BL O/0110/24
14 February 2024

PATENTS ACT 1977

CLAIMANT	Bridle IP Ltd
DEFENDANT	Anthony Thomas James
ISSUE	Application under section 72 for revocation of GB2577960
HEARING OFFICER	H Jones

Mr Andrew Bridle appeared for the Claimant
Ms Jane Lambert, instructed by Culverstons IP, appeared for the Defendant

Hearing date: 5 December 2023

DECISION

Introduction

1 Patent number GB2577960 ("the patent") was filed on 30 July 2019 and granted to Anthony Thomas James ("the defendant") on 7 September 2021. The patent claims priority from patent application GB1903902.3 filed on 21 March 2019 ("the priority date") and relates to a system for tracking the location of personnel working on or near railway infrastructure.

2 Bridle IP Ltd ("the claimant") made an application for revocation of the patent under section 72(1) of the Patents Act 1977 ("the Act") on 19 December 2022. The claimant seeks revocation of the patent on the grounds that it lacks inventive step and is excluded from patentability, as required by sections 1(1) and 1(2) of the Act. The claimant received an Office opinion under section 74(A) of the Act based on very similar grounds in July 2022, which concluded that the invention comprised an inventive step but was excluded from patentability under section 1(2)(d). This opinion forms no part of present proceedings.

3 The defendant contests both grounds for revocation and claims that the application should be dismissed. After the routine rounds of filing evidence, the matter came before me at a videoconference hearing on 5 December 2023 at which the claimant was represented by Mr Andrew Bridle and the defendant by Ms Jane Lambert, instructed by Dr Leslie Pritchard of Culverstons IP.

The patent

4 The patent has three independent claims covering a method, a system, and a computer program product for tracking the location of personnel on, or near, railway infrastructure (claims 1, 20 and 24, respectively). The independent claims share the following key features:

i) an individual is assigned a uniquely identifiable tracking device;
ii) the individual's location is displayed on a map of the railway infrastructure on a screen of a remote computing device;
iii) displaying the Engineer's Line Reference (ELR) mileage and chains of a railway network on the map of the railway infrastructure;
iv) assigning a virtual geographic perimeter to a predetermined worksite location of the railway infrastructure; and
v) generating an alert or alarm condition if the person departs from the predetermined worksite location.

5 Maintenance personnel working on or near railway lines carry individual GPS devices to track their location and this information is passed wirelessly to a central server. The location of each person is overlaid on a map and displayed on remote computing devices connected to the central server, for example on mobile communication devices held by the maintenance personnel or on a manager's computer terminal at a supervising location. A manager can assign a virtual geographic perimeter to a predetermined worksite location, for example as a radius around a particular location or tracking device (a markerboard), by line segment tools or by multi-touch touchscreen gestures. When a person strays outside their predetermined location, an alarm condition is generated and relevant personnel informed, for example by text message or in-app notification to maintenance personnel at the worksite location and/or managers at the supervising location. An aim of the invention is to improve the safety of maintenance personnel working around railway lines.

6 The tracking device assigned to each person may be integrated into their mobile communication device, and location information can be transmitted continuously or intermittently, in real-time or near real-time.

7 The patent specification says that ELR mileage and chains information can be overlaid onto the map of the railway network in order to "increase flexibility and the ease of use for the engineering supervisor". Although the specification does not explain the meaning of ELRs, documentary evidence provided by the claimant demonstrates that ELRs are well-known in the rail industry as unique reference codes associated with individual railway lines, and that they are used to accurately locate and manage assets, such as bridges, stations and tunnels, on the rail network. For example, Llanishen train station is assigned the ELR of "CAR 4m 60ch" because it is 4 miles and 60 chains along the Cardiff and Rhymney line from a datum point in Cardiff. A chain is a non-metric unit of length equal to 66 feet.

Grounds for revocation

8 The claimant alleges that geofencing alarm systems are well known. They say that it is typical that such systems track and display the location of a person or other asset on a map on the screen of a remote device, as well as assigning geofences that generate an alarm when the person or asset crosses a virtual geographic boundary. They claim that the only difference between the prior art submitted in evidence and the claimed invention is the display of ELR mileage and chains on a map of the railway network on a remote computing device, which they say would be obvious to a person skilled in the art and, or else, involves merely the presentation of information, which is a category of invention excluded under the Act.

