Intellectual Property Office

BL O/0729/25

05 August 2025

PATENTS ACT 1977

APPLICANT	Anthony Thomas James
ISSUE	Whether application GB2105321.0 complies with Section 1(1)(b) of the Patents Act 1977
HEARING OFFICER	

DECISION

Introduction

1 GB2105321.0 was filed on 14 April 2021, claiming an earliest priority date of 14 April 2020 from unpublished application GB2005416.9 and also an additional priority date of 18 June 2020 from unpublished application GB2009361.3. The application was published as GB2599465 A on 6 April 2022. The normal, un-extended period for putting the application in order ended on 14 October 2024. The applicant extended that period to 14 December 2024 as of right. The applicant applied for successive discretionary extensions to this period beyond 14 December 2024, these have not yet been granted and they are considered in this decision.

2 Despite several rounds of correspondence, the applicant was not able to persuade the examiner that claims 1-5 in the application provided an inventive step, as required by Section 1(1)(b) of the Patents Act 1977 (hereinafter the Act). Therefore, the applicant requested a decision by a Hearing Officer, and the matter has accordingly come before me. The hearing was held via video conference on 14 May 2025 and attended by myself; the applicant, Anthony Thomas James; the applicant's representative, Leslie Prichard of Culverstons; my assistant, Thomas Britland; and an observer.

3 The latest claims on file are those submitted on 13 December 2024. In the pre-hearing report of 7 March 2025, the examiner objected to claims 1-5 as being obvious and they rejected the discretionary extensions of time requested after 14 December 2024. These are the issues on which I have been asked to decide.

4 I note that the claim set I am considering here was filed prior to the expiration of the extended compliance period of 14 December 2024. Therefore, if I find the present claims to comprise an inventive step the question of whether further extensions of time are necessary falls away.

The Application

5 The application relates to a system for tracking personnel and assets deployed on railways, infrastructure and/or networks. During prosecution, the invention has been reduced in scope to focus only on the tracking of worksite markerboards. The invention provides a method of tracking worksite markerboards such that responsible personnel involved in ensuring a worksite is appropriately marked can remotely verify the correct placement and removal of the markerboards to protect personnel from oncoming trains and other assets on the railway.

Claims

6 Claim 1 as filed on 13 December 2024 is as follows (letters in parentheses added for reference purposes):

1. A method of tracking and communicating location information from a portable worksite markerboard placed on a rail track of a temporary railway work environment to a display screen of a remote computing device used by responsible personnel involved in the management of the temporary railway work environment, comprising the steps of:

(a) receiving location information from a deployed worksite markerboard, wherein the worksite markerboard is equipped with a location determining means capable of communicating the location information to a remote computing device of a responsible member of personnel;

(b) displaying the location information of the deployed worksite markerboard on the display screen of the responsible personnel's remote computing device;

(c) enabling the responsible personnel to remotely verify the correct placement of the deployed worksite markerboard, wherein verification is performed by displaying the received location information on the display screen of the remote computing device, allowing comparison of the markerboard's location with a predetermined placement location near, or at, the ends of the temporary railway work environment; and

(d) ensuring that the deployed worksite markerboard is removed before the rail track is handed back to a rail network operator by displaying updated location information on the display screen of the remote computing device, allowing the responsible personnel to remotely confirm the markerboard's removal based on its absence from the temporary railway work environment.

The Law

7 Section 1(1) of the Act states:

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)the invention is new;

(b)it involves an inventive step;

…

8 Sections 2(1) & 2(2) of the Act read:

> *2(1) An invention shall be taken to be new if it does not form part of the state of the art.*
>
> *2(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.*

9 Section 3 of the Act states:

> *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).*

10 In addition to statute, in *Windsurfing*[1] the Court of Appeal held that the question of obviousness

> "has to be answered, not by looking with the benefit of hindsight at what is known now and what was known at the priority date and asking whether the former flows naturally and obviously from the latter, but by hypothesizing what would have been obvious at the priority date to a person skilled in the art to which the patent in suit relates."

11 The four step test used in *Windsurfing* was reformulated by the Court of Appeal in Pozzoli[2] as follows:

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

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[1] *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd* [1985] RPC 59
[2] *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588

Analysis

Step 1: Identify the notional person skilled in the art and identify the relevant common general knowledge of that person

12 In the pre-hearing report, the examiner sets out the skilled person to be: “a railway supervisor or other railway worker”. At the hearing the agent expanded on this to include railway engineer or a team of engineers. I have no issue with this addition to the examiner’s definition of the person skilled in the art.

