extension of what he was doing before, and similarly in **Lubrizol v Esso**

[1997] RPC 195 at page 217 that if, in practice, a claim covers what a skilled man carrying out the prior art would be likely to do, it is obvious and the patent would be a hindrance to the public. For their part, the proprietors directed my attention rather to the earlier decisions of **British Westinghouse v Braulik (1910) 27 RPC 209** at page 230, and **Fichera v Flogates limited [1984] RPC 257** at page 273 as a caution against the dangers of finding a fundamentally simple invention obvious by starting from something known and taking easy steps, and of *ex-post facto* analysis. I shall need to bear all these precedents in mind when considering obviousness.

The **Windsurfing** test first requires me to identify the alleged inventive concept. To find out what this is I must read the description and claims of the patent as a whole. It would seem that the primary intention is to provide a fire-resistant glazing system for glazing apertures in such items as internal doors, screens and partitions, and which not only provides one-hour resistance to BS 476 Part 8: 1972 for larger panes than has been heretofore conventional (up to 1.2 m²) with untreated hardwood beads, but does so whilst retaining a more attractive appearance than existing one-hour systems which use a rectangular-section frame to support the glass (such as the 166 patent). Support of the glass, which is required to be maintained at a higher temperature and thus more plastic state in a one-hour resistance situation as opposed to a 30-minute situation, so as to produce a smoke seal and gas seal seems to be the critical feature. The loss of a seal upon the glass 'slumping' in the frame leads to a failure in the integrity of the system as a whole. I thus find the alleged inventive concept to be the support and clamping of the edges of a relatively large glass pane such as to achieve one-hour fire resistance by a construction presenting simple untreated hardwood beads as the exterior profile.

The next **Windsurfing** test involves ascertaining what was common general knowledge to the skilled, unimaginative addressee at the priority date. Mr Bragge proposed Mr Mann and Mr McDougall as exemplary of such addressees, a submission refuted by Mr Colley for the proprietors who argued that, on the contrary, they had shown themselves to be of an inventive nature and therefore not validly able to assist *vis-a-vis* obviousness. I agree in part with both counsel. Whilst I clearly must be very wary of accepting, at face value, opinions from Messrs Mann and McDougall as to what was or was not obvious at the appropriate time, nevertheless they (as did Mr Patterson for the proprietors) impressed me whilst giving evidence with their

depth of knowledge of the appropriate art and I certainly would wish to take notice of all three of the witnesses as to what was common general knowledge at the priority date.

What then is the impression of the common general knowledge in the art in early 1984 that I have gained from the witnesses' oral and written evidence?

(i) Firstly, that a range of glazing systems for internal constructional elements (eg doorsets) was available giving differing fire-resistance when measured to BS 476: Part 8: 1972. The only systems giving one-hour integrity, however, were of the 'Monolux' or similar type of construction, *ie* where the marginal rim of the glass was supported by a channel-section frame, such as exemplified by the prior 166 patent or on page 13 of the CDB document.

(ii) Secondly, that there was a demand from the DHSS and others for more attractively finished fire-doors etc than those available using the channel-type construction or involving beads treated with intumescent paint. More attractive doors were already available (*cf* page 10 of CDB), but only giving 30-minute fire resistance.

(iii) Thirdly, that the difficulty of going from 30-minute to one-hour fire-resistance involved more than a simple doubling of the requirements, *inter alia* because of the problem of slumping of the glass pane at the prolonged exposure to high temperature occurring in the second 30 minutes. This would be particularly so for larger pane sizes.

(iv) Fourthly, that it was conventional to use hardwood, such as utile or dark-red meranti for beads in fire-resistant glazing systems, and that it was known that the denser the wood the slower its charring rate when exposed to fire. The hardwood beads could be coated with intumescent paint or uncoated. It was known to provide them with a chamfer, certainly for decorative purposes but probably also to minimize the effects of direct heat radiation.

(v) Fifthly, that it was normal to provide intumescent strip between the bead/frame and

glass in such systems. Two such intumescent materials which were available at the time were Palusol from BASF and 'Type 500' from Chemie Linz AG.

I shall now turn my attention to the differences which exist between the cited prior art and the alleged invention and apply the next **Windsurfing** test. I should note here that the 166 patent is not available for consideration for the purposes of obviousness since it was published after the date of filing of the patent in suit (*ie* it is in the section 2(3) field). Once again, the primary disclosure relied upon is the one illustrated on page 10 of CDB as reproduced in figure 2 above. The argument is one of obvious 'beefing up' in the light of common general knowledge of the prior 30/30 construction to the one-hour standard.

