FE Global Electronics Pte Ltd and Others v Trek Technology (Singapore) Pte Ltd and Another Appeal
[2005] SGCA 55

Case Number : CA 69/2005, 70/2005

Decision Date : 30 December 2005

Tribunal/Court : Court of Appeal

Coram : Chao Hick Tin JA; Tan Lee Meng J; Yong Pung How CJ

Counsel Name(s) : Ponnampalam Sivakumar (Joseph Lopez & Co) for the appellants in CA 70/2005; Hee Theng Fong, Tan Siew Hong, Sarah Chong and Jeremy Ng (Hee Theng Fong & Co) for the appellant in CA 69/2005; Davinder Singh SC, Tony Yeo and Joanna Koh (Drew & Napier) for the respondent in CA 70/2005; Davinder Singh SC (counsel) and Jason Chan (Allen & Gledhill) for the respondent in CA 69/2005

Parties : FE Global Electronics Pte Ltd; Electec Pte Ltd; M-Systems Flash Disk Pioneers Ltd — Trek Technology (Singapore) Pte Ltd

Patents and Inventions – Infringement – Appropriate approach in construing patent claims – Whether purposive approach to be preferred

Patents and Inventions – Subject matter – Whether amendments to patent disclosing additional matter – Whether court correctly exercising discretion to allow amendments

Patents and Inventions – Validity – Whether combination of prior art amounting to inventive step – Whether patent anticipated by prior art – Whether patent invalid for lack of inventiveness and novelty

30 December 2005

Tan Lee Meng J (delivering the judgment of the court):

1 The appellants in Civil Appeal No 70 of 2005, FE Global Electronics Pte Ltd ("Global"), Electec Pte Ltd ("Electec") and M-Systems Flash Disk Pioneers Ltd ("M-Systems") and the appellant in Civil Appeal No 69 of 2005, Ritronics Components (S'pore) Pte Ltd ("Ritronics"), appealed against Lai Kew Chai J's decision (reported at [2005] 3 SLR 389) that they had infringed Singapore patent No 87504 (WO 01/61692), which was granted to the respondent, Trek Technology (Singapore) Pte Ltd ("Trek"), and were therefore liable in damages for the infringement. We dismissed the appeal and now give the reasons for our decision.

Background

2 On 21 February 2000, Trek filed an application for a Singapore patent (the "patent") with respect to a portable data storage device. Trek claimed that the patent protected its product, "ThumbDrive", which was unveiled at an international exhibition in Germany a week after the application for the patent was submitted in Singapore. The ThumbDrive device took the computer world by storm. Only about the size of a human thumb, it can be plugged directly into any universal serial bus ("USB") of a personal computer. With no moving parts, it functions as a disk drive and has a capacity exceeding that of other mass storage devices.

3 The patent was granted on 16 April 2002. Since then, patents have been granted in, *inter alia*, the UK, New Zealand and South Africa.

4 Before long, other companies started to produce devices that were similar to the ThumbDrive device. An Israeli company, M-Systems, sold such devices under the names "DiskOnKey" and

"Diskey". Electec is the exclusive Singapore importer of Diskey while Global is the exclusive Singapore distributor of the said product.

5 Another company, Ritronics, also started to manufacture and sell storage devices similar to the ThumbDrive device. Its devices are known as "SlimDisk" and "BioSlimDisk". These devices were launched or made available in Singapore before July 2002.

6 Trek filed two actions to protect its patent. In Suit No 609 of 2002, it sued M-Systems, Global and Electec with respect to the devices known as "DiskOnKey" and "Diskey". For convenience, M-Systems, Global and Electec will be referred to as "M-Systems" in the rest of this judgment. In response, M-Systems filed a counterclaim for the revocation of the patent on the ground that it is invalid. In the second action, Suit No 672 of 2002, Trek sued Ritronics with respect to the latter's devices, namely "SlimDisk" and "BioSlimDisk".

