



BL O/146/05

26 May 2005

PATENTS ACT 1977

BETWEEN

Spears Limited

Claimant

and

Skerra Pty Limited

Defendant

PROCEEDINGS

An application for revocation of patent number GB 2331295 B
under section 72 of the Patents Act 1977

HEARING OFFICER

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DECISION

1. This is an action for the revocation of patent number GB2331295 in the name of Skerra Pty Limited. The patent has a priority date of 18 November 1997. The claimant, Spears Limited, filed for revocation under section 72(1)(a) of the Patents Act on 6 November 2003.

The invention

2. The invention concerns a valve for filling and emptying beer kegs. The valve has an outer annular channel for filling the keg and a central extractor tube which reaches to the bottom of the keg for dispensing beer. A rubber sealing ring backed up by a spring, seals off both the annular channel and the extractor tube outlets. In order to fill the keg or dispense beer, a connector is attached which presses the sealing ring inward against the spring to uncover both the annular space and the extractor tube outlets. At the same time the connector makes separate connections to the two fluid paths.
3. The body of the valve is cylindrical, and can be welded into the end of the keg, or a screw version can be fitted into a threaded neck. The inner end of the valve body inside the keg is formed as a plate. This acts as a seat for the spring and has a central hole through which the extractor tube passes. The extractor tube fits into the plate with a bayonet arrangement. All

this is conventional and the whole valve and extractor tube assembly is called a **Aspear®**.

4. The invention is concerned with the configuration of the fluid path used for filling the keg. The inside of the valve body has a chamber shaped with a narrowing section at its outlet so that beer flowing into the keg during filling impinges on the plate and is deflected sideways. Kegs are filled upside down and the sideways deflection means that the beer flowing into the keg soon becomes submerged. Filling is therefore less turbulent, creates less frothing and can be done, it is said, 25% faster. The claimant alleges that the invention as claimed is known or obvious in the light of various items of prior art.
5. The proceeding did not run smoothly. A hearing was originally arranged for 4th August 2004. At that hearing the applicant wished to adduce new evidence and change its pleadings to include inventive step explicitly as well as novelty. The hearing was adjourned to allow the claimant to file new pleadings and evidence. In the succeeding rounds, in addition to the one new item of evidence put forward at the hearing, several more were actually filed. In addition, the question of insufficiency had previously been mentioned in the claimant's evidence but not in pleadings, and in the Re-amended Statement resulting from the new round of pleadings, insufficiency was included as a specific ground.
6. The defendant has complained that the claimant was remiss in preparing its case, having already amended its pleadings at an early stage, bringing forward new pleadings and evidence at the original hearing, and adding further evidence during the adjournment. The Office took the view that the hearing should proceed and that these factors would be considered, and recompense made in costs if it was appropriate.
7. The matter eventually came to a hearing before me on 7th and 8th February 2005. Mr Thomas Mitcheson appeared as counsel for the applicant, assisted by Dr D M Wardley and Mr T Ashton of Forrester Ketley. Mr Richard Davis appeared as counsel for the defendant assisted by Mr Karl Barnfather and Mr Matthew Allen of Withers and Rogers. Mr Kenneth Simpson appeared as a witness for the applicant and Dr Jens Voigt as witness for the defendant

The law

8. The prior art adduced in this case consists largely of drawings and physical examples without textual material relevant to the present invention which would assist in their interpretation. The question arises how drawings and physical examples are to be interpreted.
9. Mr Mitcheson referred me to *C Van der Lely N.V. v Bamfords Ltd* [1963] RPC 61. In that case, Reid LJ held that in determining whether an article shown in a photograph did or did not anticipate a claim, it was not for the court but the skilled person to interpret the photograph. As he put it: "the question is what the eye of the man with appropriate engineering skill and experience would see in the photograph, and that appears to me to be a matter of evidence." Mr Davis cited an EPO Technical Board of Appeal case which involved the interpretation of drawings: T 204/83, *Venturi/CHARBONNAGES OJ* (EPO) 10/85, p 310. This confirms the requirement for drawings to be interpreted by a skilled person. It also warns that "a careful check should be made to establish whether the mere diagrammatic

representation enables a person skilled in the art to derive a practical technical teaching therefrom” and goes on to say that the skilled person will sometimes be unable to elicit useful technical information from a drawing about a feature where the feature is shown merely as an ancillary element of a complicated device. I consider that similar considerations must apply to the interpretation of physical examples as apply to the interpretation of photographs and drawings. I take from this that the interpretation of the prior drawings and physical examples in the present case should be primarily determined by expert evidence and where the expert evidence is not clear, that it would be unsafe to place great weight on the apparent or intuitive interpretation of the drawings and samples, particularly in extrapolating from structure to function.