The Law

9 The law in relation to the issues before me is well known and there was no dispute between the parties in relation to the relevant provisions and caselaw.

10 Section 1 of the Act says that a patent may only be granted for an invention that is new, involves an inventive step and does not relate to an excluded category. In the present case, the relevant provisions are section 1(1)(b), i.e. that the invention should involve an inventive step, and section 1(2)(d), i.e. that the invention does not consist of the presentation of information as such. Section 3 states that 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 of section 2(2). Section 2(2) says that the state of the art shall be taken to comprise all matter which has at any time before the priority date of the invention been made available to the public by written or oral description, by use or in any other way.

11 The correct approach to assessing inventive step was set out by the Court of Appeal in *Pozzoli SPA v BDMO SA*[1]. The assessment is commonly known as the *Windsurfing/Pozzoli* test and comprises the steps of i) identifying the notional person skilled in the art and their common general knowledge, ii) identifying the inventive concept of the claim in question (or if that cannot be done, to construe it), iii) identifying the differences between the cited prior art and the inventive concept of the claim (or the claim as construed), and iv) determining whether the differences would have been obvious to the skilled person when viewed without any knowledge of the invention as claimed.

12 The correct approach to assessing whether an invention falls within an excluded category of subject-matter was set out by the Court of Appeal in *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Patent Application*[2] ("*Aerotel*"). The assessment comprises the steps of i) properly construing the claim, ii) identifying the actual contribution, iii) assessing whether the contribution falls within the excluded subject-matter, and iv) checking whether the contribution is actually technical in nature.

Witnesses and evidence

13 The claimant's statement of grounds relied upon twenty-five documents of prior art (D1-D25), some seemingly more relevant than others, some similar, but each one disclosing a different aspect of the invention alleged to have already been in the public domain before the priority date of the patent. By the time of the hearing the number of relevant documents was whittled down to around nine or ten, including some of the documents appended as exhibits to the statutory declaration of the claimant's main witness, Mr Giles Tottem. I shall return to Mr Tottem's evidence after setting out a summary of the written prior art.

14 CN105946904 A (Yang et al), D1, published in September 2016, was cited by the UK Patent Office during pre-grant examination of the application. The claimant says that the defendant introduced the feature of displaying the ELR mileage and chains into the main claims in response to a lack of novelty objection based on D1 raised in the examination report dated 1 September 2020. D1 is written in Chinese, but a machine translation into English from the European Patent Office's Espacenet service was

[1] [2007] EWCA Civ 588
[2] [2006] EWCA Civ 1371

provided as an assistance in these proceedings. There is no challenge to the accuracy of this translation.

15 D1 discloses a guard system applied to railroad maintenance personnel. The system comprises an intelligent safety helmet (tracking device) worn by a maintenance person. The helmet comprises a satellite receiver for determining the location of the person, the location being sent to a centralised manager device remote from the person. A handheld manager terminal is connected to the centralised manager device and is used for loading a working region (virtual geofence perimeter). An alert is generated when the maintenance person is outside the working region, and an alarm may be provided by a vibrating device (e.g. a bracelet, watch or vest) worn by the person. Positional information can be obtained in real-time. The system is said to ensure the safety of maintenance personnel whenever they go outside their work area.

16 US9747770 A (Bartlett), D2, published in August 2017 and cited in pre-grant examination of the patent application, describes a means for tracking the location of a child or elderly person, the person being assigned with a tracking device in the form of a wristwatch which is in communication with a remote monitoring receiver unit and remote mobile device. A software application on a remote mobile device is used to continuously track a person's location and to provide an alert if the person strays a pre-set distance from either the remote monitoring unit or the remote mobile device. The claimant says that the document differs from the claimed invention only in that its application is directed to the safety of a child or elderly person, as opposed to that of a railway worker.

17 D10 is a web article available at https://aecom.com/jp/thinkahead-issue2-2018-en/a-digital-step-forward-to-safer-railways/, which describes the use of geofencing specifically in the context of the rail sector, seemingly published in 2018, before the priority date of the patent.

