0/147/97

PATENTS ACT 1977

Mr P Hayward
3Y46

IN THE MATTER OF
an application under Section 72
by Anthony Malcolm Morgan
for the revocation of European Patent (UK) No 0329959
in the name of Hans-Gerd Kaiser

INTERIM DECISION

Introduction

1. On 24 January 1989 Hans-Gerd Kaiser ("the proprietor") filed European patent application no 89101192.6 claiming an earlier priority date of 26 January 1988. The application was consolidated with European application no 89901942.6 (publication no 0390872) by decision dated 26 July 1991 and was granted on 24 June 1992 as European Patent (UK) no EP 0329959 B1 ("the patent").

2. An application under section 72 of the Patents Act 1977 for revocation of the patent was filed on 29 November 1995 by Anthony Malcolm Morgan ("the applicant"). There are three aspects to the applicant's attack on the patent, but a common thread linking all three is the contention that the invention is poorly characterised and vaguely described. The applicant's position as set out in his statement may be summarised as follows:

- The invention is not patentable because it is not defined. The applicant alleged that the claims encompass embodiments which are unworkable or suffer from the stated drawbacks of the prior art. He also points to the use of certain terms in the claims which are alleged to be, in the context of the patent, incapable of clear definition.

- As far as its scope can be determined, the invention claimed lacks novelty and/or inventive step having regard to the following specific prior art, when considered alone or in conjunction with common general knowledge:

  US 3119720 (Stiles)
  US 2779696 (Rutherford)
  JP 62-176817 (Mitsui)
  JP 60-147308 (Kawaken)

- The description is insufficient in that the skilled person would not know how to select materials or process conditions within the scope of the claims in order to meet the objectives of the invention while avoiding the acknowledged problems of the prior art.

3. The proprietor filed a counter-statement on 23 April 1996. He denied that the invention was poorly characterised and contended that the skilled addressee would be capable of understanding it and putting it into practice. He also denied the relevance of the cited prior art under novelty or inventive step.

4. There then followed the normal evidence rounds, with the applicant and proprietor filing evidence-in-chief on 1 July 1996 and 26 September 1996 respectively and the proprietor filing his evidence in reply on 22 November 1996.

5. The applicant's evidence-in-chief comprises a statutory declaration by Mr Brian Mills, who is the technical director of Gabriel-Chemie UK Ltd, a company whose business is the supply of masterbatches and colourants for use in the manufacture of articles made from plastics. Exhibited to Mr Mills's declaration are translations of the two Japanese patents, Mitsui and Kawaken, which are relied on as prior art in the applicant's statement. The applicant's evidence-in-reply comprises a statutory declaration with exhibit by Ms Marion Ingle, Senior Consultant in the firm of SGS UK Limited and an experienced polymer technologist having no personal or financial connection with either party to these proceedings.

6. The proprietor's evidence comprises two statutory declarations and exhibits. The first statutory declaration is by Mr Christopher Frank Atkins, senior process engineer with Raychem Limited, who is familiar with the problems of waste when changing from one polymer feedstock to another. Exhibited to the second statutory declaration, which is by Mr Ralph Anthony Smith, a solicitor acting for the proprietor, are translations of two German court decisions and copies of patents granted to the proprietor in three countries (US, Canada, Australia), all derived from the same priority application as the present patent.

7. The matter came before me at a hearing on 21 February 1997, at which Mr A H Laird of Gill Jennings and Every appeared as agent for the applicant, and Mr M Lunt of Dibb Lupton Alsop appeared as agent for the proprietor.

The patent

8. The patent relates to a process, and the use of a suitable cleaning agent, for cleaning poorly accessible machine parts upon changeover of processed materials, and finds particular application in removing plastics residues from moulding machines upon changeover from one kind of moulding material to another. Paraphrasing the patent, in the prior art, following changeover of material (eg to a different colour of plastics) in a moulding machine, the previous material used is typically purged from the machine by the action of the new material. Contamination from the old material means that the first mouldings to be produced are unacceptable and have to be discarded. The losses in time, energy and raw materials are considerable. In order to minimise the amount of wastage, solutions previously proposed have included dismantling the mould assembly for manual cleaning, which is expensive, or introducing abrasive particles with organic solvents to the feedstock, which poses safety and environmental problems.

