



PATENTS ACT 1977

BETWEEN

American Science & Engineering Inc.

Claimant

and

Rapiscan Systems Inc.

Defendant

PROCEEDINGS

Reference under section 72 of the Patents Act 1977 In respect of
Patent number GB2483830 B

HEARING OFFICER

Peter Slater

MR PETER FINNIE (for Gill Jennings & Every LLP) appeared
on behalf of the Claimant

MR RICHARD DAVIS (for Hogarth Chambers) appeared
on behalf of the Defendant

Hearing date: 5 November 2015

INTERIM DECISION

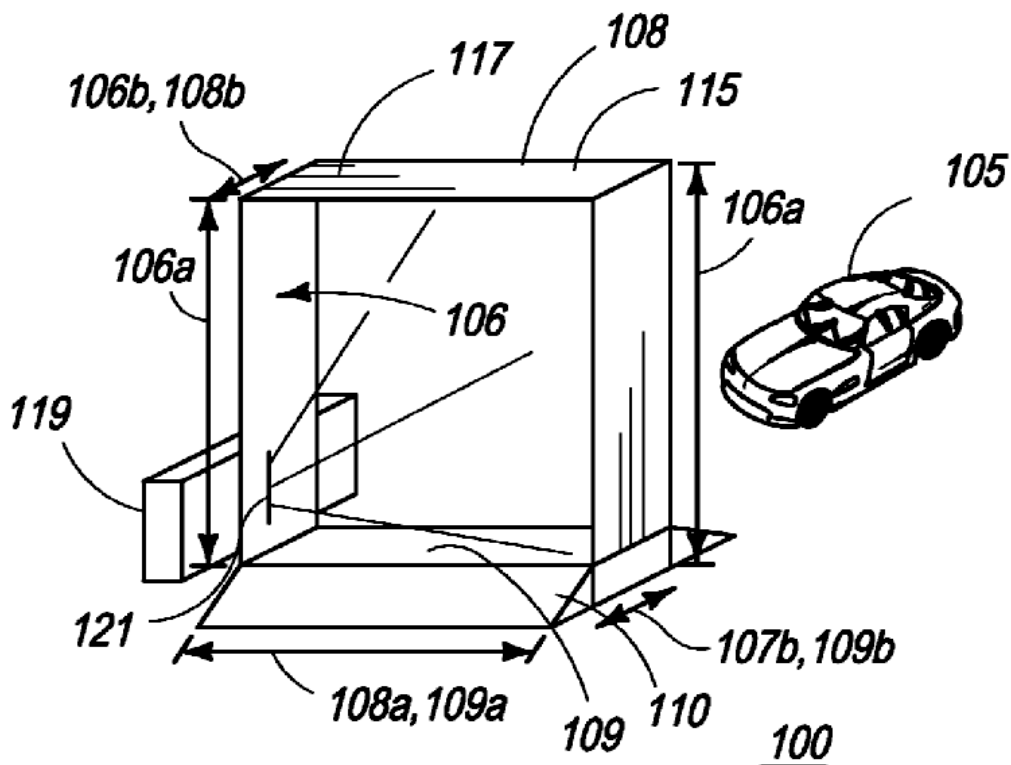
Introduction

- 1 Patent GB 2483830B entitled "Four-sided imaging system and method for detecting of contraband" stands in the name of Rapiscan Systems Inc ("the defendant"). The patent is derived from an earlier PCT application WO 2011/008718 which was filed on 13 July 2010, and claims an earliest priority date of 13 July 2009. The patent was then granted with effect from 28 August 2013.
- 2 An application for revocation under section 72(1)(a) was filed by American Science & Engineering Inc. ("the claimant") on 24 December 2013 on the grounds that the invention involves no inventive step, and as such is not a patentable invention. The defendant filed a counter statement on the 21 February 2014 along with a request to amend the claims. I informed the parties on 6 May 2015 that consideration of these amendments had been deferred until such time as the case for revocation had been resolved.
- 3 Subsequent to the initial statement of grounds for revocation no further evidence has been filed and no witnesses have been called by either party. The matter came

before me at a hearing on 5 November 2015, with both parties having filed skeleton arguments. At the hearing, the claimants were represented by Mr Peter Finnie of Gill Jennings & Every LLP (assisted by Mr Ravi Raja Rayan). The defendants were represented by Mr Richard Davis of Hogarth Chambers.