18 D20, also referenced as NWR1 in Mr Tottem's statutory declaration, is an article entitled "RINM Asset Viewer" by David Bickell MIRSE, dated 24 March 2015 and published in the Railway Engineer magazine (https://www.railengineer.co.uk/rinm-asset-viewer/). The article describes the RINM (Rail Infrastructure Network Model) Viewer, a sub-system of ORBIS (Offering Rail Better Information Services), which has been available since 2015. It also describes the Geo-RINM Viewer, which is an enhanced visualisation tool for the British rail network that shows a digital map of all railway assets, including ELRs.

19 D21 is a webarchive.org entry for the website page https://on-trac.co.uk/railhub/ dated 10 July 2018, which is said to provide a further example of a geospatial, digital mapping platform for the rail network and, again, shows a map of the rail network including ELRs and access points.

20 JP2006224737 A (Toyoaki et al), D22, published in August 2006, is a Japanese patent document together with an English language abstract obtained from Espacenet. The document describes a railway work section protection system for preventing accidents in an area where railway maintenance work is being performed. There is a train-mounted device for that purpose and a portable device for workers. The system uses satellite positioning to track the location of maintenance workers and trains, while also taking account of route data from a route database. An alarm is

generated on the portable device for workers in the event of oncoming trains, and a further alarm is generated on the on-board device of a train when a worker is on the track area.

21 D23 is a page from Network Rail's Track Diagrams catalogue for Kent (copyright 2017, revision date of July 2020), which shows a map of track, signalling, station and crossing sites alongside associated ELR data. D24 is similar, this being an extract from a detailed map of the rail network produced by Quail Map Co since the 1980's, but now updated by the current publisher, Trackmaps, and available at https://www.trackmaps.co.uk/trackmaps/railway-maps/railway-track-diagrams.

22 D25, also referenced as NWR3 in Mr Tottem's statutory declaration, has a heading "Kent/Sussex/Wessex Routes Sectional Appendix Module KSW2" and is dated 19 March 2016. The claimant says that this is an extract from Network Rail's reference guide for line speed location and that it is now provided in electronic form for everyone to use (https://www.networkrail.co.uk/industry-and-commercial/information-for-operators/national-electronic-sectional-appendix/). The claimant adds that the Sectional Appendix forms part of essential training for engineering staff in Network Rail and that all locations are referenced in miles and chains.

23 NWR2, appended to Mr Tottem's statutory declaration, is an article entitled "ORBIS – an unsung but qualified success", published in the Railway Engineer magazine in May 2019. The article describes the achievements of the ORBIS project and its conclusion in March 2019.

24 The claimant's witness, Mr Tottem, states in his statutory declaration that it is standard in the rail industry to identify the location of any asset on the rail network in terms of mileage and chains relative to an Engineering Line Reference and track ID, and that this has been the case for many decades. Mr Tottem has worked on various IT projects for Network Rail since 2002. From 2011 he was focused on the IT systems to support Asset Management, designing the ORBIS programme and acting as its head of Design Authority. He currently works as the Head of Programme Architecture for the Intelligent Architecture programme which directly followed the ORBIS programme. He states that as a consequence of ORBIS, digital maps of the rail network and assets were commonly used in Network Rail before the priority date of the patent.

25 Mr Tottem was cross-examined on his evidence. I will deal with the substance of his replies to Ms Lambert in my detailed assessment below, but I need to record here that I found his explanation of the digital mapping systems used by Network Rail before the priority date of the patent to be very helpful, and I accept his evidence.

26 The defendant provided witness statements from four individuals. Mr Anthony Thomas James is the inventor of the present invention and proprietor of the patent, i.e. the defendant in this case. In his witness statement he explains how he came to devise the invention, his current work as a senior construction manager with Amey Plc (the lead contractor for the TransPennine route upgrade project for Network Rail) and how he worked up through the ranks from his previous employment as a labourer shovelling ballast onto tracks. He says that he was not aware of the prior art referred to by Mr Tottem, i.e. the ORBIS system and its components. Mr James is managing director of Track Tracker Ltd, which appears to be the vehicle used to commercialise his invention. Even though Mr James was not put forward as an

expert witness, some of his evidence does stray into areas beyond his expertise, for example in identifying the skilled addressee, setting out the common general knowledge, identifying the invention's contribution to human knowledge and assessing the prior art. While this was not challenged by the claimant, I shall discount this aspect of his evidence.

27 Witness statements were also provided by Mr Ashley Allen, Mr Michael Davies and Mr Ian Mahoney, all of whom are employed in different roles in the track construction industry. They all say that they have no knowledge of the ORBIS system described by Mr Tottem and that they are not aware of any other product in the marketplace that provides the same functionality and benefits as that provided by the invention (marketed as Track Tracker).