(a) Use of hardwood beads of density of at least 650 kg/mm³:

In the prior cited documents (and indeed the prior art generally) it seems to have been the practice to refer to the wood by origin, *eg* utile, as opposed to by density. The prior CDB construction specifies use of dark-red meranti. This *prima facie* satisfies the requirements of claim 1 of the patent in suit in view of the disclosure Exhibit RM1 which is an extract from a textbook entitled "Timbers of the World" and which refers to a density for dark red meranti of 710 kg/mm³ on average. The proprietors have, however, provided evidence to the effect that the density of red meranti can vary widely, a TRADA document "Timbers - their properties and uses" revised June 1991 suggesting the density could vary by 20% or more, *ie* it could go as low as 570 kg/mm³ and Mr McDougall for the applicants has conceded that it might go as low as 600 kg/mm³ (although he made the point that choice of wood at the 'dark-red' end rather than the 'red' end of the range of meranti would give an expectation of a density towards the higher end). Exhibit RM5 which is an extract of a code of practice by the British Standards Institute for structural uses of timber does explicitly link a hardwood density of at least 650 kg/mm³ to low charring rate but this is a 1990 edition of the standard postdating the 1984 priority date of the patent in suit and the earlier version of the same document published before 1984 and which is exhibited as RM4 is rather couched in terms of specific types of wood as opposed to density. There is thus no explicit suggestion to use wood of density of at least 650 kg/mm³ predating the priority date that has been presented to me.

(b) Hardwood beads having a chamfer of at least 110° with respect to the surface of the pane:

The purpose of a chamfer is said to be primarily to delay both charring and flaming of the hardwood bead by reduction of direct radiant heat through the glass. The applicants maintain therefore that the angle of chamfer is dictated by the desired amount of fire resistance to be achieved. The beads disclosed in CDB at page 10 have an unspecified angle of chamfer which can be measured from figure 2 to be approximately 106°.

(c) Use of intumescent strip capable of generating a pressure of up to 10 atmospheres which upon foaming forms a hard mass which adheres to the glass and the bead to form a smoke and gas seal and a support for the pane:

The patent in suit makes use of an intumescent manufactured by Chemie Linz to satisfy the specified pressure and adhesion/seal requirement. There was extensive debate regarding whether the alternative BASF intumescent material Palusol as used in the CDB construction was capable and known to be capable in 1984 of also generating a pressure of up to 10 atmospheres (which both parties read as meaning in the context of the specification 'a pressure of at least 10 atmospheres'). The issue regarding the properties of Palusol intumescent material remains unresolved to my mind. Exhibit KRP4 shows that before the priority date the pressure advertised as exhibited by Palusol on intumescence was 5 bar (or approximately 5 atmospheres). Revision of this to the higher figure of 15 bar only occurred in 1990 well after the priority date. Whether or not the constitution and properties of Palusol itself changed in the meantime is uncertain. There is also a question mark in my mind in view of the conflicting opinions of Messrs Mann and Patterson under cross-examination on this point in particular and the properties of Palusol in general. What seems clear, however, is that Palusol was not known to have the required pressure-generating properties in 1984.

There was dissent between the parties also as to whether Palusol, in the hindsight of its ability to achieve the necessary 10 atmospheres pressure, would in any case be a suitable material for the application of the patent in suit. Mr Patterson for the proprietors said it would not and pointed to the different mechanism by which Palusol intumesces compared to that of the Chemie Linz

material. He contended that Palusol contains water of hydration and is intended to give off steam when expanding such as to cool the rim of the glass pane. The Chemie Linz intumescent material rather acts to grip and seal the pane, and expands out of the pane/bead gap to shield the chamfered surface of the beads. The applicants for their part point to a 60-minute test where samples, identical but for choice of the two intumescent materials, performed in a very similar way (*ie* the intumescent strip functions primarily as a seal to provide a relatively rigid support frame for the softened glass in both 30/30 and 60/60 grade systems), and to a photograph (Exhibit RM3) which purports to show foamed Palusol adhering to the pane and bead and extending upwardly above the bead surface to provide a shield for the latter. The photographic and other evidence, however, is not conclusive, and I do not see it as established one way or the other whether Palusol can be validly substituted for the Chemie Linz intumescent material in the present application, although clearly it was a material available on the market at the relevant time and available for the choice of the unimaginative skilled man.