The invention

- 4 The invention relates to an X-ray scanning and detection system for inspecting vehicles and cargo containers for suspicious trade and illicit substances. The aim of the invention is to provide a mobile inspection system that can be brought to a site and rapidly deployed. The prior art mobile inspection systems discussed in the “background to the invention” are said to comprise boom structures which are heavy and bulky. Furthermore, inspection typically occurs from only three or fewer directions using *either* transmission X-ray systems, in which a variation in X-rays passing through the vehicle is detected, *or* backscatter X-ray systems which detect the radiation reflected from the vehicle.
- 5 The invention set out in the patent provides a four sided X-ray imaging system using a combination of transmission and backscatter imaging sensors. As shown in figure 1 of the drawings the imaging system comprises an inspection portal with sides 106, 107, top side 108 and a base 109 which is a portion of a ramp 110. A vehicle 105 can be driven through the portal and be imaged for inspection using at least one X-ray source 119 and two sets of detectors disposed in the portal. The first set of detectors 117 receives transmission X-rays and the second set, including at least some detectors in the ramp 110, receives backscatter X rays. This enables the vehicle to be imaged using both transmission and backscatter techniques and, in particular, the underside of a vehicle can be imaged using backscatter detection.



6 The patent as granted has 21 claims. Independent claims 1 & 11 provide a system and method for the inspection of cargo including two X-rays sources – one for transmission and one for backscatter. These claims are as follows:

1. A scanning system for the inspection of cargo, comprising:

- (a) a portal defining an inspection area, said portal comprising a first vertical side, a second vertical side, a top horizontal side, and a horizontal base defined by a ramp adapted to be driven over by a vehicle;*
- (b) a first X-ray source disposed on at least one of the first vertical side, second vertical side or top horizontal side for generating an X-ray beam into the inspection area toward the vehicle;*
- (c) a first set of transmission detectors disposed within the portal for receiving the X-rays transmitted through the vehicle;*
- (d) a second X-ray source disposed within the ramp of said portal for generating an X-ray beam towards the underside of the vehicle; and*
- (e) a second set of detectors disposed within the ramp of said portal for receiving X-rays that are backscattered from the vehicle.*

11. A method for inspecting a vehicle, comprising:

- (a) providing a portal defining an inspection area, said portal comprising a first vertical side, a second vertical side, a top horizontal side, and a horizontal base defined by a ramp adapted to be driven over by a vehicle,*
- (b) signalling a vehicle to drive over the ramp,*
- (c) irradiating a vehicle with X-rays from a first source disposed on one side of the portal,*
- (d) detecting the X-rays transmitted through the vehicle, using transmission detectors disposed within the portal, to produce a first output signal representative of the vehicle and contents thereof,*
- (e) irradiating the underside of the vehicle with X-rays from a second source disposed within the ramp,*
- (f) detecting X-rays scattered back from the vehicle, using backscatter detectors disposed within the ramp, to produce a second output signal representative of the vehicle and contents thereof, and*
- (g) correlating said first output signal and said second output signal to produce a visual image of the vehicle and contents thereof.*

7 Claim 15 is of a slightly different scope in that it has only a single X-ray source, and backscatter detectors on all four sides of the portal. Claim 15 reads:

15. A scanning system for inspecting a vehicle, comprising:

- (a) a portal defining an inspection area, said portal comprising a first vertical side and a second vertical side spaced apart from each other and each having a top side;*
- (b) a third side connecting said two top sides;*
- (c) a ramp over adapted to be driven over by a vehicle;*

- (d) an X-ray source disposed on one side of the portal for generating an X-ray beam into the inspection area;*
- (e) a first set of detectors disposed within the portal for receiving X-rays transmitted through the vehicle;*
- (f) a second set of detectors disposed within the ramp and the first, second and third sides of said portal for receiving X-rays backscattered from the vehicle; and*
- (g) an image processor for receiving output signals from said first and second set of detectors and overlaying said output signals onto a visual image of the vehicle and contents thereof.*

8 In addition to determining the validity of independent claims 1, 11 & 15 of the patent, I will need to consider the validity of claims 4, 5, 6, 9, 10, 14, 17 & 19, if I find that the claim on which they are dependent is not valid. For the purposes of this decision, the defendant has contended that claim's 2, 3, 7, 12, 13, 16 & 18 are only valid on the basis that the claims on which they are dependent are valid. The claimant has withdrawn the attack on claims 8, 20 & 21.

The Claimant's case

9 The claimants have identified seven patent documents, along with common general knowledge, which they allege show that the invention as defined in claims 1, 4-6, 9-11, 14, 15, 17 & 19 does not involve an inventive step. The documents which they rely on are as follows:

D1: US 6542580

D2: US 7400701

D3: US 6249567

D4: US 2008/0043913

D5: US 7369644

D6: US 6445765

D7: US 6459761

10 D1 discloses a readily relocatable X-ray imaging system for inspecting the contents of vehicles, and includes a rectangular frame 12 having the X-ray imaging system disposed thereon – see fig 2 reproduced below. An X-ray source 20 is disposed in the top of the frame 12 and detectors are provided in the base 19 and/or legs 14, 16 of the frame to detect transmitted radiation.

