Ng Kok Cheng v Chua Say Tiong
[2001] SGHC 143

Case Number : Suit 783/2000

Decision Date : 22 June 2001

Tribunal/Court : High Court

Coram : Judith Prakash J

Counsel Name(s) : Steven Seah and Adrian Kwong (Drew & Napier) for the plaintiff; Alban Kang and Chow Kin Wah (instructed by Tan Loh & Wong) for the defendant

Parties : Ng Kok Cheng — Chua Say Tiong

Patents and Inventions – Infringement – Whether defendant's product infringes plaintiff's patent

Patents and Inventions – Inventive step – Test of obviousness – Whether invention obvious to person skilled in the art – Commercial success of patented product – Patents Act (Cap 221, 1995 Ed) s 15 – Whether commercial success indicates non-obvious of patented product

Patents and Inventions – Revocation – Whether non-compliance with s 25(5) Patents Act ground for revocation of patent – s 25(5) Patents Act (Cap 221, 1995 Ed)

Patents and Inventions – Validity – Patent specification – Enabling disclosure – Whether sufficient enabling disclosure by patent specification – ss 25(4), 80(1)(c) Patents Act (Cap 221, 1995 Ed)

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Introduction

This action involves the validity of a patent in respect of a lock. The plaintiff, Mr Ng Kok Cheng, is the proprietor of Singapore Patent No 66473 (`the patent`), the patent in question. He manufactures and sells locks using the brand name `Duro`. These Duro locks are said to be the embodiment of the patent.

The defendant, Mr Chua Say Tiong, also deals in locks through his business Singlock Trading Agency. Mr Ng`s claim is that Mr Chua has infringed the patent by disposing of or offering to dispose of locks that infringe the claims of the patent. Mr Chua denies that the patent is valid and that his Castle locks infringe it. He has counterclaimed for a declaration that the patent is invalid and for other remedies on the basis of groundless threat of infringement.

The basis of Mr Chua`s assertion that the patent is invalid and unenforceable is as stated in the re-amended particulars of objection which he filed on 16 February 2001. Three objections are stated. They are:

(1) that the specification of the patent does not disclose the invention/ clearly and completely for it to be performed by a person skilled in the art (and particulars of the objection are given);

(2) the alleged invention the subject of the patent is not a patentable invention in that it is not new, the subject matter thereof having formed part of the state of the art as of the date of filing of application for the patent (details of the prior art relied on are set out in the particulars); and

(3) the alleged invention is not a patentable invention in that it involves no inventive step, the subject matter thereof being obvious to a person skilled in the art having regard to the following

matter which formed part of the state of the art as at the date of filing of application for the patent.

Background

The genesis of the patent was Mr Ng`s involvement in the early 1990s in the development of a lock designed to padlock the gates of HDB flats. These initial efforts were unsuccessful but subsequently one of Mr Ng`s friends produced a new padlock which he sold under the brand name `Rigoh`. This was a successful design and was copied by various manufacturers. By late 1995, there were 12 brands of locks used on HDB gates and most of these were of a similar design. The way in which these locks differed from previous padlocks was each had a main body and an auxiliary body which were attached at the time the locks were mounted onto the gates.

In Mr Ng`s opinion, the Rigoh lock and its lookalikes suffered from three disadvantages:

(1) the lock was not very secure as the auxiliary body could be easily detached from the main body;

(2) once mounted on the gate, it could not be re-used on another gate without removing and thereby damaging the plugs which were used to cover the screws or bolt attaching the auxiliary body to the main body; and

(3) the lock could only be mounted on the horizontal bar of the gate as opposed to at a height convenient to the user.

He therefore spent some time considering how these disadvantages could be overcome.

Apparently, Singapore does not manufacture locks. Many locks sold here are made in Taiwan which has a great deal of lock manufacturing expertise. Thus, in October 1995, Mr Ng went to Taiwan to meet a lock manufacturer who could put his ideas into effect. He met Mr Chiu Chen Hsiung, the president of a lock making company called F16 Manufacturing Co Ltd and explained to him the nature of the Rigoh type lock and his ideas for an improved version. Mr Chiu went to work and came up with a prototype lock for Mr Ng`s approval. Mr Ng then invited Mr Chiu to come to Singapore to have a look at the HDB gates and see for himself how the lock would be used on the gates. Mr Chiu came here in May 1996 and thereafter improved his design. The design of the lock was finalised in late 1997.

