

0152/93

PATENTS ACT 1977

IN THE MATTER OF Patent Application
No. 8912243.6 by Flexible Directional
Indicators Limited

DECISION

This decision follows an ex parte hearing before me on 26 January 1993, at which the applicant was represented by counsel, Mr J Turner, instructed by solicitors, Messrs Taylors, and the examiner, Mr M J Pennell, was also present.

There are two issues to be decided: first, whether the specification as now amended under section 18(3) complies with section 76(2), or alternatively discloses matter extending beyond that disclosed in the application as originally filed and, second, whether the invention claimed involves an inventive step as required by section 1(1), over the following pieces of prior art:

UK Patent No. 1,526,848 (Grandview Industries Limited), which I shall refer to hereafter as "Grandview", and

an advertisement by Adaptaform Plastics Ltd on an unnumbered page of "Traffic Engineering and Control", March 1987, which I shall call "Adaptaform".

The application relates to a traffic bollard characterised by the material from which it is made and by its resulting resilience. In one alleged embodiment, which the applicant is already manufacturing and selling, the bollard comprises a base, including a light source which, in use, is firmly secured to the ground, and mounted on the base, a

hollow moulded body of "EVA", a copolymer of ethylene and vinyl acetate. This bollard is said to be capable of deforming on collision with a vehicle to the extent that the EVA body can be flattened by the impact and yet fully recover its original shape, without damage, once the vehicle has passed over. A videotape film, shown in part at the hearing, appeared fully to confirm this.

No claims were filed with the original application, these being added later in accordance with section 15(5), but the scope of the invention was defined in a statement at the top of original page 2 which read:

"According to one aspect of the present invention a bollard comprises a hollow body moulded from a compound of ethylene vinyl acetate and at least one other polymer material."

According to this statement, then, and in contrast to the alleged embodiment described above, the bollard of the invention was said necessarily to require the inclusion of "at least one other polymer material" in addition to EVA.

A month after the application was filed a statement of claim was received including an independent claim which accorded generally with the statement of invention in that it covered a bollard which was moulded from a compound including both EVA and a second polymer, subject however to the additional limitation that it be "flexible and resilient whereby it can withstand a minor impact from a vehicle without sustaining structural damage".

During examination this statement of claim was amplified considerably and now includes two substantive independent claims, 1 and 6, which read as follows:

"1. A bollard arrangement comprising a bollard having a rigid base, a hollow body and fixing means fixing the body to the base, the base being permanently secured to the ground and the body being made from a compound including

ethylene vinyl acetate, copolymer, and being generally rectangular in horizontal cross section, characterised in that the body is moulded to be rigid and hard to feel but will upon impact with a vehicle resiliently deform, the construction of the bollard being such that impact of a vehicle with the bollard will result in resilient deformation of the body and such that no structural damage will be done to the bollard as a result of such impact."

"6. A bollard comprising a rigid base, which in use is permanently secured to the ground; a hollow body; and fixing means fixing the hollow body to the base, the bollard containing a light source and the body being made from a compound including ethylene vinyl acetate copolymer, characterised in that the body is formed to provide the characteristics that: the body is translucent and can be illuminated by the light source; that the body is rigid and hard to touch; and that the body will, upon impact by a vehicle, resiliently deform the construction of the bollard being such that impact of a vehicle with the bollard will result in resilient deformation of the body and that no structural damage will be done to the bollard as a result of such impact."

Accordingly, these claims further limit the scope of the invention, as defined in the previous statement and claim, by reference to various structural features of the bollard and by a revised definition of its resistance to vehicle impact, but they also broaden the area claimed to the extent that they no longer require the presence of a second polymer ingredient.

The examiner objected that these claims constitute additional subject-matter contrary to section 76(2) and that they lack an inventive step over the prior art. In making these objections he took account of three sets of section 21 observations received from two different third parties, dealing with the added subject-matter point and drawing his attention to several pieces of trade literature in relation to the question of inventive step.

In due course, there being no agreement between the examiner and the applicant on these two outstanding questions, they came before me at a hearing as set out above.

At the hearing Mr Turner dealt first with the question of obviousness, but I think it may be easier if I consider the allowable scope of the claims before attempting to determine whether or not they contain an inventive step. Accordingly, I shall start with the added subject-matter point and begin this by looking at the various legal precedents.

In so far as it relates to the present circumstances, section 76(2) reads as follows:

"No amendment of an application for a patent shall be allowed under section... 18(3)... if it results in the application disclosing matter extending beyond that disclosed in the application as filed."