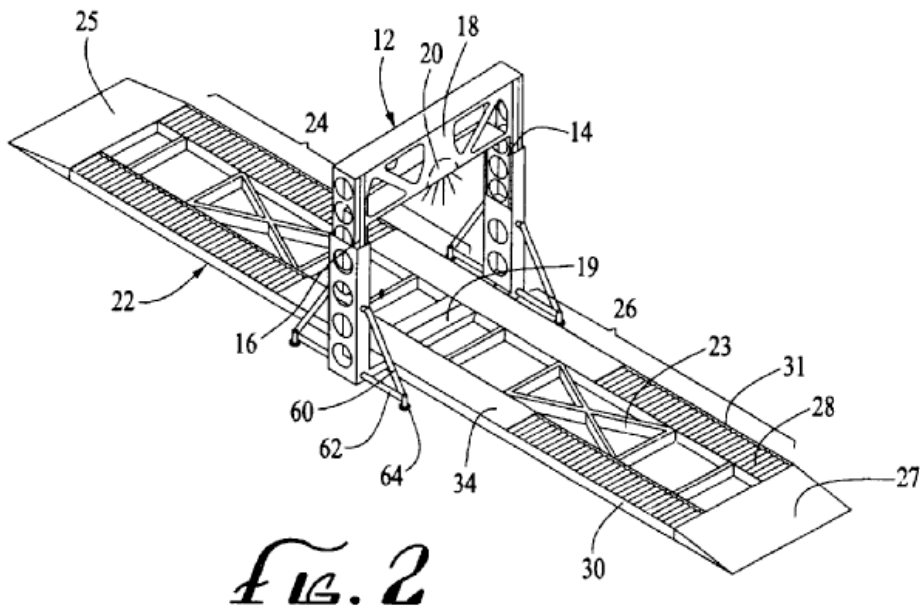


FIG. 2

- 11 D2 discloses a system for imaging an object, including a portal 12 with X-ray sources 13, 15, 17 and detectors 31-36 adjacent the top and sides of the portal – see fig 1 below. Such an arrangement can detect both backscattered radiation and transmitted radiation. Irradiation of the object by the source is temporally sequenced such that the source of the detected scattered radiation is unambiguous.

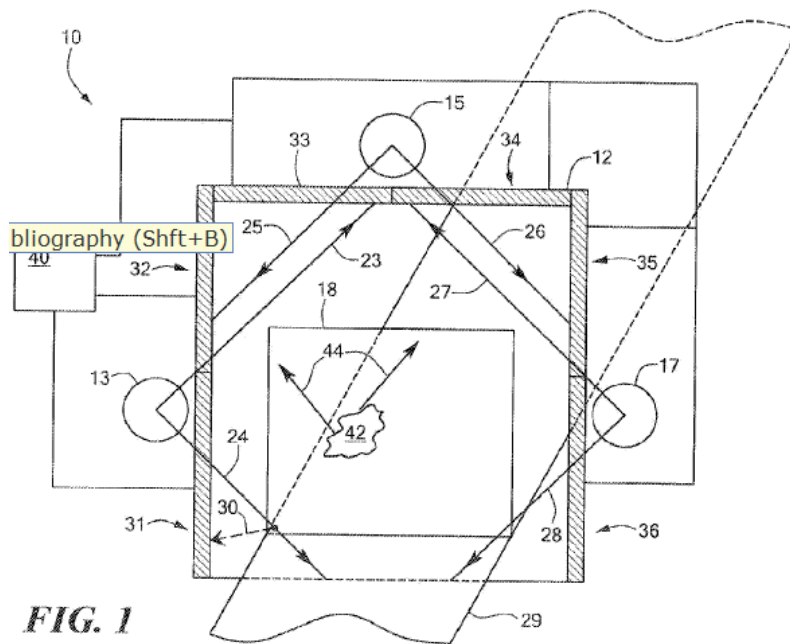
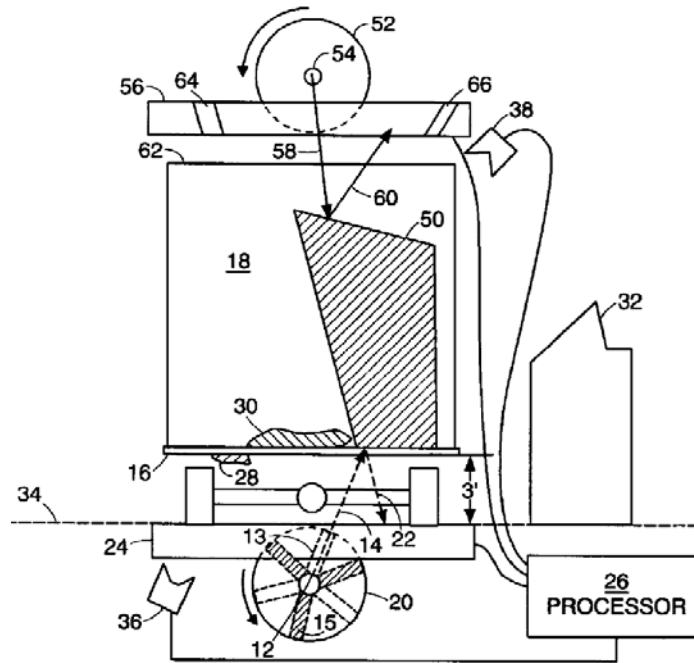