10. I consider below whether the claim should be construed as requiring functional aspects as well as constructional ones, and I find that it should. That being the case, the question arises, whether it is sufficient for anticipation purposes merely for the prior art to include structures which arguably correspond to the structures required by the claim, or whether it is also necessary for the prior art to function in the same way as the claimed invention.
11. Mr Mitcheson referred me to the statement in the well known case of *General Tire and Rubber Company v Firestone Tyre and Rubber Company Limited* [1972] RPC 457 that what is required to anticipate an invention is “a clear description of or clear instructions to do or make something that would infringe the patentee’s claim”. He said there was no distinction in law between structure and function and that it was only necessary for anticipation, for the prior art to in fact carry out the function carried out by the invention whether or not the skilled person would understand that it was being carried out. Mr Davis referred to the decision in *Merrel Dow Pharmaceuticals Inc. and Anr. v H.N. Norton & Co. Ltd.* [1996] RPC 76 which makes clear that uninformative prior use is not sufficient to invalidate a patent under the 1977 Act; there must be an enabling disclosure. I agree that this principle overrides the statement of the 1949 Act law set out in *General Tire*. As Hoffmann LJ said in *Merrel Dow*: “The 1977 Act therefore introduced a substantial qualification into the old principle that a patent cannot be used to stop someone from doing what he has done before. If the previous use was secret or uninformative, then subject to section 64, it can.” Mr Davis also cited *Milliken Denmark AS v Walk Off Mats Limited* [1996] FSR 292 in which Jacob J noted this principle and stated further that “a use from which knowledge can be derived which enables the invention to be performed is not an uninformative use.” I think it is clear from these precedents that prior use must be enabling in order to anticipate. Mr Mitcheson made the point that in his view any use or prior disclosure in the present case was in fact open to anyone to observe and investigate, so that the question of uninformative or secret use does not arise. These are potentially relevant principles and observations, but before considering whether a prior use was uninformative or enabling, it is as well to establish that the use fell within the terms of the claim. I will consequently firstly determine whether it has been demonstrated that any of the alleged prior use or disclosure fell within the claims, and only if that is the case, go on to determine whether it was enabling.
12. A third point of law raised by the parties relates to claim interpretation. Both parties referred me to the recent case which has now been reported at *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9. *Kirin Amgen* and the previous leading authorities on construction are concerned with the extent to which the scope of a claim should be

constrained precisely by the words used in the claim or the extent to which it is permissible to interpret words in the claims as including equivalents and approximations to the words used. In the *Kirin-Amgen* case, Hoffmann LJ emphasised the primacy of purposive construction which he explained meant discerning “what the person skilled in the art would have understood the patentee to be using the language of the claim to mean.”

13. The problems underlying the concepts of purposive construction as they have been discussed in prior cases are generally concerned with whether words in a claim which on the face of it have a well defined meaning ought properly to be given a broader, or perhaps narrower interpretation. The position is somewhat different in this case, where the applicant says that words in the claim are not well defined, but the proprietor believes they are and says the meaning can be derived from the specification as a whole. In arriving at an understanding of what the patentee is “using the language of the claim to mean” it is always necessary to have regard to the meanings of words in the context provided by the body of the specification. This requirement is set out in section 125(1) of the Patents Act. I believe the question in the present case is not one of construing an apparently unequivocal word in the claim to find a possibly broader or narrower purposive meaning, but of determining the meaning, to the skilled person, of the words used in the claim by reference to the body of the description. It is primarily this principle that I apply in considering the construction of the claims below.
14. Mr Mitcheson made another point which relates in a sense to claim construction and also to the requirements for novelty. He said that since the present claim in his view includes features that are relatively undefined, it was sufficient for the purposes of anticipation, to show that a prior disclosure falls anywhere within the relatively undefined scope of the claim. He referred again to *C Van der Lely N.V. v Bamfords Ltd*. In this case Reid LJ quoted an earlier decision which held that a requirement for anticipation is that “the information given by the prior publication must for the purposes of practical utility be equal to that given by the subsequent patent”. The decision went on to say that the skilled person, “must be able to make the machine from what is disclosed by the prior publication.” The point is that a vague disclosure will not anticipate a precise requirement in a claim. I do not think it follows that any vague disclosure will anticipate a vague requirement in a claim, however, if a feature of the claim when properly construed encompasses a wide range of possible variations, then it will be anticipated by the particular disclosure of any one or a subset of those variations. As is always the case, particular instances have to be determined on their merits.
15. The law in relation to the assessment of inventive step is as set out in *Windsurfing International Inc v Tabur Marine (Great Britain) Ltd* [1985] RPC 59 at page 73 and I shall apply that here. I was also directed by the parties in considering the question of inventive step to the consideration of common general knowledge and of the law in relation to collocations, and I deal with those aspects in the discussion of inventive step below.
16. The law in relation to expert evidence is, as Mr Davis explained, set out in the Civil Procedure Rules, which state that the expert’s duty to assist the court overrides any obligation to his client. The decision in *Ikarian Reefer* [1993] FSR 563 enlarged on this and held that expert evidence must be objective, unbiased opinion uninfluenced by the exigencies of litigation, and that an expert witness in the High Court should never assume the role of advocate. I apply these considerations to my assessment of the witnesses

The witnesses:

17. Dr Voigt is clearly an expert in the field. His CV shows he has a long history of experience in the relevant art. He made carefully considered and thoughtful responses and I believe that he said what he thought to be the truth, regardless of its effect upon the proprietor's case. He quite clearly took very good care to explain the state of knowledge in the art as he knew it to be, and I have a high degree of confidence in his evidence.
18. Mr Simpson is the Managing Director of the claimant company, has a mechanical engineering degree and has worked in this technology for seven years. He does not appear to be a technical expert in the normal sense and he newly entered the field a few months before the priority date of the invention so is not well placed to provide evidence on the mind of the skilled person at that time. He does not provide any other credentials as would normally be given to show the level of expertise of an expert witness in the field and to allow an assessment of the degree to which his expertise approximates that of the person skilled in the relevant art. I felt that Mr Simpson's evidence in chief read more as argument to further the claimant's case than expert evidence or opinion. In paragraph 14 of his third Statutory Declaration, he says *Thus it was well known to provide a narrowing of the housing to ensure that substantially all of the incoming fluid is directed towards the diversion plate so that most of the incoming fluid is directed towards the sides of the keg.* Mr Simpson is saying no less than that the whole premise of the invention was *well known.* In paragraph 19 he provides a different view and says that it would not involve any invention to combine a diversion plate with narrowing of the fluid guide in order to arrive at the invention. This is a fundamental contradiction to his evidence in paragraph 14. Such a contradiction makes it plainly evident that neither statement is well founded. This reads as though it were argument intended to cover all eventualities, so that if he is not successful with his arguments on novelty, then he has back-up arguments on inventive step. I can not accept this sort of thing as expert evidence. In cross examination, he appeared in some cases to be providing helpful and truthful comment, but at other times to be guided in giving his answers by how he felt they furthered his case. While these factors are not a bar to accepting his evidence entirely, they reduce confidence in it considerably. I consider I must discount those parts of his evidence that appear to be argument rather than evidence from his own knowledge, and will prefer other evidence where there is conflict.

