Intellectual Property Office

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PATENTS ACT 1977

APPLICANT The Chamberlain Group, Inc.

ISSUE

Whether patent application GB1205649.5 complies with section 1(1)(b)

HEARING OFFICER C L Davies

DECISION

1 Patent application GB1205649.5 entitled 'Encrypted communications for a moveable barrier environment' was filed on 29 March 2012 and published as GB2490016 A on 17 October 2012.

2 Following several rounds of examination and amendment the examiner remained of the view that the invention claimed in this application lacks an inventive step. With the situation unresolved, a hearing was offered in an examination report dated 6 May 2015 and, on the applicant's behalf, the agent has requested a hearing

3 A hearing was accordingly held before me on 29 October 2015. The applicant was represented by Dr Mark Jones of Hoffmann Eitle. The examiner, Mr Owen Wheeler, also attended as did Mr Jason Scott as hearing assistant. It was confirmed at the hearing that the decision would be based on claims 1-34 filed with the skeleton arguments (dated 16 October 2015 and received 19 October 2015). It was confirmed that should those claims not be acceptable an additional proposed amendment set out in section 7 of the skeleton argument would also be considered. The further submissions of 4 November have also been taken into account.

The Application

4 The application relates to apparatus for a moveable barrier system where the moveable barrier is networked to other devices, and to a method of operating the same. The apparatus requires a gateway device which controls communication between devices in the network and is capable of interpreting and generating rolling code based signals such that correct operation of the networked devices occurs. The apparatus also requires a check on a device such as a safety edge, dock light, dock leveller, trailer lock, edge guard, dock seal, dock bumper, microwave sensor, or loop detector. The method claim is the direct method of operating the apparatus. As such it is only necessary to consider, in depth, the apparatus claim. The method claim

being effectively the clear method of operating the apparatus. I note that many of the limitations of claim 1 are in fact operating instructions to the method steps to be used which correspond to the method of claim 14.

The claims

5 It was confirmed at the hearing that the hearing officer would base this decision on the proposed amended claims and the proposed additional amendment submitted with the skeleton arguments (16 October 2015).

6 There are 34 claims with two independent claims 1 and 14 of 16 October 2015.

7 Claim 1 reads:

An apparatus comprising:

a gateway device configured to communicate with at least one of a plurality of accessory devices configured to operate in a movable barrier operator system and configured to communicate status information regarding the movable barrier operator system, the gateway device further configured to communicate with at least one movable barrier operator configured to be operatively connected to a movable barrier to move the movable barrier between an open position and a closed position, the gateway device comprising:

at least one of:

an antenna configured to communicate ^wirelessly with at least one of the plurality of accessory devices, or

a port configured to communicate with at least one of the plurality of

accessory devices via a wired connection;

and a processing device configured to:

receive a plurality of user commands, individual ones of the plurality of user commands configured to implement one or more functions of at least one of a plurality of target devices, the plurality of target devices comprising the at least one movable barrier operator and the plurality of accessory devices,

receive a rolling code based device control signal as part of one of the plurality of received user commands, the control signal designed to implement a function of at least one target device of the plurality of target devices, the at least one target device comprising at least one of the at least one movable barrier operator or at least one of the plurality of accessory devices,

determine from the plurality of target devices the at least one target device that implements the function,

receive status information comprising a status of at least one other device that is not the target device, wherein the at least one other device is selected from the group consisting of:

a safety edge, a dock light, a dock leveler, a trailer lock, an edge guard, a dock seal, a dock bumper, a microwave sensor, and a loop detector;

determine whether the at least one target device is authorized to implement the function based at least in part on the status of the at least one other device,

derive a rolling code from the rolling code based device control signal,

determine whether the rolling code is a valid rolling code or access a central controller to determine whether the rolling code is a valid rolling code, and

in response to determining that the rolling code is a valid rolling code and determining that the at least one target device is authorized to implement the function, trigger sending a rolling code based command signal to the at least one target device.

