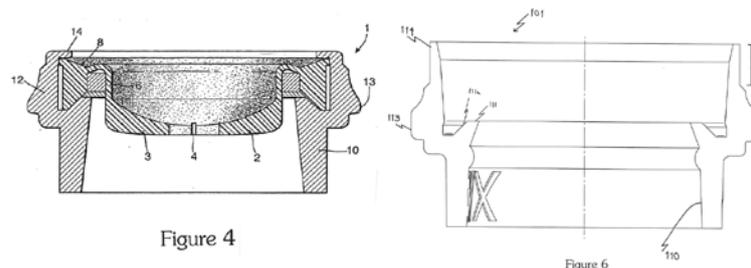


been known, however, for some users to merely push a pen or other such object through the orifice of the closure member, which then passes through the valve and then through the foil membrane underneath to pierce this foil without the need to remove the closure member from the container. Not only may this be unhygienic, but more importantly it has been known for the pen or other such object to push out the valve from its crimped position. The loose valve may then be dispensed with the product when the container is squeezed since it is flexible enough to pass through the orifice. Further, because the valve may be covered in product it may be disguised and accordingly ingested by someone who was not aware it was there. Choking could result.

- 5 Another problem that is known in relation to this type of flexible valves is that because they are so supple, they are accordingly quite difficult to handle and position within the closure member during assembly. This slows down the assembly of the closures. Further, the valves tend to stick to each other and although talcum powder is used to reduce this problem it can also slow down assembly of closures.
- 6 The invention seeks to address these problems by providing an assembly where the flexible valve is retained more securely. In particular, the invention provides a retaining ring 1 for the flexible self-closing valve 2 where the valve is crimped in place by bending over the crimping flange 14.



- 7 The latest claims are those filed on 19th January 2021. Claim 1, which is the only independent claim, reads as follows:

A retaining ring for retaining a self-closing valve in a closure, the retaining ring comprising a body for receiving the self-closing valve, the body includes a circular wall including an external side bead and having a crimping flange at the end of the circular wall, the crimping flange comprises an upstanding wall which is capable of being bent from an uncrimped position to a crimped position to retain the valve in the device by engaging a peripheral flange on the valve, in which: in the uncrimped position the crimping flange has a length H of approximately 1.40mm extending from the end of the circular wall to provide an extended crimping profile when crimped whereby to increase valve pull out force; and the overall height of the body with the crimping flange in the uncrimped position is approximately 6.40mm.

The Law

- 8 Section 1(1) states (with added emphasis): A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –

- (a) the invention is new;
- (b) it involves an inventive step;**
- (c) it is capable of industrial application;
- (d) the grant of a patent for it is not excluded by subsections (2) and (3) or section 4A below;

9 Section 3 then sets out how the presence of an inventive step is determined. It says:

An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).

10 It is well-established that the approach to adopt when assessing whether an invention involves an inventive step is to work through the steps set out by the Court of Appeal in *Windsurfing*¹ and restated by that Court in *Pozzoli*². These steps are:

- (1)(a) Identify the notional “person skilled in the art”
- (1)(b) Identify the relevant common general knowledge of that person;
- (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
- (3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;
- (4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

11 Mr Jones and Mr Greenwood accepted that this was the correct approach.

(1)(a) Identify the notional “person skilled in the art”

12 The applicant and examiner appear to agree that the skilled person would be a competent worker in the field of closures with valves. They would be aware of common features of valves, including that they come in a range dimensions, but normally on the millimetre scale.

(1)(b) Identify the relevant common general knowledge of that person

13 Mr Greenwood was keen to record that retaining ring and valve sub-assemblies of the type claimed are sold in their billions each year. This he contends is compelling evidence that such sub-assemblies are extremely well-known to those in the field

¹ *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59

² *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588

and particularly given the conceptual simplicity of their design – that their various characteristics (including their general dimensions) will form a seminal part of the common general knowledge.