13 The examiner didn’t explicitly set out exactly what the scope of the common general knowledge of the skilled person was in the pre-hearing report, rather referring to separate aspects (e.g. the use of tracking devices to track objects on a railway, in paragraph 11). At the hearing the agent confirmed the definition that the skilled person’s common general knowledge would include “safety systems and protocols that have to be followed”. I agree the common general knowledge includes knowledge of railway safety systems and protocols and the use of tracking devices to track objects on the railways.

14 There was also significant discussion at the hearing about the mentality of the skilled person and the field of the invention generally. The railway network constitutes one of the technologies which ushered in the industrial revolution and is considered very old. Due to that age, the applicant’s representative asserted, there is a reluctance to embrace change and to innovate, with newer technologies not being integrated at the same pace as it would in other fields. I have no reason to disagree with this assertion and while it does not affect the skilled person’s common general knowledge p*er se* it may be relevant for considerations in step 4 of the Windsurfing/Pozzoli test.

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

15 It is the construction of the inventive concept that has resulted in the impasse between the examiner and the applicant. The examiner sets out that the inventive concept is largely limited only to the sub-paragraphs that I have labelled (a) & (b) above. This is briefly that the invention is related to the method of tracking and communicating location information from a portable worksite markerboard comprising the steps of: receiving location information from the markerboard; and displaying the location on the remote computing device. The examiner explains in detail in their pre-hearing report, that sub-paragraphs (c) & (d) which relate to enabling the responsible personnel to verify correct placement of the markerboard on the screen of the remote computing device; and ensuring that the markerboards have been removed once work is complete, do not provide limitation to the claim as they are merely mental acts performed by the user of the system.

16 At the hearing, there was significant discussion regarding the importance of what was referred to as the “verification and removal steps”, sub-paragraphs (c) & (d) respectively. The applicant argued that the claim is directed to a method and not just a system, where the method necessarily requires the person to perform the verification and removal steps. In their view the claim is not directed simply to a system which allows these steps to happen.

17 I agree with the applicant that the claim is directed to a method and that therefore each step must be treated as such, even if they are steps which a user is required to perform. I note that sub-paragraph (c) in the method merely "enables" the verification to occur, with the common understanding of the word "enable" to mean "to allow" or "to make possible". The common understanding of that word would mean that the claim could be construed such that it is merely possible to verify the location but not strictly necessary that it does. Sub-paragraph (d) does not have that issue. In step (d), "ensuring" is taken to mean "make certain that something will occur", it is a directive to the user to perform the task. In this decision, I have construed sub-paragraph (c) broadly to mean it is merely possible for verification to occur. However, the existence of sub-paragraph (d), effectively requiring the ability to display the location of the markerboard in order to confirm removal, likely provides some coverage of a narrower construction of sub-paragraph (c).

18 I have therefore adopted the inventive concept to be the matter of claim 1, as it is written above, i.e.:

A method of tracking and communicating location information from a portable worksite markerboard placed on a rail track of a temporary railway work environment to a display screen of a remote computing device used by responsible personnel involved in the management of the temporary railway work environment, comprising the steps of:

(a) receiving location information from a deployed worksite markerboard, wherein the worksite markerboard is equipped with a location determining means capable of communicating the location information to a remote computing device of a responsible member of personnel;

(b) displaying the location information of the deployed worksite markerboard on the display screen of the responsible personnel's remote computing device;

(c) enabling the responsible personnel to remotely verify the correct placement of the deployed worksite markerboard, wherein verification is performed by displaying the received location information on the display screen of the remote computing device, allowing comparison of the markerboard's location with a predetermined placement location near, or at, the ends of the temporary railway work environment; and

(d) ensuring that the deployed worksite markerboard is removed before the rail track is handed back to a rail network operator by displaying updated location information on the display screen of the remote computing device, allowing the responsible personnel to remotely confirm the markerboard's removal based on its absence from the temporary railway work environment.