Claim 14 reads:

A method comprising:

receiving at a gateway device a plurality of user commands, individual ones of the plurality of user commands configured to implement one or more functions of at least one of a plurality of target devices, the plurality of target devices comprising the at least one movable barrier operator and the plurality of accessory devices;

receiving at a gateway device from a user interface a rolling code based device control signal as part of one of the plurality of received user commands, the control signal designed to implement a function of at least one target device, the at least one target device comprising at least one of a movable barrier operator or at least one of a plurality of accessory devices configured to operate in a movable barrier operator system and configured to communicate status information regarding the movable barrier operator system, the gateway device configured to send control signals to the movable barrier operator to effect movement of a movable barrier between an open position and a closed position;

determining, at the gateway device, from the plurality of target devices, the at least one target device that implements the function;

receiving status information comprising a status of at least one other device that is not the target device, wherein the at least one other device is selected from the group consisting of:

a safety edge, a dock light, a dock leveller, a trailer lock, an edge guard, a dock seal, a dock bumper, a microwave sensor, and a loop detector;

determining whether the at least one target device is authorized to implement the function based at least in part on the status of the at least one other device;

deriving a rolling code from the rolling code based device control signal,

determining whether the rolling code is a valid rolling code or accessing a central controller to determine whether the rolling code is a valid rolling code, and

in response to determining that the rolling code is a valid rolling code and determining that the at least one target device is authorized to implement the function, triggering sending a rolling code based command signal to the at least one target device.

Issue to be decided

8 The issue to be decided is whether the claims satisfy section 1(1)(b) of the Patents Act 1977 (the "Act"), i.e. whether they comprise an inventive step.

9 The only other outstanding issue from the file will be to bring the statement of invention into line with the claims, including stating that the second invention is the method.

The law

10 The law regarding inventive step is found in sections 1 and 3 of the Act. The relevant parts read as follows:

> ***Patentable Inventions***
>
> *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) ...;*
>
> *(d) ...*

11 Section 3 defines what is meant by "inventive step" and reads:

> ***Inventive step***
>
> *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).*

12 I do not propose to quote sections 2(2) and 2(3) here, but it follows from these that the state of the art comprises all matter which has at any time before the priority date of the application been made available to the public, whether in the UK or elsewhere.

13 The correct test for determining inventive step is the structured approach found in Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd, [1985] RPC 59 as reformulated by Jacob LJ in Pozzoli SPA v BDMO SA [2007] EWCA Civ 588 (see paragraph 23 of the Court of Appeal's judgment). The four steps of the test are now:

(1)(a) Identify the notional "person skilled in the art"

(1)(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 to the person skilled in the art or do they require any degree of invention?

Arguments and analysis

14 What I must do is determine whether the invention does or does not involve an inventive step. To do so, I will work through the steps set out above taking into consideration the agent's and examiner's observations.

15 The examiner has put forward two different starting points for the state of the art. The first requires the common general knowledge itself to form the state of the art, while the second is based on WO 01/93220 (hereinafter D1) as the state of the art.

16 In the skeleton arguments the applicant has provided reasoned arguments as to why the invention is inventive addressing each of the examiner's starting points indicated above.

17 I will consider these in turn starting with D1.

18 Applying the Windsurfing/Pozzoli test to D1:

Step (1)(a): Identify the notional "person skilled in the art"

19 Throughout the process the examiner has argued that the skilled person is concerned with designing building control networks and in the latest report, a building automation team member with special responsibility for barriers.

20 The applicant's view of the skilled person is set out on page 10 of the skeleton arguments thus: "a moveable barrier system designer working in the field of industrial barrier systems".

21 I am unconvinced by the applicant's view that there is a clear distinction to be made between a residential setting and commercial/industrial settings. Residential settings may be complex. For instance a parking garage for a block of flats may have multiple entrances, while smaller industrial units may be very simple. Equally the fields themselves are considered ambiguous, for instance a care home would be residential and commercial.

22 It is noted that the applicant's own filing refers to residential garages as part of the background, while WO 01/93220 (the cited prior art; hereinafter D1) also states on

page 46 that the system is not limited to residential settings and that commercial settings would be just as successful. The skilled person would be aware of moveable barrier systems across all fields and not be limited by one or the other.

23 I note that the claims of the present application are not framed to exclude from their scope barrier entry systems which are used in small scale residential settings. The applicant points to the safety features of “a safety edge, a dock light, a dock leveller, a trailer lock, an edge guard, a dock seal, a dock bumper, a microwave sensor, and a loop detector” as framing the document squarely in the industrial zone, while this may be true for dock levellers, it does not hold for microwave sensors or loop detectors which are commonplace in the residential settings.

24 The apparatus of claim 1 can in fact be quite simple, the gateway device actually requires only connectivity to one single moveable barrier and only one device which submits the status signal.

25 The skilled “person” would therefore be a moveable barrier system designer working in the field of networking and remote operation of moveable barriers. It follows from this that the skilled “person” would inevitably be a team having at least members who are skilled in moveable barrier operations and in networking devices. The team would therefore have a working knowledge of the devices which are commonly networked with moveable barriers and in networking generally, with knowledge of network technology and security risks and systems.