The claims:

19. Claim 1 reads as follows:

1. A valve fitting for a fluid storage barrel comprising:

an integral housing having an aperture, a valve seat and means for co-operating with valve biasing means,

a valve having a seal, valve biasing means for biasing the seal against the valve seat to close the aperture,

and a fluid diversion plate operably positioned within the barrel,

wherein the housing defines a chamber below the aperture, and the housing comprises a fluid guide out of the chamber which narrows to direct the fluids towards the fluid diversion plate.

20. Three particular aspects of claim 1 need to be considered. Firstly the meaning of “diversion plate”; whether this means a plate which diverts to any extent at all or one which requires substantial diversion. Secondly; whether the narrowing in the fluid guide is required to be the final fluid guide structure at the outlet of the chamber, and thirdly, whether the narrowing and the diversion plate involve a co-operative relationship in guiding the fluid, or act independently of one another. The parties also took different views as to whether the claim imposed any functional requirement. The claimant said that there were none; a prior arrangement which has appropriately positioned elements would necessarily anticipate, while the defendant asserted that the claim should be construed as imposing such a functional requirement and that in order to anticipate, a prior arrangement must operate in a functionally similar way to the invention.
21. Following the approach in relation to claim construction outlined above, it is necessary to consider the whole of the specification to assess what the skilled person would understand the author to be using the language of the claim to mean. Looking at relevant passages, page 1 of the patent emphasises efficient fluid transfer into and out of the keg. This and the provision of a valve which can be welded into the keg appear to be the main concerns. Page 3 describes the fluid diversion plate which it is said “acts to divert incoming fluid laterally towards the side of the barrel”. This does not say that some of the fluid is diverted, or that the fluid is partially diverted but that the plate acts to divert the fluid laterally. Subject to any later explanation or refinement of the disclosure, I would consider the skilled reader would understand that the purpose of the diversion plate is to divert the whole of the flow laterally. Moving on, apertures are provided for the movement of fluid laterally into the barrel, and the aperture space is said to be maximised. In the particular description, consisting of a single embodiment, it states on page 7 that the housing defines a cavity: this corresponds to the “chamber” of claim 1. It is said that the cavity “is defined in part by an upper shoulder 32 and lower shoulder 34 which narrows the cavity in the direction of plate 16”. Claim 1 states: “the housing comprises a fluid guide out of the chamber which narrows to direct the fluids towards the fluid diversion plate.” This wording does not appear in the body of the specification but corresponds to the original claim 14. Finally, claims 7 and 10 mention lateral diversion of the incoming fluid but do not add anything to the words on page 3.
22. While the disclosure of the specification does not focus particularly on the function of the diversion plate and the narrowing of the chamber, it appears to me that its teaching in respect of those elements is clear. The description in relation to the diversion plate on page 3 teaches the reader as I have said that the purpose of the plate is to divert the incoming fluid flow laterally towards the side of the barrel, and there is nothing in the specification to suggest otherwise. It consequently appears that the meaning of the term “diversion plate” in claim 1 is

a plate which diverts the whole or substantially the whole of the flow laterally. The alternative interpretation offered by the applicant is a plate which diverts the incoming flow to any extent at all, whether all of it or only a small part of the flow, and in any direction, whether laterally or by only a small diverging angle, or entirely reversing the flow, or in no controlled way at all. I do not consider that this can be the proper interpretation of the claim since such an arrangement would not be consistent with the purpose and explanation set out in the specification.

23. Mr Mitcheson argued strongly that the introduction of a “substantiality” requirement was fatal to the claim since it would leave the scope of the claim undefined for infringement purposes and the specification would consequently be insufficient. I agree that this might be the case if the substantiality requirement left the amount and kind of diversion undefined but in my view it does not. In the present case it seems to me, as I have said, that the specification requires substantially the whole of the flow to be diverted laterally. I consequently find that the claimant’s arguments on sufficiency have not been made out.
24. Claim 1 requires the narrowing in the fluid guide out of the chamber to direct the fluid towards the diversion plate. Since the purpose of the fluid diversion plate is to divert the fluid during filling, this can only mean that the fluid is directed towards the fluid diversion plate in such a way that the fluid diversion plate performs its purpose of diversion. The words may not be elegant, but I do not consider they are capable of any other interpretation. My view is that the location and form of the narrowing in the fluid guide must be such as to perform this function of the diversion of the fluid. I agree with Mr Mitcheson that the claim does not require it to be in any particular location, so long as it is shaped and placed in such a way that it is effective to carry out its role. Not every kind of narrowing will do. For example a narrowing that was followed by a channel which splayed so that the flow missed the deflection plate entirely would not fall within the claim. On the other hand, a narrowing followed by a parallel section that did not diminish the effect of directing the flow towards the diversion plate would in my view fall within the claim.
25. As will be apparent from my discussion of the diversion plate and narrowing elements, my view is that the claim does impose a functional requirement. The finding that the “diversion plate” of the claim is a structure which diverts the flow in the way I have said, is just another way of saying that the diversion plate must have the function that it diverts the flow in this way. Similarly, finding that the claim does not define the position of the narrowing in the fluid guide, but that it must be so located and formed as to direct fluid towards the diversion plate so that the diversion plate performs its diversion function, is in fact to define it in functional terms. I agree with Mr Davis that the claim imposes both structural and functional requirements.
26. Having made this assessment of the construction of claim 1, I need to consider claim 7 which specifies that the plate acts to divert incoming fluid laterally. This suggests that the plate in claim 1 may divert the flow other than laterally. It is my interpretation of the meaning of “diversion plate” in claim 1, that it requires a structure which diverts the whole or substantially the whole of the fluid laterally. “Laterally” is not a precise term in this context. I think it includes allowing the fluid to spread as it emerges from the valve, and covers a limited range of angles round about 90 degrees. I do not think there is any scope for construing claim 1 as