28 The claimant decided not to cross-examine the defendant's witnesses, so their evidence stands unchallenged save for my qualification of Mr James' evidence set out above. I accept the defendant's witness statements as an accurate account of their relevant knowledge and experience.

Arguments and analysis

29 I shall deal first with the question of whether the invention consists of subject-matter excluded by the Act, in this case whether the invention consists of mere presentation of information. Given that the claims all relate to the same inventive concept, both claimant and defendant take the same view that the claims stand or fall together.

Presentation of information

30 The first step of the *Aerotel* approach is to properly construe the claim. Neither side has suggested that there is any problem concerning the construction of the claims, and I agree that they present little difficulty in understanding. Even though claim 24 is defined in terms of a computer program product, it clearly relates to a computer-implemented method for realising the same system of hardware and software defined in claim 20. Claim 1 defines a method for tracking the location of a person and again relies on the same system of hardware and software defined in claim 20. In broad terms, I construe the invention as being a system for tracking the location of individuals and generating an alarm when the individual moves outside a specified area. The individual's location is transmitted to a central location and displayed on a digital map that can be accessed by users of the system.

31 I have already touched upon the reference to "Engineer's Line Reference (ELR) mileage and chains" in the claims. Despite there being little explanation of this term in the description, it is clear from the evidence before me that "ELR mileage and chains" is a well-established way of recording location with respect to distance from a fixed point on the railway network.

32 The next step of *Aerotel* is to identify the actual contribution. It is helpful here to consider the way in which the Court of Appeal applied the test in practice. At paragraphs 40-49 of the Court of Appeal's judgment, Jacob LJ endorses the comptroller's contention that identification of the contribution is:

> *"an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human*

knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form – which is surely what the legislator intended."

33 The claimant argues that the actual contribution of the invention is the new subject-matter that distinguishes the claimed invention from the prior art. They say that the only difference between the location tracking system disclosed in D1 and the present invention is that of feature iii), as set out above, i.e. displaying the Engineer's Line Reference mileage and chains of a railway network on the map of the railway infrastructure. A similar argument is made with respect to D2, although adding that even though D2 does not disclose use in a railway environment, "there is nothing technically special about the railway environment that results in a technical contribution as a result of applying the known geofencing application of D2, which uses a GPS map displayed on a remote device to display the location of the wearer of a tracker, to the railway environment".

34 Based on their assessment, the claimant says that the actual contribution made by the invention is the display of the ELR mileage and chains of a railway network on a map of the railway infrastructure on the screen of the remote computing device. They stress that they have not arrived at this contention by searching for the nearest prior art and comparing the difference between such prior art and the invention. Instead, their contention is based on "what the inventor has <u>really</u> added to human knowledge". They say that the features of attaching sensors to each member of staff, connecting the data from the sensors to a server and processing such data so that it appears on a map on a screen of the supervising engineer's computer were known at the effective date of the patent, so the inventor has added nothing to human knowledge in this regard. The advantage of reducing the risk of accidents to maintenance staff on the railways through the use of geofencing alarm systems, thereby saving lives and avoiding serious injuries, was also known at the effective date of the patent, so again the inventor has added nothing to human knowledge.

35 In their counterstatement, the defendant says that the test for excluded matter is not the same as the test for inventive step and that the two approaches should not be combined, which they say is what the claimant has done. They identify the contribution by considering the problem that the invention solves, how it works and its advantages. They say that the invention is a system for tracking the location of railway maintenance staff in real-time and warning them immediately should they stray into danger. The invention addresses the problem with the present paper-based system which records where and when staff are supposed to go but not necessarily where they are, so cannot monitor their movements or warn them if they stray into danger. The system comprises sensors, wireless devices and computer displays to pass information about the location of maintenance staff to a supervisor at a remote location.

36 I consider that the defendant's criticism of the claimant's approach to assessing the contribution is justified. Despite the claimant saying that they have not assessed the contribution based on the difference between the invention and the prior art, I think that is precisely what they have done. Although the defendant's argument is not set out in these precise terms, the claimant's assessment appears to adopt the "Falconer reasoning" approach to assessing contribution, i.e. "an invention is unpatentable if the inventiveness is contributed only by matters excluded under section 1(2)", which was rejected by the Court of Appeal in *Genentech [1989] RPC 205) (s*ee the analysis of case law at paragraphs 78-131 of *Aerotel*).