14 I am content to accept this.

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it

15 Mr Jones highlighted the following observations by Jacob LJ on identifying the inventive concept in *Pozzoli*:

“17. As I pointed out in Unilever Plc v Chefaro Proprietaries Ltd [1994] R.P.C. 567 at 580: It is the inventive concept of the claim in question which must be considered, not some generalised concept to be derived from the specification as a whole. Different claims can, and generally will, have different inventive concepts. The first stage of identification of the concept is likely to be a question of construction: what does the claim mean? It might be thought there is no second stage— the concept is what the claim covers and that is that. But that is too wooden and not what courts, applying Windsurfing stage one, have done. It is too wooden because if one merely construes the claim one does not distinguish between portions which matter and portions which, although limitations on the ambit of the claim, do not. One is trying to identify the essence of the claim in this exercise.”

and

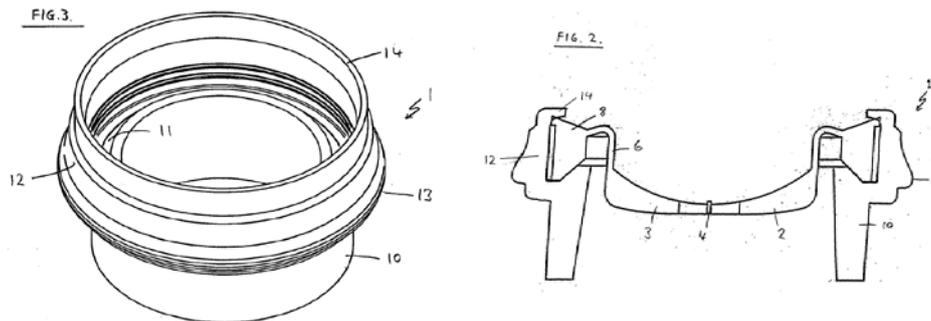
“21. There is one other point to note. Identification of the concept is not the place where one takes into account the prior art. You are not at this point asking what was new. Of course the claim may identify that which was old (often by a pre-characterising clause) and what the patentee thinks is new (if there is characterising clause) but that does not matter at this point.”

16 Mr Jones argues that the examiner has taken a too wooden approach and misidentified the inventive concept. He argues that the inventive concept of claim 1 relates to the solving of a problem namely stopping a self-closing valve coming out of a retaining ring. He suggests that it is “a little tricky” to elucidate the concept in this case. This is partly due to its simplicity and partly due to the precision that is required of the claim language in order that it properly serves its public notice function. He concludes that the concept is an amalgam of the idea of solving the problem by lengthening the crimping flange in the prior product and of the dimensions which are required to achieve the desired result. More precisely it is the appreciation that lengthening the flange is the solution to the problem and secondly that the 1.4 mm length is the optimum in terms of benefits achieved.

17 I am not persuaded. Indeed, Mr Jones reliance on the problem to be solved, to my mind, brings the prior art into the determination of inventive concept in a way that is at odds with the observations of Jacob LJ. Instead it appears to me that the inventive concept lies in the dimension chosen for the crimping flange ie 1.4mm in a retaining ring that is of the overall size specified which renders it suitable for the types of application set out in the description.

(3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed

18 The most relevant prior art is the invention set out in the applicant's previous patent EP 1531130 which was filed on 26th August 2004 and published on 18th May 2005. As can be seen from the figures taken from EP 1531130 that are shown below, this patent also discloses a retaining ring for a flexible valve. Indeed, Mr Jones accepted that EP1531130 discloses every aspect of claim 1 with one important exception. That is that the length of the crimping flange has been increased to 1.4 mm. Whilst the precise length of the crimping flange in EP 1531130 is not specified, Mr Jones confirmed that products made in the billions according to the teaching of that patent had a flange length of 1 mm.



Figures from EP 1531130

19 Hence the difference between the state of art and the inventive concept of claim 1 is increasing the length of the crimping flange from 1 mm to 1.4 mm.