7 In its actions against M-Systems and Ritronics, Trek sought damages for infringement of its patent as well as injunctions to stop the appellants from making, selling or disposing of any product that infringed its patent.

8 Trek was not the only company that sued to protect its turf in the battle for sales of these thumb-sized data storage devices. M-Systems instituted Suit No 604 of 2002 against Trek for threatened patent infringement. By an Order of Court dated 14 October 2002, Trek's two actions against M-Systems and Ritronics and M-System's suit against Trek were consolidated.

The trial judge's decision

9 Before the hearing of the consolidated actions, Trek applied to amend its patent to clarify the definition of its invention, a procedure allowed by s 83 of the Patents Act (Cap 221, 2002 Rev Ed). The application was granted by Lai J.

10 In his judgment on 12 May 2005, Lai J held that Trek's patent was valid in both its amended and unamended forms and that M-Systems and Ritronics, whose devices infringed Claims 1, 5 and 7 of the patent, were liable in damages for the said infringement of Trek's patent. In view of his findings, M-Systems and Ritronics failed in their claim with respect to groundless threat of infringement.

The appeal

11 The issues in both appeals which will be considered in this judgment are whether the ThumbDrive device is within the ambit of the patent, whether the amendments proposed by Trek to the patent were properly allowed during the trial and whether Trek's patent is invalid for lack of novelty and inventiveness.

Whether the ThumbDrive device is within the ambit of the patent

12 The appellants asserted that the ThumbDrive device was not protected by the patent. Ritronics alleged that "the fundamental error of the Judge was that he did not look at the patent document only but read into the patent features in the [ThumbDrive device]".

13 It should be borne in mind that when Trek applied for the patent on 21 February 2000, it had already invented the ThumbDrive device, which was unveiled at an international exhibition one week later. Trek's counsel, Mr Davinder Singh SC, thus pointed out that it is most unlikely that, having invented the ThumbDrive device, Trek would fail to describe its essential features in a patent

application that was intended to protect its rights in relation to this device.

14 The language of a patent is deemed to have been addressed by the inventor not to a panel of equity draftsmen but to the man skilled in the art (*per* Dillon LJ in *Strix Limited v Otter Controls Limited* [1991] FSR 354 at 357). Indeed, in *Catnic Components Limited v Hill & Smith Limited* [1982] RPC 183 at 243, Lord Diplock aptly observed that the words of a patent "should be given a purposive construction rather than a purely literal one derived from applying to it the kind of meticulous verbal analysis in which lawyers are too often tempted by their training to indulge". We agree that the purposive approach is preferred as it balances the rights of the patentee and those of third parties. More recently, in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9 at [48], the House of Lords endorsed the *Catnic* purposive approach as consonant with the Protocol on the Interpretation of Art 69 of the European Patent Convention, which provides, *inter alia*, that a patent should be interpreted "as defining a position … which combines a fair protection for the patentee with a reasonable degree of certainty for third parties".

15 The original claims by Trek under its patent, which are to be purposively interpreted, are as follows:

> Claim 1
>
> A portable data storage device comprising a coupling device for coupling to a computer serial bus, an interface device coupled to the coupling device, a memory control device and a non-volatile solid-state memory device; the memory control device being coupled between the interface device and the memory device to control the flow of data from the memory device to the coupling device.
>
> Claim 2
>
> A device according to claim 1, wherein the non-volatile solid-state memory device is a read/write memory device.
>
> Claim 3
>
> A device according to claim 2, wherein the read/write memory device is a flash memory device.
>
> Claim 4
>
> A device according to claim 2 or claim 3, wherein the memory control device controls the flow of data to and from the memory device.
>
> Claim 5
>
> A device according to any of claims 2 to 4, further comprising a manually operated switch movable between a first position in which writing of data to the memory device is enabled, and a second position in which writing of data to the memory device is prevented.
>
> Claim 6
>
> A device according to any of the preceding claims, wherein the memory control device comprises a micro-controller.
>
> Claim 7

A device according to any of the preceding claims, wherein the coupling device comprises a universal serial bus coupling device and the interface device comprises a USB driver.