Various decisions of the Patents Court, under this section, appear to have indicated that an amendment which extends the scope of the original claim amounts to a disclosure that the invention is workable throughout the wider newly claimed area. Accordingly, such amendments have been disallowed as added subject-matter where there was no indication, elsewhere in the specification as originally filed, that the invention could be worked more widely than was first claimed.

For example, in *Protoned BV's Application* ([1983] FSR 110), the invention as originally described and claimed related to a mechanism for adjusting the seat and back of a chair which used the cooperation of a gas spring and a mechanical compression spring. The applicant sought to delete from the claims the word "compression", and argued that a skilled reader would at once realise that a tension spring could be used equally effectively. This was rejected by Whitford, J, who stated that even if this were accepted to be the case, the amendment was not allowable, since it added notionally to the body of the specification a whole range of springs not hitherto referred to.

Mr Turner considered that this was too limiting an interpretation of section 76(2) and was not in accordance with recently reported decisions, including a decision of the Court of Appeal on *A C Edwards Ltd v Acme Signs & Displays Ltd* ([1992] RPC 131). This case related to a sign for displaying petrol prices outside a garage. It was an infringement action in which the defendant claimed, *inter alia* that the amended claims of the granted patent, which were narrower in scope than those originally filed, nonetheless introduced additional subject-matter, because they included some, but not all, of the features of the specific embodiment. The amendment was thus of a type which is sometimes referred to as an intermediate generalisation and somewhat different from that presently before me. Nonetheless, I accept that general principles set down in this decision could be applicable to the present case.

In the *Edwards* case it was the contention of the defendant that the granted claims disclosed, not only the features to which they specifically referred, but also particular features of the embodiment which they embraced but on which the claims themselves were silent. In refuting this argument Fox, L J drew a distinction between what a claim covers and what it discloses and indicated that the two are not the same. He says, for example, at page 142, line 9 that "as a source of disclosure, the claims are no different from any other source" and finds that the claims before him cover the specific features on which they are silent, but do not disclose them. I understand from this that the claims in the present case also cover, but do not disclose, features on which they are silent. However, I do not find this helpful in answering the question before me, which I see as this: do the claims of the present application, and in particular the amended claims at present on file, disclose that the invention is workable throughout the whole area which they define, and if they do, does this constitute an addition of subject-matter over the specification as originally filed, which seemed, explicitly at least, to suggest that the workable area was more limited? It does not appear to me that the part of the Court of Appeal's decision to which I have referred above, changes previous practice on this subject.

The Edwards decision also deals with another question, that of implicit disclosure, and in line with other decisions recently issued in the United Kingdom and by the European Technical Board of Appeal, confirms that, as a patent specification is addressed to a person skilled in the art, its disclosure will include, not only that which is explicitly stated, but also anything else which the skilled reader would find implicit. For example, beginning at page 144, line 20, Fox, L J says:

"But if I am wrong about that there is a further aspect. That is the question whether the three matters in question were, in any event, implicitly disclosed to a man skilled in the art by the contents of the specification as filed. Aldous, J concluded that they were.

The principal of such implicit disclosure is accepted in the decisions of the European Technical Board of Appeal to which I have referred (and of which we have to take judicial notice – section 130(7) of the Patents Act 1977)."

Mr Turner also referred me to four decisions of the European Technical Board of Appeal on implicit disclosure. Before looking at any of these, however, I need to consider their relevance to UK practice, under section 76. Section 130(7) of the UK Act provides a list of other sections which have been framed to have, as nearly as practicable, the same effects in the United Kingdom as the corresponding provisions of the European Patent Convention. Section 76 is not included in this list. However amongst the sections which are covered is section 72(1)(d) and this is the subsection which provides for revocation of a granted patent on the ground of added subject-matter. Subsections 72(1)(d) and 76(2) are couched in almost identical language and both correspond closely to equivalent Articles 100(c) and 123(2) of the European Patent Convention. In view of this correspondence, it seems desirable, for consistency, that European decisions on added subject-matter be taken into account in UK proceedings to the same extent before grant as they are after grant, and I am satisfied, therefore, that it would be proper for me to take notice of the European decisions to which I have been referred.