Step 3: Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed

19 The examiner has cited 11 documents as relevant prior art:

D1 RSSB GERT8000-HBp Rule Book, IWA or COSS setting up safe systems of work within possessions, Issue 7, published September 2019

D2 Network Rail, Fastline Training Services, Person in charge of possession (PICOP) Issue eleven, published before June 2019

D3 KR 20100005649 U (KIM)

D4 US 2013/0162428 A1 (BAINES)

D5 GB 2560392 A (WILLIAMS)

D6 WO 2006/122416 A1 (NETSER)

D7 US 5608412 A (WELLES)

D8 GB 2470376 A (HARWOOD)

D9 WO 98/30920 A2 (HAMBURG)

D10 EP 0748085 A1 (WELLES)

D11 US 6371416 B1 (HAWETHORN)

20 All of these documents were published before the declared priority date (14 April 2020), such that they are part of the state of the art under Section 2(2) of the Act. The examiner has identified these documents as forming three sets:

Set A (D1, D2 & D3) are three examples of many documents showing the existence of markerboards and the safety standards around the procedures in which the markerboards are deployed;

Set B (D4, D7, D10 & D11) are examples which show it is well known to use tracking devices within the railway industry;

Set C (D5) discloses that it is known to provide haptic or audible warnings with geolocation trackers.

21 I note that although listed in the pre-hearing report there is no discussion of the disclosure of documents D6, D8 & D9.

Set A

22 These documents disclose markerboards and their utility on railway lines to warn trains of workers on the tracks. D1 & D2 represent the current UK safety standards, D2 especially refers to the exact positioning of markerboards, their deployment and retrieval. D3 relates to a portable markerboard which is deployed on a railway track

when work is being performed on the track. The examiner considers these three documents to be the closest prior art to the present claims. They do not disclose means of tracking and/or displaying the location of markerboards.

Set B

23 D4, figure 1, relates to a method of geofencing where a protection zone 120 is created virtually around a location (a portion of the railroad track and/or a static object like a level crossing). The existence of the protection zone is transmitted to various devices: command centre 112, train 110 and personal alarm devices 106. The document discusses how all of these objects can be tracked in real time but all that occurs is that an alarm can sound when a worker using the personal alarm device 106 ventures into the protection zone 120. There is no reference in D4 to applying a tracking device to markerboards or similar railway assets.

24 D7 relates to a method of tracking the location of railroad vehicles via satellite communication. This only relates to tracking rail vehicles, there is no reference to temporary worksites, workers or markerboards.

25 D10 has substantially the same relevant disclosure as D7.

26 D11, figure 1, relates to a method of communicating the locations of work zone beacons 10,12 to an on-board display 26 of a train 22. The beacons 10,12 include a light 17 or a flag 19 which signify particular operating restrictions, including the existence of work crews (column 2, line 58) and can be used to define a work zone in which people are working (column 2, lines 27-28). This document does not discuss communicating the tracking information to responsible personnel nor does it disclose enabling the responsible personnel to verify the correct placement and removal of the beacons.

Set C

27 D5 discloses a system where an alarm sounds when a device moves into a geofenced location. There is no reference to markerboards or the use in railways.

Other documents

28 D6 discloses a system for remote location monitoring and two-way distress signalling. D8 discloses a system for communicating location data. D9 discloses a satellite navigation system for a personal vehicle (car) and transmitting the location. None of these documents discuss the use in a railway environment so they do not disclose markerboards or other relevant features of the claims.

<u>Step 4: Viewed without any knowledge of the alleged invention as claimed, determine whether those differences constitute steps which would have been obvious to the person skilled in the art</u>

29 The examiner's objection hinges on the fact that the steps of the method set out in sub-paragraphs (c) & (d) merely have to be possible once a system is provided, assuming that system is obvious. They have argued that a skilled person in possession of a markerboard as set out in any of documents D1-D3 would not require an inventive step to attach a tracking device to said markerboard, given what

is part of the common general knowledge of which documents D4, D7, D10 & D11 are examples. Their argument continues that, given the ubiquitous nature of location tracking and display, it would be obvious to provide trackers to markerboards and in turn, combine that with the known safety procedures that requires the markerboards to be placed correctly and retrieved promptly.

30 In reaching this conclusion, the examiner has considered that the claim requires only that the position of the markerboards is displayed on the screen for the user to view and that any verification of the markerboard positions is done entirely by the user. Similarly, the examiner is of the view that the verification of the removal of the markerboard is something done entirely by the user. The display shows the user where the marker board is located using information from the tracker and the user is no longer able to see the board on the display when the markerboard is removed. The examiner found no disclosure in the application to support any functionality or methodology enabling verification of the markerboard's position beyond the user looking at the display screen and knowing that the markerboard is where it is supposed to be. Therefore, the examiner concluded that the verification and removal steps (labelled (c) and (d) above) were non-limiting and they considered these steps to be largely a mental act done by the user.