4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

20 Mr Jones main argument here is that it would not have been obvious to the person skilled in the art, who was seeking to address the problem of the valve assembly becoming dislodged, to focus on lengthening the crimping flange. Instead he argues that there are many ways of modifying the prior art that might or would also solve the problem. In support of this argument Mr Jones has provided witness statements from three designers who he claims have experience in the relevant field. Each of these designers was shown EP 1531130 and then asked to consider the following problem:

- i) *There are a small but appreciable number of instances in the design we are showing you in which the valve falls out or is forced out of the retaining device.*
- ii) *How would you seek to address that problem?*

21 The three designers in total came up with 14 different ways of modifying the prior art to resolve the problem. Only one of the designers suggested lengthening the crimping flange.

22 It is important firstly to put this evidence in its proper context. It is not expert evidence and in fairness to Mr Jones he did not present it as such. What the evidence provides, and in my view really only what it provides, is confirmation that

there are indeed many ways of potentially solving the problem though I would have accepted that argument without any additional evidence.

- 23 However, it is established law that trying one way is not necessarily rendered less obvious because there are perhaps a large number of other possible ways³. Neither the application nor Mr Jones at the hearing have presented any real argument as to why lengthening the flange would not be an obvious thing to try. For example, there is nothing to suggest that others have been deterred from trying this or that the inventor here has overcome any technical prejudices or challenges in lengthening the flange.
- 24 Indeed EP 1531130 would I believe steer the skilled person to the crimping flange when considering how to make the valve more secure since as made clear by that patent, the function of the flange is to “hold the valve in place”. Hence the skilled person would look to whether the holding force provided by the flange could be increased. One way of achieving this would be to lengthen the flange and the skilled person would I believe consider that to be a route with a good chance of success. Hence, I believe extending the length of the crimping flange would be obvious. However, the question I have here is not just whether extending the flange is obvious but whether extending it to 1.4mm is obvious.

The significance of 1.4mm

- 25 The description of the application in issue as originally filed notes that:

“According to an aspect of the present invention there is provided a retaining device for retaining a self-closing valve in a closure, the device comprising a body for receiving a self-closing valve and having a crimping flange capable of being bent from an uncrimped position to a crimped position to retain the valve in the device, the body being receivable into a closure with the valve retained, in which the crimping flange has a length in the range 0.5mm to 4.0mm.”

and that:

“A further aspect provides a retaining device for retaining a non-laminar, flange-presenting self-closing valve in a closure for a container in which the closure is adapted for direct connection with the container, the device being separate from the closure for the container and separate from the container, the device having a crimping flange for engaging the said valve flange to retain the valve in the device, the crimping flange being separate from the closure for the container and separate from the container, so that the device is fitted into the said closure for the container with the retained valve, and the crimping flange having a height in the range 1.10mm to 2.50mm.

The crimping flange height may, for example, be approximately 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4 or 2.5mm.”

- 26 It goes on to note with reference to particular embodiments that:

“At the end of wall 12 is a crimping flange 14 which in its uncrimped condition is an upstanding wall which in this embodiment has a height H of approximately 1.1 mm. In a further embodiment a wall with a height of approximately 1.4mm is provided.”

³ See for example *AGA Medical Corporation v Occlutech (UK) Ltd* [2015] R.P.C. 12 and *Brugger and others v Medic-Aid Ltd* [1996] RPC 635

- 27 The most relevant disclosure comes in the paragraph bridging pages 9 and 10 of the description where it notes:

“In Figure 6 a ring on 101 formed according to an alternative embodiment is shown. The ring is generally the same as the ring 1 shown in Figures 1 to 5 except that the length H of the crimping flange 114 is approximately 1.4 mm, with an overall ring height of approximately 6.40mm.

It has been found that this flange length gives particular benefits to the force required to pull the valve out of a sub-assembly, by greatly increasing the force required, in some embodiments by in excess of a 300% increase in valve pull out force.”