The first of these, Thomson-CSF (Decision T 151/84, [1988] 1 EPOR 29), relates to an application for a collector for a high frequency tube. During examination the applicant sought to amend the claim by omitting, from the collector, inter alia the required presence of one or more permanent magnets. This amendment was allowed on the ground that the skilled reader would see an implicit disclosure in the original specification that the magnets constituted an advantageous, but not indispensable characteristic of the invention. On page 31 of the decision the Board of Appeal states:

"3. In order to determine whether or not the modification made to a claim extends the subject-matter of the patent application beyond the contents of the application as filed, it is necessary to find out whether the resulting overall modification to the contents of the application (whether by addition, modification or withdrawal) is such that the information presented to the skilled man is not derived directly and unambiguously from that which the application contained previously, even taking account of the elements which are implicit to the skilled man (Guidelines for Examination at the EPO, C-VI, 5.4). In other words, it is necessary to find out whether the new claim presented is supported by the original description.

3.1 In the case in point, the important thing is therefore not that a logical analysis of the text be carried out in order to determine whether or not the initial intention of the applicants was to limit the protection claimed to the particular combination of characteristics described and represented, but rather that it be discovered whether the skilled man reading the patent application as filed would consider that the characteristic under discussion, namely the presence of permanent magnets, is or is not a characteristic which indispensible to the operation of the device described in the application."

Mr Turner concluded from this decision that the proper scope of the invention is not determined simply by looking at the "legal information" disclosed in the original application. One needs rather to consider whether any "technical information" has been

added. The question to be asked is whether the amended claim is justified on the basis of the original disclosure. Thus deletion of a feature which is not essential from a technical point of view would not constitute an extension of the subject-matter disclosed.

Mr Turner's second European decision was that on another application by Thompson-CSF, namely Decision T 467/91 ([1991] 1 EPOR 115). This application related to a means for winding an optical fibre around the stem of a gyroscope. The original claim and worked examples all required that a single turn was formed on the inner wall of a central channel of the winding spool. The applicant sought to remove this requirement and was allowed to do so because the specification included a passage, which did not specify this as an essential feature of the invention. In its decision the appeal board said:

"The teaching which the person skilled in the art will draw from the repeated statement of this characteristic (a single inner turn) in the description of the invention is that this is an extremely preferable although not essential embodiment, subject to the number of inner turns not interfering with the operation of the spool . . . Although the new independent claims do not explicitly mention such a limitation, it is in the Board's opinion implicitly included when these claims are correctly interpreted in the light of the description."

The third European Technical Appeal Board case to which I was referred, *Contraves* (T 172/82, [1979-85] EPOR 668), relates to an auxiliary device for a particle analyser which was originally defined in terms of seven essential features. The applicant sought to broaden the scope of the claim by removing one of these features, and was permitted to do so by the appeal board because it would have been obvious to a skilled reader of the original specification that this feature was not important to the invention and its deletion was in the nature of a clarification or resolution of an inconsistency.

In its decision, the Board had this to say on the general question of omitting features from a claim:

"The board is aware that cases can arise in which the removal of a feature leads to an inadmissible alteration of the subject-matter of the application, a fact illustrated by the example given in the Guidelines for Examination under C-VI, 5.8. In that case deletion of the outer-layer feature would result in a different laminate panel to that originally claimed. A decision therefore has to be made according to the circumstances of each case as to whether (a) the sole purpose of omitting a feature is to clarify and/or resolve an inconsistency or (b) whether it inadmissibly amends the subject-matter. The Guidelines for Examination even permit , in some cases, the inclusion of features not originally disclosed, in so far as they are intended to provide an obvious clarification and can be shown to be well known to the person skilled in the art, cf. C-VI 5.6. What applies to the insertion of features must apply mutatis mutandis in equal measure to the deletion of features."

Mr Turner's final European decision was GEC Alsthom (T151/84, [1990] 1 EPOR 287). This is concerned with a device for homogenising immiscible fluids in a horizontal pipeline by drawing off some of the fluid and re-injecting it back through spray nozzles arranged to atomise the remaining dispersible fluid. Amendments sought to omit the requirement that the pipeline be horizontal and a limitation that the drawing-off duct be situated in the zone where the concentration of the dispersible fluids was gravity enriched. These amendments were allowed on the grounds that:

" The board is of the opinion that the person skilled in the art, reading the description as filed, which refers to a generally horizontal pipeline and the possibility of evacuating fluid taken from the upper or lower zone of the pipeline, according to whether the dispersible phase is lighter or denser than the continuous phase, would supplement this information with his own general knowledge that, sometimes, these types of oil pipelines run vertically, or

practically vertically. In such case, it is obvious to the person skilled in the art that there could be no concentration by gravity.

It would not be equitable to deny the appellants the right to cover in the claims embodiments which would be obvious to a person skilled in the art on reading the initial text of the description, ..."