In May 1998, Mr Ng asked Mr Chiu if he could file a patent application for Mr Chiu`s lock in the latter`s name in Singapore. Mr Ng also asked Mr Chiu to assign the patent application to him. Mr Chiu agreed on both counts. On 29 May 1998, an application to patent the alleged invention was lodged in Mr Chiu`s name and this application was assigned to Mr Ng in October 1998.

In the meantime, Mr Chiu had manufactured the lock in bulk and the first shipment was sent to Mr Ng sometime in June or July 1998. The Duro lock was introduced to the Singapore market in mid 1998 and its sales figures were encouraging. According to Mr Ng, during the 15 months between July 1998 and October 2000 the sales of the lock had exceeded $1m. Mr Ng considered the Duro lock to be a commercial success.

Sometime prior to July 2000, Mr Ng noticed Mr Chua`s Castle lock being offered for sale by a number of retailers in the market. Having examined the Castle lock, he considered that it was almost identical to the invention which he had patented.

The patent was granted on 22 August 2000 and on 18 September 2000, through his solicitors, Mr Ng asked Mr Chua to cease and desist from manufacturing, selling and/or offering to sell the infringing Castle lock. Mr Chua did not respond to that request and this action was accordingly commenced by Mr Ng in September 2000.

Details of the patent

The invention patented by Mr Chiu is, according to the patent, a door lock and more particularly `a door lock which can protect an auxiliary body from detaching while the door lock is locked`. Mr Ng contends that the meaning of this statement or the object of the invention becomes clear when one reads the description of the prior art in the specification. In that description, the Rigoh type lock is described as a `conventional door lock`.

This description reads:

> *Referring to FIG. 1, a conventional door lock has a main body 8, an auxiliary body 81 coupling with the main body 8, a shackle bar 80 passing through the main body 8 and the auxiliary body 81, a cylinder 82 disposed in the main body 8, and two bolts 83 fastening the auxiliary body 81 and the main body 8 together. Since the heads of the bolts 83 are disposed on the auxiliary body 81 outward, the bolts 83 can be detached easily. After the bolts 83 are detached, the auxiliary body 81 can be detached also.*

A clearly stated defect or weakness in the prior art is that the auxiliary body can be detached easily.

The detailed description of the invention reads:

> *Referring to FIGS. 2 to 7A, a door lock comprises a main body 1, an auxiliary body 2 coupling with the main body 1, a shackle bar 10 passing through the main body 1 and the auxiliary body 2, and a lock mechanism 3 disposed in the main body 1. A lateral cover 51 covers a lateral of the main body 1. An outer casing 5 encloses the main body 1. A side cover 61 covers a side of the auxiliary body 2. An outer housing 6 encloses the auxiliary body 2. A rod 20 is disposed between the main body 1 and the auxiliary body 2.*
>
> *The shackle bar 10 has a distal end 101, an annular recess 102, and a round aperture 103.*
>
> *The rod 20 has a pin hole 201 and a groove 202.*
>
> *The main body 1 has a recess hole 11 receiving the shackle bar 10, a blind hole 12 receiving the rod 20, a periphery recess 13, a threaded hole 14 receiving an extended stud 17, a pin hole 16 receiving a pin 18, a through aperture 15, and a through hole 19.*
>
> *The lateral cover 15 [**sic**] has two lateral frames 511. The side cover 61 has a circular hole 612 and two side frames 611.*
>
> *The outer casing 5 has a round hole 501. The outer housing 6 has a circular*

aperture 601.

The auxiliary body 2 has an upper hole 21, a lower hole 22, a periphery groove 26, and an extended aperture 25 receiving a first stud 24 and a second stud 23 in series.