9. As stated in the patent, "the object of the present invention is therefore to provide cleaning process which reliably and quickly helps to remove residues of the previously processed molten material using only a small amount of the subsequent material, it being

possible to formulate a cleaning agent for use according to the present invention so that it is easy to handle and produces no problems with respect to the danger of fire and toxicity".

10. The claims of the patent read as follows:

"1. Process for cleaning poorly accessible machine parts in the transport and/or moulding of materials in the pasty state, in particular for removal of moulding material residues on changeover of the material, characterized in that at least one organic and/or inorganic salt in solution with one or more polar inorganic and/or organic solvent(s) which dissolve the salt or these salts, is introduced into the operating machine together with the first batch of the subsequent material, preferably as a solution, if appropriate with addition of further substances, such as surfactions, organic solvents, alkalinizing agents, emulsifiers, abrasion particles and the like, the melting point of the organic or inorganic salt(s) being above the processing temperature of the subsequent material, and the boiling point of the solvent(s) being below the processing temperature of the subsequent material.

2. Process according to claim 1, characterized in that the solvent is water.

3. Process according to claims 1 or 2, characterized in that the salt component of the solution comprises alkali metal carbonate(s), alkali metal metasilicate(s), alkali metal tartrate(s), alkali metal acetate(s) or mixtures thereof.

4. Process according to claims 1 to 3, characterized in that the boiling point of the solvent(s) is at least 30°C below the processing temperature of the subsequent material.

5. Process according to claims 1 to 4, characterized in that the melting point of the anhydrous salt or salts is at least 50°C above the processing temperature of the subsequent material.

6. Use of liquid readymade cleaning agents for carrying out the process according to claims 1 to 5, characterized in that the cleaning agent comprises at least one inorganic and/or organic salt in solution with one or more inorganic and/or polar organic solvent(s), wherein the melting point of the salt or these salts is above the processing temperature of the subsequent material and the boiling point of the solvent(s) is below the processing temperature of the subsequent material.

7. Use according to claim 6, characterized in that the concentration of the salt(s) is at least 0,5% by weight, based on the total weight of the solution, preferably 5% by weight to 20% by weight, and the salt concentration can be up to the saturation limit at room temperature.

8. Use according to claims 6 and 7, characterized in that the pH-Wert of the cleaning agent is in the range of 4 to 14, preferably in the range of 8 to 11.

9. Use according to claims 6 to 8, characterized in that salt(s) and solvent(s) comprised in the cleaning agent correspond to claim 2 to 5."

11. In the working example, the cleaning agent used is an aqueous solution of 10% by weight sodium carbonate or sodium metasilicate.

The law

12. The grounds on which a patent may be revoked on application are set out in section 72, the relevant subsections of which read as follows:

"**72.** - (1) Subject to the following provisions of this Act, the court or the comptroller may on the application of any person by order revoke a patent for an invention on (but only on) any of the following grounds, that is to say -

(a) the invention is not a patentable invention;

(b) ...

(c) the specification of the patent does not disclose the invention clearly enough and completely enough for it to be performed by a person skilled in the art;

..."

13. What constitutes a patentable invention is defined in section 1 and in particular, for present purposes, in sub-sections (1)(a) and (b), which respectively require that a patent may be granted only for an invention which is new and involves an inventive step. The criteria of novelty and inventive step are further explained in sections 2 and 3 respectively, the relevant provisions of which are:

"**2.** - (1) An invention shall be taken to be new if it does not form part of the state of the art.

(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way."

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

14. Considering first the question of novelty, the correct approach is that set out in *The General Tire & Rubber Company* v. *The Firestone Tyre and Rubber Company Limited and Others* [1972] RPC 457, to which I was referred by Mr Lunt. To quote Sachs LJ at pages 485 and 486:

"... To determine whether a patentee's claim has been anticipated by an earlier publication it is necessary to compare the earlier publication with the patentee's claim. The earlier publication must, for this purpose, be interpreted as at the date of its publication, having regard to the relevant surrounding circumstances which then existed, and without regard to subsequent events. The patentee's claim must similarly be construed as at its own date of publication having regard to the relevant surrounding circumstances then existing. If the earlier publication, so construed, discloses the same device as the device which the patentee by his claim, so construed, asserts that he has invented, the patentee's claim has been anticipated, but not otherwise. In such circumstances the patentee is not the true and first inventor of the device and his claimed invention is not new within the terms of section 32(1)(e).