37 The approach set out in *Aerotel* requires an assessment of the contribution by considering the claimed invention as a whole. When I do that, taking into account the stated aim of the invention of improving worker safety, how that ambition is realised, what the inventor understood to be the disadvantages of the prior art, i.e. the problem to be solved, as well as the substance of the claimed invention, I conclude that the contribution is a system for tracking the location of individuals and generating an alarm when an individual moves outside a specified work area, the individual's location being transmitted to a central location and displayed on a digital map that can be accessed by users of the system alongside other relevant information. This is very similar to the defendant's characterisation of the contribution.

38 In my view, the contribution does not fall solely within the excluded subject of presentation of information as it requires the technical integration of electronic devices and computer hardware to track location and provide alerts via wireless communication channels. This leads to the conclusion that the invention does not consist of a category of invention excluded by the Act.

Inventive step

39 The first step of the *Windsurfing/Pozzoli* test is to identify the notional person skilled in the art and their common general knowledge. The defendant refers to a summary of relevant legal principles concerning the identification of the skilled person, as set out by the late Henry Carr J in *Garmin (Europe) Ltd v Koninklijke Philips NV [2019] EWHC 107 (Ch)* (paragraph 85):

> *i) A patent specification is addressed to those likely to have a real and practical interest in the subject matter of the invention (which includes making it as well as putting it into practice).*
>
> *ii) The relevant person or persons must have skill in the art with which the invention described in the patent is concerned. As Aldous LJ stated in Richardson Vicks Inc's Patent [1997] RPC 888 at 895:*
>
> > *"Each case will depend upon the description in the patent, but there is no basis in law or logic for including within the concept of "a person skilled in the art", somebody who is not a person directly involved in producing the product described in the patent or in carrying out the process of production."*
>
> *iii) The skilled addressee has practical knowledge and experience of the field in which the invention is intended to be applied. He/she (hereafter "he") reads the specification with the common general knowledge of persons skilled in the relevant art, and reads it knowing that its purpose is to disclose and claim an invention.*
>
> *iv) A patent may be addressed to a team of people with different skills. Each such addressee is unimaginative and has no inventive capacity.*
>
> *v) Although the skilled person/team is a hypothetical construct, its composition and mind-set is founded in reality. As Jacob LJ said in Schlumberger at [42]:*
>
> > *"… The combined skills (and mindsets) of real research teams in the art is what matters when one is constructing the notional research team to whom the invention must be obvious if the patent is to be found invalid on this ground."*

40 The claimant says that the skilled person is an engineer who is specialist in location-based alarm systems. When considering the application of location-based alarm

systems in a railway environment, this engineer is very likely to consult a railway engineer. In this case, the skilled person can be seen to be a multi-disciplinary team of engineers with different specialist skills and background knowledge, an engineer who is specialist in location-based alarm systems working in collaboration with a railway engineer.

41 The defendant takes the position that persons likely to have a real and practical interest in the subject-matter of the invention (which includes making it as well as putting it into practice) would be managers or supervisors of track maintenance and repair crews. They deny that the skilled addressee is likely to be part of a wider team or be a specialist in location-based alarm systems.

42 I suspect there is good reason why the defendant identifies the skilled person in the way they have, because it would limit the scope of the skilled person to the type of roles undertaken by the individuals they put forward as witnesses and exclude the type of role undertaken by the claimant's witness. All four of the defendant's witnesses say that they were aware of the long-standing dangers of track maintenance personnel straying off-site into the path of fast-moving trains and that either no systematic precautions were available to prevent such accidents, or such precautions were paper-based systems. They were not aware of the ORBIS platform or any system that operates like the invention.

43 Regardless of the defendant's motivation in identifying the skilled person as they have, I tend to agree with the claimant's position that the skilled person would be a multi-disciplinary team comprising railway engineers with practical knowledge of the way in which the invention is intended to be applied, together with computer systems and mobile communication engineers having the skill, knowledge, and experience of developing location tracking and alert systems. Both sets of engineers would have a practical interest in the subject-matter of the patent specification before me, one set of engineers in making the invention and the other set in putting it into practice (as Carr J put it in *Garmin*).