31 The applicant disagreed with the examiner's view that the verification and removal steps were purely mental or procedural acts. They argued that the verification and removal steps are part of a technical process which involves the comparison of actual data of a markerboard's location with a predetermined placement location, or in the case of removal the previously recorded location. They emphasized that the invention as claimed is a method comprising a set of defined steps. These steps were technically implemented (i.e. by displaying GPS coordinates interfacing with a remote system), objective and repeatable and that they solved a real world, safety critical problem which was to confirm the correct placement and removal of markerboards remotely.

32 The applicant provided more than one example of safety issues that have arisen due to the misplacement of markerboards which could have been prevented if there were a better way to remotely verify the markerboards are placed in the correct locations. Given the length of time that remote location tracking technology has been available, and the life-threatening nature of the risks of misplacing marker boards the applicant argued that it was significant that no one thought of the solution of claim 1 until now. They submitted that the age of the railway industry and conservative approach in the industry to avoiding risk means that innovation is slow, with newer technologies not being integrated at the same pace as it would in other fields.

33 The applicant also pointed to the fact that only documents D4, D7, D10 & D11 discuss location tracking in the field of railways. In their view the examiner's objection was reliant on prior art which otherwise makes no mention of railways.

34 As noted above, the examiner considered that D1, D2 and D3 represented the closest prior art. However, to my mind the disclosure of document D11 is significantly more relevant than appears to have been realised during examination of the application. D11 explicitly discloses a system where a markerboard-like structure (beacons 10 and 12) is provided with GPS location tracking and communication which allows it to communicate its location to a display on board a train on the

network. The difference between claim 1 and the disclosure of document D11, is that D11 only involves sending the location data to a train to forewarn it that it could be heading into a safety zone. D11 is also silent to whether the location data is used by anyone else, for example responsible personnel who need to know the beacon has been deployed properly.

35 At the hearing, the applicant's representative argued against the relevance of D11 saying that it was directed towards communicating hazards to trains and there was no teaching regarding the managing of the worksite for remote workers. They also asserted that the markerboards referred to in the application do not integrate with the trains themselves, so the work zone beacons of D11 could not be considered the same as markerboards within the context of the present claims.

36 The technical problem that D11 is addressing is giving advanced warning to the train drivers (or to an automated system on the train) that a work zone is approaching, potentially well in advance of the beacon becoming visible. The applicant's assertion is that this technical problem is not the same as using the positioning information to determine if the beacons have been deployed correctly. At the hearing, the applicant's representative was also pressed on whether the work zone beacons of D11 could be considered markerboards with integrated GPS and communication given the lights and flags which give information to those who can see it. Their response was that this wouldn't be a markerboard in the same sense as the present invention and that the work zone beacons are fixed, with the implication being that they are permanently fixed to the ground at a location.

37 I am not convinced by the argument that work zone beacon of D11 would not be a markerboard in the context of the present claims. D11 explicitly states, in column 2 lines 27-28, that "the beacons 10,12 may define a work zone in which people are working". Therefore, a physical structure with visible lights and/or flags placed beside a track to identify workers in the vicinity must be considered to be a markerboard, in my view, regardless of who the position of the markerboard is communicated to.

38 The difference between the disclosure of D11 and the present claim is that D11 does not discuss communicating the tracking information to responsible personnel nor does it disclose enabling the responsible personnel to verify the correct placement and removal of the beacons. In my view person skilled would find the differences between D11 and the present invention obvious based on their common general knowledge of current protocols and safety procedures (as exemplified in D1 and D2) without any prior knowledge of the present application.

39 D11 discusses in the background of the art (see column 1), that train control systems were well known and centralised systems which identify train locations and speeds, signals, obstacles, work zones, etc. are also known. The work zone beacon of D11 appears to provide redundancy where work zones should be centrally registered but may not be, so the beacon contacts the train directly. It seems likely that a work zone beacon, capable of long range radio communication directly or through base stations, and operating in a vast centralised rail network would also be capable of providing the location data to a centrally operated control centre. Further, the operational instructions for the work zone beacon "may be manually entered into the portable beacon or they may be received by the transceiver from a remote source" implying that the beacon can be remotely monitored and communicated with. As

such, I believe it would certainly be possible for the work zone beacons of document D11 to communicate with a central control centre and the personnel responsible for the worksite.