"The earlier publication and the patentee's claim must each be construed as they would be at the respective relevant dates by a reader skilled in the art to which they relate having regard to the state of knowledge in such art at the relevant date. The construction of these documents is a function of the court, being a matter of law, but, since documents of this nature are almost certain to contain technical material, the court must, by evidence, be put in the position of a person of the kind to whom the document is addressed, that is to say, a person skilled in the relevant art at the relevant date. If the art is one having a highly developed technology, the notional skilled reader to whom the document is addressed may not be a single person but a team, whose combined skills would normally be employed in that art in interpreting and carrying into effect instructions such as those which are contained in the document to be construed. We have already described the composite entity deemed to constitute the notional skilled addressee.

"When the prior inventor's publication and the patentee's claim have respectively been construed by the court in the light of all properly admissible evidence as to technical matters, the meaning of words and expressions used in the art and so forth, the question whether the patentee's claim is new for the purposes of section 32(1)(e) falls to be decided as a question of fact. If the prior inventor's publication contains a clear

description of, or clear instructions to do or make, something that would infringe the patentee's claim if carried out after the grant of the patentee's patent, the patentee's claim will have been shown to lack the necessary novelty, that is to say, it will have been anticipated. The prior inventor, however, and the patentee may have approached the same device from different starting points and may for this reason, or it may be for other reasons, have so described their devices that it cannot be immediately discerned from a reading of the language which they have respectively used that they have discovered in truth the same device; but if carrying out the directions contained in the prior inventor's publication will inevitably result in something being made or done which, if the patentee's patent were valid, would constitute an infringement of the patentee's claim, this circumstance demonstrates that the patentee's claim has in fact been anticipated.

"If, on the other hand, the prior publication contains a direction which is capable of being carried out in a manner which would infringe the patentee's claim, but would be at least as likely to be carried out in a way which would not do so, the patentee's claim will not have been anticipated, although it may fail on the ground of obviousness. To anticipate the patentee's claim the prior publication must contain clear and unmistakeable directions to do what the patentee claims to have invented: *Flour Oxidizing Co. Ltd.* v. *Carr & Co. Ltd.* ((1908) 25 R.P.C. 428 at 457, line 34, approved in *B.T.H. Co. Ltd.* v. *Metropolitan Vickers Electrical Co. Ltd.* (1928) 45 R.P.C. 1 at 24, line 1). A signpost, however clear, upon the road to the patentee's invention will not suffice. The prior inventor must be clearly shown to have planted his flag at the precise destination before the patentee."

15. Neither side referred me to any case law on the proper approach to be taken to the consideration of whether a claimed invention involves an inventive step in the face of a prior disclosure. In these circumstances, I think it is sufficient if I make clear that I am aware of the very well established principles laid down by the Court of Appeal in *Windsurfing International Inc.* v. *Tabur Marine (Great Britain) Ltd.* [1985] RPC 59 and that I have borne them in mind in considering the question of inventive step in the present case.

16. *General Tire* and *Windsurfing* were of course decided under the Patents Act 1949, but it is well established that the principles they set out remain good law under the Patents Act 1977.

Construing the claims of the patent

17. At the hearing, Mr Laird said he was content to adopt the proprietor's characterisation of the process which is set out in his counter-statement. As he put it, that characterisation is that the process is carried out by introducing a mixture of any subsequent plastic to be processed with a solution of any salt, organic or inorganic, in any solvent, organic or inorganic, optionally in the presence of a wide variety of other materials, provided the melting point of the salt is above the processing temperature and the boiling point of the solvent is below. That said, I need to consider the terminology of the claims in some detail to ascertain their scope and meaning before I can properly turn to the citations.

18. The terminology used at the beginning of claim 1, which refers to a "process for cleaning poorly accessible machine parts in the transport and/or moulding of materials in the pasty state, in particular for removal of moulding material residues on changeover of the material, ..." is not particularly precise, but in his submission Mr Laird accepted that the invention is about purging residues from moulding machines when changing from one material to another. I too am satisfied that the first part of the claim should be construed in that way.