44 Next, I need to determine the relevant common general knowledge of the skilled person. I have already dismissed the defendant's narrow assessment of the skilled person, so it would be natural to dismiss their resulting view of the common general knowledge (cgk) for similar reasons. However, while the claimant's assessment of the cgk quite rightly describes the knowledge of design, construction and operation of location-based alarm systems across many fields of application, they suggest that specialists in location-based alarm systems would be expected to acquire knowledge regarding the location in which the alarm system is to be used when designing an appropriate system, i.e. the railway environment. I have found that the skilled addressee is a team that includes such individuals with knowledge of the railway environment, i.e. railway engineers, so their knowledge must form part of the cgk without the specialist in location-based alarm systems having to acquire it. Therefore, I agree with the defendant that the cgk includes knowledge of the working environment and practices of track maintenance personnel.

45 The second step of the *Windsurfing/Pozzoli* test is to identify the inventive concept of the claim in question (or if that cannot be done, to construe it). I have already addressed various points of construction relating to the claims at paragraphs 30 and 31 above. There is little difference between the parties on this issue, or at least very little material difference: the inventive concept of independent claims 1, 20 and 24 is

a system for tracking the location of individuals working on or near railway tracks, transmitting this information to a central location, displaying their location on a map of the railway infrastructure on a screen of a remote computing device connected to the central location, the map also displaying ELR information of railway infrastructure, assigning a geofence perimeter to a predetermined worksite location and generating an alert if an individual leaves the geofence perimeter.

46 The next step is to identify the differences between the prior art and the inventive concept of the independent claims. The closest prior art is D1 (CN105946904 A), which discloses a protection system for railway maintenance personnel having the following elements:

a. a smart helmet worn by railway maintenance workers to track location using the Beidou satellite system (the Chinese version of GPS);
b. worker location is transmitted to a centralised manager device;
c. a handheld manager terminal connected to the centralised manager device for loading a maintenance worker's designated work area;
d. an out-of-bounds alert signal is sent from the handheld manager terminal to an alarm device worn by a worker (via the centralised manager device) when outside their designated work area;
e. the alarm device can be a smart bracelet or watch, or can be integrated into the smart helmet, and the alert signal can be a vibration or a message;
f. the smart helmet has a camera to transmit live audio and video to the centralised manager device;
g. a smart vest worn by maintenance workers has multiple sensors for measuring vital signs, e.g. blood pressure, heart rate, etc;
h. this data is sent to the centralised manager device and an alert signal is sent to the alarm device if an abnormal reading is recorded;
i. location information, health information and live audio and video can be displayed on the handheld manager terminal.

47 The claimant says that the only difference between D1 and the invention as claimed is the feature of displaying ELR information on a map of the railway infrastructure on the screen of the remote computing device. This feature was added to the independent claims of the patent application to overcome objections to lack of novelty and inventive step (based on D1, D2 and other documents) raised by the examiner before grant. The claimant says that even if it is found that D1 does not implicitly disclose displaying the location of the worker on a map on a screen, D2 specifically discloses this, albeit in a different context, i.e. it does not relate to improving safety in a railway environment.

48 The defendant acknowledges that D1 is the closest prior art. They say that the problems it seeks to address are both medical and other hazards associated with working in close proximity to high-speed trains, requiring the capture of large data sets and needing significant computational analysis to improve railway safety. They say that there is no explicit teaching of displaying the location of the person on a map of the railway infrastructure on a remote computing device – there is only a step of alerting when a worker deviates outside of the work area. They agree with the claimant that there is no teaching of displaying the ELR information.

49 The defendant is correct to suggest that D1 discloses a more sophisticated monitoring system than the present invention. It specifically describes a system for

tracking the location of individuals working on or near railway tracks and transmitting this information to a central location, while also transmitting other information relating to the worker and their location. The system has a means for defining a geofence at a remote computing device (the handheld manager terminal) and sending alerts when the geofence has been breached (the alert is generated at the handheld terminal and sent to the alarm device via the centralised manager). There is no explicit mention of displaying location on a map or of adding ELR information as an additional layer of detail.