Claim 8

A device according to any of the preceding claims, wherein the coupling device comprises an IEEE 1394 (Firewire) protocol coupling device and the interface device is a Firewire protocol driver.

16 It is evident that the features of the ThumbDrive device are adequately covered in the claims. For a start, the patent teaches the concept of a portable data storage device which functions as an alternative to a conventional magnetic disc or a CD-ROM but is more convenient because it is more compact than the alternative mediums of storage of data. The patent outlines the disadvantages of the conventional prior art as follows:

Conventional data storage devices generally fall into two categories. The first is electronic, solid-state memory devices such as read only memory (ROM) and random access memory (RAM). These memory devices are generally fitted within the computer. *They are not intended to be removable or portable so that they may be used on different computers, for example, to permit the transfer of data from one computer to another computer.*

The second type of device is surface based data storage devices in which data is stored, typically, on the surface of a disk or tape. Examples of surface storage devices are magnetic disks and CD ROMs. Such data storage devices require a mechanical drive mechanism to be installed in or coupled to the computer to permit the data on the storage device to be read by the computer. In addition, such memory devices are limited by the surface area of the storage device, and the *combination of the storage device and the drive mechanism for reading data from the storage device is generally bulky and/or delicate due to the moving parts that are required within the drive mechanism and/or storage device.*

[emphasis added]

17 The patent next describes the inside of the device (referred to as "device 10") as follows:

An advantage of the device 10 … is that it provides a portable data storage device for a computer which does not require a mechanical operated reading/writing device. In addition, the device 10 has no moving parts. *This enables [the] data storage device 10 to be more compact than conventional portable data storage devices.* [emphasis added]

18 Thus far, the patent has described what the ThumbDrive device is capable of doing. Realising that the ThumbDrive device scores highly because it may be directly plugged to and unplugged from a USB socket in the computer, the appellants tried to distance the patent from this device by claiming that the patent does not disclose such direct plugging and unplugging. They suggested that a skilled reader of the patent would assume that a cable would be required to connect the patented device to the computer. In view of this, whether the patent discloses a device that requires a captive or detached cable became an important issue.

19 The appellants' expert witness, Mr Shimon Shmueli, acknowledged that the patent disclosed a storage device with a USB coupling device and driver but he asserted that the coupling device in the patent was not in the form of an integrated USB "A" plug without an intervening cable. His rationale for this was that USB specifications refer to only two types of connections, namely a captive or a

detachable cable and, as such, the patent must be taken to have disclosed either a captive or detachable cable. This is incorrect because by the time Trek applied for its patent, there was a device in the market known as "Aladdin", a security key for the protection of confidential data stored in a computer, which is connected to a USB socket without a captive or detachable cable.

20 Trek's expert witness, Mr John Hyde, testified that a skilled person will understand that Trek's patent discloses a portable memory device having an integrated USB plug for direct connection to the USB socket on a computer without an intervening cable. He added that as the patent also highlights the portability, compactness and durability of the device, the attributes of the ThumbDrive device have been clearly disclosed in the patent.

21 It is rather telling that the appellants' expert witness, Mr Shmueli, conceded during cross-examination as follows:

> Q. Show us where in the specifications or claim ... any reference to a cable between D12 and the connector, let alone a captive cable. Show us.
>
> A. There is not in the claim.
>
> Q. … Is there in the specifications?
>
> A. No. …
>
> Q. Is there anything in the patent which says that the connector is a cable?
>
> A. No.

22 Admittedly when construing a patent, the court determines what a skilled reader would think and not what the expert thinks. This is not to say that an expert's view on what a skilled reader would think is totally irrelevant. In our view, the trial judge bore this in mind and rightly accepted that the patent discloses a unitary data storage device with an integrated USB plug to enable direct connection to the USB points of computers without the need for a captive or detachable cable. That being the case, the appellants' argument that the ThumbDrive is not a device protected by the patent is clearly unacceptable.

