



Neutral Citation Number: [2024] EWCA Civ 1490

Case No: CA-2023-002187

IN THE COURT OF APPEAL (CIVIL DIVISION)
ON APPEAL FROM HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES
INTELLECTUAL PROPERTY LIST (ChD)
Charlotte May KC (sitting as a Deputy High Court Judge)
[2023] EWHC 1495 (Pat)

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 05/12/2024

Before :

LORD JUSTICE PHILLIPS
LORD JUSTICE BIRSS
and
LADY JUSTICE WHIPPLE

Between :

Ensignia IP Ltd **Appellant**
- and -
Shell UK Oil Products Limited and others **Respondent**

Geoffrey Pritchard (instructed by **Dehns**) for the **Appellant**
Lindsay Lane KC (instructed by **Norton Rose Fulbright LLP**) for the **Respondent**

Hearing dates : 6th November 2024

Approved Judgment

This judgment was handed down remotely at 10.30am on [date] by circulation to the parties or their representatives by e-mail and by release to the National Archives.

.....

Lord Justice Birss:

1. This appeal relates to UK patent number GB 2,489,332. The patent relates to the use of graphical images which encode information, such as barcodes and QR codes. They are sometimes referred to as graphical objects or GOs. The patentee Ensygnia contends that the defendants Shell have infringed the patent by using QR codes printed on sheets of paper or card in their petrol stations as part of a method of payment for petrol by customers. A customer points their mobile phone camera at the QR code and the mobile uses the information in the QR code to communicate with servers on the internet, thereby verifying the customer's identity, and ultimately paying for the petrol.
2. Shell deny infringement and contend that the patent is invalid on various grounds. At trial the judge accepted Ensygnia's construction of the relevant claims, with the conclusion that the first iteration of Shell's methods infringe; however the patent was held to be invalid on three grounds: added matter, extension of scope, and obviousness. The obviousness attack which succeeded was over a prior art reference called Schmidt (EP 2 073 160 A1). The court rejected other invalidity attacks advanced by Shell below but they have not been appealed.
3. Arnold LJ gave permission to appeal on the three invalidity grounds, expressing some hesitation in the case of the appeal on obviousness. Shell challenge the judge's construction of the relevant claims in a Respondent's Notice. If that challenge succeeds then the patent would be invalid and Shell's systems would not infringe. The grounds of invalidity we have to consider only arise on Ensygnia's construction of the claims.
4. The parent patent application was filed on 25 November 2010. No priority from an earlier filing was claimed. The patent in suit derives from a divisional application based on the parent. The divisional application was filed on 30 March 2012 and published on 26 September 2012. The patent was granted on 8th May 2013 and then amended (twice) after grant. The relevant form of the claims and specification are in a C2 specification published on 11 August 2021.
5. The issues in this appeal essentially divide into two topics. The first relates to the construction of the claims and the internal invalidity attacks of added matter and extension of scope. The second relates to obviousness. I will address them in that order.

Construction and internal invalidity

6. The issues here relate to the effect of the post grant amendments and their relationship with the patent application and with the claims as originally granted. The published A specification of the divisional (GB 2,489,332 A) was used as the relevant patent application, nothing turning on the parent application as filed. The patent in its form as originally granted is GB 2,489,332 B.
7. Ensygnia contends that the claims in their current form, arising from the post-grant amendments, cover a system which uses a GO, such as a QR code, printed on paper or card, whereby the QR code is scanned by the user using their mobile phone. Having a QR code printed on paper is referred to in argument as a "static" sign to distinguish it from a QR code appearing on a computer screen. A QR code on a computer screen is not static because it could be changed, e.g. between transactions. Ensygnia contends

the claims in this current form are limited to the use of a static sign in this sense. Ensygnia also contends that this idea of using a static sign was one of the ideas disclosed in the application, and was within the scope of the claims when the patent was originally granted.

8. Shell contend that the claims in their current form do not cover a static sign at all but are limited to GO such as a QR code appearing on a screen. Shell also contend that the idea of using a static sign was not clearly and unambiguously disclosed in the application nor was it within the scope of the claims when the patent was originally granted. Therefore if Ensygnia is correct that the claims now do relate to a static sign, the absence of disclosure in the application means the patent is invalid for added matter, and the fact the original granted claims did not cover a static sign means that the scope of the claims has been extended post-grant, another ground of invalidity.
9. The judge upheld Ensygnia’s construction of the claims but upheld Shell’s case on added matter and extension of scope. To address these issues I will start first with the patent, then deal with claim construction, extension of scope and then added matter. Finally there is a second added matter issue but it is distinct and I will address it separately below.

The patent

10. The patent describes the field to which the invention relates as being the handling of encoded information. As background, the patent highlights the problem that identity cloning is an increasingly common phenomenon and that fraudsters use a wide variety of mechanisms to gather illicit personal information, such as usernames and passwords. Also mentioned are spoof websites, and the problem of what is called a “man in the middle” attack in which a fraudster provides a fake clone version of a website which takes in personal information, passes it on to the genuine website so that the user is unaware of what is going on, but the fake clone website keeps a copy of the personal information. The patent explains that the invention was made with a view to preventing this kind of fraudulent activity.
11. A sense of what is described in the patent can be seen from figure 3, as follows:

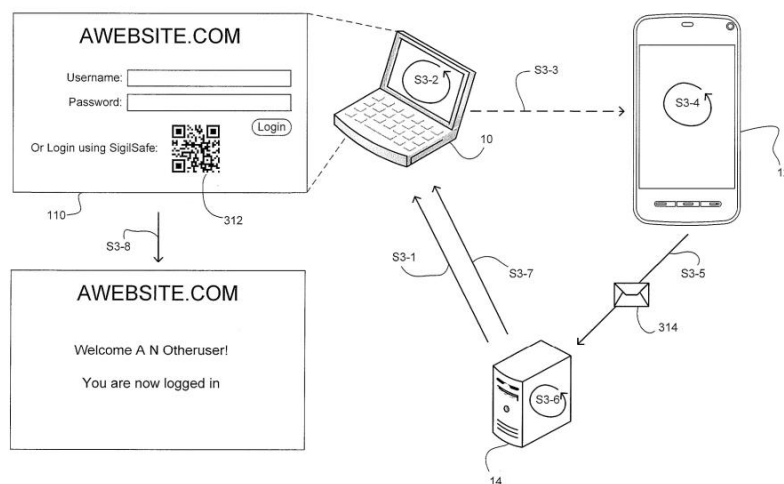


Figure 3

12. The patent describes a method in which the user's mobile phone (item 12) can scan the screen on the computer (item 10). The QR code shown as item 312 appears on the screen of the computer 10. The phone 12 will scan the QR code 312. Information is encoded in that QR code.
13. The mobile can decode the information in the QR code and use it to communicate with the server (item 14). When the mobile communicates with the server it can send the decoded information from the QR code, which identifies the computer 10, and it can also send identity information about the user of the mobile phone 12. Together this allows the server to verify the identity of the user and also to identify computer 10 from the decoded QR code. Assuming everything is in order the server 14 communicates with the computer 10 and allows that computer to provide the service to the user. In this example the user can log on to a website using computer 10.
14. The patent describes a number of variants of this scheme, for example there could be two servers (figures 1 and 2) and the decoding of the QR code information could take place in one of the servers. However these variants do not matter and so I have used figure 3 because it is the simplest.
15. Notably the QR code here appears on a computer screen. One way of doing this described in the patent would be for the information to be displayed on the screen of the computer 10 to be provided by the server 14 as the first step (marked as S3-1 in figure 3). So for example one could imagine a user coming to a computer and pressing a button in order to obtain a service. The computer in turn communicates with the server and is given a QR code applicable to that service, which the computer will display and the user will then scan using their phone.
16. The patent also identifies further embodiments. Critical to this case is an embodiment concerning a building security system, which I will address below. There are also others too, such as an ATM system and a self-service shopping environment.
17. Strikingly in the C2 specification the patent states expressly that most of these embodiments and in particular the embodiment I have just described, which relates to figure 3, as well as the similar two server embodiment in figures 1 and 2, and the ATM and self-service shopping environment embodiments are all outside the scope of the claims. The exception is the building security system to which I now turn.
18. The example of a building security system given in the specification is an electronic door lock. Upon approaching the door, the user uses their mobile phone to scan the QR code (or other encoded information). A message (an entry request) is sent to the server. This message includes the encoded information and information about the user's identity. Once the appropriate identity is confirmed, the server transmits a signal to the electronic door lock, authorising it to open.
19. The issue is about how the GO such as a QR code is displayed. In the C2 specification the relevant text is as follows:

In such an embodiment, the computing apparatus 10 may comprise an electronic door lock. The encoded information item 112, 312, such as a GO as described above, may be displayed on a sign geographically proximate to the electronic door lock. In

embodiments outside the scope of the claims, the GO 112, 312 may be provided on an electronic display geographically proximate to the electronic door lock. In such embodiments, the encoded information item may be periodically updated following receipt of signals from the first server apparatus 14.

20. Note that in this passage two ways of displaying the QR code are given. Read as a whole this passage appears to be drawing a sharp distinction between the second sentence, which is not said to be outside the claims, and the third sentence, which is. The second sentence simply uses the general term “sign”. One might have wondered whether this was being used in a broad and unspecific manner. However the text then makes clear that the approach in the third sentence is outside the scope of the claims by contrast with the second sentence. Before turning to the claims, which obviously have to be read to understand this passage, it is also worth noting the fourth, final sentence in the passage. This states that “in such embodiments” (which on the face of it means the embodiments outside the claims described in the third sentence) the encoded information may be periodically updated. Perhaps therefore it is the ability to periodically update the encoded information (which the skilled reader would understand could readily be done if the QR code appears on any sort of electronic display) that is the characteristic taking that approach outside the claims, and distinguishing what is claimed from what is not. Ensygnia’s case is that that does represent the way the skilled reader would understand this passage and the reader would therefore conclude that “sign” here is not a general term but refers specifically to a static non-electronic sign, unchanging between transactions, such as a piece of paper on the wall.
21. The only relevant claim is claim 1, as follows:
- A method comprising:
- a portable device:
- obtaining a graphical encoded information item which is displayed on a display of a computing apparatus, wherein the computing apparatus comprises the display and an electronic apparatus, and wherein the display is a sign;
- decoding the encoded information from the encoded information item;
- and
- transmitting a first message to first server apparatus, the first message including the decoded information and a first identifier identifying the device or a user of the device, wherein the decoded information includes an apparatus identification information item for allowing identification of the computing apparatus,
- the first server apparatus:

receiving the first message from the device;

establishing the identity of the user of the device, where establishing the identity of the user comprises using the first identifier to determine if the user is registered with the first server apparatus;

in response to establishing the identity of the user, authorising the user to access a service; and:

using the apparatus identification information item to transmit a signal to the electronic apparatus, and

the electronic apparatus providing the service to the user.

22. The broad outline of the claim is clear enough. In the method claimed the portable device does three things: obtaining graphically encoded information, decoding it, and transmitting a message to the server. The message includes information identifying the user and information identifying the computing apparatus. Then the server does four things: receiving the message, establishing the user's identity, authorising access to a server (assuming identity is established), and using the information which identifies the apparatus to send a signal to that apparatus. Then finally the apparatus provides the service to the user. So far this outline fits with the electronic door lock described in the specification but also with the other embodiments disclosed there too albeit they are said to be outside the claim.
23. The issue concerns the part of the claim at the start which relates to the graphical encoded information item. That graphical encoded information item is said to be displayed on a display of a computing apparatus. So far so good. The next words provide that the computing apparatus comprises the display and an electronic apparatus. This text draws a distinction between the electronic apparatus, described in argument as the business end of the computing apparatus, and the display. The electronic door lock would seem to qualify as an electronic apparatus. The display seems to be distinct. Then the final words are "and wherein the display is a sign". Ensygnia contends that this language, read in the context of the text in the specification about the building security apparatus above, would be understood to refer to a non-electronic, static sign such as a sheet of paper. It would exclude a computer screen. Shell contended below and contends here in the Respondent's Notice that this means or at least includes a computer screen.
24. The judge accepted Ensygnia's case that read together (as they clearly should be) the passage in the C2 specification concerning the electronic door lock, and the words in claim 1, would be understood to refer to using a non-electronic static sign near the lock to display the GO. A clear pointer to that conclusion came from the contrast in the passage in the specification addressed already between the second sentence and the remaining two sentences which refer to embodiments outside the scope of the claims. The fact that almost the whole of the specification concerns systems and methods in which the GO is displayed on a computer screen – and so one might be forgiven for expecting that to be covered by the claim – was not enough to negative this interpretation, given the words used.