19. The claim then proceeds to specify that the invention is "...characterized in that at least one organic and/or inorganic salt *in solution with* one or more polar inorganic and/or organic solvent(s) which dissolve the salt or these salts, is introduced into the operating machine together with the first batch of the subsequent material, *preferably as a solution...*" (my emphasis added). This passage Mr Laird called into question; as he put it, it does raise a little doubt as to whether a solution is really essential. It is clear that the presence is required of at least one polar solvent and at least one salt which is soluble in the solvent, but the expression "preferably as a solution" contrasts with the seeming requirement that the at least one salt should be in solution at the point of introduction. Mr Laird and Mr Lunt were in agreement

that it is required for a solution of a salt to be present and mixed with the material being processed during transport through the machine, but Mr Lunt argued that the expression "preferably as a solution" should be ignored, thereby giving the claim a narrower interpretation which would require the employment of a salt in a solution at the additive stage of the process. The evidence of Mr Atkins addresses this point but I do not find it advances the argument appreciably. He says:

> "The use of the words "in solution" at line 8 is later qualified as being "preferably as a solution" in the same sentence. However, the *preferred* procedure is clear; the technologist is directed to use a solution of a salt in a solvent." (My emphasis added.)

This still begs the question as to whether the less preferred procedure lies within the scope of the claim.

20. Having considered the matter carefully, I am of the opinion that the words "preferably as a solution" must be construed as admitting the possibility that the *introduction* of the salt may be in a form other than in solution. Although the preferred embodiments relate to the introduction of salts in solution, there is nothing to suggest that this is an essential aspect of the invention, and I do not believe claim 1 should be read as though it is.

21. Mr Laird also argued that claim 1 is not limited by any minimum amount of salt. By contrast, Mr Lunt suggested to me that a restriction as to the concentration of the salt solution required should be imputed to claim 1 by reference to the passage on page 3 of the description at lines 37-38, which state: "The concentration of the salt in the cleaning agent for use according to the invention can vary within broad limits. An activity lower limit for the concentration is at about 0.5% by weight." Against this, however, has to be set the fact that claim 7, and not claim 1, includes a requirement that the salt concentration should be at least 0.5% by weight. This implies that the concentration may be lower than 0.5%, which I would observe is itself a low concentration, and still fall within the scope of claim 1. In consequence, it seems to me that claim 1 should not be construed as including a strict minimum value on the concentration of salt. Furthermore, as Mr Laird pointed out, the claim

contains no functional limitation either, that is to say it does not specify that the salt should be present in an amount sufficient to provide a certain activity or effect. On this basis, it seems to me that claim 1 should be construed as requiring only that a salt solution, even one more dilute than 0.5%, be used.

22. I was addressed on the significance of the expression "together with the first batch of the subsequent material" used in claim 1. Mr Laird posed the question why it should be better to add salt to the next material to be processed rather than use a separate purge. However, I do not consider this to be a question which bears on the construction of this part of claim 1 *per se*. I see no reason why these words should not be accorded their natural meaning, namely that in the process according to the claim, the salt(s) and solvent(s) must be introduced with a composition which is the same as that of subsequent batches.

23. Claim 1 goes on to refer to additives which are clearly not essential to the invention but which may be included "if appropriate". Finally, the claim specifies that the melting point of the organic or inorganic salt(s) must be above the processing temperature of the subsequent material, and the boiling point of the solvent(s) must be below the processing temperature of the subsequent material. These conditions are clear and require no further explanation or interpretation.

24. Claims 2 to 5 are dependent on claim 1 and define further compositions and process conditions. No material objection has been raised as to their clarity, and I take them at face value.

25. Claim 6 relates to "Use of liquid readymade cleaning agents for carrying out the process according to claims 1 to 5..." and specifies conditions that broadly reproduce those of the solvent(s) and salt(s) defined in claim 1. Mr Laird submitted to me that in construing the scope of claim 6 either the phrase "for carrying out the process" should be ignored and the claim should be interpreted as relating to a solution of a salt in a solvent meeting the compositional requirements of the claim; or, in the alternative, the word "in" should be notionally substituted for "for" and the claim should accordingly be construed as a process

claim relating to the use of ready-made agents in the process of claim 1. Mr Lunt disputed both these interpretations, arguing that the purpose of the claim is to make an infringement of the patent the supply of a ready-made solution as a cleaning agent, having the appropriate composition, with directions for using it in the process of claim 1.

26. I am unable to accept Mr Lunt's interpretation. It is well established that the word "for" when used in a claim in this context is to be interpreted as merely indicative of an intended use. As Mr Laird pointed out, the law adequately provides for the sort of protection against secondary infringement to which Mr Lunt was alluding through the interpretation of infringement given to conventional process claims. I have heard nothing which would lead me to conclude that the circumstances of the present case justify departing from normal practice and construction. I therefore construe claim 6 as encompassing the use of any solution of a salt which satisfies the compositional requirements of the claim and which would be suitable for carrying out the process of claim 1.