Mr Turner saw these cases as supporting his submission that in looking at the original specification as at the accredited date of filing to see what was disclosed, I should not only take account of the explicit disclosure, but also consider what would be implicit to the person skilled in the art. I accept this, although I do see a distinction, between matter in the specification which is implicitly disclosed to the skilled reader and other matter which is not disclosed at all, but which the skilled person might see as an obvious addition. The former appears to me to be allowable, but the latter not. For example, in *Bonzel and Schneider (Europe) AG v Interventions Limited* ([1991] RPC 553) Aldous, J set out a three stage test for added subject-matter in a granted patent as follows:

- (1) to ascertain through the eyes of the skilled addressee what is disclosed, both explicitly and implicitly in the application;
- (2) to do the same in respect of the patent as granted;
- (3) to compare the two disclosures and decide whether any subject-matter relevant to the invention has been added, whether by addition or deletion. The comparison is strict in the sense that subject matter will be added unless such matter is clearly and unambiguously disclosed in the application either explicitly or implicitly.

I see this as an appropriate test to apply to the present application.

Having considered the various legal precedents, I turn now to the question of how these read on to the present application. The specification in suit, as originally filed, was quite short. It began with a title and opening paragraphs of description which indicated that traffic bollards have traditionally had poor resistance to impact. Indeed, in order to minimise damage to vehicles which strike them, they have been deliberately designed to collapse and deform, suffering irreparable damage in the process, even when the impact is relatively light.

The object of the invention was said to be the provision of a bollard which could withstand at least a minor impact from a vehicle without sustaining appreciable damage. A preferred embodiment was said to exceed this minimum requirement to the extent that it could be run over by a vehicle without sustaining substantial damage and without damaging the vehicle involved.

There then followed the statement of invention, which I have set out above, and which appears to limit the invention to bollards made from a mixture of EVA with another polymer.

The remainder of the specification disclosed other optional features of the invention and described and illustrated a worked embodiment. I do not think that I need go into these parts in detail, but I should observe that at the top of page 3 the worked embodiment is said to be formed from "a compound comprising EVA copolymer and one or more other polymers" and that there was no explicit suggestion elsewhere in the specification that the presence of a second polymer was other than an essential requirement of the invention. However, no particular second polymer was identified.

As an indication of how the skilled person would approach this specification I was referred by Mr Turner to the evidence of Mr H V Houghton and Mr H Luther. Mr Houghton is the managing director of a company which makes traffic cones, road signs and other highway equipment, who has 20 years experience of moulding plastics. He confirms that EVA is a copolymer of ethylene and vinyl acetate ("VA"), which can

contain varying proportions of the two ingredients and becomes softer and more flexible as the proportion of VA is increased, with standard commercially available formulations containing 15 to 30% of VA.

The properties of a particular EVA formulation can also be varied by mixing it with low-density polyethylene ("LDPE"), and, although not preferred, this is sometimes done in practice. Moreover the reverse, that is to say, as I understand it, the addition of EVA to LDPE to make it more flexible is quite commonly done. According to Mr Houghton, the possibility of mixing LDPE and EVA to vary the properties of the product would be known to anyone experienced in the field of moulding polymer products.

However, Mr Houghton does not make any mention of the present application and, for this reason, I see his evidence as providing background information only, on what the skilled reader would find explicitly and implicitly disclosed in it.

The present application is mentioned by Mr Luther, who is chairman of the applicant company. He points out that this application claims priority from an earlier application No. 8812710.5, which was concerned with a flexible bollard made from a compound of rubber and a hard polymer material. He says that this compound proved unsatisfactory and his company therefore decided to investigate others, culminating in the use of EVA at the suggestion of Mr Houghton's company. According to Mr Luther no other polymer is mixed with the EVA in the bollards which his company manufacture and sell and it was his intention that the present specification should relate to bollards made essentially from EVA. The inclusion of reference to another polymer was a misunderstanding between himself and the company's patent agent. Mr Luther points out that the present specification as originally filed fails to specify the other polymer material or the proportions to be used and concludes:

"I am quite clear therefore that the revised specification was intended to specify a bollard material which was essentially E.V.A., *ie.* E.V.A. plus small amounts of additives such as U.V. stabilisers, whiteners, etc."

I read this statement in context, as an indication by Mr Luther of his own belief concerning the intended content of the specification, based on what it actually contained and on his knowledge of how it came to be drafted. I do not see it as an indication of what a person who was skilled in the art, but did not have the advantage Mr Luther's inside knowledge, would find explicitly or implicitly disclosed in it.

In some respects Mr Luther's evidence seems more relevant to the question of correcting an error within the terms of section 117 than to amendment within the terms of section 76(2). However, no application to correct an error in the present application has been received and I can make no comment here on whether or not such an application would be successful.