Step (1)(b): Identify the relevant common general knowledge of that person

26 The examiner has set out his view that all the elements of claim 1(barrier, safety devices, networking via gateway devices and the use of rolling codes as security validation) are known options to the skilled person.

27 Throughout the process the applicant has disagreed with this. Part of the disagreement lies in the disagreement with who the skilled person actually is, but partly for lack of evidence that particular elements are common general knowledge. In particular the use of rolling codes was argued as not being part of the common general knowledge of the team. Further submissions on 4 November 2015 provide arguments on whether US 2007/0058811 (hereinafter D2 and reference in the present application) should be considered as evidence that rolling codes are known to people skilled in the art of moveable barriers. Part of this argument is based on the fact that rolling codes are found in low tech residential barrier operation systems.

28 I have considered both sets of arguments and find myself in agreement with the examiner. The skilled person as defined above would be aware of residential systems and would therefore be aware of security systems in residential moveable barriers such as rolling code signals used in remote garage door operators.

29 The common general knowledge therefore includes: moveable barriers linked to safety devices; commonly used safety devices such as a safety edge, a dock light, a dock leveller, a trailer lock, an edge guard, a dock seal, a dock bumper, a microwave sensor, and a loop detector; gateway devices for networking barriers to other devices and rolling codes as potential signals for controlling moveable barriers.

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

30 The examiner has construed the claim briefly in paragraphs 14 and 15 of his latest report. The applicant in 5.1.5 of the skeleton arguments asserts that the examiner's summary fails to properly construe all the elements. The applicant's view is that the inventive concept is plainly set out in the language of the claims.

31 Having assessed the opposed arguments, I consider the inventive concept to lie in bringing together known items and then defining the connections and interactions between them as set out here:

An apparatus comprising:

a gateway device configured to communicate with accessory devices configured to operate in a movable barrier operator system and configured to communicate status information regarding the movable barrier operator system, the gateway device further configured to communicate with a movable barrier, the gateway device comprising:

at least one of antenna or wiring for the above communication

and a processing device configured to:

i) receive a plurality of user commands, individual ones of the user commands configured to implement functions of target devices,

ii) receive a rolling code based accessory device control signal as part of one of the received user commands, the control signal is to implement a function of target devices, the target device comprising at least one of the movable barrier operator or one of the accessory devices,

iii) determine from the plurality of target devices which target device implements the function,

iv) receive status information comprising a status of one other device that is not the target device, wherein the other device is selected from the group consisting of :

a safety edge, a dock light, a dock leveller, a trailer lock, an edge guard, a dock seal, a dock bumper, a microwave sensor, and a loop detector;

v) determine whether the target device is authorized to implement the function based at least in part on the status of the other device,

vi) derive a rolling code from the rolling code based accessory device control signal,

v) determine whether the rolling code is a valid rolling code or access a central controller to determine whether the rolling code is a valid rolling code, and

vi) in response to the rolling code being valid and the target device(s) being authorized, trigger sending a rolling code based accessory command signal to the target device(s).

Claim 14 for the method is effectively running the above apparatus using the process steps listed.

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

32 With respect to D1, the examiner has set out the differences in paragraphs 40-68 of his latest examination report. The applicant's position is set out on page 15 of the skeleton argument. Having considered both of these positions I have determined the differences and set them out below.

33 D1 discloses residential systems primarily concerned with networking a moveable barrier with the owner and associated devices. The latter embodiments concern themselves primarily with garage doors. Page 33 of D1 provides the best embodiment: a processor receives a user command to implement a function (close a door), a signal is received by the processor which determines that the door is to be closed, the processor further receives a signal that the door is obstructed/ unobstructed, then sends a signal if the door can be closed. It is considered inherent that there is some security to check the signal has been sent from an authorized device. The document further discloses a wealth of accessory devices which can be networked to the processor.

34 The differences between D1 and claim 1 in my view therefore are that D1 has:

First difference: no disclosure of the use of rolling code as part of the command signal to identify the valid user,

Second difference: no disclosure of the specific nature of the device which checks for the obstruction, though checking whether a moveable barrier is obstructed is taught,

Third difference: no disclosure of the concept that the target device requires a validating means sent as part of the command signal nor the selection of a rolling code based signal as the command signal sent to the target device.

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

35 The skilled person would have to take three steps to depart from D1 to overcome the three differences and thereby arrive at the invention in suit.