50 I need to determine if there is implicit disclosure in D1 of a system whereby the location of a worker is displayed on a map on a screen of a remote computing device connected to the central location. The specification suggests two possible devices: the handheld manager terminal or the remote management station. The English language translation seems to suggest that an on-site manager would have access to the handheld manager terminal and that a remote manager would have access to the remote management station. With this in mind, D1 says that the remote management station provides “data storage and information browsing”. It has “powerful data processing and storage capabilities, enabling more efficient work area settings while storing big data”. The remote manager “can obtain the location information of the maintenance personnel to achieve real-time supervision”. The remote manager “can obtain the health and behaviour information of the on-site maintenance personnel to achieve real-time supervision”.

51 On the other hand, D1 says that the handheld manager terminal loads “the work area” and “sends an out-of-bounds alert signal to the alarm device. The handheld manager terminal receives “the vital data of each maintenance person” and “sends a health warning to the alarm device worn by the maintenance personnel”. The handheld manager terminal is “carried by the site manager”. It can receive “the vital signs data of each maintenance person” and send a “warning signal” to a worker in case of an alert. On-site management personnel “can monitor the location information and health and behaviour information” and “can retrieve the video image information” of all maintenance personnel in real-time.

52 I agree with the claimant that D1 discloses remote tracking of worker location and that this information is presented to a manager via handheld terminal or via remote station. The claimant says that D1 “does not specifically disclose that the manager terminal has a display screen, but it must have means for the manager to monitor real-time data on the terminal”, therefore a screen to display the data is implicit. However, I have found that D1 also refers to relaying video data to the on-site manager, which suggests that the handheld manager terminal must have some form of display screen.

53 D1 says that the system can mark the “movement trajectory of the person according to the position coordinates of the person”. It does not explicitly say that this trajectory is marked on a map or that it is displayed on a screen. The claimant says that a skilled person would appreciate that tracking location data in real-time requires reference points provided by a map to have any utility, so displaying the location of a person on a map on a screen is implicit. I believe this must be right: relaying location information in real-time must require an ability for a human operator to process the information quickly, especially given the aim of the invention to improve worker safety. The reference to movement trajectory suggests at least a two-dimensional representation of a person’s movement, which again implies that the information is

presented on a map. Furthermore, D1 says that "system positioning accuracy can reach 2m (radius) range, which can distinguish the track where the operation is located". This appears to say that a manager can distinguish the location of a person from that of a track, which must mean that the manager can resolve the location of the maintenance personnel with respect to a representation of the surrounding infrastructure, so, by implication, on a map.

54 I find that the only difference between D1 and the inventive concept of the independent claims is the feature of displaying ELR information on a map of the railway infrastructure on the screen of the remote computing device.

55 The claimant says that in the event that it is considered that D1 does not implicitly disclose displaying the location of the person on a map on a screen then D2 specifically teaches this feature. The claimant says this in both their statement of grounds and in their skeleton arguments, and it was a point picked up by Ms Lambert in closing arguments, namely the apparent reliance by the claimant on D2 in a mosaic-type argument. Ms Lambert quite rightly said that mosaic-type arguments cannot be ruled out for obviousness purposes, but mosaicing disclosures cannot be carried out when assessing excluded matter because it had been expressly disapproved of by the Court of Appeal (see my discussion of "Falconer reasoning" above). Mr Bridle confirmed in reply that it was not the claimant's intention to pursue such a line of argument, if that was the impression given. He explained that both documents were being put forward as separate starting points for assessing the "actual contribution of the invention".

56 While attempting to clarify the claimant's position regarding a mosaic-type argument for obviousness, Mr Bridle's mention of "actual contribution of the invention" seemed to confirm that a mosaic-type argument was being pursued on inventive step. However, in order to substantiate a mosaic-type argument, it is generally necessary to consider whether there is a reasonable basis or motivation for expecting that the skilled person, when addressing the problem at hand, to combine the teachings of two or more documents. The claimant has not advanced an argument on inventive step in such a manner, so I am fairly certain that when Mr Bridle confirmed that a mosaic-type argument was not being pursued, that meant in relation to both inventive step and excluded matter. The only other possibility would be if the claimant was relying on D2 as evidence that displaying the location of an individual on a map on a screen formed part of the common general knowledge of the skilled person. As I say, this was not the claimant's arguments before me and it was not part of their pleaded case, so I take that point no further.

57 I shall consider the position of inventive step based on document D2 as a starting point. I do so on the basis of the separate argument put forward by the claimant but also in case I am wrong on whether D1 implicitly discloses displaying worker location on a map on a screen of a remote computing device.