Whether the application to amend the patent should have been allowed

23 The appellants' assertion that Trek should not have been allowed to amend its patent during the trial will next be considered. Section 83 of the Patents Act allows for the amendment of a patent during infringement proceedings. However, s 84(3) adds that no amendment shall be allowed under s 83 if it results in the specification disclosing any additional matter or extending the protection conferred by the patent.

24 In *Bonzel (T) v Intervention Limited (No 3)* [1991] RPC 553 at 574, Aldous J adopted the following helpful test to determine whether there is any disclosure of additional matter:

> The task of the court is threefold:
>
> (1) To ascertain through the eyes of the skilled addressee what is disclosed, both explicitly or implicitly in the application.
>
> (2) To do the same in respect of the patent as granted.

(3) To compare the two disclosures and decide whether any subject matter relevant to the invention has been added whether by deletion or addition. The comparison is strict in the sense that subject matter will be added *unless such matter is clearly and unambiguously disclosed in the application either explicitly or implicitly*.

[emphasis added]

25 The appellants contended that the amendments added subject matter. On the other hand, Trek contended that its proposed amendments, which concerned Claims 1 and 8, were properly allowed because they fell within the four corners of the patent.

26 The original Claims 1 and 8 have been set out earlier on. The amended Claims 1 and 8, with additions in italics, and the new Claim 1A are as follows:

Claim 1

A portable data storage device *which can be directly plugged into a USB socket of a computer and which is operative to function as an alternative to a magnetic disk or CD-ROM, and which is capable of storing software for installation to the computer or of receiving and storing user's data present in the computer and which comprises* a *USB plug* for coupling *directly* to a *USB socket on a computer*, an interface device coupled to the *USB plug*, a memory control device and a non-volatile solid-state memory device; the memory control device being coupled between the interface device and the memory device to control the flow of data from the memory device to the *USB plug*.

Claim 1A

A portable data storage device according to claim 1 that is more compact than a conventional magnetic disc or CD-ROM storage device.

Claim 8

A device according to any of the preceding claims, wherein the *USB plug and USB socket are replaced by* an IEEE 1394 (Firewire) protocol *plug and a Firewire protocol compatible socket respectively*, and the interface device is a Firewire protocol driver.

27 Some consequential amendments, which need not be discussed here, were also included.

28 Trek explained that the amendments were required to place the invention in its proper perspective, having regard to the matters disclosed in the prior art and the specifications, to limit the invention in Claim 1 in order to distinguish the invention claimed therein from matters disclosed in the prior art and the specifications and to insert a further dependent Claim 1A to refer specifically to the compactness of the device. It submitted that none of the amendments sought disclosed any additional matter or extended the protection conferred by the patent. We agreed that this was the case.

Exercise of discretion

29 In *Smith Kline & French Laboratories Limited v Evans Medical Limited* [1989] FSR 561 ("*Smith Kline*") at 569, the factors to be taken into account by a judge when exercising the discretion to

allow or disallow a proposed amendment of a patent were outlined by Aldous J as follows:

> (a) whether the patentee has disclosed all the relevant information with regard to the amendments;
>
> (b) whether the amendments are permitted in accordance with the statutory requirements;
>
> (c) whether the patentee delayed in seeking the amendments (and, if so, whether there were reasonable grounds for such delay);
>
> (d) whether the patentee had sought to obtain an unfair advantage from the patent; and
>
> (e) whether the conduct of the patentee discourages the amendment of the patent.