The lock mechanism 3 comprises an upper cylinder 30 and a lower cylinder 30 disposed in the main body 1 in series, a coiled spring 312 and a drive key 31 disposed in the through hole 19, a compression spring 322 and a driven key 32 disposed in the through aperture 15, a helical spring 331 and a push key 33 disposed in the recess hole 11, a block 34 blocking the push key 33, the upper cylinder 30 having a hollow interior 41 and a semicircular protrusion 301 having an insertion channel 302, the lower cylinder 30 having a semicircular lobe 301, a reinforced casing 303 enclosing the semicircular protrusion 301, and a dustproof device 4 having a flexible plate 42 and two elastic elements 43 inserted in the hollow interior 41 of the upper cylinder 30, and an outer cover 40 covering the upper cylinder 30. The outer cover 40 has an insertion slot 401. The flexible plate 42 has a notch 421. The drive key 31 has a block end 311. The driven key 32 has a slant groove 321.

The outer cover 40 can protect the upper cylinder 30 against dusts [***sic****].*

The outer casing 5 can protect the main body 1 against bumping.

The outer housing 6 can protect the auxiliary body 2 against bumping.

The first stud 24 and the second stud 23 cannot be detached from outside.

Referring to FIG 8, two door plates 71 and 72 are disposed on two door posts 7. Each of the door plates 71 and 72 is connected to a plurality of door rails 70. The door lock hooks two door rails 70. The shackle bar 10 is inserted in the recess hole 11 of the main body 1. Therefore, the door lock of the present invention is locked.

Referring to FIG 9, the shackle bar 10 disengages from the recess hole 11 of the main body 1. The door lock can be removed from the door rails 70. Therefore, the door plates 71 and 72 can be opened.

The invention is not limited to the above embodiment but various modifications thereof may be made. Further, various changes in form and detail may be made without departing from the scope of the invention.

It is difficult to understand the above description without reference to the drawings. The drawings, fig 1 to fig 9, are therefore set out in App 1 to this judgment. For further clarity, photographs of the Duro lock and the Castle lock are set out in App 2.

Issues

The issues that arose as at the close of pleadings were:

(1) whether the patent was invalid for lack of novelty in the light of the prior art pleaded in the re-amended particulars of objections;

(2) whether the patent was invalid for obviousness in the light of the prior art pleaded;

(3) whether the specification to the patent disclosed the invention clearly and completely for it to be performed by a person skilled in the art; and

(4) whether the Castle lock marketed by Mr Chua infringed Mr Ng`s claims in the patent.

The closing submissions presented on the defendant`s behalf did not address the issue of lack of novelty or anticipation. Thus, there are only three main issues which I need deal with in this judgment. I will deal first with the issues relating to the validity of the patent and thereafter with the question of whether it has been infringed.

Is the patent obvious?

In order for an invention to be a patentable one, it must satisfy the three conditions laid down in s 13(1) of the Patents Act (Cap 221, 1995 Ed) (`the Act`). These are that:

(a) the invention is new;

(b) it involves an inventive step; and

(c) it is capable of industrial application.

Section 14 elaborates on what is meant by `new` whilst s 15 defines `inventive step` by stating that `an invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art`. There is no doubt in this case that the Duro lock is capable of industrial application and the argument on novelty has been dropped. It is therefore only the requirement of an inventive step that is in issue. The position of the defence is basically that the Duro lock is an application of prior knowledge. In other words, the design concept in the lock is an obvious one.

The English Court of Appeal had a useful discussion on the ideas of obviousness and inventive concept in **M"Inlycke AB v Procter & Gamble** [1994] RPC 49. The judgment of the court given by the Vice-Chancellor, Sir Donald Nicholls referred to the UK Patents Act 1977 (`the UK Act`) on which our own Patents Act is substantially based and stated that the UK Act was a statutory code which was passed to establish a new law of patents, to amend the law and to give effect to certain international conventions, most importantly, the European Patent Convention of 1973 (at p 111). The following passages from the judgment are instructive:

> *Under the statutory code (which is further confirmed in its completeness by sections 74 and 72) the criterion for deciding whether or not the claimed invention involves an inventive step is wholly objective. It is an objective criterion defined in statutory terms, that is to say whether the step was obvious to a person skilled in the art having regard to any matter which forms part of the state of the art as defined in section 2(2). We do not consider that it assists to ask whether "the patent discloses something sufficiently inventive to deserve the grant of a monopoly". Nor is it useful to extract from older judgments expressions such as "that scintilla of invention necessary to support*

a patent". The statute has laid down what the criterion is to be: it is a qualitative not a quantitative test ... [at p 112 lines 40-49]

The Act requires the court to make a finding of fact as to what was, at the priority date, included in the state of the art and then to find again as a fact, whether, having regard to that state of the art, the alleged inventive step would be obvious to a person skilled in the art. [at p 113 lines 2-6]

In applying the statutory criterion and making these findings the court will almost invariably require the assistance of expert evidence. The primary evidence will be that of properly qualified expert witnesses who will say whether or not in their opinions the relevant step would have been obvious to a skilled man having regard to the state of the art. All other evidence is secondary to that primary evidence. In the past, evidential criteria may have been useful to help elucidate the approach of the common law to the question of inventiveness. Now that there is a statutory definition, evidential criteria do not form part of the formulation of the question to be decided. [at p 113 lines 8-15]

We had cited to us authorities extending back over a hundred years in which various evidential considerations are discussed in relation to what were the common law or statutory precursors of the present statutory definition ... As Lord Herschell pointed in ***Siddell v Vickers & Sons Ltd*** *[1890] 15 App Cas 496, and adapting his language to the new statutory definition, obviousness connotes something which would at once occur to a person skilled in the art who was desirous of accomplishing the end, or, in Lopes LJ`s much quoted phrase, "it must not be the obvious or natural suggestion of what was previously known": see* ***Savage v Harris & Sons*** *[1896] 13 RPC 364 at 370. [at p 113 lines 47-52 and p 114 lines 1-6]*

The question to be answered under section 3 of the Act [our s 15] is a question of fact. In some cases it may be a very complex question; in others the question may involve no complexity although it may still be difficult to answer with confidence. In the present case the technology is reasonably straightforward and the inventive step claimed involved an idea for the application of that technology in relation to a particular product. It exemplifies a case where, despite the fact that no doubt large sums of money are at stake, the resolution of the question of fact is obscured, not assisted, by an over-elaboration of the evidence or a failure to recognise that the relevant question is the primary question. [at p 114 lines 42-50]

Although formulated with reference to the Patents Act 1949, the analysis of Oliver LJ in ***Windsurfing International v Tabur Marine*** *[1985] RPC 59 at 73 continues to provide assistance. There are four steps:*

(1) What is the inventive step said to be involved in the patent in suit?

(2) What was, at the priority date, the state of the art (as statutorily defined) relevant to that step?

(3) In what respects does the step go beyond, or differ from, that state of the art?

(4) Having regard to such development or difference, would the taking of the

step be obvious to the skilled man? [at p 115 lines 1-14]

The value of this analysis is not that it alters the critical question; it remains the question posed by the Act. But it is that it enables the fact-finding tribunal to approach the exercise of answering that question in a structured way. This was [***sic****] Morritt J did in the present case. [at p 115 lines 16-19]*

The burden of proof is upon the person attacking the validity of the patent to show that no inventive step was involved. It is therefore for him to make out the case of obviousness and prove it by appropriate expert evidence. Accordingly in any given case it will be for that person to marshal and prove those aspects of the state of the art which he alleges make the relevant step obvious. The matter will come before the court on the basis of certain allegations which have to be used for the purposes of deciding upon the answer to the second and third questions posed above. [at p 115 lines 21-25]

As stated in the ***M"Inlycke*** case (supra), as Mr Chua is the person who is attacking the validity of the patent, he has the burden of showing that no inventive step was involved and it is for him to make out the case of obviousness and prove it by appropriate expert evidence. The defence called two witnesses as experts. They were Mr Tan Meng Kee, a locksmith, and Mr Keith William Callinan, a patent attorney. Mr Callinan agreed that his expertise was in drafting patent claims and that he was not a person skilled in the art of making locks. The only possible expert on this aspect would be Mr Tan.