27. Claims 7 to 9 are dependent on claim 6 and include further limitations as to composition and process conditions. No material objection has been raised to them, and I take them at face value, notwithstanding that their wording could perhaps be improved.

28. Before turning to the prior documents referred to by the applicant, it is convenient to consider the position of claims 6 to 9 in the light of common general knowledge. I have already construed these claims as relating to solutions *per se*. Such solutions as these claims relate to are well known, and although Mr Laird referred me to an extract from the *British Pharmaceutical Codex* exhibited to Ms Ingle's declaration in support of that fact, I would be confident enough of it anyway. On this basis, I find claims 6 to 9 invalid for want of novelty.

Rutherford (US 2779696)

29. This patent relates to methods of cleaning extruders, and more particularly to methods of removing undesirable deposits from the interior of plastic extruders. Mr Laird felt it important that Rutherford be considered in the light of the evidence of Brian Mills, which I

have done. According to Mr Laird, Rutherford is concerned with precisely the same problem as the patent in suit, and he referred me to column 2, lines 43-45 which state that, "Another instance in which it is necessary to clean an extruder, occurs in changing the color or the formula of the plastic being extruded." Mr Lunt sought to draw the subtle distinction that Rutherford is concerned with cleaning an extruder in which there are deposits of carbonated polymer that are adhered strongly to the extruder parts, whereas, he submitted, the present invention is concerned with the simpler process of the changeover between one polymer and another. According to the statutory declaration of Mr Atkins:

> "As no mention is made of whether or not the technology described would be of any benefit or otherwise when changing from one polymer feedstock to another, it is unlikely that this patent [ie Rutherford] would be considered relevant by a technologist attempting to address the problem of reducing waste during feedstock change over".

30. I find Mr Atkins' opinion difficult to reconcile with the passage from Rutherford quoted by Mr Laird, which speaks of changes of colour or formula of the plastic being extruded - this seems to be a changeover process. Moreover, it is implicit from paragraph 17 of his evidence that Mr Atkins accepts that the Rutherford process *could* be used for changing feedstocks (albeit in a mode that is not particularly attractive). Mr Lunt also accepted that the process of the patent is actually a simpler operation than that of the preferred embodiment of Rutherford. Therefore, in the light of the passage referred to me by Mr Laird, and in the absence of evidence that the process taught by Rutherford is actually unsuitable for cleaning moulding machines upon changeover of feedstock, I conclude that Rutherford does disclose a process which meets the terms of the pre-characterizing part of claim 1 of the patent.

31. I was not addressed in detail on the question of whether Rutherford discloses the use as a purging composition of the same material as the following batch, although Mr Laird broadly asserted that Rutherford uses all the same material throughout. However, Rutherford does envisage the application of its method with what is described as "virgin plastic compound" (column 2, line 46 and column 4, lines 8-10), which I interpret as meaning the production material if it is compatible with the overall composition requirements of the

invention. I also note that Rutherford exemplifies the use of the invention in relation to extruding polyethylene (column 3, lines 73-74) which is also a preferred substance for use in the cleaning step. On the basis of these extracts, I am satisfied that Rutherford discloses the use of "the first batch of the subsequent material" in a purging composition.

32. It is not disputed that Rutherford discloses the addition of water, which is a polar solvent, to the purging composition before introduction to the extruder. Mr Laird submitted to me that there is no indication that the water used is other than tap water, and that tap water inevitably contains small amounts of salts. Mr Lunt pointed out that ordinary water may vary considerably in mineral content and argued that no firm conclusions could be drawn one way or another about the concentration of salts dissolved in the water used by Rutherford, although I note also that the proprietor has admitted in its counter-statement that hardness salts indeed may be sufficient to give the desired effect of the invention of the patent if present in sufficient amounts. Mr Laird reasoned that Rutherford describes the addition of tap water, tap water contains salt, claim 1 is not limited by any minimum amount of salt, so claim 1 lacks novelty. In his statutory declaration in support of the applicant, Mr Mills says Rutherford indicates to him that the water used in the described method is mains water, which would inevitably involve the presence of small amounts of salts in solution. He bases this conclusion on the fact that Rutherford describes dipping the granules of plastic to be used in a bucket of water. In fact what Rutherford says in column 4 is:

> "The simplest manner in which such cleaning can be accomplished in actual practice, is by repeatedly grasping a handful of granular plastic, such as polyethylene, ... dipping this handful into a bucket of water to wet it, and throwing the wet mixture into the feed hopper of the extruder. ...
>
> Of course the mixture could be formulated in other ways. For example, instead of dipping the dusted granules of plastic into the bucket of water, the water could be sprayed on. ..."