including types of diversion other than lateral. Consequently in my view claim 7 imposes no further restriction on the invention beyond that set out in claim 1. I do not consider that this creates sufficient difficulty for the addressee in understanding the scope of claim 1 that I need to order amendment of the patent.

The prior art

27. The prior art originally relied on by the claimant consisted of the prior patent specifications; GB2209740 (which has been designated “D1” in the pleadings), WO0025682 (D2), WO91/00240 (D3), WO93/19003 (D4). They also relied on a sales brochure from Dispense Dynamics Pty (D5) and a Dispense Dynamics keg system brochure (D6). In addition, physical examples and photographs of the physical examples were provided, relating to a Dispense Dynamics spear and “the Prerov Keg” (KLS3 attached to Mr Simpson’s first Statutory Declaration and designated “A1”), also to another Dispense Dynamics spear (KLS4, A2), a Grundy Trilobe spear (KLS10 and B), a Micro Matic Trilobe spear (KLS 11 and C), a UEC spear (KLS12 and D), and a UEC Trilobe spear (KLS13 and E).
28. The defendant conceded at the hearing that it only asserted the independent validity of claims 1 and 7. Consequently the applicant was able to exclude D2, D4 and the UEC spear D. The arguments were therefore limited to items D1, D5, D6 and to the physical examples apart from the UEC spear D. In addition, the brochure D6 and the Dispense Dynamics spear A2 were not relied on in relation to novelty.
29. The defendant’s Re-amended Counterstatement said that they were unable to confirm that the various samples of valve fittings has been made available to the public before the priority date of the invention. Mr Simpson’s third Statutory Declaration provided evidence that they had. In the event the defendant did not raise this at the hearing. It appears they have accepted that the figures stamped on the physical examples indicate prior dates as asserted by the claimant and that these or identical samples were available to the public at those dates. I consider that these samples were available to the public since it appears prima facie that they were, and because this issue was not in the event effectively challenged by the defendant.
30. I will consider novelty in relation to each of these items but before doing so I observe that in being invited to assess the various examples of prior art in this case I do not have a great deal on which to base my judgment. None of the prior art cited for novelty involves any textual disclosure relating to fluid flow through the valve during filling. I have no clear evidence of testing or experimentation on any examples, to show how they operate; Dr Voigt provided some photographs showing a comparison between a prior spear and the one in suit but it is not clear what examples were used, or what the conditions or results of the test were. I am unable to draw any useful conclusion from this. Neither, in the absence of any evidence about how the examples actually do operate, do I have any reliable expert view as to how they might be expected to operate. In the absence of any such first hand evidence, I am invited to draw inferences about the operation of the devices from the figures and from inspecting the samples. As I say above, I think it is unsafe to place great weight on the apparent or intuitive interpretation of the drawings and samples.

31. The witnesses were in agreement that the precise construction of the fluid path and the fact that the flow is two phase can affect flow characteristics significantly. I am also well aware that the configurations shown in the figures and of the physical examples, apart from one which was disassembled, are with the valves closed and that configurations will change, perhaps significantly, when the valves are open as they would be during filling. I consequently feel ill-equipped to make an assessment of the likely operation of these items of prior art. I have nevertheless gone ahead and made my own assessments of their manner of operation. I do not consider these to be authoritative findings as to their actual operation, and since the onus is on the claimant to make their case, if there is any doubt whether a prior art arrangement operates in the way required by the claim, I will not find that it anticipates. I will need to be convinced that a configuration shown in the figures or found in one of the examples clearly operates in the way required by the claim or that it is very much more likely that it does than that it doesn't, if I am to find that it anticipates. With these points in mind I will consider the separate items of prior art:

Novelty

32. The prior patent GB2209740 designated "D1" describes spear units broadly similar to those of the present invention. It is concerned with safety mechanisms for preventing the spear being ejected by gas pressure and does not refer to fluid flow while filling the keg. There is no discussion of deflection of the fluid by the "bottom plate", to use the language of the present patent, as I will do here. Nor is there any discussion of the fluid being directed towards the plate. I note that the claimant did not rely on the figure 4 embodiment which has no lower shoulder. The figure 1 and 3 embodiment shows a chamber with upper and lower shoulders. The lower shoulder can not be regarded as a narrowing for the purpose of directing fluid onto the bottom plate. It appears to me from the figures and from the explanations given by the witnesses generally in these examples that the purpose of the upper shoulder is to provide space for the fluid to flow round the body of the valve seal when the seal is depressed to allow filling. The lower shoulder in this example is no lower than is required to provide this clearance and is consequently far back in the valve and could not be expected to influence flow in the region of the plate. The narrowing appears to be provided so that the lower part of the valve can clear the unthreaded section of the neck of the keg and to provide for a seat for the external sealing ring.
33. I note that the fluid path with the spring depressed, as it would be during filling, would not be as it appears in the figure. The spring already presents a significant obstacle to flow and will have its coils further compressed so that there would be scarcely any space between them, preventing significant flow into the inside of the spring. The bottom plate extends only slightly beyond the outer diameter of the spring, and the depth of the apertures between the main part of the housing and the bottom plate is much greater than the radial extension of the bottom plate. In addition the narrowing is positioned far back in the fluid channel. On a prima facie view of this arrangement, and bearing in mind always the limitations I have emphasised above in making my own assessment, which applies to this and all the assessments below, there is nothing to suggest lateral diversion of the fluid in this arrangement. The fluid would be accelerated by the narrowing into the annulus between the guide and the spring. The fluid would then arrive at the apertures, and would I imagine emerge in all directions from them. There would be a baffling effect to any axially flowing

part of the fluid presented by the annulus of the bottom plate that projects beyond the outer diameter of the spring, but I do not consider that would be a large proportion of the total, and I expect it would splash in all directions rather than being diverted laterally. I do not consider this arrangement meets the terms of claim 1. I find consequently that this disclosure does not anticipate the claimed arrangement.

34. It is convenient next to consider the Grundy physical example designated "B". This differs from D1 in the provision of an external sealing ring at the top end of the housing, sealing against the top face of the neck, rather than as in D1 at the lower end sealing against a shoulder provided internally at the lower end of the neck. Mr Simpson stated in cross examination that this construction differed from D1. The claimant had previously asserted that D1 and the physical example related to similar devices. The claimant said that this arrangement precluded the explanation that the lower shoulder in the chamber was provided to enable placement of an external sealing ring. He said rather that the shoulder was provided for fluid flow control purposes. I don't think that is the case. Mr Davis said that this fitting was manufactured to fit into a neck designed to house both it and the other Grundy fitting, which would necessitate narrowing to clear the sealing ring seat at the lower end of the housing even though it were not used. Mr Simpson said this was not the case; that there was a special neck fitting for top sealing types which did not have a lower sealing ring seat. He said that the valve type shown in GB1530815, exhibited as KLS9, also fitted into the same special neck fitting. However this is contradicted by GB 1530815 itself which shows a bottom sealing ring. Mr Simpson said he had a similar example to GB 1530815 at home which had a top seal. I do not take Mr Simpson's evidence at face value in respect of the special neck fitting in view of him putting forward justification for such a fitting which turned out to show the opposite of what he averred, and because it was open to the applicant to provide direct evidence of the fitting but they did not do so. I think it is at least as likely that top and bottom sealing fittings are all designed to fit into the same neck. The applicant has not demonstrated to my satisfaction that the narrowing was intended to direct the flow.
35. Considering the geometry of example B, the narrowing is minimal, but would nevertheless be expected to have some effect in directing the fluid towards the inside of the fitting. The fluid channel below the narrowing portion is occupied over about half its radial extent by the last coil or two of the spring, and by a seat for the spring, which in this case is provided above the bottom plate. These would be expected to intercept most of the directed fluid, which, given the position and proximity of the spring and its support plate to the apertures, would presumably be diverted somewhat randomly out of the apertures. I should think a quite small amount of flow would be expected to reach the bottom plate, which extends radially beyond the spring support plate, after having been deflected round the intervening spring and support plate structures. The plate itself is dished and would presumably deflect fluid inwardly before it escaped through the apertures. I do not interpret this arrangement as providing either of the features that the narrowing directs the fluids towards the diversion plate, or that the diversion plate diverts the fluid in the way required by the claim.
36. Mr Mitcheson said at the beginning of the hearing that he would be relying on D3. He took Dr Voigt to it but it was established in cross examination that the drawing did not indicate, as Mr Mitcheson thought it might, a lower shoulder. In the absence of any further argument on this example, I will not consider it further.