Mr Turner's first observation on the original specification was that references in it to a "compound" of EVA and another polymer were unfortunate as ethylene vinyl acetate does not react with the other polymer to form a chemical compound. However, I notice that this point is not echoed by the skilled deponents, who are plastics manufacturers. They are not pure chemists and I have no reason to think that they would put the same pure chemist's interpretation on the word "compound" as Mr Turner. I also notice that the same word is still present in the amended specification.

I accept, Mr Turner's second point, that the skilled reader would find it surprising that no minimum proportion of the other material is specified, this is implicitly supported by Mr Luther, but his third point I do not accept. This turns on the flexibility required of the bollard, as described on page 3, lines 3 to 11. According to Mr Turner, relying on Mr Houghton's testimony, the skilled reader would know that this flexibility could be provided by EVA alone and would not see any reason, for the addition of another polymer. However this seems to me to run contrary to paragraphs 3 to 5 of Mr

Houghton's affidavit which indicate that it is quite common in the art to mix LDPE and EVA to provide a flexible product and the possibility of mixing LDPE with a standard formulation EVA to vary the properties of the product would be known to anyone experienced in the field of moulding polymer products. Neither Mr Houghton nor Mr Luther deal explicitly with this point and I see the clear purpose of including the second polymer to be adjustment of the resilience of the product. Moreover, I see this purpose as explicitly disclosed at page 3, lines 7 to 9 which read "However the presence of EVA in the body moulding compound is such that the whole body is resiliently deformable..."

As indicated above, although I have sworn evidence from skilled deponents on this application, I have no direct evidence on what a skilled person would find disclosed, explicitly or implicitly, in the original specification. I do have helpful background information from Mr Houghton and Mr Luther and I have the submissions of Mr Turner. Taking all these into account, I note that the specification as originally filed set out to provide a traffic bollard which would withstand minor impacts from vehicles without damage and in its preferred form could safely be run over by a vehicle. The statement of invention suggests to me that these desirable, and in the limit demanding, properties, were to be realised entirely by moulding the body of the bollard from a composition of EVA and another polymer. No other relevant factors were mentioned in the statement and nothing explicitly in conflict with it was to be found elsewhere in the specification. I note that the other polymer was not specified, but the evidence of Mr Houghton seems to suggest, first that the skilled reader would have little difficulty in identifying LDPE as a possible second polymer and, secondly that the ratio of the two ingredients could readily be determined by trial and error. I have little doubt that the skilled reader would have been surprised by the failure to specify any particular second polymer, but I do not consider it likely that he or she would conclude from this that an element of the invention, which was consistently said to be essential, was not in fact so. Accordingly I see the original specification as disclosing only bollards moulded from a composition comprising EVA and at least one other polymer. There appears to be no dispute that the amended description and claims extend beyond

this and, in so far as they do I find that the application fails to comply with section 76(2).

I now turn to the question of obviousness, and in doing so, must consider the inventive concept of the claims, not only as they now stand, but also as notionally amended to comply with section 76(2).

The examiner's objection on this point comes essentially to this, that the bollards claimed in present independent claims 1 and 6 are of known structure, their characterising feature being the resilience which they derive from EVA polymer. However, other resilient items of highway equipment, made from EVA have already been disclosed in the two cited documents and, in the examiner's opinion, it is not inventive to use this known material, for its known properties, in making a resilient bollard.

An example of a prior art bollard, which includes many of the features of the present invention is the "Baselite" manufactured by Haldo Developments Ltd and referred to in the section 21 observations. This bollard comprises a rigid base, which in use, is permanently secured to the ground, a light source and, mounted on the base, a hollow, moulded, translucent body, hard to the touch, generally rectangular in horizontal cross-section and capable of illumination by the light source. However, this body does not contain EVA. It is made from low or medium density polyethylene and is fixed to the base by shear pins, which will break when the bollard is struck by a vehicle, thereby allowing it to be released and re-positioned afterwards. This bollard, then, displays all the features of present claims 1 and 6 except for the composition of the body and the requirement that it will resiliently deform, without damage, on impact by a vehicle.

At this point, I should observe that one of the third parties, which filed observations under section 21, claimed that the "Baselite" bollard is resilient and, in response to this, Mr Turner handed up a number of excerpts from well-known dictionaries in an attempt to substantiate that, on a strict interpretation of the word, this is not so. I have

reservations about the value of dictionaries as means of determining what the person skilled in the art would read into a patent specification. I note that an article in the "Guardian" newspaper, which was filed as a third party observation, refers to the "Baselite" as a "Bouncing bollard" and that a brochure on it, handed up by Mr Turner, suggests that it may to some extent deform resiliently under attack by vandals. But it seems clear from this same brochure that its normal response to vehicle impact is to separate between the body and the base. Accordingly, it may have a limited degree of resilience, but I do not see this as sufficient to comply with the requirements of present claims 1 and 6.