58 As I have already set out above, document D2 describes a means for tracking the location of a child or elderly person, the person being assigned with a tracking device in the form of a wristwatch which is in communication with a remote monitoring receiver unit and remote mobile device. The claimant says that D2 differs from the independent claims in that its application is directed to the safety of a child or elderly person, as opposed to that of a railway worker. The defendant admits that geofencing systems were known and used in various applications but does not

address the relevance of D2 directly. Nevertheless, it seems clear from D2 that geofencing systems of the type where the location of a tracked individual is displayed on a map at a remote location were known at the priority date of the patent. The differences between D2 and the inventive concept of the independent claims are that it does not disclose a particular application to the safety of workers in the railway industry, the map displayed on the screen is not a map of railway infrastructure and the map does not display ELR information.

59 This brings me to the final step of the *Windsurfing/Pozzoli* test, i.e. determining whether the differences between the prior art and the inventive concept of the claims would have been obvious to the skilled person when viewed without any knowledge of the invention as claimed.

60 The difference between D1 and the inventive concept of the independent claims is the feature of displaying ELR information on a map of the railway infrastructure on the screen of the remote computing device. From the documentary evidence provided by the claimant and the evidence of Mr Tottem, there can be no doubt that the use of ELR mileage and chain information on railway maps was standard practice in the rail industry for many years before the priority date of the patent and formed part of the common general knowledge of the skilled person. The information was known to Mr Tottem in the context of the ORBIS system and is also supported by the evidence of Mr James when he refers to a paper system of positioning assets and personnel involved in rail maintenance, as recorded in Safe Work Packs (exhibit ATJ2). Even though this exhibit is dated May 2023, the clear implication from Mr James' evidence is that these work packs were standard working practice for ensuring site safety leading up to his invention, specifying position of assets on a map in terms of ELR mileage and chains. Ms Lambert's cross-examination of Mr Tottem established that the ORBIS system of digital maps was likely not to be available to personnel involved in rail maintenance but did not challenge Mr Tottem's statement that it was rail industry standard to identify the location of any asset on the rail network in terms of ELR mileage and chains.

61 In my view, the skilled person would consider it obvious to add ELR mileage and chain information to the map display in D1 based on their common general knowledge of the working environment and safety practices of track maintenance personnel.

62 The differences between D2 and the inventive concept of the independent claims are that it does not disclose a particular application to the safety of workers in the railway industry, the map displayed on the screen is not a map of railway infrastructure and the map does not display ELR information. There is no clear evidence before me that the skilled person was generally aware of deficiencies in the paper-based systems of positioning railway assets before the filing date of the patent, therefore it seems highly unlikely that the skilled person would be motivated to consider geofencing technology as a potential solution to a problem that the skilled person was generally unaware of. Isolated disclosures of the use of geofencing in the rail industry, such as in D10, do not establish that awareness of such use formed part of the common general knowledge of the skilled person. In my view, the skilled person would not find it obvious to arrive at the invention set out in the independent claims from D2.

Dependent claims

63 The claimant advances inventive step arguments against each of the dependent claims. The defendant says in their counterstatement that since claim 1 is not obvious then the same is also true for the remaining claims. No detailed defence has been put forward in relation to the dependant claims other than the argument that if claim 1 is valid then so too must the remaining claims. Also, no request has been made for the comptroller to exercise discretion to allow amendment of the patent under section 75.

64 Having found that claim 1 is obvious in the light of D1, I do not need to consider the dependent claims.

Conclusion and Order

65 I have found that claims 1, 20 and 24 of the patent lack an inventive step over D1. The patent has been found to be invalid and I order that it be revoked.

Costs

66 Both sides agreed to defer submissions on costs pending my decision on the substantive matter of validity. The claimant has succeeded in its case and is entitled to a contribution towards its costs based in normal circumstances on the comptroller's standard scale, i.e. the scale of costs set out in TPN 2/2016 given that proceedings commenced before January 2023. I shall invite submissions as to the appropriate amount, noting in advance that I see nothing in these proceedings to suggest a departure from the standard scale. I will allow both sides a period of 28 days from the date of this decision to make any submissions on costs.

Appeal

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

Huw Jones
Deputy Director, acting for the Comptroller