33. Mr Mills's inference, built on by Mr Laird, is an interesting one, but I do not find it persuasive that Rutherford clearly discloses the use of tap or mains water. What can be confidently deduced is that it does not matter in Rutherford what water is used. I have previously construed claim 1 as requiring no strict minimum salt concentration. Since Rutherford *could* use tap water which *could* contain significant quantities of salts, it is seductive to conclude that Rutherford anticipates the claim in this respect. However, I do not believe that conclusion would be right or consistent with the rule laid down in *General Tire*. The teaching of Rutherford is plainly to use water, and to infer from that the necessary presence of anything else is speculative. In consequence, I find that the notional skilled reader to whom the document is addressed would not interpret Rutherford as including a clear disclosure of the use of water containing a dissolved salt. I therefore find that the invention claimed in claim 1 is novel having regard to Rutherford. Since claim 6 relates to a solution *per se*, it follows that it too is novel over Rutherford.

34. The question then is whether the claimed invention involves an inventive step over what is disclosed in Rutherford. Mr Laird invited me to read Rutherford in the light of Mr Mills's testimony that in his experience cleaning of extruders by gas generation is done under mildly alkaline conditions to avoid corrosive attack on the extruder's metal surfaces. Mr Mills went on to say that if he was asked to implement the process described in Rutherford, he would add a mild alkali to the water to ensure that its pH is well above 7 to prevent attack on the metal surfaces. In other words, concluded Mr Laird, a skilled person would implement the technology described by Rutherford by adding to the wet plastic to be processed alkaline salt, so that a mixture of the plastic and the salt solution would pass through the extruder, thereby meeting all the criteria of claim 1 at least.

35. I have considered this line of argument carefully. However, I do not believe it would be obvious to the skilled person to modify Rutherford by the addition of alkali, especially for example in circumstances where the pH of the water being used was already neutral or slightly alkaline. I am not therefore persuaded that claim 1 lacks an inventive step in the light of Rutherford, nor by extension that claim 6 does either.

36. Before leaving Rutherford, I should say that I have noted Mr Lunt's submission that it teaches away from the present invention by virtue of its use of decomposable blowing agents and the danger, evidenced by Mr Mills, of adding water to a hot extruder. However, as Mr Laird indicated, Rutherford is not limited to the use of a blowing agent, which is optional, and on the evidence using water, while risky, is known. For these reasons, that submission from Mr Lunt was not persuasive to me in reaching the conclusion on Rutherford I have favourable to the proprietor.

Mitsui (JP 62-176817)

37. It is not in dispute that Mitsui describes a process for purging components of machines used in extrusion of plastics upon changeover of feedstock and is therefore concerned with the same technical problem as the patent in suit. Mitsui teaches a purging resin comprising an aromatic polyester mixed with up to 10% by weight of a compound containing water of crystallisation.

38. Mr Laird submitted to me, with reference to the evidence of Marion Ingle, that due to the well-known property of hydrated salts to liquefy in their own water of crystallisation when heated, it would be inevitable that the operation of the process of Mitsui would result in the presence of a solution of a salt at some point within the extruder machinery. At what point will depend on the temperature profile of the plasticising unit. Mr Laird also argued, again with reference to Ms Ingle's evidence, that the temperature in the lower part of the feed hopper to a typical machine may be high enough for this condition to be reached before the feedstock actually enters the extruder screw. As Mr Lunt noted, the preferred hydrated compounds taught by Mitsui are gypsum, aluminium hydroxide and magnesium hydroxide, which it is agreed by the expert evidence of both sides would not generate solutions of salts under the conditions of the extruder. However, Mitsui also discloses the use of "water of crystallisation containing compounds" in which water molecules are present, and specifically mentions a number of such compounds, including sodium carbonate and sodium sulphate. Mr Lunt did not dispute that if one of these compounds were to be used, a solution may be generated at some point in the process, but observed that it appears to be important to Mitsui that the

feedstock is kept dry and that the document is silent about what happens to the hydrated compound within the extruder.