30 Whether the position stated in *Smith Kline* should be reviewed in view of the system employed nowadays for the registration of patents was considered in *Instance v CCL Label Inc* [2002] FSR 27 at [39], by Pumfrey J, who said:

> I have to admit that I do not find the reasoning which underpins this approach entirely satisfactory. In the days before claims it was understandable. The patent was either valid or invalid, and to identify the need to disclaim part of the invention was to admit invalidity. To sue on a patent known to be invalid was seen to be wrong and unfair. When an application to disclaim was made, the patentee was put on terms that it would not start further infringement proceedings until the application to disclaim had been disposed of. With the advent of claims, and later provision for relief for infringement of a patent only partially valid, albeit on terms which would normally include amendment … and on condition that the specification had been framed in good faith and with reasonable skill and knowledge, the rationale for this approach becomes less clear.

31 We agree that the modern context in which patents are registered must be taken into account when considering whether amendments should be allowed. The present practice in Singapore is that skilled examiners examine and scrutinise patent applications and if there is a negative patent examination report, it is in the patent file at the Intellectual Property Office of Singapore and is open for public inspection. Lai J was thus entitled to say at [67] of his judgment that as examination reports are available for public inspection, adverse parties are able to evaluate the validity and strength of patents which have been filed and they are "less likely to be surprised (and consequently prejudiced) by subsequent amendments which may be sought by the patentee, even if this takes place in the course of patent litigation". As there is little scope for abuse when patent applications for patents are filed nowadays, we agree that a more lenient approach towards amendments is now called for.

32 We noted that the appellants complained that the amendments were not clear. More specifically, they thought the phrase "more compact than a conventional magnetic disk or CD-ROM storage device" was not concise enough. In the context in which these words appear, there is no doubt as to what they mean. After all, as the trial judge pointed out, the appellants' expert, Mr Shmueli, had no difficulty using the words "compact" and "conventional" in relation to the appellants' devices. The appellants' other complaint was that Claim 1A was ambiguous but the evidence suggests that Claim 1A is dependent on Claim 1 and is thus supported by the patent.

33 As for the argument that there was undue delay in applying for an amendment of a patent, this was not substantiated. Lai J pointed out that the appellants had continued to introduce more and

more prior art into the litigation and by doing so, they had shifted the targets constantly. There had been no bad faith or reprehensible conduct on Trek's part. As such, the question of barring the amendments on the ground of Trek's delay did not arise.

34 Finally, there were sufficient references in the existing specification to support the amendments. These references are set out at [57] of the trial judge's judgment.

35 In our view, Lai J's decision to allow the amendments cannot be faulted.

Whether the patent was infringed

36 As for whether the appellants infringed the patent, the trial judge dealt with this question at length and concluded that the allegation of infringement was proved. We saw no reason to interfere with his decision on the issue of infringement and will proceed to consider the appellants' defences.

The appellants' defences

37 Section 13(1) of the Patents Act provides that a patentable invention is one that is new, involves an inventive step and is capable of industrial application. As has been mentioned, the appellants asserted that Trek's patent is invalid because it is not new or novel and not inventive.

Novelty

38 Section 14 of the Patents Act provides that an invention shall be taken to be new if it does not form part of the state of the art. The state of the art comprises 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 Singapore or elsewhere, by written or oral description, by use or in any way. Needless to say, disparate pieces of prior art cannot be combined unless a document directs the reader to do so. In considering what a person of competent but average technical skill and who lacks imagination would make out of the prior art, the oft-cited words of Sachs LJ in *The General Tire & Rubber Company v The Firestone Tyre and Rubber Company Limited* [1972] RPC 457 at 486 are worth reiterating:

> To anticipate the patentee's claim the prior publication must contain clear and unmistakeable directions to do what the patentee claims to have invented … A signpost, however clear, upon the road to the patentee's invention will not suffice. The prior inventor must be clearly shown to have planted his flag at the precise destination before the patentee.