THE SKILLED PERSON IN THE ART

In his affidavit of evidence-in-chief, Mr Tan described himself as a locksmith and the proprietor of a locksmith firm which he had started four years previously. Before starting the business, he had been a freelance locksmith for about three years during which time he did only opening of locks. Mr Tan stated that a locksmith`s business includes selling, installing, picking locks and advising customers on the types of locks suited to their requirements. He stated that his speciality was breaking open locks or lock picking for customers who had lost their keys. He had worked on a large variety of locks including padlocks, electronic locks and locks for safes. Because of the nature of his work he had to understand each lock in the market in order to appreciate its weakness and the most effective way of breaking it open. He also had to be familiar with different lock designs and mechanisms. Mr Tan asserted that in the course of his work, he had advised some of his suppliers on the weaknesses in their locks and suggested design modifications to overcome such weaknesses.

Mr Ng did not accept that Mr Tan was a person who was skilled in the art of designing and making locks. His counsel pointed out that during cross-examination, it had emerged that Mr Tan had only suggested one modification to overcome a design weakness in a lock. On further cross-examination, Mr Tan had admitted that the single suggestion was actually his brother`s and not his own. Secondly, although in chief Mr Tan had claimed to regularly read trade publications on locks, cross-examination had shown his reading to be severely limited. He admitted that he did not read dictionaries relating to locks or patents and the book on lock making which he had exhibited in his affidavit had been referred to him by Mr Chua`s solicitors for the purpose of his giving evidence for the defence. It was not his own.

Apart from the above cavils, Mr Ng had a more serious objection to Mr Tan`s ability to serve as an expert witness. This was due to the difference between a locksmith and a lock maker. Mr Tan had

differentiated the two occupations by stating that the lock maker produces locks whilst the locksmith sometimes destroys locks. When asked whether he, being a locksmith, was skilled in the art of lock making, Mr Tan replied that he could only design locks but could not make them. Even that reply was not completely accurate in that no evidence was given of Mr Tan`s ability to design a lock apart from his own assertions. Since Mr Tan had never designed or made any lock, Mr Ng submitted that Mr Tan`s experience as a locksmith did not make him a relevant skilled person in this case.

The defence cited the case of **McGhan Medical UK v Nagor** (Unreported) as shedding some light on the qualities of the skilled person. There, RM Fysh, QC, sitting as a deputy High Court judge stated:

> *23 Next, the identity of the addressee of the Patent must be established. This notional person is deemed to possess the common general knowledge of the subject matter in question. It is through the eyes of the skilled addressee that the Patent will fall to be interpreted. And it is by the standards of this person that the question of inventive step is to be judged when this topic is addressed in the counterclaim.*
>
> *24 A patent is addressed to persons who are likely to have a practical interest in its subject matter or to act on the directions given in it for it to be put into practice. The addressee is deemed to be unimaginative and uninventive but is equipped nevertheless with a reasonable degree of intelligence and with a wish to make the directions in the patent work ...*

The essential indicators of a skilled person in the art therefore are such person:

(1) possesses common general knowledge of the subject matter in question;

(2) has a practical interest in the subject matter of the patent or is likely to act on the directions given in it; and

(3) whilst unimaginative is reasonably intelligent and wishes to make the directions in the patent work.

In my view, Mr Tan does not meet all the essential indicators as set out above. His knowledge related to lock design only in so far as it was necessary to ascertain the weaknesses of the lock. He was not likely to act on directions given in the patent nor was he, in the normal course of business, intending to try and make the directions in the patent work. His main interest in examining any patent for a lock would be to find out the vulnerabilities of that lock.

I agree with the submission that the relevant person skilled in the art in this case would be a lock manufacturer and/or designer as such a person would be interested in reading the patent to see how the lock was made and therefore would want to understand its internal workings. A person who was only interested in opening and/or destroying the lock is not the person to whom the patent is addressed nor a person who needs to read the patent. Mr Tan admitted that when he read the patent specification here that was the first time that he had read any patent. Obviously a locksmith does not need to read a patent for a lock to acquire the knowledge he needs to break open that lock. The internal workings of a lock are not his main concern or interest. The defendant had originally intended to call a lock manufacturer from Taiwan as an additional expert. Unfortunately, this person was not able to give evidence due to conflicting engagements. The result is that since I do not

accept that Mr Tan is a person who is skilled in the art of making and designing locks, the defendant has not adduced any expert evidence on the art.