The Grandview specification relates to a traffic marker post of the type which is permanently installed to indicate the edge of a road. In the embodiment shown, it is a simple hollow cylinder, partly buried in sand in a hole in the ground. Claim 1 is for:

"A traffic marker post for highways, airports, parking lots and the like, comprising an elongated extruded tubular main body of polymeric material, said body being substantially homogeneous and comprising 100 parts by weight polyethylene, of a density from 0.91 grams per cu. cm. to 0.94 grams per cu. cm., 1.5-27 parts by weight of at least one modifier selected from ethylene-vinyl acetate copolymers and ethylene-ethyl acrylate copolymers, and 0.5-5 parts by weight of at least one finely particulate solid filler or pigment material, the marker post being capable of being struck and traversed by a moving vehicle at temperatures at least as low as 0° F, without being broken or permanently deformed, when one end portion of said body is embedded in the ground and at least substantially filled by filling means which are not substantially compressible under forces applied thereto via said body when the post is struck by a vehicle."

This traffic marker, then, is made from a mixture including EVA or ethylene/ethyl acrylate copolymer and LDPE. Of the four worked examples described, three use EVA

and one uses the other copolymer. The properties of the product are described between page 1, line 83 and page 2, line 12 of the specification:

"In its preferred forms the traffic marker post will not only survive being struck repeatedly by vehicles under conditions encountered, e.g., in parking lots, but also survive being struck and run over repeatedly by vehicles under the relatively severe conditions encountered when the markers are used as roadway markers. For example the post may be such as to survive being struck by vehicles not only at normal ambient temperatures but also at sub-zero temperatures and yet serve at temperatures as high as 100° F.

Desirably the traffic marker post has at least a major portion which is white and which will retain a high optical visibility over long periods of exposure to severe and varying weather conditions, and is such that, when run over by a vehicle, will return substantially to its original upright position promptly after being traversed by the vehicle e.g. at up to 60 m.p.h."

This specification, then, discloses a piece of highway equipment, moulded from a composition of EVA and another polymer material, used expressly for its ability to withstand impacts from vehicles by deforming and then returning to its original conformation. It is explicitly stated that it can be run over by a vehicle travelling at 60 miles per hour and still return substantially to its original upright position.

The Adaptaform advertisement shows a selection of items of highway equipment, including traffic cones, a cylindrical marker post, a "piquet marker" and bases therefor. The advertisement is more concerned with the structure and appearance of the items than the material from which they are made and fails to indicate the normal material of manufacture. But it includes a footnote which reads:

"All items are available in EVA co-polymer which adds to the hard-wearing properties and continued flexibility, even during low temperature situations."

Unlike the present bollard and the Grandview traffic marker post the items shown in this advertisement do not appear to be intended for permanent use. They are shown, for example, temporarily de-marking motorway roadworks. They do, however, include a base which is self-adhesive for sticking to the ground and a cylindrical marker post for mounting on it. The wording of the footnote gives the impression that EVA is well known for its use in highway equipment, particularly where hard wear and flexibility are required.

Prima facie it does not seem at all unlikely that someone wishing to improve upon the "Baselite" bollard and being aware of the Grandview specification or the Adaptaform advertisement or both would see obvious possible advantages in using EVA or a composition of EVA with another polymer to render the bollard flexible. Against this, Mr Turner, as I see it, made essentially three points.

For the first of these he drew again on the evidence of Mr Houghton and Mr Luther in attempting to establish that the uses of EVA in the Grandview marker post and Adaptaform advertisement were quite different from its use in the invention.

Mr Houghton's evidence on this subject reads:

" I am familiar with a piquet marker formerly marketed by Adaptaform Plastics Limited. This was made from a mixture of 50% Exxon LDPE and 50% EVA containing 20% VA. Thus the overall VA content was 10%. There was a hollow base moulded from EVA containing 20% VA, which was normally filled with sand. this product was tough and impact resistant, but it was not designed to be resilient. If forced to lie flat, it would break or the base would keel over."

Mr Luther says:

"A piquet marker post is not a traffic bollard, but a marker post and cannot be considered similar. The Piquet marker is much smaller, of narrow rectangular section, and is not illuminated.