40 I have considered if it would be obvious for responsible personnel to use the work zone beacon location data to ensure it has been deployed correctly. Having access to the location data centrally and knowledge of the appropriate safety standards which are considered essential (i.e. D2), the idea that a user would not use the location data to track the markerboard deployment to ensure they were located properly and then removed appropriately seems highly unlikely.

41 However, I am minded to consider the point, “why hasn’t it been done before”. If you handed the skilled person, a railway engineer with knowledge of safety requirements and protocols around worksites, document D11 wouldn’t they immediately see its utility in other aspects of railway management?

42 As discussed above, there is no actual modification to the system of D11 itself with regards to the work zone beacons or the receiver and display that is required to make it useable by responsible personnel wishing to track the location of worksite markerboards. Rather it is merely that an identical receiver and display are provided in a remote building as opposed to a train and that the display is used by responsible personnel to verify the positioning of the beacons rather than the location of the work zone being viewed by a train driver.

43 The disclosure of D11 is clearly in the field of railway, railway management and railway maintenance as it is focused around work zone beacons which are positioned on tracks which are being worked on by personnel. The skilled person reading this document would see that the document is relevant to the field of railway maintenance and would not require an inventive step to at least test the notion that the information sent to the trains could be instead sent to a remote location which monitors the maintenance work.

44 The person skilled in the art would be familiar with systems to monitor the placement and removal of beacons/workplace marker boards (as shown in the safety standards documents D1 and D2). Had they known about the system disclosed in D11, it is likely in my view that they would have considered applying the teachings of D11 to the task of monitoring the beacon/markerboard locations. This would involve having the display of D11 provided in a central location for use by the responsible person to monitor the location of the beacons/markerboards.

45 The applicant is not considered the first to identify the problem of markerboards being placed incorrectly as the standards documents (D1 and D2) highlight the importance of the markerboards being positioned correctly. However, the applicant does appear to have solved the long-recognised problem by a means which others could have used but did not. I note that the applicant and their representative frequently referred to the conservativism of the railway industry and how innovation is not in the general mindset. In this scenario, I think this reasoning somewhat weakens the arguments in favour of the claims being inventive. This argument implies that no one else has proposed the applicant’s solution before because there is resistance to change in the industry. This is not the same as saying no one has proposed the solution before it before because it required inventiveness.

46 I agree that the applicant has provided a solution to an issue that has been known for a long time and that in that time, others could have come up with that solution, but they did not. However, in my view, had a skilled person been in possession of document D11 it would have been obvious to them to apply the teachings to other parts of the railway network. Their knowledge of the safety protocols for worksites on the railways and the need to verify the correct placement and removal of markerboards as evident from the disclosures of D1- D3, would have led to not only the use of the work zone beacons of D11 as markerboards but also using their location signals to ensure they were correctly positioned and appropriately removed. Furthermore, I agree with the examiner's view that the verification and removal steps of the claimed method appear only to be carried out by the user. I do not see anything in the specification which specifically enables the user to verify the correct positioning of the markerboards other than they already know where the boards are supposed to be. The verification and removal steps, therefore, appear to me to be the conventional steps required by the usual safety procedures.

47 Therefore, I consider that the present claim 1 of the application lacks an inventive step in light of the disclosures of D11 when combined with the common general knowledge of safety protocols around the correct deployment of worksite markerboards.

48 The features of the dependent claims appear to be entirely standard in the art and would not render claim 1 inventive if they were included.

Extension of Time

49 I note that a hearing was first requested in the agent's letter of 13 December 2024, prior to the expiry of the extended compliance period, and that this request was seemingly missed by the examiner. While I would have been minded to extend the compliance period to allow the chance to continue prosecution of the application, I believe this point to be moot. By the applicant's representative's own admission at the hearing, there is nowhere else for the application to go if claim 1 is found to be obvious nor do I see any saving amendments within the application itself. As such, I do not need to consider whether the discretionary extension of time is to be granted.

Decision

50 I find that claims 1 to 5 lack inventive step as required by section 1(1)(b) of the Patents Act 1977. I have considered the specification as a whole and I do not see any saving amendments available to the applicant. Therefore, I refuse the application under section 18(3).

Appeal

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

LAURA STARRS

Patent Examination Group Head