INVENTIVE STEP

The best way of determining whether there is an inventive step is to answer the four questions posed by Oliver LJ in **Windsurfing International Inc v Tabur Marine (Great Britain)** [1985] RPC 59. The first of these questions is what is the inventive step said to be involved in the patent in the suit.

Mr Alban Kang, counsel for the defendant, submitted that there was nothing inventive in the idea behind the Duro lock. For the purpose of the argument, however, he was willing to consider that the patent might include a claim claiming the following idea:

(a) the auxiliary body is held to the main body by an internal screw; and

(b) access to the screw in the auxiliary body is protected by the shackle bar.

Mr Kang submitted that the above was an accurate identification of the `advancement` from the earlier locks in which the screws attaching the two parts were not hidden and could be removed from the outside of the lock. He pointed out that it was also the inventive concept in the Duro lock as identified by the inventor, Mr Chiu. The invention therefore was in essence the use of an internal screw to hold the parts of the lock together and that the screw would be protected by the shackle bar when it was in the locked position.

Mr Kang submitted that this method of holding parts of the lock together was no different from the use of a similar method in some models of Abloy brand locks. In both cases, an internal screw was needed to hold the parts of the lock together and in both cases the internal screw was protected by the shackle bar when in the locked position. He submitted that the Duro lock simply exemplified the new use of a known measure or contrivance and not an inventive step. The use may be somewhat different in the Duro lock in that it is used to hold two parts of the body of the lock together, whereas in the Abloy lock, it is used to hold the key cylinder in place. But whether it is an auxiliary body or a key cylinder, those are basically parts of the lock that are held together by an internal screw protected by the shackle. Counsel also pointed out that Dr Khong, a mechanical engineer called as an expert by Mr Ng, agreed that the design concept of using the shackle bar to protect access to the vulnerable parts of a lock was not a new concept as of the filing date of the patent, 29 May 1998. Mr Kang did not relate his submission to any particular claim of the patent.

Counsel for the plaintiff, Mr Steven Seah, replied that the inventive step in the Duro lock was not as formulated by Mr Kang, and he then referred to the various claims of the patent in order to put forward the inventive steps which he believed each of them embodied. Mr Seah further submitted that it was plain from a reading of the specification, including the claims, that the patent did not claim inventiveness in the method of using an internal screw to hold parts of a lock (though there was inventiveness in the use of screws in series for jamming purposes) or the method of using the shackle bar to protect the internal parts when the lock was locked. Claim 1 had stated that the patentee claimed a lock comprising various integers, not a method of attaching and releasing the auxiliary body or a method of protecting the internal parts of a lock as the defendant had submitted. Mr Seah`s submission was that the inventive step disclosed by claim 1 lies in a padlock comprising a main body and an auxiliary body, which are attachable by a rod that is inaccessible when the padlock is in a locked position. The invention achieves this step by having the features set out in claim 1, as interpreted by the description and the drawings.

Mr Seah went on to submit that in the event the court did not agree with him that claim 1 was not obvious, there were also inventive steps in claims 2 to 6. These inventive steps were, as follows:

(a) claim 2 - in the shackle bar having an aperture;

(b) claim 3 - in the rod having a pin hole and a groove;

(c) claim 4 - in the main body having a threaded hole and an extended stud to secure the main body to the gate;

(d) claim 5 - in the use of a series of screws where the second screw `jammed` the first screw, thereby making it harder but not impossible to disengage the screws; and

(e) claim 6 - in having a lock mechanism in series and dust covers for the cylinder.

I should say straightaway here that as far as the sixth claim is concerned, I do not think any inventive concept is disclosed. All the prior art had lock mechanisms in series and as far as the dust covers are concerned, this seems to me to be an obvious rather than an inventive step. The fourth claim also seems to me to be a workshop improvement rather than a true inventive step.