FIG. 1

- 12 D3 discloses a backscattering detection system for imaging a vehicle. A scanning X-ray source 20 and detector 24 are positioned underneath a vehicle to provide X-ray backscatter imaging – see fig below. A source and detector can be positioned above the vehicle to detect backscatter.



- 13 D4 discloses the use of rotating collimators that are adapted to increase the size of the beam at the edges of an image. D5 discloses combining optical images with radiation based images. D6 discloses using multiple X-ray energy levels to distinguish between different types of materials. D7 discloses changing the pulse rate of an X-ray source.
- 14 In the claimant's initial statement of grounds for revocation, filed on the 24 December 2013, the lack of inventive step was based upon these seven patent documents and the common general knowledge. In particular, claims 1, 11 & 15 were said to lack an inventive step in light of the imaging transmission system of D1 based on the common general knowledge of backscatter imaging systems demonstrated in D2 & D3. However, in the claimant's skeleton arguments filed on the 28 October 2015 they have also referred to a lack of inventive step based on a collocation – in particular that the invention is a mere collocation of the transmission system of D1 with the backscatter system of D2 or D3.

The Law

- 15 The Comptroller's powers to revoke a patent on the application of another person are set out in section 72(1) of the Patents Act 1977 ("the Act"), the relevant provisions of which read as follows:

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

- (a) the invention is not a patentable invention;*
- (b) ...*

- 16 In relation to section 72(1)(a) above, I must also consider section 1(1) which defines the requirements for a patentable invention. It reads::

1.-(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –

(a) ...

(b) It involves an inventive step;

(c) ...

17 Section 3 is also relevant, since it defines what is meant above by an ‘inventive step’

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).

18 The claims of a patent are to be interpreted in the light of Section 125 subsections (1) and (3) of the Act, which read as follows:

125.-(1) For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.

(2) ...

(3) The Protocol on the Interpretation of Article 69 of the European Patent Convention (which Article contains a provision corresponding to subsection (1) above) shall, as for the time being in force, apply for the purposes of subsection (1) above as it applies for the purposes of that Article.

19 Section 125 (3) of the Act refers to the Protocol on the Interpretation of Article 69 of the European Patent Convention which reads as follows:

Article 69 should not be interpreted as meaning that the extent of the protection conferred by a European patent is to be understood as that defined by the strict, literal meaning of the wording used in the claims, the description and drawings being employed only for the purpose of resolving an ambiguity found in the claims. Nor should it be taken to mean that the claims serve only as a guideline and that the actual protection conferred may extend to what, from a consideration of the description and drawings by a person skilled in the art, the patent proprietor has contemplated. On the contrary, it is to be interpreted as defining a position between these extremes which combines a fair protection for the patent proprietor with a reasonable degree of legal certainty for third parties.

Whether unpleaded arguments on collocation can be heard

20 The claimants in their skeleton arguments filed on 28 October 2015 (approximately a week before the hearing) introduced for the first time, the issue of “collocation” something which did not appear in their original pleadings. The defendants have

objected, with some justification I might add, that an argument which has not been pleaded should not be heard, and to do so would be contrary to the well established principle that each party must set out in its statement of case all of the matters on which it wishes to rely. In particular, where a party makes any significant change to its case, the other side must have a proper chance to deal with the issue, which may include if necessary, the filing of appropriate evidence.

- 21 So, what we have here is effectively a late request by the claimant to amend their statement of case via their skeleton arguments, a matter which requires the comptroller's discretion to do so. In exercising that discretion what matters is the overriding principle to deal with the case justly.
- 22 In considering the arguments put forward by the parties, it seems to me that I will need to take into account the substance and the timeliness of the amendment, the diligence of the claimant, the extent to which the amendment might disadvantage or prejudice the defendant, and the more general question of public interest.
- 23 *Have the claimants been diligent in their actions?* Inventive step has been pleaded from the outset, and I think it would be reasonable for me to assume that, in preparing their statement of case, the claimants would have given due consideration to raising an attack based on a collocation, as it is a well established concept within the field of inventive step. However, they did not include an argument along those lines at that time. Given that the claimants have provided no new documents or evidence since then, I can see no basis for the introduction of the collocation argument at this late stage other than as an attempt to correct an oversight on their part.
- 24 The claimants, on the other hand, argue that their introduction of the collocation issue stems from arguments provided by the defendant along the lines of: "We can defend this claim on the basis that there is this interrelationship between all of these things (in the claim)". However, I have not been able to identify anything in the defendant's counterstatement, or any of the proceedings, that has necessarily highlighted or pointed towards the issue of collocation.
- 25 *Were the proposed amendments requested in a timely manner?* It should be noted that the claimants have not formerly requested an amendment to their statement of case, they have simply, for the want of a better phrase, slipped the collocation argument into their skeleton shortly before the hearing. It has to be said that I do not consider the introduction of new arguments a week before the hearing, without any real warning, to constitute a timely request
- 26 *Would the defendant be subject to any significant disadvantage should I allow the proposed amendments?* Clearly, given the late filing of this argument and the nature of its introduction, the defendant has not had a proper chance to deal with the issue of collocation which whilst falling under the general ambit of 'inventive step, has its own particular considerations and distinct lines of argument. Indeed, the defendant has indicated that they would like the opportunity to file supporting evidence should I deem it necessary to decide the issue.