25. In my judgment the claim in isolation could be read either way, and I have some sympathy with the Respondent's Notice. The fact the display is introduced in the claim as the "display of a computing apparatus" supports the idea that a computer screen is what is meant. There was evidence that "display" is a technical term and refers to an electronic or computer display, but even in its own terms that would be a natural way to read these words. Moreover, again reading this in isolation, I would hesitate to describe a printed sheet on a wall as a display of a computing apparatus, even if I realised that the sheet was beside an electronic door lock and related to it in some way, and that electronic door lock mechanism was what the claim meant to refer to as the electronic part of the computing apparatus. However reading this in isolation is not the right approach.
26. I agree with the judge's conclusion for the reasons she gave. Read in context the passage in the C2 specification concerning the electronic door lock, and the words in claim 1, would be understood together by the skilled reader such that the "sign" which displays the GO is a non-electronic static sign such as a piece of paper near the lock. The only thing I would add is that reading such specific limitations into general words in patent claims is not usually conducive to reasonable certainty for third parties (see the Protocol on the Interpretation of Art 69 EPC) but one is essentially driven to this conclusion in order to make sense of the claim and specification as a whole in the C2 version of the patent.
27. I would therefore dismiss the Respondent's Notice.
28. However it is worth noting, given what follows, that this conclusion depends on some specific wording in the passage of the description in the C2 specification.

Extension of scope

29. The law on extension of scope is clear and undisputed. By s.76(3)(b) of the Patents Act 1977 (which corresponds to Art 123(3) EPC), no amendment of the specification shall be allowed if it extends the protection conferred by the patent. By s.72(1)(e) Patents Act 1977 (which corresponds to Art 138(1)(d) EPC) if such an amendment has taken place that is a ground of invalidity.
30. The judge cited a passage from my judgment in *Hospira v Genentech* [2014] EWHC 3857 at [106]-[108] as summarising the relevant principles. I repeat the passage here:

106. This rarely comes up at trial in the UK, no doubt because the law is clear and usually easy to apply. The correct approach is to compare the scope of the claims as granted with the scope of the claims as proposed to be amended. In both cases the scope is that of the claims properly construed in accordance with the Protocol. If the proposed amended claim covers something that would not have been covered by the granted claims then the prohibition is engaged.

107. Usually to make the argument good the person challenging the amendment needs to identify a concrete thing which did not fall within the scope as granted but which would fall within the scope after amendment if the amendment was allowed. If such a

thing cannot be identified in concrete terms, that is usually an indication that there is no extension. Because the prohibition is absolute, the thing need not be commercially realistic.

108. The purpose of the prohibition is the protection of the public. Once a patent has been granted, the public can rely on its scope and know that it will not get any wider by amendment. There is no corresponding prohibition pre-grant. The law of added matter is different. It applies both pre- and post-grant.

31. The exercise involves a comparison of the claims in the granted B Specification with those in the C2 specification, bearing in mind in this case that relevant amendments were made not only to the claims but also to the passage concerning the electronic door lock.
32. There are two differences between claim 1 in the C2 specification and claim 1 as granted. The first is that the words “wherein the computing apparatus comprises the display and an electronic apparatus, and wherein the display is a sign” are not present in the “obtaining” clause of claim 1 as granted. The other difference relates to the final words of the claim. That latter change is the focus of the second added matter argument but can be ignored at this stage.
33. Thus, as granted, claim 1 was in this form:

A method comprising:

a portable device:

obtaining a graphical encoded information item which is displayed on a display of a computing apparatus;

decoding the encoded information from the encoded information item;

and

transmitting a first message to first server apparatus, the first message including the decoded information and a first identifier identifying the device or a user of the device, wherein the decoded information includes an apparatus identification information item for allowing identification of the computing apparatus,

the first server apparatus:

receiving the first message from the device;

establishing the identity of the user of the device, where establishing the identity of the user comprises using the first identifier to determine if the user is registered with the first server apparatus;

in response to establishing the identity of the user, authorising the user to access a service; and:

providing the service to the user via the computing apparatus using the apparatus identification information item

34. So in relation to the displaying of the graphical encoded information item, all that is stated in the granted B claim is that it is “displayed on a display of a computing apparatus”. At face value one might read that as a clear and simple statement that the GO is to be displayed on a computer screen or similar. There is nothing to suggest this might encompass a GO printed on a sheet of paper on the wall. As I have already said, describing a piece of paper or card on the wall as the display of a computing apparatus is not a natural use of language.
35. Moreover the context is now very different. Reading the B specification, all of the language stating that this or that embodiment is outside the claim, is absent. Thus, for example, the skilled reader would see the figure 3 example (and the other figures), in which the QR code is on the screen of a computer, as something which the claim is covering. So the clear conclusion is that the granted claim at least covers displaying the QR code on a computer screen. Therefore the question becomes whether the claim is limited to some kind of computer or electronic screen such that a non-electronic static sign, like a piece of paper, is not covered at all. One might think the plain language really is not apt to cover such a thing but to answer the question fully one needs to consider the text about the electronic door lock.
36. The relevant passage about the electronic door lock in the granted B specification is also different from the C2 version. As granted it is:

In such embodiment, the computing apparatus 10 may comprise an electronic door lock. The encoded information item 112, 312, such as a GO as described above, may be displayed on a sign geographically proximate to the electronic door lock. Alternatively, the GO 112, 312 may be provided on an electronic display geographically proximate to the electronic door lock. In such embodiments, the encoded information item may be periodically updated following receipt of signals from the first server apparatus 14 (or from the second server apparatus 16 if the system is as shown in Figure 2).
37. There are a number of critical differences between this passage and the one in the C2 specification. There are no statements that anything here is outside the scope of the claims. That alone makes a significant difference because the way that language appears here and all over the C2 specification forces the reader to focus in on the electronic door lock in a manner the reader of the B specification would not. In the B specification the electronic door lock is just one of a number of embodiments.
38. Focussing on the language of the passage itself, unlike the C2 version, neither the third “alternatively” sentence, nor the fourth sentence about periodic updating of the encoded information, are said to be excluded from the scope of the claims. Moreover the third sentence does not contain the word “embodiments” which word is found there in the C2 specification. That word in the third sentence (see above at [19]) created a link to

the fourth sentence's reference to "in such embodiments"(note the plural) and thereby supported the view that the updating concept did not relate to the second sentence. The issue the judge had to grapple with was whether in this form, the idea of being able to update the encoded information would be understood as applicable to both embodiments described there – i.e. the second sentence (the sign) and the third sentence (electronic display). In other words could it be understood to mean that the sign could be updated? The issue comes up again on added matter (since this language is the same in the application) and it is convenient to decide the issue once, at that stage. At this point I will simply assume in Ensygnia's favour, without deciding, that the reader of the granted patent would go as far as thinking that this passage does disclose the idea of a scheme in which the GO is displayed on a static sign such as on paper.

39. Ensygnia's argument is that if, as I have assumed for this purpose, the passage in the specification describes an approach involving a GO displayed on a static sign, then the skilled reader of the claim would think the claim would be very likely to include such a thing, because one canon of the construction of patent claims is that one would expect them to cover what is described in the specification.
40. It is very well established that patent claims are to be read and understood in the context of the specification. As part of this, as the judge noted at [116], Meade J has recently made the points that a patentee is likely to have a generalised concept in mind for his or her invention and the claims are not presumed to be limited to the preferred embodiment(s), particularly if general language is used in the claims. See *Add 2 Research and Development Ltd v Dspace Digital Signal Processing & Control Engineering GmbH Dspace Ltd* [2021] EWHC 1630 (Pat) at [92] and *Promptu Systems Corp v Sky UK Ltd* [2021] EWHC 2021 (Pat) at [130].
41. The idea that claims are usually a generalisation from what is described in the specification carries with it the idea that one might expect a claim to cover the thing from which it has been generalised. I therefore accept Ensygnia's submission but only to the extent that this point is one of a number of relevant factors to take into account, with varying weights depending on the language and context. Everything always depends on how the document read as a whole would be understood by the person skilled in the art. Some patent specifications consist of not much more than a fairly detailed description of a single idea, in which case the reader might well expect the broadest claim to cover it. However in practice many patent specifications are like the one in this case, presenting a variety of linked ideas, in varying levels of detail, and with options and partly explained alternatives. This common form of specification is the natural and appropriate result of the work of real inventors. However even the broadest claim in such a document may well not cover every idea mentioned or alluded to in it.
42. In this case the specification describes a number of extra ideas which are not within the claim as a result of the same words under consideration here. The specification describes that the computing apparatus 10 could emit sounds in which the information is encoded and which are audible to the mobile phone. Another example is to emit radio signals. Neither of these involve something displayed on a display of a computing apparatus. These examples therefore show that the claim does not cover everything disclosed, undermining the idea that the words should be given an extended meaning in order to cover one of the ways in which one of the embodiments is described as functioning, on the assumption I am making in Ensygnia's favour. Not irrelevant is the

fact that even if Ensygnia is right that the passage about the electronic door lock in the B specification does disclose a static sign as an alternative, the passage also discloses using an updateable electronic display, which would be covered.

43. Furthermore the interpretation of the claim as being concerned with a computer display and so not including something static is fully supported by the main embodiments in the specification. Figures 1, 2 and 3 differ from one another in various ways but they all involve displaying the GO on what would be understood to be a computer screen of some kind. Some other parts of the description are silent about what the GO is displayed on (e.g. the ATM embodiment) but the reader would regard a screen as a natural way of doing that. It would not occur to them to think that embodiments like the ATM were using a static means of displaying the encoded information. Overall, the clear general thrust of the specification does not support the idea that the claim language might be intended to cover a static sign.
44. In my judgment the relevant claim of the patent as granted, in the B specification, does not therefore cover an approach which uses a static sign to display the GO, such as a piece of paper on the wall, whereas the effect of the amendments made after grant is that this approach is covered by the claim in the C2 specification. The ground of invalidity in s72(1)(e) of the 1977 Act is engaged and I would therefore dismiss the appeal on the issue of extension of scope.

Added matter

45. The law on added matter is also clear and undisputed. By s.76(3)(a) of the 1977 Act (which corresponds to Art 123(2) EPC), no amendment of the specification shall be allowed if it results in the specification disclosing additional matter. By s.72(1)(d) Patents Act 1977 (which corresponds to Art 138(1)(c) EPC) if such an amendment has taken place that is a ground of invalidity.
46. The judge rightly referred to the summary of this area of law in *Vector v Glatt Air Techniques* [2007] EWCA Civ 805 from [2] to [7]. All of those paragraphs are worth reading in full. I draw attention below to aspects of this law of particular relevance in the present case. In doing this I am not seeking to depart from that summary.
47. The purpose of this part of the law is to stop patentees inserting information after filing. The reason this is important is to protect the public. Without this prohibition the patentee could otherwise gain unwarranted advantages by circumventing the first to file system and gaining a monopoly different from that which the original filing justified. It is important to consider what is disclosed both expressly but also implicitly, otherwise the law would be unfair to the patentee. On the other hand the comparison between what is disclosed in the application as originally filed and what is disclosed after the amendments is a strict one, otherwise the law would be unfair to third parties. Therefore subject matter will be added unless it is clearly and unambiguously disclosed in the application as filed. It is also important to avoid hindsight, particularly when it is suggested something is disclosed implicitly. The skilled person reading the application has not seen the amended specification and so does not know what they are looking for.
48. One dimension to the law of added matter which is not mentioned in *Vector v Glatt* is the distinction between coverage and disclosure which is the basis of the line of Court of Appeal cases from *AC Edwards v Acme* [1992] RPC 131 and then *Texas Iron Works*