39 The prior art cited by the appellants, which numbered more than 46, consisted of storage devices that are either not mass storage devices or are mass storage devices which employed a totally different design. In their closing submissions, the appellants referred to only the following four of their many prior art references:

(a) The "Lexar patent" (Patent Cooperation Treaty ("PCT") Application No WO 99/45460), which discloses a cable-connected adaptor that allows pre-existing flash modules to be attached to a personal computer ("PC") that does not have matching flash sockets;

(b) The "TDK patent" (European Patent Application No 929043A1), which describes a method of adding a secondary cable-connected interface to a pre-existing PC card to be used in systems that do not have a PC card socket;

(c) The "Ban patent" (Singapore Patent Application No 200203303-3 derived from PCT application No PCT/US00/07087) which discloses a method of building a cable-connected desktop storage device that enables flash modules to be attached via a USB and to operate as a file storage device; and

(d) "Aladdin", as described in a leaflet published by Aladdin Knowledge Systems Inc that shows a USB version of its parallel port software protection key.

40 The first three prior art references concern devices that require a cable. These devices were introduced into the market at a time when USB ports sat together with other expansion ports at the back of a desktop computer. The use of a cable made the said devices more user-friendly. As none of the said three prior art references in question cited by the appellants disclose a device with an integrated plug, they did not invalidate Trek's patent by anticipation.

41 As for the fourth prior art reference, namely, Aladdin, which discloses an integrated plug and a unitary and integrated device, this device is only a security device to avoid others viewing the data protected by it. Unlike the ThumbDrive device, it has nothing to do with mass storage of data. As such, Aladdin also cannot be considered as prior art that anticipates the ThumbDrive device.

42 It follows that the defence based on lack of novelty fails.

Inventiveness

43 Section 15 of the Patents Act provides that an invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art.

44 Trek claimed that its invention "is to have, in substitution for the conventional magnetic disk or CD-ROM which was used in the past, a device for transferring data from one computer to another and which can itself be plugged directly into and removed from the standard USB socket of a computer, with the consequence that no cumbersome cable is required". Furthermore, the device is truly portable as it is about the size of a human thumb and it has a "non-volatile solid-state memory", which means that data which is stored in a semiconductor chip is not lost when power is switched off. This facilitates the transfer of data from one computer to another.

45 In our view, Trek had an inventive concept for a new type of data storage device that was quite different from and more convenient to use than conventional data storage devices. Admittedly, all the elements required for this invention were available to those skilled in the art. Solid-state non-volatile memory was well known and USB plugs were standard. Yet before Trek applied for the patent in question, no one else thought of combining all these elements together. Instead, others continued to produce variations of the magnetic disk or CD-ROM as well as devices that required the use of a connecting cable because they were not intended for direct plugging into the USB socket of a computer. It was thus not obvious to proceed from a two-piece cable-connected prior art to the neat cableless solution presented by the ThumbDrive device. In this context, the following words of Tomlin J in *Samuel Parkes & Co Ld v Cocker Brothers Ld* (1929) 46 RPC 241 at 248 are worth noting:

> [W]hen once it had been found … that the problem had waited solution for many years, and that the device is in fact novel and superior to what had gone before, and has been widely used, and used in preference to alternative devices, it is … practically impossible to say that there is not present that scintilla of invention necessary to support the Patent.

46 Having looked at the device, some may view the invention as a simple one but simplicity has

never been a bar to inventiveness and it has been reiterated often enough that *ex post facto* analysis can often be unfair to inventors (see, for instance, the decision of this court in *Peng Lian Trading Co v Contour Optik Inc* [2003] 2 SLR 560 at [28]).

47 It is trite that the commercial success of a new product may be taken into account when considering its inventiveness. The ThumbDrive device was warmly welcomed when it was launched and its subsequent commercial success speaks volumes. Indeed, the number of clone storage devices following the introduction of the ThumbDrive device is rather telling.

48 For the reasons stated, we found that the appellants' assertion, that the ThumbDrive device lacked an inventive step, has no foundation.

49 As Trek's patent is valid, it follows that the appellants' complaint of groundless threats need not be considered.

Conclusion

50 As all the appellants did not succeed in giving any good reason why Lai J's decision with respect to the validity of the patent, the amendment of the patent and the appellants' liability for damages for infringement of the patent should be overruled, we dismissed their appeals with costs.

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