- 27 The claimants drew my attention to the decision in *Glass v Freyssinet Ltd*¹ in which Hacon J allowed a party to run an unpleaded claim construction point up to and throughout the trial. They argue that there is clearly a distinction between a legal argument and a new attack requiring the submission of evidence. In the aforementioned case, it is argued that points of construction were deemed to be a legal argument and even though they had not been fully pleaded, they were not struck out. In the same way, the claimants argue that collocation is not a new attack merely an alternative approach to the issue of inventive step that does not require the filing of evidence.
- 28 I note that in *Glass v Freyssinet Ltd*, Hacon J deemed arguments of construction to fall within a “special category”, and that as such they were likely to remain open up to and throughout the trial and that “...as far as construction is concerned provided there is no deliberate concealment and the opposing party is unable to prove significant prejudice caused by a failure to plead the argument, parties are unlikely to meet with any resistance from the court as to the arguments they wish to advance.”
- 29 However, the judge also emphasised that “Parties in the IPEC would be very well advised to include all arguments in their pleading, including those on construction, to avoid any risk of having part of their case disregarded.” I take this to mean that where arguments do not fall within this “special category”, and there is a distinct possibility that the defendant would be at a disadvantage should they not be allowed to file evidence there is still a real possibility that any new unpleaded arguments should be set aside.
- 30 So where does this leave me? Whilst the proposed amendment may be relevant to the validity of the patent and thereby of public interest, this is not the overriding issue and I must balance this against the actions of the claimant and the potential to disadvantage the defendant. Quite clearly the claimants have introduced a new argument, one of collocation which has not been pleaded previously. They have done so at a very late stage in the proceedings by adding it to their skeleton arguments, somewhat surreptitiously and without warning, a practice which to my mind should be discouraged. I do not think therefore that the defendants have had sufficient time or opportunity to deal with the issue of collocation or to adduce appropriate evidence in support of their case. Furthermore, I do not think that arguments of collocation fall within the “special category” referred to by Hacon J in *Glass v Freyssinet Ltd*, which would possibly have saved them from being set aside.
- 31 I am therefore in no doubt that I should set aside the claimants unpleaded arguments relating to collocation for the time being, as they were introduced late into the proceedings to the disadvantage of the defendants and whilst I did hear arguments from both parties on the subject of collocation, I do not think that I am in a position to decide this issue without having first given the defendants a proper opportunity to file submissions and appropriate evidence on this issue. These arguments will have to be dealt with at a later date and for now this decision will focus on the claimants original arguments as set out in their statement of case.

¹ *Glass & Ors v Freyssinet Ltd* [2015] EWHC 2972

The Skilled Person

- 32 A patent specification, according to the relevant authorities, is addressed to those likely to have a practical interest in the subject matter of the invention, and such persons are those with practical knowledge and experience of the kind of work in which the invention is intended to be used. The addressee comes to a reading of the specification with the common general knowledge of persons skilled in the relevant art, and he or she reads it knowing that its purpose is to describe and demarcate an invention. The skilled person is unimaginative and has no inventive capacity. In an appropriate case the patent may be addressed to a team of persons with different skills. Therefore, before the patent can be assessed I will need to identify the skilled addressee and their common general knowledge.
- 33 The claimant has defined the skilled addressee as constituting a team of persons comprising an X-ray imaging specialist as well as a mechanical engineer. The X-ray specialist would be responsible for the choice of X-ray sources and detectors, and their arrangements. The mechanical engineer would be responsible for designing and assembling the portal for housing the X-ray imaging as well as the structure for allowing the imaged object (such as a vehicle) to pass through the portal.
- 34 The defendant has defined the skilled addressee in similar but less general terms as a designer of vehicle and cargo scanning products. They have also suggested that the designer may comprise a team of persons. Such a team would likely comprise an X-ray specialist in the field of vehicle and cargo scanning products, together with a mechanical engineer.
- 35 Not much weight has been placed by either party on the precise definition of the skilled addressee. Nevertheless, given the particular field of the invention I am inclined to agree with the defendant such that the skilled person can be considered a notional team for designing vehicle and cargo scanning products, the team comprising an X-ray specialist in the field of vehicle and cargo scanning products, and a mechanical engineer.