[2007] RPC 207 to *AP Racing v Alcon* [2014] EWCA Civ 40. The point is that general words may cover a variety of things without disclosing a particular one (or more) of them. So in *AC Edwards* the application described a device using a coil spring and the granted claim used the general expression “spring means” which had not been in the application. A device which used a leaf spring rather than a coil spring was held to infringe but this fact, that the term “spring means” covered other types of spring in addition to coil springs, did not mean there necessarily was a disclosure of a leaf spring (which would have been added matter). The finding was that no new ideas would be identified by a skilled person reading the granted patent than would occur to them reading the application, therefore there was no added matter.

49. Turning to the application as filed (the A specification) there is no material difference between this and the granted B specification. The issue turns on what is disclosed by the passage about the electronic door lock, the passage itself is the same as the quote at [36] above.
50. The judge’s conclusion at [177] was that there was no clear and unambiguous disclosure of a static sign in the application, and that approached without hindsight it would not even occur to the skilled person reading the relevant passage in context that the invention could be implemented using a sign which was not electronic or which cannot be changed. I agree with the judge, for the reasons I now explain.
51. Starting with the common general knowledge, Ensygnia makes the point that GOs like barcodes and QR codes are and were commonly displayed on printed media and that the skilled person would be well aware of that. This is undisputed. Therefore, Ensygnia submits, the skilled person would be well aware that encoded information could be displayed in that way. I accept that. Ensygnia also makes the point that the application does not anywhere require the encoded information item to be dynamic, and that the invention would work perfectly satisfactorily without such dynamism. These points can be accepted but they only go so far. This sort of common general knowledge might be relevant if the question was whether something was obvious over the specification but that is irrelevant. In the end they do not help Ensygnia on the question whether the idea of a static sign actually is disclosed in the document.
52. Turning to the specific passage, the judge first considered Ensygnia’s case that the passage about the electronic door lock disclosed the idea that the display could be either electronic or non-electronic. The electronic display is expressly mentioned in the third sentence and the argument is that the word sign in the second sentence would therefore be understood to refer to a non-electronic display. In the C2 form of the patent, based on the language there, the judge had concluded that the skilled person would understand the sign to be a non-electronic static sign (see above at [19]-[26]). However in relation to the application, the judge held at [174] that while the skilled person would understand that the patentee intended the concept of a sign to be different in some way from the electronic display, there was no reason why they would think that the difference was or could be that the sign would not be electronic.
53. Before addressing the point directly there is an issue to get out of the way. Ensygnia points out that in the next part of her reasoning the judge referred to what she regarded as unchallenged evidence of Shell’s expert Dr Berisso that “sign” in the context of the passage in question would relate to some kind of digital sign like e-paper, LCDs or LEDs. The problem, as Ensygnia points out, is that the judge had already held (rightly)

that sign was not a term of art, and so an expert's opinion on its meaning is not admissible (or relevant). Ensygnia is right about this. It means that this aspect of Dr Berisso's evidence is irrelevant.

54. However although Ensygnia is correct about the relevance of the expert's opinion, the point does not help. It is a slip in an otherwise careful judgment but it does not undermine the thrust of the judge's reasoning. The judge was accepting that the skilled reader would see that a distinction of some kind was being drawn. I agree. The problem for Ensygnia is that read without hindsight there is nothing else in the passage or elsewhere which would lead a skilled person to think that the distinction was that the sign was not electronic at all. After all the specification is entirely concerned with electronic systems of one sort or another and the word sign is highly general and non-specific. In my judgment the skilled reader might well think that perhaps the patentee had not really thought through what concrete idea was in mind here. Perhaps they were contemplating the possibility of something which would not be called a "display" in a narrow sense like the monitor screen of a conventional computer. In any case there is not a clear and unmistakable disclosure of a non-electronic sign.
55. The judge then turned at [175]-176] to the argument about the fourth sentence concerning periodic updating. The judge decided that in the application as filed the periodic updates would be understood as applying to both limbs, i.e. to the second limb (electronic display), and to the first limb (sign). I agree. It is the natural way to read the passage in that form. The fact this is a different answer to the same question when applied to the C2 specification is a result of the amendments.
56. As the judge held, this conclusion implies that in fact the sign must be some kind of digital or electronic device since that is the way it would be updated, which serves to reinforce the difficulty for Ensygnia.
57. Putting these two points together leads to the conclusion that there is no clear and unmistakable disclosure of a non-electronic static sign as the means to present the graphical object and so, since that idea is disclosed in the C2 specification, there is added matter. The judge was right for essentially the reasons given, subject to the slip identified above.

The other added matter point

58. The second added matter case related to the amendments at the end of claim 1. This cannot now make a difference to the outcome and so I will only address it briefly. Putting the two relevant passages side by side, with the critical words in italics:

Part of claim 1 of application as filed:

the first server apparatus:

receiving the first message from the device;

establishing the identity of the user of the device, where establishing the identity of the user comprises using the first identifier to determine if the user is registered with the first server apparatus;

in response to establishing the identity of the user, authorising the user to access a service; and:

providing the service to the user via the computing apparatus using the apparatus identification information item.

Part of claim 1 of C2 specification:

the first server apparatus:

receiving the first message from the device;

establishing the identity of the user of the device, where establishing the identity of the user comprises using the first identifier to determine if the user is registered with the first server apparatus;

in response to establishing the identity of the user, authorising the user to access a service; and:

using the apparatus identification information item to transmit a signal to the electronic apparatus, and

the electronic apparatus providing the service to the user.