(d) Fixings which secure each bead to the surround and extend under the surround and under the other bead:

The prior 30-minute constructions use fixings that do not extend beyond, at most, the median line defined by the glass pane. The applicants point to the BS code of practice for the structural use of timber, *ie*. BS 5268: Part 4: Section 4.1: 1978 (Exhibit RM4), which states at paragraph 5.4.2 that "every part of the fastener is embedded in the timber so that it remains within the residual section". This is taken to be a recommendation to the skilled glazier to extend the fixings into hardwood that would remain uncharred under test. The applicants suggest that the longer the fixings the greater the security of a particular glazing system. The proprietors submit, with some justification in my view, that this code of practice relates to elements of a more structural nature than those glazing systems being considered by the present invention. Nevertheless, I think that they would agree with the principle. The construction of the invention goes beyond this, however, by deliberately ensuring that the fixings extend (albeit by a small amount only) beneath the opposite bead, even to the extent in the figure 1 embodiment of angling the screws relatively to what would be expected to be good glazing practice, *ie* relatively to the plane of the bead chamfer.

Application of the remaining **Windsurfing** test requires me to ask whether the differences identified above constitute steps which would be obvious to the skilled man or whether those steps required invention at the priority date of the patent in suit.

I am not inclined to find the numerical minima regarding the minimum density of hardwood and the chamfer of the bead to be used to be inventive in themselves. It was clearly known to use both utile (normal stated density of 660 kg/mm^3) or dark-red meranti (expected density of perhaps up to 710 kg/mm^3) in fire-resistant doorsets of the desired type of attractive appearance. Whilst the proprietors may have raised valid doubts that such woods would **inevitably** have satisfied the 650 kg/mm^3 limit, they have equally not convinced me that this limit is not, to some extent, arbitrary and hence can be regarded as clearly inventive having regard to the known use. Similarly, I find that it would be known to the unimaginative addressee that provision of a chamfer to the beads delayed charring by lessening direct radiation through the glass. In this light, the proprietors have again not convinced me that the lower limit of 110° specified in the claim is inventive in itself, particularly since it appears to be not significantly different from that of the prior figure I construction (which seems to be *circa* 106°).

When it comes to the remaining differences concerning the intumescent material and the fixings, however, I come to the opposite view. I have considered the "beefing up" proposition by the applicants but am guided by Mr McDougall's evidence that the achievement of 60-minute integrity performance requires more than a two-fold increase over that required to achieve a 30-minute integrity performance and likened it to more like a four-fold increase. The choice of a high pressure-generating intumescent material was deliberate with firm clamping of the softened glass pane in mind. The evidence does not establish that Palusol was capable of performing that function in 1984 or, if capable, was **known** to be capable of performing that function in 1984. Moreover, the extension of the bead fixings to a position beneath the opposite bead is not something the prior art suggests. The applicants have pointed to the minimal degree of such penetration. That may be so, yet it was something clearly deliberately done and specified as essential to the invention. The proprietors evidence explains why. It is to ensure that the distal ends of the fire-side fixings are located in sound wood on the protected side of the glazed structure. Then, although the unprotected timber beads on the fire face may char away

completely, nevertheless the structure is held together by the bonding of the intumescent to the charcoal residue of the beads and the wedging of the latter around the fixing screws. Both features lead back to the inventive concept of supporting larger panes for a longer period using untreated wood beads.

I feel supported in my view regarding obviousness by two pieces of evidence supplied by the applicants themselves. The first relates to something Mr Mann said when giving oral evidence. When questioned by myself regarding earlier statements he had made regarding failure of the intumescent/glass pane seal by virtue of the pressure of the expanding intumescent on the non-fire side, there was the following exchange:

Q. "In view of that, were you surprised to get a 60-minute fire-resistance quoted for a product of this order?"

A. "This was my whole reaction when I saw the publication of this patent. Does that work? It cannot possibly work in the way that it is described, because that was the reason for my contesting this whole issue. I thought it was a patent that should never have been granted in the first place."