36 I have considered the examiner's arguments put forward in paragraphs 48-60 of the latest examination report and also the applicant's arguments set forth in section 5.1.7 of the skeleton arguments. Two of the applicant's references to case law are of particular use here. Technip France SA's Patent [2004] EWCA Civ 381and Glaxo Group Ltd's Patent [2004] EWHC 477 (Pat) both concern themselves with multiple

steps wherein each individual step may appear to be trivial. Both cases stress that when dealing with multiple sequential steps it is important to assess obviousness without the use of hindsight. Just because it is possible to set out from a document and take only obvious steps to arrive at a different place, this does not always make it obvious to do so.

37 To overcome the first difference, the first step would be to modify the initial user command signal to contain a rolling code based command signal for the processor to validate the user. This would be possible and at the time of filing use of rolling code based signals was known to open garage doors in residential settings. However, the skilled person would not necessarily realize that there was a problem over and above the validation already inherent in the systems described in D1. Furthermore, the disclosure of D1 is primarily about long distance activation of the barrier, whereas rolling codes are primarily within short range remote controls. With hindsight, the skilled person would agree “I could use a rolling code”, but without the prompt of hindsight or exercising invention would probably not arrive at this place himself.

38 The second step requires the selection of a particular device for status acquiring. D1 does state that such a check should be made and places the decision of what device to use in the hands of the skilled person to enable the disclosure. The choice is clearly placed in the road for the skilled person to make and microwave sensors or loop detectors are well known in the art of moveable barriers for detecting cars, both at an industrial and residential level. The choice here is entirely arbitrary, none of the listed devices bringing any special advantage and as such this step is not inventive.

39 The third step requires not only the use of a rolling code, but also the realization that the signal to the target device should also include a validation code in addition to the command. Again, having heard the applicant’s comments regarding the advantage of the second validation code, this makes complete sense with hindsight. But I am of the view that it does require an inventive step on behalf of the skilled person to choose to do this over and above the disclosure of D1.

40 Accordingly, I find that there is an inventive step over the disclosure of D1.

<u>Applying the Windsurfing/Pozzoli test to the common general knowledge:</u>

41 Steps (1)(a), (1)(b) and (2) are the same as set out above.

42 The examiner also objected to lack of inventive step based on the application seemingly being no more than obvious changes or ways of implementing a known idea. The applicant disagrees and sets out the counter-view in 5.1.6 and 5.1.7 of the skeleton arguments. I have considered both of these stances.

43 I will not spend long discussing this, except to make three points.

44 As noted by the applicant, the examiner has not provided any documentary evidence for what is considered the common general knowledge. I think it would not be controversial to say that devices of the claimed invention are all known, there is no suggestion that any individual device or that rolling codes are novel. The only

disagreement thus is being whether it is legitimate to combine the common general knowledge to arrive at the apparatus claimed.

45 Secondly, in order to arrive at the present claim, several different features have to be combined to interact with each other to provide multiple functionality. Whenever so many steps need to be taken to assert obviousness, care is needed to avoid exploiting hindsight. As noted by the applicant in Glaxo Group Ltd's Patent [2004] EWHC 477 (Pat) and Technip France SA's Patent [2004] EWCA Civ 381, simply because an end can be arrived at by following a sequence of logical steps does not always make it obvious to do so. I find this to be another example where such a process can only arrive at the claims of the application with the benefit of hindsight.

46 Thirdly, a starting point for an inventive step based on what is common general knowledge could be a remotely operated barriers which checks the identity of the user and the status of a secondary device which checks whether the barrier can be operated safely. As a starting point this is similar to the disclosure of D1 but has even more differences from the inventive concept of the claim. All the reasoning why the application is considered inventive over claim 1 would apply here as well.

47 Accordingly the claims are considered inventive over the common general knowledge.

48 Since claims 1-34 are considered to be inventive there is no purpose in considering the proposed additional amendment detailed in section 7 of the skeleton argument.

Conclusion

49 I conclude that the inventions claimed in claims 1-34 filed with the skeleton arguments of 16 October 2015 satisfy the requirements of s1(1)(b).

50 I now remit the case to the examiner for further processing towards grant and request that the applicant formally files claimset 1-34 (as filed with skeleton arguments dated 16 October 2015) so this can be done.

51 The applicant will also need corresponding changes to bring the description into line with the claims.

52 As indicated in the hearing a discretionary extension to the s20 date would be allowed and I note that the relevant F52 has been filed.

Appeal

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

C L Davies

Deputy Director, acting for the Comptroller