59. The difference between these two is in the last few lines. In the original claim there was a rolled up expression referring to the provision of the service via the computer apparatus whereas that clause has been reorganised and split into two parts in the C2 claim. The new wording uses the term “electronic apparatus” which had been put in at the start of claim 1 to specify that the computing apparatus comprised electronic apparatus and a display. The judge held that this splitting of the computing apparatus into electronic apparatus and a display was not added matter and the point was not appealed. However the judge did hold that the new wording at the end of the claim, in which the electronic apparatus provides the service, is added matter because all that was disclosed in the application as filed was that the server provided the service.

60. In my judgment a legitimate way to look at this amendment is as follows. Starting from the words “providing the service to the user via the computing apparatus using the apparatus identification information item” in the application as filed, these words would be understood in the following way. The service, whatever it was, was to be provided via the computing apparatus (e.g. access to the website). However the computing apparatus does not “use” its own “apparatus identification information item”. That apparatus identification information item is something the server uses to identify which computing apparatus it is which the user is trying to use. The server uses this information to know which computing apparatus to authorise. But the service is provided via the computing apparatus.

61. With this in mind one could rearrange the text of the application as filed without adding matter into the following:

using the apparatus identification information item to transmit a signal to the computing apparatus, and

providing the service to the user via the computing apparatus

62. That is how claim 1 of the application as filed would be understood. To change the last line from a somewhat passive voice into “*the computing apparatus providing the service to the user*” and dropping the word “via” does not tell the reader anything new, so we are now at:

using the apparatus identification information item to transmit a signal to the computing apparatus, and

the computing apparatus providing the service to the user

63. Then the final step is to replace “computing apparatus” to reflect the legitimate amendment which divides the computing apparatus into the business end electronic apparatus and the display. That change produces the wording in the C2 specification.
64. In my judgment this demonstrates there is no added matter here. I will add that this way of looking at the amendments only emerged on appeal and was not put to the judge. I would allow this ground of the appeal, on the second added matter issue.

Obviousness

65. By s1 of the 1977 Act a patent may only be granted for an invention which satisfies certain conditions. One of those conditions is that the invention involves an inventive step (s1(1)(b)). By s3 of the Act 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 the state-of-the-art.
66. The approach taken to resolving these questions is set out in *Pozzoli v BDMO* [2007] EWCA Civ 588. The approach has three preparatory steps leading up to the question whether the invention is obvious. The first step is to identify the person skilled in the art, and the common general knowledge. The next step is to identify the inventive concept of the claim or if it cannot be done to construe the claim. The third preparatory step is to identify the differences if any which exist between the individual item of cited prior art and the claim. Having done that the court is in a position to consider the question of obviousness itself, which is whether those differences constitute steps which would have been obvious to a person skilled in the art without hindsight. *Pozzoli* does not require that these steps are identified explicitly in a judgment. Nevertheless they are conceptually useful to have in mind when addressing obviousness.
67. As the judge recognised, the leading case on principles of what is and is not obvious – in other words to answer the question after the three preparatory steps of *Pozzoli* - is *Actavis v ICOS* [2019] UKSC 15 from [60].
68. The person skilled in the art and the common general knowledge were identified in the judgment ([27] to [91]). Nothing turns on that. The approach in the judgment was to construe the claim rather than identify an inventive concept. No criticism of that was or could be made. The relevant prior art is Schmidt. Shell argued that Schmidt anticipated claim 1 (i.e. deprived it of novelty) or in the alternative, if claim 1 was novel over Schmidt, then Shell argued claim 1 was obvious. The judge rejected the anticipation argument. As one might expect, in doing so the judge identified the

difference between claim 1 and Schmidt (at [220]), thereby carrying out the task in the third *Pozzoli* step.

69. Schmidt essentially describes a payment scheme with a mobile, a server and a terminal by which a barcode is displayed and scanned by the mobile to pay for something. Schmidt includes examples in which a transaction specific barcode is displayed on a computer screen at the terminal or printed on paper by the terminal. One of the examples in Schmidt relates to local public transport (LPT). At trial the approach in Schmidt was called dynamic, which refers to the idea that the barcode is transaction specific and so changes from transaction to transaction. As the judge explained at [220] it was common ground that Schmidt disclosed all the features of claim 1 except for the requirement that “the display is a sign” on Ensygnia’s construction of “sign”. Shell’s case before the judge was that in addition to being dynamic Schmidt did also disclose the idea of a static sign and so the claim was anticipated. Alternatively claim 1 was obvious over Schmidt. The judge decided there were not clear and unmistakable directions in Schmidt to use a static sign and so the claim was novel (citing *General Tire*). The judge approached the question of obviousness as being whether it was obvious to use a static sign, which did not change between transactions. The grounds of appeal did not suggest that the judge erred in identifying this difference over Schmidt although a point about a non-electronic sign was developed orally before this court which I will mention below.
70. The finding of obviousness was at [238] to [241]. In summary the judge’s reasons were these. The judge focussed on the part of Schmidt concerning local public transport, and in particular the aspect with a ticket machine. The judge held that Ensygnia’s expert Professor Martin had agreed that using a barcode which did not change between transactions, e.g. for different passengers using the same route, was one possible option although there were other ways it could be done. Ensygnia’s criticism of the relevant passage of cross-examination was rejected. The judge also held that Shell’s expert Dr Berisso had given unchallenged evidence that using a barcode which was the same for different passengers on the same line was a simple design choice. Since “static sign” was the only claim feature in dispute, claim 1 was obvious.
71. The arguments advanced by Ensygnia before us were as follows. Although no objection was taken I am doubtful all of them were within the grounds of appeal for which permission was given, but in the circumstances it is easier to address them in this fashion. The points are:
 - i) The judge’s reading of Schmidt overall was not supported by either expert and was wrong. Schmidt is directed to dynamic systems. The essentially uncontradicted evidence of Prof Martin was that Schmidt did not consider a static sign. The LPT system is also stated expressly to be dynamic.
 - ii) The judge’s approach to Schmidt’s LPT system was wrong in part because it is expressly dynamic (the previous point) and also because the LPT embodiment by mutual agreement of the experts is confusing and poorly explained.
 - iii) There was no evidence which suggested that a skilled person would, as opposed to could, modify the LPT to use a static display.