37. D5 consists of pages from some Dispense Dynamics product literature. It shows three Dispense Dynamics fittings. The DD Flat Fitting and DDZ0 fitting do not anticipate since they have no narrowing in the fluid guide. DDZ0 does have an extended bottom plate which is described as an “integrated deflector plate that reduces surface turbulence of the beer during filling”. This plate extends laterally some way beyond the outer diameter of the housing and Dr Voigt explained that this arrangement was possible since the DDZ0 housing was supplied in two parts, the inner part with the wide bottom plate being welded in place from the inside of the keg during keg manufacture. The example relied on by the applicant for novelty is the DD14 fitting which shows slight upper and lower shoulders in the housing and a bottom plate barely wider than the diameter of the spring. The lower shoulder is minimal and would not be expected to have a great effect on the flow. The spring occupies a significant proportion of the space between the extraction tube and the lower part of the housing, depending on the amount of compression, and as with the other examples the depth of the apertures between the main part of the housing and the bottom plate is much greater than the radial extension of the bottom plate. I note that the text associated with this example is silent about any fluid diversion. I think it is significant that the DDZ0 fitting specifically mentions diversion of the fluid but the DD14 text does not. The text describing the DD Flat Fitting in which the bottom plate is substantially wider than the spring also refers to “fast, harmonious and quiet filling”. This suggests to me that the DD14 fitting was not considered by the manufacturers to provide significant fluid diversion. There is no suggestion from the appearance of the device in the figure that diversion in the manner required by the claim would be achieved and I find that this example does not disclose the invention.
38. The Micro Matic physical example (“C”) has a marked lower shoulder which is so positioned that it would appear to direct the fluid towards the bottom plate. The bottom plate is only slightly larger than the outer spring diameter so that its surface is substantially occupied by the lower coil of the spring. It has three upwardly bent portions of its periphery to locate the spring. It also has three downwardly bent portions carrying bayonet tongues. These locate the plate, and thereby the extractor tube to which it is welded, into the lower part of the housing. The plate is surrounded by a skirt depending from the housing, which receives the bayonet tongues of the plate. The plate (apart from the bayonet tongues themselves) does not extend radially as far as the skirt, there being a gap of 1 or 2 millimetres between them. The skirt has a number of apertures. There is a circle of six apertures at a level about one to one and a half centimetres above the plate. There is a second circle of three apertures at about the level of the plate. At these positions the plate is bent up to provide the spring locations mentioned earlier and these bent portions partially obscure the apertures. The bayonet slots also provide three smaller apertures coinciding with the downwardly bent parts of the plate periphery. The plate is substantially shrouded by the main body of the skirt over a half of its circumference between the three apertures in the lower circle.
39. On filling, the beer will have a number of different paths into the keg; through the top circle of apertures, through the lower circle of apertures and the bayonet slots, and through the gap between the plate and the skirt. I would estimate that the top circle of apertures accounts for very roughly half of the available area leading from the interior to the exterior of the fitting, the lower circle plus the bayonet slots makes up about a quarter and the gap between the plate

and the skirt the other quarter. I imagine the fluid will interact with all the internal structures within the skirt and emerge in all possible directions from these apertures approximately in proportion to their areas. While the bottom plate will prevent a proportion at least of axial flow, I do not regard there to be any lateral diversion by the bottom plate in this example and I do not think it would be accurate to say that the plate is a fluid diversion plate as required by the claim. I consequently find that this prior art does not anticipate the claim.

40. Finally there is the physical example of the UEC Trilobe spear (“E”). This is a similar construction to the Micro Matic spear but has some differences in the plate, skirt and spring location. The plate is flat with no bent up or bent down portions and it substantially fills the diameter of the skirt so that there is almost no gap between them. The bayonet slots also provide substantially no route for incoming fluid, being obscured by the edge of the plate. The plate is fitted somewhat lower in the skirt than in the Micro Matic example, so that the entire periphery of the plate is lower than the lower circle of apertures and is shrouded by the skirt. Apart from one of the three bayonet slots in the skirt that is, where there is a gap of 2 mm. This extends over about one sixth of the circumference. The lower coil of the spring surrounds an annular portion forming a step between the extractor tube and the surface of the plate, whose purpose is presumably to centre the spring. The spring occupies about half of the remaining surface of the plate between this annular step and the skirt. Looking at the overall construction, the narrowing in the fluid guide is substantial and the plate will block axial flow of fluid into the keg during filling, but it could not be said that this arrangement constitutes a fluid diversion plate, and a fluid guide which narrows to direct the fluid towards the fluid diversion plate as required by the claim. From its appearance, the narrowing will direct the fluid towards the lower coils of the spring and the annular step rather than towards the plate. It also appears on a similar analysis to that of the Micro Matic example, that about two thirds of the flow will emerge from the upper circle of apertures and about one third from the lower. Since the bottom plate is entirely shrouded by the skirt and mainly obscured by the annular step and spring, it appears that the major proportion of the fluid would not arrive at the plate at all; but that the flow would emerge in all directions from the apertures before reaching the plate. This example does not demonstrate the cooperation between the narrowing and the diversion plate nor the function of the diversion plate required by the claim and I consequently consider that it does not anticipate.

Inventive Step

41. Before moving on to the consideration of inventive step, I need to address the point raised by Mr Mitcheson concerning whether the two key features of the present claim, namely the diversion plate and the narrowing in the fluid guide, cooperate with one another or operate independently. If they cooperate with one another, for the claimant to be successful on obviousness grounds it would have to show that there was a lack of inventive step over the combination of the elements, whereas if they operate independently, it is only necessary to show obviousness over each element individually. Mr Mitcheson referred me to the recent decision, now reported, in *Sabaf SpA v MFI Furniture Centres Ltd* [2005] RPC 10 in which this principle was confirmed. I do not need to spend much time on this. I have no doubt at all that there is a working interrelationship between the narrowing in the fluid guide and the diversion plate. It could hardly be otherwise since they form successive elements in the fluid channel and fluid is directed from one to the other when the channel is in operation

during filling of the keg. These are not independent elements each contributing separately towards some common goal, as in the *Sabaf* example. It is consequently necessary for the claimant to show that the combination lacks inventive step in order to invalidate the claims.