To identify the inventive concept(s) involved in the patent, one must carry out a purposive construction of the claims of the patent in order to determine their ambit and to determine the characteristics of all items falling within that ambit so as to define the inventive concept possessed by all. See ***Terrell on the Law of Patents*** (15th Ed) at [sect]7.26. The claims have, as indicated by s 113(1) of the Act, to be interpreted in relation to the description and the drawings, if one is to identify the invention to which the claims relate.

The claims of the patent read:

> *CLAIM:*
>
> *1 A door lock comprises:*
>
> *a main body,*
>
> *an auxiliary body coupling with the main body,*
>
> *a shackle bar passing through the main body and the auxiliary body,*
>
> *a lock mechanism disposed in the main body,*
>
> *a lateral cover covering a lateral of the main body,*
>
> *an outer casing enclose the main body,*
>
> *a side cover covering a side of the auxiliary body,*
>
> *an outer housing enclosing the auxiliary body,*
>
> *a rod disposed between the main body and the auxiliary body, and the lock mechanism comprising an upper cylinder and a lower cylinder disposed in the*

main body in series.

2 A door lock as claimed in claim 1, wherein the shackle bar has a distal end, an annular recess, and a round aperture.

3 A door lock as claimed in claim 1, wherein the rod has a pin hole and a groove.

4 A door lock as claimed in claim 1, wherein the main body has a recess hole receiving the shackle bar, a blind hole receiving the rod, a periphery recess, a threaded hole receiving an extended stud, a pin hole receiving a pin, a through aperture, and a through hole.

5 A door lock as claimed in claim 1, wherein the auxiliary body has an upper hole, a lower hole, a periphery groove, and an extended aperture receiving a first stud and a second stud in series.

6 A door lock as claimed in claim 1, wherein the lock mechanism comprises an upper cylinder and a lower cylinder disposed in the main body in series, a coiled spring and a drive key disposed in the through hole, a compression spring and a driven key disposed in the through aperture, a helical spring and a push key disposed in the recess hole, a block blocking the push key, the upper cylinder having a hollow interior and a semicircular protrusion having an insertion channel, the lower cylinder having a semicircular lobe, a reinforced casing enclosing the semicircular protrusion, and a dust proof device having a flexible plate and two elastic elements inserted in the hollow interior of the upper cylinder, and an outer cover covering the upper cylinder.

Mr Kang spent a lot of time criticising the drafting of the claims and indeed I agree that they could have been better drafted so as to indicate not only the mechanical parts of the lock but also how these parts worked in conjunction with each other. For the purpose of interpreting the claims to find the inventive step, however, it does not matter if the wording of the claim is slightly lacking as long as one can by reference to the description and the drawings work out what the claim means. In this case, having heard the evidence and read the patent, I agree with the submissions of Mr Seah in relation to the inventive steps disclosed by claims 1, 2, 3 and 5.

The next issue is what the state of the art was as at 29 May 1998, the date on which the patent application was filed. For this one must go back to the early 1990s and the account that follows is based on the evidence of both Mr Ng himself and Mr Tan, the defendant`s `expert`. At that time, locks or padlocks used in the Singapore market were made with one body. The evidence was that a lock with one body is safer than one that has two bodies. The disadvantage of the one-body padlock, however, is that it cannot be affixed permanently to a metal gate and therefore unlocking it requires the use of two hands. A two-bodied lock can, when disassembled, be affixed to the gate and assembled on the gate so that it remains there permanently whether locked or unlocked and can be unlocked by the use of one hand alone. For such a lock to be marketable, however, the gates have to be of a standard shape and size. Since most households in Singapore are HDB flats with gates following standard dimensions set by the HDB, Mr Ng and his friends realised that there was a demand that justified the development of a two-bodied lock.