- iv) The judge's reasons are inadequate because they do not grapple with the difference between a sign with a barcode which cannot be changed from transaction to transaction and a sign in which the barcode happens to be the same for successive transactions but could change.

72. To address these submissions it is necessary to look a little closer at Schmidt. Figure 2 is as follows:

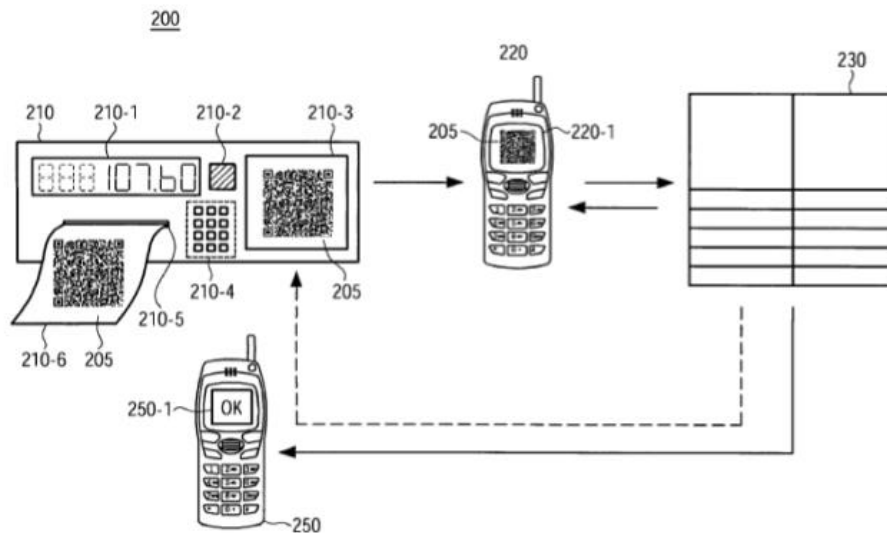


FIG. 2

73. A service provider has a terminal 210 which can create a barcode which encodes information regarding payment for a service. The service user has a mobile 220. In the figure the barcode is displayed on the terminal display (210-3) and is printed out by the printer (210-5). The barcode is "retrieved" from the terminal by the mobile. The mobile then transmits data to a central server 230 which includes information coded by the barcode. If everything is in order the central server will perform the payment and confirm to the terminal that the payment has been carried out. Much of Schmidt is written based on a taximeter system. Other examples include a ticket machine for parking, part of a fuel dispensing pump, a solarium, and a supermarket check out.
74. The LPT system is described at p32 line 9 to p 33 line 13. The judgment deals with this at [216] – [217]. The text refers to a stop on the line of a transport system. It explains that at the stop there are barcodes depending on the line of the transport system. The passenger can photograph the barcode for the line they have selected using their mobile phone, and will need to have an LPT specific app on their phone. An alternative approach (from line 15) is to have a ticket machine at the stop. The passenger selects a route and the machine provides an appropriate barcode for the route either from the display of the ticket machine or by printing it out. Again the passenger uses their mobile phone to photograph or scan the barcode from the display or paper print out. Payment is made and then the ticket machine can print a ticket or the passenger can be sent an electronic ticket.
75. I can now turn to Ensygnia's four submissions.

i) The judge's reading of Schmidt

76. This relates to the reasoning on anticipation ([221] – [229]) which I have addressed already but will go back over briefly in this context. It is about Schmidt overall and also the LPT system in particular. Ensygnia’s expert Professor Martin said that the encoded information in Schmidt was always for a specific payment, which meant that it must be dynamic. In relation to the printing out of the barcode Professor Martin said this was a printed version of a specific transaction, which means that the non-digital display (the piece of paper) changes every time that the Schmidt system is used, and therefore in his view it was not a static sign. At [224] the judge held that Schmidt does not teach that the barcode necessarily had to be dynamic. Whether or not the barcode did in fact change from transaction to transaction would depend on the nature of the service in question.
77. If the judge did misconstrue Schmidt then that would be relevant on appeal. However in my judgment the judge made no error here. Her interpretation of the document at [224] and later was right. Schmidt does not use terms like dynamic or static and is not focussed on the distinction between the two. Nevertheless the starting point, as the judge clearly recognised, is that Schmidt describes schemes in which the barcodes will in fact be dynamic (such as the taximeter examples). For every taxi fare the data and therefore the barcode generated from it, will be different. The judge’s point was not that Schmidt did not disclose what we can call dynamic barcodes, but rather that Schmidt does not *require* (my emphasis) that the barcode is dynamic. The dynamic nature arises from the particular circumstances Schmidt describes rather than being an aspect specifically called out and said to be mandatory.
78. As the judge then put it in [224], whether or not the barcode is different with every transaction will depend on the nature of the service in question, and the LPT embodiment was one in which the same barcode could be used by different passengers. I agree. The text about the LPT system refers to data which could be encoded which includes the date of validity, the name of the stop, and the desired line number. It is plain that over the course of a single day these data encoded in the barcode do not need to change. Therefore the judge was right that in the LPT example the same barcode could be used by different passengers.
79. However pointedly the judge was not saying that Schmidt positively taught the idea of using a static barcode, which again I agree with. We can see looking at Schmidt in hindsight in the crucible of these proceedings that the barcode could be a static one but as the judge held, there were not clear directions in Schmidt to a skilled person to actually do that.
80. The other aspect of this issue is about the role of expert evidence. Construction of a document such as Schmidt is a matter for the judge not the experts (for a recent statement of this see *Optis v Apple* [2023] EWHC Civ 438 at [133]). As it is sometimes said, the role of the expert evidence in this context is to allow the judge to assume the mantle of the skilled person, imbued with the common general knowledge, so that the judge can properly construe the documents. The meaning of technical terms of art is an exception to that principle, but the points in issue here do not turn on disputed evidence about the meaning of language of that sort. Therefore the fact (even if true) that a judge’s interpretation of a document is not supported by either party’s expert might be unusual but it is not a ground for overturning that interpretation. What matters is how the document would be read by the person skilled in the art, and that is a matter

for the court. A different question is what a skilled person would do after reading a document (see again *Optis v Apple* at [133]) but that is not what this point is about.