39. I appreciate the force of this argument, but on the basis of the evidence I am driven to conclude that the skilled addressee at the appropriate time would have appreciated that the addition of certain hydrated salts in accordance with the teaching of Mitsui would inevitably have led to the formation of an aqueous solution of a salt within the feedstock at some point in the process, and I therefore construe Mitsui as disclosing this feature. However, I do not accept that there is any disclosure of a solution being formed specifically in the feed hopper. Mr Lunt, rightly in my view, regarded this as speculation. Although it is a possibility, it would be dependent, as Mr Laird acknowledged, on the operating conditions of the extruder in question, which are not specified.

40. Mr Lunt submitted to me that Mitsui does not include a clear disclosure of the use in the cleaning process of a purging composition that is the same as the subsequent material. He directed me to the rule, established in *General Tire* and which I have already quoted and applied above, that if a prior publication contains a direction which is capable of being carried out in a manner which would infringe the patentee's claim but would be at least as likely to be carried out in a way which would not do so, the patentee's claim will not have been anticipated.

41. In the described embodiments, Mitsui specifically discloses only the use of purging resins which are specially formulated and are not the same as the subsequent material. However, the disclosure is not limited to such situations and the claims refer only to an "aromatic polyester resin of higher melt viscosity than [the resin being purged]". The evidence of Ms Ingle to which Mr Laird directed me is that:

> "Where the next material to be processed is an aromatic polyester with a higher melt viscosity than the material to be removed, then it *would* follow that, like the European patent, no additional type of plastic would be required for the purging process and the plastic used for purging *would* be the next plastic to be processed. The examples given

describe a change in plastic from either a polyether sulphone or a polyether ether ketone to a polycarbonate, and the type of aromatic polyester used for purging is described as a polyarylate "U-100" (trade name). This *could* also be the next plastic to be processed." (My emphasis added.)

42. It seems to me that where in the two highlighted instances Ms Ingle has said "would", it would be fairer to say "could", as she did in the last sentence quoted. Where in any particular case the next material to be processed is an aromatic polyester with a higher melt viscosity, it *could* be used *per* Mitsui for purging, and at the same time the requirement of claim 1 of the patent that the first batch of the subsequent material contains the salt solution would then be met. However, Mr Lunt submitted that the fact that there is an accidental possibility that in one particular situation Mitsui might fall within the scope of the claims of this patent does not anticipate the invention. I agree. I do not believe that the teaching of Mitsui is directing the meeting of the requirement of claim 1: neither in general terms nor in its specific examples does Mitsui teach the use of a purging polymer which is the same as the polymer next to be extruded. In the light of the rule in *General Tire* I am not persuaded that Mitsui provides a novelty anticipation of the invention claimed in claim 1.

43. Mr Laird attempted to make little of this distinction between Mitsui and the claimed invention on the basis that whether the purging material is the same as that to be used subsequently or different, it is always discarded. Mr Lunt countered in effect that the difference was important because contamination of the extruder by the purging material would not matter only if that same material were to be used subsequently. I think Mr Lunt is right in that, but it is not in my view the clinching argument. Rather it is as I have said that the disclosure in Mitsui does not satisfy the test laid down in *General Tire*.

44. That said in respect to novelty, I need to consider the question of inventive step. I note that Mitsui itself acknowledges the prior art practice of purging being carried out by extruding the resin to be moulded next. It therefore seems to me that the skilled addressee, when carrying out the directions given in Mitsui in a situation where the next resin to be extruded meets the relevant constraints as to composition and physical properties, would find it obvious

to choose the same composition for the purging resin as the subsequent batch. Thus, I do not believe that this aspect of the invention of claim 1 of the patent involves an inventive step in the light of Mitsui.

45. There is no dispute that aqueous solutions of sodium carbonate and sodium sulphate, substances used in Mitsui, would meet the requirements as to chemical and physical properties specified at the end of claim 1 and in claims 2 to 5. I accordingly find that claims 1 to 5 are lacking in inventive step in the light of Mitsui.

46. Since Mitsui does not disclose or suggest the use of a pre-prepared cleaning agent in liquid form, I consider that it does not impugn the novelty or inventiveness of claims 6 to 9.

47. At the hearing Mr Laird indicated that the applicant is now relying only on the above two of the four documents originally cited. However, I shall also consider the other two documents originally referred to by the applicant, since although Mr Laird chose not to pursue them I believe I need also to satisfy myself that they should not be pursued by the comptroller in the public interest.