- 28 At the hearing Mr Jones explained that the 300% increase was in relation to the pull-out force of the prior art ring where the crimping flange was 1mm. I asked Mr Jones whether this 300% figure would have been unexpected to a skilled person. For example, if flange lengths corresponding to the sizes specified in the description, ie 1.1mm to 2.5mm in 0.1mm increments, were plotted against the resulting pull-out force for each of those lengths then would that show that 1.4 mm was particularly beneficial? Mr Jones was not able to say. He did note that there comes a point at which further increasing the length of the flange does not produce an increase in pull-out force, but he did not say what that point was.
- 29 So where does this leave me? On the basis of the material presented to me in the application and at the hearing I find myself unable to say with confidence that extending the length of the crimping flange from 1mm to 1.4mm does or does not involve an inventive step.

Benefit of the doubt

- 30 The question of how such doubt should be resolved was considered by Floyd J in *Blacklight Power Inc. v The Comptroller-General of Patents*⁴. He noted that:

“34 It is not the law that any doubt, however small, on an issue of fact would force the Comptroller to allow the application to proceed to grant. Rather he should examine the material before him and attempt to come to a conclusion on the balance of probabilities. If he considers that there is a substantial doubt about an issue of fact which could lead to patentability at that stage, he should consider whether there is a reasonable prospect that matters will turn out differently if the matter is fully investigated at a trial. If so he should allow the application to proceed.

35 I think this approach to the consideration of objections to patentability is in accordance with the statutory framework. The examiner will first raise an objection and put it to the applicant. The applicant then has an opportunity of persuading the comptroller that his basis for considering that the objection applies is not sound. If the applicant does not persuade him to withdraw the objection he may refuse the application (s.18(3)). But at that stage he should consider whether, because there is a substantial doubt about an issue of fact, there is a reasonable prospect that matters may turn out differently at a trial, when there will be a full exploration of the matter with the benefit of expert evidence. If there is such a reasonable prospect he should allow the matter to proceed to grant. It goes without saying that mere optimism and a reasonable prospect of matters turning out differently are not the same thing. The reasonable prospect must be based on credible material before the Office. Macawberism, here as elsewhere, does not provide any basis for supposing that anything helpful will turn up. Moreover the greater has been the opportunity for the applicant to

⁴ *Blacklight Power Inc. v The Comptroller-General of Patents* [2009] R.P.C. 6

produce such material at the application stage, the smaller scope there is for supposing that giving him the benefit of the doubt will lead to a different conclusion.”

- 31 In this instance the applicant has sought to provide material to support their position that there is an inventive step though it does not address the question of the benefits or the inventiveness of a flange length of specifically 1.4 mm. The description of the application does however refer to “benefits” of this length of flange and given that the specific length of the flange was not the initial focus of the claimed invention, I am prepared to accept that we have something more than Macawberism here. On balance I think that if this case got to trial, that expert evidence from the applicant would considerably strengthen their case and that there would be a reasonable prospect, and I say no more than that, of demonstrating that extending the crimping flange to 1.4mm is inventive. I will therefore allow the application to proceed.

Clarity objections

- 32 Since I am remitting the case back to the examiner, I will take this opportunity to highlight a few clarity issues that were discussed at the hearing. The definition of the crimping flange length in claim 1 as s currently worded is unclear. The dimension H is shown as extending from the top of the ring down to the start of an outwardly extending conical section of the ring. Mr Jones explained that this conical section represents the limit that the crimping tool extends over the ring when the crimping flange is being bent into its securing position. Mr Jones accepted that the full length of the flange is not bent over, this being evident from the drawing. Although not entirely clear from the exchanges at the hearing, I am assuming that the increase of the length of crimping flange from 1mm to 1.4mm does result in the length of that part of the flange that overlies the valve and secures it in position being similarly increased by 0.4mm, though that is not clear.
- 33 The other clarity issue that was raised at the hearing, and which I have already discussed, is the significance of the overall height of the retaining ring. Mr Jones suggested different formulations that would in his view provide the necessary context for the invention however upon further reflection I believe the current formulation, referring to an overall height of the body of approximately 6.40mm is sufficiently clear.

Conclusions and findings

- 34 Having carefully considered the arguments of the applicant, I have concluded that the invention as currently claimed does involve an inventive step having regard to EP 1531130. I therefore remit the application back to the examiner to complete their examination.

Phil Thorpe

Deputy Director, acting for the Comptroller