81. Ensygnia's first submission therefore fails.

ii) Mutual agreement that the LPT system was confusing and poorly explained

82. If both experts agreed that a reason why a skilled person would not act on an item of prior art was because it was confusing and poorly explained, then that would be a legitimate point for an appellant to make. However this is not what happened. In fact both experts did express the view, in different ways, that parts of Schmidt were unclear; but each also gave specific evidence about specific ways forward for a skilled person in the light of Schmidt. There is no reason to think that the judge did not have all this in mind when she decided the question of obviousness.

83. In relation to Professor Martin's view that Schmidt was unclear in various ways, this came up a number of times in his cross examination when counsel was suggesting ways in which the skilled person might implement what was described in the LPT embodiment of Schmidt. Three particular points were put.

84. One was based on the first few lines of the description of the LPT which refers to having barcodes at the LPT stop depending on the line of the local public transport. Counsel suggested that one approach for this would be to have printed posters displayed at the transport stop. The Professor's answer was essentially that he could not make sense of those words in the LPT description.

85. The second point was that one could have a barcode which represents a selected route (the point being that this would not need to change from passenger to passenger). The Professor agreed that it could be possible. Ensygnia submit that "could" is not enough for obviousness. I will come back to that.

86. The third point was to refer to the passage in the text about the LPT system which mentions a ticket machine, and to suggest that a sensible option would be to use it to print off a ticket for travel. The witness agreed.

87. Turning to Dr Berisso's evidence, the judgment refers to the evidence he gave to the effect that using a static barcode would be a simple design choice and describes it as unchallenged. The point that it was a simple design choice for a skilled person came from the expert's second report at 7.3. Ensygnia contended on appeal that contrary to the judgment the evidence had been challenged in cross-examination and that in his answers to the questions put on this topic Dr Berisso had accepted there was a confusing teaching here, relating to the LPT system. There are two aspects to disentangle, the question of challenge and what Dr Berisso did or did not say about clarity.

88. In terms of the challenge, there is no doubt that there was cross-examination on Schmidt and the LPT embodiment, but having read the material, in my judgment the judge was entitled to take the view she did that the evidence of Dr Berisso at 7.3 was not challenged. In that evidence Dr Berisso was making a general point about the characteristics of the skilled person. The major point which was being put in cross-examination about the specific passages of the LPT was that the text was unclear.

89. Turning to the clarity issue, in my judgment the cross-examination did not lead to a situation in which it could be said that the only conclusion open to the judge was that Schmidt was materially unclear by mutual agreement of the experts. It was put to Dr Berisso that the relevant parts of the description of the LPT scheme in Schmidt were difficult to understand. The witness did not accept that, saying he found it clearer than counsel was putting although also acknowledging that it “almost trips on itself”. That does not go nearly far enough to support Ensygnia’s appeal.
90. Overall therefore, faced with the evidence I have reviewed, it was open to the judge to rely on Dr Berisso’s unchallenged evidence that a static barcode was a simple design choice for a skilled person and also open to the judge to not reject Schmidt or the LPT part of Schmidt as being so unclear as to undermine obviousness.

iii) could / would

91. Ensygnia contends that there was no evidence which suggested that a skilled person “would”, as opposed to “could”, modify the LPT to use a static display. This point does not help Ensygnia. In terms of principles I can refer to a different passage from *Hospira v Genentech* (supra). At [228] of *Hospira* I explained that the law of obviousness cannot be accurately summarised simply by stating that the question is whether the skilled person would have arrived at the claimed invention, not whether they could have. The issue is multifactorial and based closely on the particular circumstances. At [229] - [232] I go on to explain why even using “would” is not always straightforward.
92. The judge’s finding at [239] was that Professor Martin had agreed that having a barcode which did not change between transactions “was one possible option for implementation, although he pointed out that there were other ways in which it could be done”. That finding is a fair summary of the answers he gave. The judge did not here make the mistake of thinking that by accepting what could be done the Professor had agreed in terms that the step was obvious or “would” be done.
93. The ultimate obviousness question was a matter for the judge to decide by reaching her own conclusions in the light of all the evidence. Evidence that something could be done neither demands that a finding of obviousness is inevitable nor precludes such a finding. With all the evidence in this case, the finding was open to the judge.

iv) Reasons inadequate

94. During the course of argument a different point arose, not taken in the grounds as far as I can see. The submission in effect was that what the judge had found was obvious was a system in which the barcode happened not to change between two successive transactions. So for example the barcode provided by a ticket machine to the first customer, perhaps by printing out, would be barcode A, and then when the next customer came to the transport stop, if they wanted to travel on the same line (and they were the kind of customer etc.) the same barcode A would be provided by the same ticket machine. That was not an unchanging (i.e. static) sign like a sign “on the wall” because it could have changed from transaction to transaction but just happened not to. The submission was that this did not go far enough to be within the claim and so the reasoning was inadequate. What needed to be found to be obvious was a set up in which the barcode was unchanging— e.g. because it was printed in a poster on the wall

at the transport stop. It is said that this unchanging barcode is not what the judge held to be obvious.

95. The most that can be said is that the judge's judgment does not in terms grapple with the way this point is now put on appeal. However that is not the issue. In my judgment this point fails for two reasons. First, the evidence of Dr Berisso of what was a simple design choice related to an unchanging barcode. It was not just a barcode which happened to be the same depending on the circumstances. That evidence is what the judge was relying on at [241]. Read in that context, it is clear that this is what the judge held to be obvious. Second, given all the evidence at trial, which included evidence about unchanging barcodes such as the poster on the wall at the stop, it follows that the finding that an unchanging barcode was obvious was one which was open on the evidence.

Obviousness – conclusion

96. There was a sufficient evidential basis on which it was open to the judge to find obviousness in this case and none of the alleged errors stand up to analysis on appeal. I would dismiss this part of the appeal.

Lady Justice Whipple:

97. I agree.

Lord Justice Phillips:

98. I also agree.