Common General Knowledge

- 36 What constitutes common general knowledge (“CGK”) for the person skilled in the art has proved an area of much contention between the parties. The claimant has relied on a number of patent documents, namely documents D2-7 identified above, as evidence of CGK. Whilst they admit that CGK is not normally taken from patent documents, the claimants have highlighted D2 & D3 in particular as being in the same technical field as the invention and are authored by a major manufacturer of scanning equipment (i.e. the claimant). Therefore, it is said to be inconceivable that the technologies disclosed in D2 & D3 are not common general knowledge. Backscatter detection systems for looking at the underside of vehicles are well known according to the claimant, and have been known and manufactured for a number of years. Most of the patent documents in the field would be known to the skilled person it is said, particularly those authored or manufactured by the defendant and the claimant.

- 37 The claimants have also identified particular passages in D2-7 as evidence of CGK, in particular D3 states that other characteristics “may be obtained using backscatter techniques...all as known to persons skilled in the art of X-ray inspection”, and D4 states “backscatter X-ray systems have been in use for at least three decades”.
- 38 The defendants deny that any of documents D2-7 form part of the common general knowledge. They have referred to *General Tire v Firestone*² and *Fabio Perini v LPC Group*³ to demonstrate the general principle that just because something is in a patent document does not make it CGK. Furthermore they have argued that the particular teachings of D2 & D3 do not demonstrate that the use of backscatter detection of the underside of a vehicle (at least) was part of the CGK. The defendant is also not aware of any backscatter vehicle detection systems being marketed or sold prior to the priority date of the patent.
- 39 The law as to what constitutes common general knowledge is set out in the decisions of the Court of Appeal in *General Tire*² at paragraphs 482-483 and *Beloit Technologies Inc v Valmet Paper Machinery Inc*⁴ at paragraphs 494-495. In order to constitute common general knowledge, it is not enough that information is generally known to the relevant skilled persons: it must also be, in the words of the Court of Appeal in *General Tire*, “generally regarded as a good basis for further action”. Laddie J put the same idea in slightly different words in *Raychem Corp's Patents*⁵ at paragraph 40 when he said “generally regarded as sufficiently reliable to use as a foundation for further work”.
- 40 So what would be the CGK of the skilled person (or team) for designing vehicle and cargo scanning products? The issue at hand seems primarily to be whether D2 & D3 provide evidence of CGK. As a starting point, I think that it is readily apparent that patent documents do not normally demonstrate CGK. This is discussed in *General Tire*² at pages 482-483:

“...it is clear that individual patent specifications and their contents do not normally form part of the relevant common general knowledge, though there may be specifications which are so well known amongst those versed in the art that upon evidence of that state of affairs they form part of such knowledge, and also there may occasionally be particular industries (such as that of colour photography) in which the evidence may show that all specifications form part of the relevant knowledge.”

- 41 So can D2 & D3 be said to demonstrate CGK, in particular with relation to backscatter systems for imaging a vehicle? I do not think so. Whilst it might be possible for a patent specification to form part of the CGK, something more is required than a mere disclosure that something is known. This is usually in the form of *evidence* - as discussed in *General Tire*² above. However, the claimants have provided no such evidence – merely statements that D2 & D3 are authored by a major manufacturer of scanning systems and are within a small field of patent documents, and were allegedly being manufactured. This to my mind is not enough

² *General Tire v Firestone* [1972] RPC 457

³ *Fabio Perini v LPC Group* [2009] EWHC 1929 (Pat)

⁴ *Beloit Technologies Inc v Valmet Paper Machinery Inc* [1997] RPC 489

⁵ *Raychem Corp's Patents* [1998] RPC 31

to demonstrate CGK. Furthermore, there is nothing in the documents themselves that points towards or provide evidence of backscattering systems for imaging vehicles being so well known as to form CGK in the art.

- 42 Due to the lack of any evidence, identifying the CGK of the person skilled in the art is problematic. I am content to say that an X-ray specialist in the field of vehicle and cargo scanning products would have some general understanding of backscatter techniques, and would be aware that backscattering of X-rays could be used to image an object. But I think, based on what is before me, that this is as far as it goes. In particular, I cannot see how a backscatter system for imaging a vehicle (let alone the underside of a vehicle) can be said to be common general knowledge based solely on the patent documents the claimant has provided.
- 43 With regard to the mechanical engineer aspect of the team, he/she would likely be skilled at designing and assembling structures using various materials. He would understand the dimensions and strengths required to design a structure to house sensors and allow vehicle access.