A piquet marker or a road post cannot be called a traffic bollard and could not be used as such. It is entirely distinctive to use E.V.A. for flexibility and resilience in a relatively large, illuminated rectangular structure in contrast to a much smaller, circular cross-section, non illuminated marker post as disclosed in GB-1526848 [Grandview]."

This evidence, taken in isolation, might appear less than fully conclusive as a counter to the examiner's obviousness objection, especially with regard to the Grandview specification. The two cited disclosures are both in the same general area of activity as the present invention and Mr Houghton admits that he was familiar with the Adaptaform products. Both citations suggest that EVA and compositions including EVA can be used in highway equipment to provide flexibility, and in the case of the Grandview disclosure to provide a high degree of flexibility and resilience close to that required of the present invention. It is true that there are some fundamental differences. The Grandview highway marker is smaller and of circular cross-section, and may, therefore, bend and straighten more readily than a rectangular shape. It is also mounted in sand rather than attached to a rigid base. The Adaptaform products are also smaller. They are free standing or mounted on a self-adhesive base and little information is given of their properties. Accordingly, there is no guarantee in either of the two prior disclosures that EVA could be successfully used to manufacture a bollard having the degree of resilience which the applicant requires. But both could be seen as suggesting that it might work and should be tried.

Mr Turner's second point was that the invention here is more fundamental than the use of EVA. It resides in the applicant's realisation that, contrary to current thinking, bollards can be made resistant to vehicle impact by use of a resilient body, rather than, by making the body detachable as in the "Baselite". Putting this another way, the

inventor is notionally approaching the prior art, not with the question, "How can I make a resilient bollard?", but with the more general point, "How can I make a bollard which is more resistant to vehicle damage or requires less maintenance than those presently available?". The Adaptaform disclosure appears to provide little help in answering this question. It relates to products which are to be used in a different manner and, although it briefly mentions flexibility, it give no indication of how flexible the products displayed really are. The Grandview disclosure might, however be seen as more relevant. It relates to a highway marker which is fixed to the ground, albeit in a not entirely rigid manner, and it states that this marker can be run over by a vehicle at speed without significant damage and return to its previous conformation, once the vehicle has passed. It seems to me that this disclosure might well be seen as providing the basis of quite a persuasive argument that it would be obvious to make a bollard resistant to vehicle damage by moulding it of a resilient material, such as EVA or a composition of EVA.

Mr Turner's third point was based primarily on the evidence of two further deponents, Mr J Wilson and Mr M A Richards. Mr Wilson is a qualified electrical and lighting engineer, who until recently was a maintenance engineer with Cheshire County Council. He states that over the last 10 years increase in road traffic and vandalism has caused problems in the maintenance of highway bollards. Much research has been done and some improvements developed, but as long as the bollards were rigid and fixed by shear bolts, they still suffered from frequent knockdown and required numerous maintenance visits. He continues:

"However in 1989, I became aware that Flexible Directional Indicators Limited, a manufacturer new to this type of product, had produced a new concept in bollard design, with a bollard which was fixed securely to a base illuminated unit. This new bollard, being manufactured from a flexible plastic material, when hit by a vehicle reformed back to its original shape without shearing from its base. This product provided the answer the maintenance team were looking

for. The newly designed base light unit also virtually eliminated damage to the light source and reduced any possible electrical hazard.

The concept of a flexible bollard securely fixed to a base also prevented it being an easy target for vandalism as well as providing a seal against the ingress of dirt and water to the interior. The new flexible bollard dramatically reduced the number of visits required by the maintenance team and in turn considerably reduced associated maintenance costs.

These units have now been widely installed and have proved very successful so much so that since their introduction, other existing manufacturers have realised the potential and are now producing their own versions of the product."

Mr Richards is a qualified mechanical and electrical engineer who runs his own consultancy business. From 1988 to 1990 he was managing director of a leading supplier of highway equipment, including bollards. He sets out the history of bollard production, from steel framed structures up to the "Baselite" described above. He confirms that the present applicant's bollard is flexible and can be run over by a vehicle without incurring damage and continues:

"Local authorities were quick to appreciate that the flexible bollard could result in very substantial savings to them by virtually eliminating maintenance costs.

Once the commercial viability of the product had been established many other companies who manufactured and supplied highway equipment copied the original flexible bollard produced by F.D.I. Limited and are marketing them successfully. Some local authorities and councils have in fact started specifying the use of the flexible bollard manufactured by F.D.I. Limited. Notable among them are Manchester, Bristol and Cheshire while others currently have the bollard on test. I estimate that 30% of all bollards currently being purchased are flexible with more interest being shown day by day."