Stiles (US 3119720)

48. Stiles relates to cleaning components of machines used in extrusion of polyolefins, including upon changeover from one material to another, and is thus concerned with the same technical problem as the patent in suit. A changeover phase comprises a three stage procedure, the second stage of which includes the introduction of a composition comprising a polyolefin such as polyethylene, an alkali such as sodium hydroxide or sodium carbonate, and a sequestering agent such as sodium metaphosphate. In the extrusion barrel water vapour is produced at high pressure. However, at no point is a salt in solution positively introduced, nor is there any indication that at any time an aqueous (or any other) solution is present in the machine. The water produced in the barrel in the second step is generated by reaction with residue from the previous step. Water *is* separately introduced in the third step but no salt appears to be in solution. Also, the purging polyolefin is not the "subsequent material". In

the absence of argument, I therefore conclude that this document does not anticipate or render obvious any claim of the patent.

Kawaken (JP 60-14703)

49. Kawaken relates to a cleaning agent for metal dies used for making rubber products. The cleaning agent may be an organic phosphate ester and may be used as a 20-70% aqueous solution mixed in with the rubber stock, and may be used between production batches. However, there is nothing to suggest the use of salt(s) and solvent(s) having the properties defined in the claims of the patent in suit. I therefore conclude, in the absence of argument, that this document also does not anticipate or render obvious any claim of the patent.

Sufficiency

50. At the hearing Mr Laird also indicated that the applicant was no longer pursuing his arguments about sufficiency as such. The only point of concern he maintained was with respect to the expression "preferably as a solution" used in claim 1, to which I have already referred. As with the two unpursued citations, I believe I have a duty to satisfy myself that the ground of sufficiency which has been raised should not be pursued by the comptroller in the public interest, notwithstanding that the applicant has decided not to pursue it. Having done so, I can accept that the claims are, as Mr Lunt put it, "unhappily worded ... and could have been more skilfully put" and agree with Mr Laird that the specification can be read with "sympathy and understanding". Aside from the "preferably" reference in claim 1, I am satisfied, in the absence of argument, that the comptroller should take no further action in respect of sufficiency.

Amendment and future procedure

51. In summary, I have found that claims 1 to 5 do not involve an inventive step in the light of Mitsui, and that claims 6 to 9 lack novelty in the light of common general knowledge, and in doing so I have noted that the wording of claim 1 in relation to the use of the expression

"preferably as a solution" is not clear. Having found that grounds for revocation have been made out, it falls to me to consider the possibility of exercising the discretion of the Comptroller to allow an opportunity for amendment. In such cases, the conduct of the proprietor is a factor to be taken into account, and I am conscious of the fact that, as Mr Laird pointed out, the proprietor has at no stage offered amendments despite the claims being somewhat, as Mr Lunt put it, "unhappily worded". However, Mr Laird did not strongly argue that the proprietor should be denied an opportunity to amend. It is the long-established practice in revocation proceedings before the comptroller that, in the absence of factors militating against the exercise of his discretion to consider amendments, an opportunity to propose amendments is usually given. For these reasons, I believe it is right that I should allow the proprietor an opportunity to amend the patent to cure the defects I have found currently to exist in it, and in such a way that others are not thereby introduced.

52. In these circumstances, I consider it appropriate to allow the proprietor a period of two months from the date of this decision within which to submit to the Patent Office proposals for amendment with a view to placing the patent in a condition in which the need for revocation may be avoided. The proprietor should send a copy of the proposals to the applicant, who will then have a period of one month from the date of receiving the copy within which to submit any comments to the Patent Office, copied to the proprietor. I will then determine how matters should proceed, including the question of whether or not any proposed amendments should be advertised. It is clear from my findings that the patent is unsustainable in its present form, and that I must therefore proceed towards revocation of the patent if the position remains as at present. Thus, if no proposed amendments are submitted by the proprietor within the period I have set, I will issue a final decision revoking the patent.

Costs

53. Both sides have asked for costs, and brief submissions on this point were made at the hearing. I shall, however, defer considering the question of costs until the conclusion of these proceedings.

Appeal

54. This being a decision other than on a matter of procedure, any appeal against this decision shall be filed within six weeks after the date of this decision.

Dated this 29th day of August 1997

S N DENNEHEY

Superintending Examiner, acting for the comptroller

THE PATENT OFFICE