The second relates to two drawings that the applicants have provided as exhibits (Exhibits LPP03 and LPP04) being drawings for 60-minute fire-resistance systems dated 27 February 1983 and apparently produced or at least initialed by Mr Mann for the applicants. Exhibit LPP03 was originally specified as a prior document for novelty and obviousness purposes, but was later excluded by amendment of the applicants statement. These drawings are now said to be exhibited as indicative of the way the applicants themselves were thinking before the priority date (and hence purported to be of some relevance to what was obvious to the man skilled in the art), without any suggestion that they are prior published and can be directly used to attack the present claimed invention. Exhibit LPP03 is of particular potential significance in that it is the only piece of documentation that I have seen clearly suggesting the use of fixings extending across the median plane to beneath the opposite bead and, moreover, in a 60-minute context. The construction is otherwise somewhat similar to that of the patent in suit but there are differences,

eg the hardwood beads are treated with intumescent paint rather than being untreated and have a flat ledge to the glass side of the chamfer. The intumescent material specified is Palusol. Exhibit LPP04 is again a drawing for a 60/60 system but is directed to a system of the U-shaped channel ('Monolux') type. Apparently, samples were made of both systems and tested, both successfully. However, the applicants considered the LPP04 (channel) system as likely to provide the better option and performance and chose that as the basis for their own patent (the 166 patent) whilst turning their back on the option with more similarity to the system of the patent in suit. I take this as an indication as to the thoughts of those skilled in the art at the relevant time.

I find that the applicants fail in respect of the pleaded ground of obviousness.

(2) Insufficiency

The insufficiency issue rests upon the ability of the bare teaching of the patent in suit to reliably produce a system satisfying the functional requirements of the claims, *ie* one having one-hour fire-resistance to BS 476 Part 8: 1972. The issue is complicated by two factors - firstly, as expert evidence has made very clear, passing or failing that standard is not a black-and-white issue; secondly, in the years since the patent was published the original BS 476 Part 8: 1972 (the '1972 test') has been replaced by the later BS 476 Part 22: 1987 (the 1987 test'). The applicants, in effect, raise insufficiency as the other side of the coin from obviousness, *ie* if there is anything inventive in the patented system, then it is not disclosed and the patent is insufficient.

In relation to the insufficiency issue, I had the benefit of hearing expert evidence from Messrs Williams and Jackman. I must say that I found both witnesses to be extremely fair, knowledgeable and helpful.

With regard to this issue, both counsel again took me to some of the well known authorities, in particular **Biogen** (*supra*). Mr Bragge also drew my attention to the older decision in **Vidal Dyes v Levinstein** (1912) 29 RPC 245 at page 279 regarding the duty of a patentee as regards disclosure. Mr Colley, on the other hand, took care to try to distinguish **Biogen** by virtue of the new technology to which it relates which is of a very different type from the patent in suit. He

argued that for an invention such as the proprietors are claiming in this case, which is of a much narrower ambit than was the case in *Biogen*, the prior test of *Molnlycke v Procter and Gamble* [1992] FSR 549 (eg at 'Held 16') was still applicable, ie that it was enough for the skilled man to be able to produce a single embodiment using the information disclosed in the specification and common general knowledge. He also referred to *General Tire* (supra) at pages 514 - 515 to support experimental trial by the skilled addressee, and to *No Fume Ltd v Frank Pitchford Co Ltd* (1935) 52 RPC 231 at pages 243-246 and *Dual Manufacturing & Eng. Inc's Patent* [1977] RPC 189 at page 192 as support for it being proper to define an invention of the kind of the patent in suit at least in part by its performance. Once again, I shall take appropriate note of these authorities.

The applicants' approach to the lack of sufficiency has been to adduce evidence of integrity tests in which samples constructed according to claim 1 of the patent did not pass the test of one-hour fire-resistance to BS 476 Part 22: 1987 (the 1987 test). These tests form Exhibits RM6 and RM10 and relate respectively to the Warrington Fire Research test report no. 53399 and the TRADA test report no. RF94002. The respective failures of these integrity tests occurred at 45 minutes and 54 minutes. With regard to the comparability of the 1972 and the 1987 tests, the applicants maintain they are basically the same when applied to glazing systems. In particular, in both tests the test furnace is run at the same temperature/time curve and at the same pressure. The only differences according to the expert witnesses are that the 1987 test is more specific in its requirements and that the same temperature may be achieved earlier in the furnace under the 1987 test than the 1972 test. This could require 5 or 6 minutes to be added to a 1987 test result to provide comparability with the result of a 1972 test which of course is not now available to testers. However, even with this added "equivalence" factor, only one of the two tests meets the one-hour fire-resistance requirement of claim 1 of the patent.

The proprietors, however, have relied upon TRADA test report no. IT 198 A (Exhibit KRP12) which is to the 1972 test standard, and test report no. J90043/2 by SGS Technical Services (Exhibit KRP7) which is to the later 1987 test standard. These integrity tests achieved 64 minutes and 66 minutes respectively. The independent TRADA "re-test" (Exhibits CPAH1, CPAH2) ordered following the first preliminary hearing (and which gave failure at 53 minutes under the

1987 test) is clearly the subject of controversy between the parties and, in my opinion, has not assisted in clarifying the situation concerning either comparability of the 1972 and 1987 tests or the repeatability and reproducibility of the two tests.