42. Following the steps set out in *Windsurfing*, the inventive concept appears to me to be to provide a diversion plate which has the function of diverting the flow substantially wholly laterally during filling of the keg, and a fluid guide out of the chamber which narrows to direct the fluid towards the diversion plate so that it carries out its diversion function. This differentiates the inventive arrangement from practical prior art types in which the fluid entered the keg axially or was prevented from axial flow but emerged in an uncontrolled, randomly directed way.
43. Considering the common general knowledge to be attributed to the skilled person in this field, the claimant's view was that every significant element of the various valves in the prior art was well known and formed part of the common general knowledge; in particular the presence of diversion plates and narrowing of the outlet of the chamber. Dr Voigt confirmed in cross examination that this was also his view, and I accept that to be the case as far as the individual elements are concerned. Mr Mitcheson also established to my satisfaction, that the designer of such valves would understand that the various elements, their configurations and how they are assembled together could be modified in order to vary the way the valves performed. However, he also argued that the individual items of prior art form part of the common general knowledge and I do not agree with that. For prior art to form part of the common general knowledge in a particular art it must be material which the skilled person would know exists or would refer to as a matter of course and which he would consider sufficiently reliable to use as a foundation for further work. I did not form the impression that any of the individual pieces of prior art falls within this category. It would need expert evidence to establish that they do. I consider that Mr Mitcheson's cross examination of Dr Voigt was effective in demonstrating that the expert in the field would have been aware of the existence of some at least of the prior art, in some cases by name for example, but not that they would have had knowledge of the design of these items at their fingertips.
44. I was able to discern from the two parties some consensus as to the state of knowledge at the priority date about the use of diversion during filling. Experts in the field appeared to recognise a beneficial action from the provision of a bottom plate which prevents axial flow into the keg. That is not the only function of the bottom plate in the prior art. It also provides a spring seat and locates the extractor tube, so the designs are a compromise between these different purposes. However it is not clear to me whether there was any recognition before the priority date that it might be beneficial to develop the blocking function in the interests of improving filling performance. Mr Simpson made many general allegations that this was all very well known, but I am unable to give this aspect of his evidence any weight in view of the difficulties with his testimony that I have already mentioned, and since he had nothing specific or independent to corroborate it. There is no evidence that you might expect to see if this was an active issue, of discussions in the trade or other inventions addressing it. I am particularly struck by the absence of any textual evidence from the technical literature or from patent specifications, relating to the diversion function.
45. The only two references to diversion produced in this case were the disclosures of the DDZ0

example in KLS 5 (D5) and arguably Slide 10 of KLS 2 (D6). Taking slide 10 first, the diagram of the valve has arrows that show the beer emerging laterally from the apertures during filling. It is described as having “consistently increased orifices” which provide “quiet and harmonious filling”. Also “the main beer stream gradually flows through the fitting until it is quietly released into the keg.” According to the defendant, the flow did not reach the plate. That is consistent with the description of it flowing gradually and it may be that this example deals with a slower filling regimen than that with which the present invention is concerned, in which case the lateral flow shown by the arrows is not due to diversion by the plate. If such a valve were used in a situation where the beer enters with some force, the text and the arrows in this example do not demonstrate to my satisfaction that there is lateral diversion of the body of fluid as required by the present claim. They are merely diagrammatic, and from all the other evidence in relation to the various valves, and using my own assessment with the disadvantages and caveats attached to it that I mention above, I believe that in this case the beer would emerge in all directions from the aperture. I do not regard the example in Slide 10 of D6 as providing a clear disclosure of lateral diversion so I do not think it can contribute to the common general knowledge in this area. DDZ0 has an oversize bottom plate that is described in D5 as an “integrated deflector plate that reduces surface turbulence of the beer during filling”. I understand from Mr Skerra’s Witness Statement that this example would divert the flow substantially laterally. This design may have been largely disregarded because it required the inside part to be welded into the inside of the keg during manufacture, which Dr Voigt said was not practical as it doubled the cost of manufacture. There was no evidence as to its use in practice. I don’t think it has been demonstrated that DDZ0 or the possibility of diverting substantially the whole flow laterally were so well known as to form part of the common general knowledge.

46. I consequently consider that the common general knowledge in respect of a diversion function was that it was recognised that it would be beneficial not to have the beer entering axially as that caused excessive frothing, and that the presence of a bottom plate would act as a baffle and prevent axial flow, however there is no evidence of any desire in the industry to develop or improve that feature.
47. Concerning the narrowing feature, prior art items produced in this action have narrowing sections out of the chamber to one degree or another but it was not established to my satisfaction that any of these were intended to guide fluid onto the bottom plate. The purpose seems to have been to provide space for a sealing ring seat on the outside of the valve body. Narrowing is necessary in these examples since the chamber makes maximum use of the space within the neck of the keg to allow the fluid to pass around the seal and must narrow in order to provide room for an external seat for the seal. There is presumably a cooperating seat at the lower end of the neck of the keg in each of these examples, as shown at 13 in figure 3 in respect of D1 for example, through which the lower portion of the valve has to pass. I note that GB1530815 referred to by Mr Simpson as exhibit KLS 9 which has no bottom plate, nevertheless has a narrowing in the fluid guide which coincides with the position of the external seat for the seal. This example is clearly not concerned with directing flow towards a bottom plate. It was acknowledged by both witnesses that it would generally be regarded as a disadvantage to narrow the channel since that would hinder fluid flow, so it appears this was an undesirable but necessary feature to accommodate the sealing ring. I

consider the common general knowledge in respect of a narrowing in the fluid guide would be that such features existed in valves to accommodate other aspects of the design unrelated to fluid flow.