On the basis of this evidence, Mr Turner pointed out that the problem of maintaining bollards damaged by traffic impacts or vandalism is not a new one. Mr Richards states that he has been aware of it for 10 years. The relevant prior art has also been in the public domain for a comparable time. The "Baselite" bollard is mentioned in an article in the "Guardian" newspaper dated 4 March 1980 and the Grandview disclosure was published in 1978. Accordingly, both have been available to the skilled highway engineer throughout this 10 year period to be brought together to solve the bollard maintenance problem. But this was not done until the present application was filed in 1989. Moreover, in the period since it was first marketed, the new bollard has become a considerable commercial success and, according to the evidence, is now being copied by other manufacturers. Mr Turner drew from these circumstances the conclusion that the applicant's bollard is a valuable product, meeting a long-standing need. Had it been obvious to make it previously on the basis of the cited prior art, then in his submission, this would have been done. As it was not done the invention cannot be obvious.

It cannot always be assumed, of course, that commercial success of a product results from its technical merit. It may, for example, derive from an attractive design or from vigorous promotion. But providing certain criteria are met, commercial factors have long been accepted by the Courts as strong indicators of inventive step. For example, in *Joseph Lucas (Batteries) Limited v Gaedor Limited* ([1978] RPC 297, from page 358, line 7) Whitford, J observed:

"In all these cases I am for my own part of the opinion that the question of obviousness is best tested, if this be possible, by the guidance given by contemporaneous events. It is upon this approach that we find the cases dealing with long felt want and commercial success being cited. If an invention has resulted in the solution of a problem which has been troubling industry for years and achieves immediate success upon its introduction, then the suggestion after the event that the step was obvious inevitably rings hollow."

I am impressed by the applicant's evidence on the commercial aspects of this case. Because of the short time span involved, it has not often been possible for commercial success to be demonstrated in pre-grant proceedings before the Comptroller and the fact that such a case has been assembled here appears, if anything, to strengthen the argument. This invention appears, indeed, to provide the solution to a long-running problem, which could have been solved earlier, but was not, and once solved resulted in considerable commercial success. Against this background, I cannot see that the invention can be obvious. Accordingly I find that the applicant's bollard does involve an inventive step over the cited prior art and I reject the examiner's objection under section 1(1) in respect of the present claims.

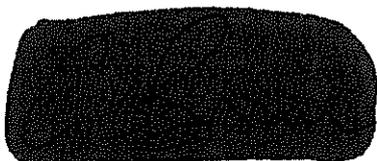
With regard to the claims as notionally amended to comply with section 76(2), I notice that the evidence of commercial success on which my above finding is based, the affidavits of Mr Wilson and Mr Richards, does not turn on the material from which the bollard is made. It is concerned with the resilience of the bollard, rather than with the way in which this resilience is achieved. On the basis of the Grandview disclosure, which uses a composition of EVA and LDPE, and Mr Houghton's evidence on mixing these two polymers to control resilience, I have no doubt that a suitably flexible bollard could be prepared from a compound of EVA and another polymer material and I am satisfied that if this were done, it would be drawing on the same inventive concept as an EVA bollard. Accordingly, I find that if, in response to the first part of this decision, the applicant were to amend claims 1 and 6 to restrict them to bollards which additionally satisfy all the requirements of the original statement of invention, such a claim would be acceptable within the terms of both section 1(1) and 76(2).

There is one further point which I need to address and that is the five sets of claims labelled "A" to "E" which were filed immediately before the hearing with a letter dated 19 January. Set B of these appears to be identical to present claims 1 and 6 and the remaining four sets provide alternatives to these claims, which differ mainly in the way in which they define the material from which the body of the bollard is made. Having given careful consideration to the various forms of wording used, I cannot see that any

of them necessarily requires the presence of a second polymer ingredient and, accordingly, I would not be prepared to accept any of them as satisfying the requirements of section 76(2).

Having found that the claims of this application are invalid, in so far as they fail to comply with section 76(2), I refuse to allow it to proceed to grant, unless and until it is amended to overcome this deficiency. As this decision is non-procedural and as this application is now close to the end of the period allowed under section 20(1) for putting it in order, this period will be extended under section 20(2) and by virtue of rule 19(2) of Order 104 of the Rules of the Supreme Court to end six weeks from the date of this decision. Any appeal must be lodged within this period and I shall allow the whole of this period for amendments to be filed and agreed to my satisfaction.

Dated this 15th day of March 1993



G C Brown

Principal Examiner acting for the Comptroller



THE PATENT OFFICE