It is clear from the evidence provided by the expert witnesses that testing is a variable experience. This may be due to certain variations, such as in the properties of the natural materials and the intumescent materials used, the construction of the samples to be tested, the testing parameters, the type of furnace and the location of the test samples in a furnace. Thus, one can never be sure that a particular sample will pass or fail. Viewed in this light, it would appear unreasonable to expect the patent to guarantee 100% success. However, this becomes academic in my view when one considers that 100% success is not in any case required. Meeting the one-hour fire-integrity standard requires only a single pass and a manufacturer can continue to submit samples until this is achieved. This has clearly been achieved by the proprietors and appears determinant in their proceeding with their patent application. What it says about the safety levels in fact provided by the purported standard is another matter. Furthermore, the expert witnesses have confirmed that there are tolerances to be expected on both the repeatability and the reproducibility of the 1972 and 1987 tests of +/- 5%, which renders all the retesting that has been done to the later standard, to my eyes, of dubious value.

I thus find it unproven both as regards the relative validity of the various test results submitted by the parties, and also as to whether or not (and to what degree) a 'fail' under the 1987 test equally constitutes a 'fail' under the earlier 1972 test. Thus, I do not find it to be established by the evidence that the patent is insufficient in that it clearly fails to provide the skilled addressee with the information to achieve one-hour fire-resistance with a reasonable degree of certainty to the standard required by the now defunct 1972 test. I must note with further regard to this subject, that I was surprised to hear the proprietors' claim whilst giving oral evidence that two third party companies (I think the names mentioned were "Shapland and Petter" and "Norberne Doors") had produced successfully systems according to the patent in suit, at least one without reference to the proprietors. It seems to me that if evidence had been obtained from such third parties, then it may have avoided much of the testing and resultant delay that has dogged these proceedings.

The applicants have also relied upon the comments made by the TRADA testing officer (Mr Kettle) in the successful TRADA test of Exhibit KRP12 that the fixings had acted as sprigs to retain the glass. They point to the fact that the description of the patent is silent in this respect, and hence if this feature is essential, then insufficiency exists. However, the proprietors have never postulated that success or otherwise has been due to the fixings acting as sprigs (in the normal glazing sense of the term) and clearly, from the drawing of the patent, the fixings do not touch the pane of glass as one would expect if they were acting as sprigs.

For the reasons I have given above, I therefore find that the applicants also fail in respect of the pleaded ground of insufficiency.

(3) Added subject matter

Although originally pleaded, in the event the applicants did not pursue this ground at the hearing. It was based upon the fact that later filed claim 1 of the patent in suit covers systems involving glass panes of any size, whereas the description suggests applicability only up to panes of size 1.2 m². The context of the invention is clearly set out in the introduction, however, and the later filed claim finds full support in the original statement of invention. I also dismiss this ground.

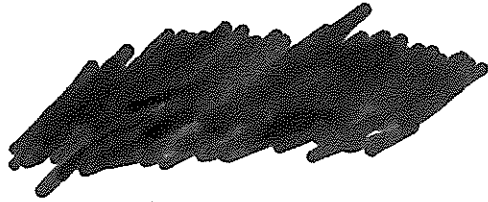
(4) Conclusion

In summary therefore, I find that the applicants Lorient Polyproducts Limited have failed in respect of all the pleaded grounds of revocation of Patent No. 2155982.

Finally, I must turn to the question of costs. Since the applicants have not succeeded in their application for revocation, the proprietors are entitled to costs. Accordingly, I order Lorient Polyproducts Limited to pay Mann McGowan Fabrications Limited £1735 (one thousand, seven hundred and thirty-five pounds) as a contribution to their costs. In reaching this figure, I have taken into account the reasons for and outcome of the two preliminary hearings, and the inconclusive outcome of the joint re-test, and have decided that these costs should be shared.

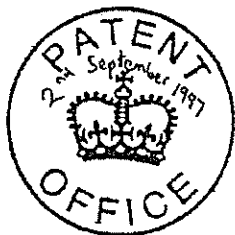
The period within which any appeal to the Patents Court from this decision must be lodged is six weeks from the date of the decision.

Dated this 2nd Day of September 1997



G M BRIDGES

Superintending Examiner, acting for the Comptroller



THE PATENT OFFICE