48. I do not consider the idea of cooperation between a narrowing in the fluid guide and a diversion plate with the effect of directing flow in a particular way, was part of the common general knowledge. Dr Voigt said in his Witness Statement that the intention of valve design is fast and smooth, non-turbulent filling and emptying of kegs, but there was nothing in the evidence, discounting Mr Simpson's assertions, to suggest any concern in the prior art with the use of cooperating structures to guide fluid through the valve. This view is supported by the overall arrangement of the prior valves in the region of the narrowing and the bottom plate. In different examples, the presence of intervening spring and spring support structures, limited extension of the bottom plate beyond the outer diameter of the spring, side apertures with considerably greater axial extension than the radial extension of the bottom plate, and substantial shrouding of the bottom plate by skirts, indicate that the prior designs are not concerned with directing flow from the outlet of the chamber onto the bottom plate.
49. On the third *Windsurfer* question, it was known in one group of the prior art to provide a valve, such as the D1/Grundy, the DD14, the Micro Matic or the UEC Trilobe examples. Each of these has more or less of a narrowing in the outlet to the fluid guide, and a bottom plate which prevents axial flow. However, other than preventing axial flow, there appears to be no concept of guiding flow out of the valve in any particular way. It was also known in a separate valve, DDZ0, to provide a bottom plate which presumably guided the flow substantially laterally. However this design involved welding part of the valve body into the inside of the keg during keg manufacture, and was regarded as impractical according to Dr Voigt. Other valves such as the DD Flat Fitting have neither oversize bottom plate nor fluid guide narrowing, but appear to have performed well because of the relatively large fluid flow channel, which in turn appears to have resulted in part from being welded to the keg rather than using a screw fitting of similar overall size.
50. The inventive step that is needed to proceed from this prior art to the invention would involve firstly, the idea that it was desirable and would be possible to produce a valve which would provide substantial lateral flow hitherto unavailable in practical spears; secondly the realisation that the designer could modify an existing type of valve to produce the desired lateral flow; and thirdly, a mechanism to effect the modification. To amplify this, there are a number of possible starting points; one could begin with the DDZ0 valve with oversize bottom plate and devise a modification that would retain the fluid diversion function but allow it to be assembled into a completed keg. Or one could begin with the DD Flat Fitting and devise a way to improve its already good flow characteristics further, to improve the presumably largely uncontrolled flow from the apertures by finding some way to make the flow largely lateral. Or one could take one of the D1/Grundy, DD14, Micro Matic or UEC Trilobe designs and realise that the narrowing which was already provided for other reasons, tended to direct the flow towards the bottom plate, and that if the geometry of the parts could be modified to a) reduce the interfering effect of the intervening spring and spring support structures, b) arrange the flow between the narrowing and the plate so that the plate diverted the flow laterally, and c) in respect of the Micro Matic and UEC Trilobe valves, modify the skirt to eliminate the shrouding effect, it would be possible to divert the flow

laterally. All of these to my mind involve a considerable exercise of inventive ingenuity

51. Mr Mitcheson argued that it was only necessary to make minor workshop modifications to any of the items of prior art to arrive at the invention. However that proposition was based on the assumption that underlay Mr Mitcheson's case. That is that there is no qualitative difference between the structure and operation of the claimed invention and the prior art. He was unable to get Dr Voigt to agree that such modification would be obvious. To his questions suggesting that the prior valves could be modified by using standard optimisation techniques available to the skilled person, Dr Voigt was quite clear that while such modifications could be made with hindsight, it required invention to arrive at the present arrangement; "it was not obvious", "it needs some inventive thinking" he said. This being the case, the passages Mr Mitcheson quoted from *Hoechst Celanese Corp. v BP Chemicals Ltd* [1997] FSR at page 573 and *Pharmacia v Merck* [2002] RPC 41 concerning trivial variations and steps made without reason are not relevant to this case. It is necessary, as stated firmly in *Pharmacia*, to apply the statutory test of obviousness, which I have done above.

Summary

52. I consequently find that the claims are novel and involve an inventive step, in the light of the adduced prior art and the arguments put forward by the claimant. Also, as I found earlier, I consider that the patent is sufficient.

Costs

53. The defendant has won on the issues so costs will go to them. The "overriding objective" of the Civil Procedure Rules requires among other things that cases are dealt with in a way that saves expense, are dealt with expeditiously and that the issues are identified at an early stage. The parties have a duty to help the court achieve these aims. It took the applicant a number of attempts to put their case together. The pleadings as they existed before the original hearing in August 2004 were extended to include inventive step as well as novelty, and to introduce further prior art. In the succeeding pleadings and evidence rounds, the applicant introduced still further prior art. This has caused a number of false starts, delay and expense, particularly for the abortive hearing. The new prior art was potentially relevant, and although relatively extensive was not unduly so, so I do not consider there to have been bad faith on the applicant's part. It is in the public interest for the issues to be fully aired, but if a party is not sufficiently assiduous in assembling its case, it can expect to see the other side compensated in costs.
54. There is no apparent reason for the delay in this case. There is nothing to suggest any of the prior art put forward in the later stages was not available to the applicant from the outset. This, together with the fact that the inventive step pleading was not made explicit, suggests a half hearted initial approach to the case. Mr Mitcheson made the point that the defendant could have been more forthcoming in their pleadings; in particular they could have indicated which claims they considered to be independently valid, which would have narrowed the issues for both parties and for the tribunal. Mr Davis said that the applicant had only to ask, but the defendant too has a duty to assist in expediting matters and could have been more

active in doing so. Nevertheless, I consider the applicant bears the responsibility for the unnecessary delay and expense, particularly in allowing the case to proceed to a hearing when it was aware there were new issues on which the defendant was unsighted. Weighing these factors up, I consider that this is one of those cases in which the Comptroller should go beyond the normal scale and I will add a sum of £5000 in partial compensation to the defendant for the abortive hearing and other unnecessary work. The scale costs amount to £3000 and I consequently order that the applicant pay the defendant the sum of £8000. That payment should be made within seven days of the end of the appeal period.

Appeal

55. Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

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Divisional Director acting for the Comptroller