Claim Construction

- 44 In order to decide whether the claims are inventive it is first necessary to determine its scope and meaning. The established authority on claim construction is found in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd*⁶, where Lord Hoffman held that “When applying a ‘purposive construction’, the question is always what the person skilled in the art would have understood the patentee to be using the language of the claim to mean”.
- 45 In general, I think there is little difficulty in construing the claims, and neither party had provided much discussion on claim construction. There are however a couple of terms that need to be considered – these are the terms ‘portal’ and a ‘horizontal base defined by a ramp’ in claims 1, 11 & 15. These terms are highlighted in claim 1 below:

1. *A scanning system for the inspection of cargo, comprising:*

- (f) a portal defining an inspection area, said portal comprising a first vertical side, a second vertical side, a top horizontal side, and a horizontal base defined by a ramp adapted to be driven over by a vehicle;*
- (g) a first X-ray source disposed on at least one of the first vertical side, second vertical side or top horizontal side for generating an X-ray beam into the inspection area toward the vehicle;*
- (h) a first set of transmission detectors disposed within the portal for receiving the X-rays transmitted through the vehicle;*
- (i) a second X-ray source disposed within the ramp of said portal for generating an X-ray beam towards the underside of the vehicle; and*
- (j) a second set of detectors disposed within the ramp of said portal for receiving X-rays that are backscattered from the vehicle.*

⁶ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 91

- 46 The claimants have suggested that there is no depth limitation to the term ‘portal’ – i.e. it is not limited to a gateway, such that the portal could be several metres long in the form of a tunnel. This they say has the knock on effect that the X-ray sources are not necessarily in the same plane. Furthermore, the claimants argue that there is no depth limitation to the base section - including the depth and size of the ramp.
- 47 The defendant has stated that the term ‘portal’ is a term in the art which is to be distinguished from a tunnel. Furthermore, the patent defines particular depths of portals. The defendant also argues that the ramp is part of the portal.
- 48 I think the person skilled in the art would have no problem construing the term ‘portal’ as this is clearly defined in the description and figures – it is an archway with a depth of two to four metres. With regard to the term a ‘horizontal base defined by a ramp’, the description defines that:

“ramp 110 comprises a base, a first angled surface leading upward to a flat transition point defining the highest part of the ramp, which also functions as the bottom platform 109, and a second angled surface leading back down to the ground.”

- 49 However, there is nothing in the description regarding the length of the ‘base’. Whilst the figures disclose the base having a bottom platform 109 of the same length/depth as the sides and relatively short angled surfaces to define the ramp, I do not believe that the person skilled in the art would consider the base portion to be limited to the arrangement shown in the figures. Therefore, the person skilled in the art would construe the term ‘horizontal base defined by a ramp’ as a horizontal base forming at least part of the bottom section of the portal with first and second angled portions leading up the bottom section to form a ramp.

Inventive step of claims 1-7 & 9-14

- 50 Both parties have been content for independent claims 1 & 11 to be considered together for inventive step. Indeed, there appears little material difference between these claims.
- 51 The Court of Appeal in *Windsurfing*⁷ formulated a four-step approach for assessing whether an invention is obvious to a person skilled in the art. This approach was restated and elaborated upon by the Court of Appeal in *Pozzoli*⁸. Here, Jacob LJ reformulated the *Windsurfing* approach as follows:

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

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

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

⁷ *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 49

⁸ *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588

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

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

52 I will therefore use this *Windsurfing/Pozzoli* approach to determine whether the invention of claims 1 & 11 of the patent involves an inventive step.

The skilled person and their common general knowledge

53 I have already identified the skilled person and their common general knowledge above.

What is the inventive concept?

54 The claimant and defendant have taken different approaches to defining the inventive concept of claims 1 & 11. The claimants have provided a somewhat pithy statement that the inventive concept is “a drive-through inspection system for imaging the internals and underside of a vehicle”. The defendant believes that the inventive concept derives from each of the relevant claim’s integers.

55 I think the correct approach lies somewhere in between – in particular, the inventive concept is not some generalised concept to be derived from the specification as a whole, nor is it simply a purposive construction of the claim (as this does not distinguish between portions which matter and portions which, although limiting the ambit of the claim, do not).

56 The inventive concept of claims 1 & 11 lies in a scanning system for the inspection of a vehicle comprising a four sided portal, including a base with a ramp, with a first X-ray source and detectors disposed in the portal for detecting X-rays transmitted through the vehicle, and a second X-ray source and set of detectors disposed within the ramp for receiving X-rays backscattered from the underside of the vehicle.

What differences exist between the state of the art and the inventive concept?

57 Both parties agree that the state of the art is D1. This document discloses an X-ray imaging system for inspecting the contents of vehicles, and includes a portal 12 with sides 14, 16, top side 18 and base 19. An X-ray source 20 is disposed in the top 18 of the portal and detectors are provided in the base 19 and/or sides 14, 16 of the portal to detect radiation transmitted through the vehicle.

58 Both parties agree that D1 does not disclose a second X-ray source and a set of detectors, both disposed within the ramp, for receiving X-rays backscattered from the underside of the vehicle. The defendants also argue that D1 does not disclose “A portal comprising...a horizontal base defined by a ramp to be driven over by a vehicle” as it does not contain a ramp as part of the portal. However, correctly construing the claim – where the base is not limited to a particular length – I believe

that the transport platform 34, with its angled portions, along with base section 19 form a horizontal base defined by a ramp that comprises part of the portal 12.

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

- 59 The claimants have argued that when faced with the problem of improving the resolution and completeness of the imaging in D1 the skilled person would, based on their CGK (as evidenced in D2 & D3) and without any inventive effort, include an underside emitter and backscattering detector. It would, they say, be entirely obvious to the skilled person to combine known techniques of X-ray imaging to get a more complete image of an object.
- 60 However, as discussed above, I do not believe that the CGK of the person skilled in the art extends as far as the claimant suggests. Although he may be aware of the general concept of backscatter imaging, when presented with D1 and equipped with this CGK, using a further X-ray source and detectors to image the underside of a vehicle using backscatter would require some degree of invention. Furthermore, when presented with D1, I do not believe that the person skilled in the art would consider the imaging to be inadequate so as to consider the possibility of backscatter techniques. Indeed, there is nothing suggesting or pointing towards utilising such a technique in D1.
- 61 Consequently, claims 1 & 11 are considered to involve an inventive step. By virtue of their dependency claims 2-7, 9, 10 & 12-14 also involve an inventive step.

Inventive step of claims 15-19

- 62 I will now apply the *Windsurfing/Pozzoli* approach to determine whether the invention of claim 15 of the patent involves an inventive step.

The skilled person and their common general knowledge

- 63 I have already identified the skilled person and their common general knowledge above.

What is the inventive concept?

- 64 Neither party has given a clear definition of the inventive concept of claim 15. However, they both agree that it is slightly different to the concept in claims 1 & 11. To my mind the inventive concept of claim 15 lies in a scanning system for the inspection of a vehicle comprising a four sided portal including a base with a ramp, a single X-ray source which is disposed in the sides or top of the portal, a first set of detectors in the portal for receiving X-rays transmitted through the vehicle and a second set of detectors in the ramp, sides and top of the portal for receiving X-rays backscattered from the vehicle. An image processor receives signals output from the first and second set of detectors and overlays them onto an image of the vehicle.

What differences exist between the state of the art and the inventive concept?

65 Both parties agree that the state of the art is D1. As discussed above this document discloses an X-ray imaging system for inspecting the contents of vehicles, and includes a portal 12 with sides 14, 16, top side 18 and base 19. An X-ray source 20 is disposed in the top 18 of the portal and detectors are provided in the base 19 and/or sides 14, 16 of the portal to detect radiation transmitted through the vehicle. This system also discloses a ramp (as discussed above) and a mechanism for producing images.

66 The difference between D1 and the inventive concept therefore lies in the additional use of a number of detectors in the portal, including the ramp, to detect X-rays backscattered from the vehicle and to overlay the signals output from the detectors onto an image of the vehicle.

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

67 The claimants have argued that it would be obvious, in view of the CGK (as evidenced in D2 & D3), when seeking to provide an all-round visual image of a vehicle to adapt technology of D1 to incorporate a backscatter arrangement.

68 As with claim 1 & 11, I do not believe that the person skilled in the art, equipped with his CGK, would readily appreciate that D1 could be adapted to incorporate a backscatter arrangement to image the vehicle. His CGK would not lead him to consider such a system, and D1 provides no motivation to do so.

69 I should also note the defendants have argued that claim 15 is inventive due to potential issues with interference or crosstalk of the sources and detectors for the transmission and backscatter systems. However, I don't think the person skilled in the art would get as far as considering this issue.

70 Consequently, claim 15 is felt to involve an inventive step. By virtue of their dependency claims 16-19 also involve an inventive step.

Conclusion

71 I have found that claims 1-21 of the patent are inventive, on the basis of the arguments set out in the claimant's statement of case, and in light of the cited prior art and also the common general knowledge.

72 However, I have for the time being set aside the arguments relating to collocation presented in the claimant's skeleton. I will in due course invite the defendants to make submissions and to file any additional evidence they deem appropriate to deal with the collocation issue before I decide the matter.

Costs

73 I have not yet received any submissions on costs from either party, so I am deferring this matter to such time as the proceedings are ended.

Appeal

74 Any appeal must be lodged within 28 days after the date of this decision.

PETER SLATER

Deputy Director, acting for the Comptroller