The two-bodied Rigoh lock was introduced to the Singapore market for use on HDB gates in 1993. The two parts of the lock were held together by means of a bolt which could be accessed externally. The Rigoh lock was well received and other brands adopting its design followed, such as Crown and Armstrong. The only difference was that in the Rigoh lock, the head of the bolt was broken after the lock was mounted on the gate so that it was not possible to extract the bolt thereafter without breaking the lock. Whilst locks of these other brands used screws which could be disengaged instead of bolts, such disengagement also involved breaking the locks. Plugs were used to cover the bolt and screws. The Rigoh lock and its followers were specifically made for the Singapore market since their dimensions fit only gates which have the same specifications as the HDB gates. Outside Singapore it would be difficult to market such locks since they cannot be used on gates with different dimensions.

The situation as at May 1998 was therefore that there were two types of locks which could be used as padlocks. On the one hand there were the Singapore specific two-bodied padlocks which had the features described above. On the other, there were the conventional one-bodied padlocks which were found not only in the Singapore market but all over the world. Mr Kang when referring to the prior art referred both to the two-bodied locks and to one specific model of the one-bodied padlock, the Abloy PL 260. This lock is obviously different from the Duro lock in that it is a one-bodied lock. Thus, the features of outer casings and lateral covers for the main body and the auxiliary body are missing as, necessarily, is the feature of a rod disposed between the two bodies. The similarity between it and the Duro lock, if any, is in the use of an internal screw for the purpose of attaching the lock mechanism to the body. In the Duro lock, screws in series are used to jam the rod within the auxiliary body.

The third question I have to answer is: in what respects do the inventive steps in the Duro lock go beyond or differ from the state of the art as found above?

The Duro lock has features which were not found in the previous two-bodied locks. It has an outer casing and lateral cover for the main body, an outer casing and lateral cover for the auxiliary body, and a rod disposed between the main body and the auxiliary body. It also has a shackle bar passing through the auxiliary body and into the main body and two screws inside the auxiliary body which screw into the rod disposed between the main body and the auxiliary body so that the two are held together. Access to these screws is through a hole in the auxiliary body. When the shackle bar is in the locked position, it covers the hole in the auxiliary body and it is impossible to access the screws in order to unscrew them and free the rod.

The only features which are shared by the prior Rigoh-type locks and the Duro lock are the two bodies and the shackle bar that passes through the auxiliary body into the main body and the lock mechanisms disposed in the main body and operated by a key. The Duro lock differs from the prior art in the way that the auxiliary body is attached to the main body, the addition of features to protect the rod, the disposal of screws in series within the auxiliary body in order to create a jamming effect and the use of the shackle bar to protect access to these screws. It differs from the Abloy lock in that it has two bodies, it has a rod, it has the lateral covers and outer casing and it has two screws in series rather than only one screw for the purpose of holding the rod inside the auxiliary body.

The next issue is whether having regard to the development or differences pointed out whether the taking of these steps would be obvious to the skilled man. As stated, a padlock is usually made with only one body and the prior locks sold in the Singapore market were the only ones made with two bodies. Mr Ng thought that the prior locks were not secure as one could remove the plugs by a hand-held drill in five minutes, thereby exposing the bolt or screws. Mr Tan agreed that removal took five minutes though he testified that no one in the trade thought this was a weakness. Perhaps as a locksmith, he found it useful that removing the plugs was not unduly difficult to do. Mr Ng, however,

considered the existing method of attachment a weakness and was motivated to find a solution to it. The solution was the Duro lock with the features as claimed. The Duro lock did fulfil Mr Ng`s security concerns. Although Mr Tan asserted in court that he had easily broken into the Duro lock, when he was asked to demonstrate, it took him more than 20 minutes of drilling with an electric drill and several changes of drill bit to drill through the lock and open it. It was also a noisy process and not one that would recommend itself to a thief trying to obtain stealthy access to a locked flat for nefarious purposes.

Nothing in the prior art suggested using a rod to attach the two bodies to each other nor that the rod should be protected inside the main body and auxiliary body by way of an outer casing and a lateral cover. The original Rigoh lock had used a bolt to attach the two bodies together and the imitators had replaced the bolt with screws. Both implements were, however, accessible from the outside since they were only covered by plugs and neither had the additional protection of an outer casing or a lateral cover. The common knowledge on two-bodied locks was evidenced by this prior art and I agree with Mr Seah`s submission that there was nothing in this common knowledge to direct the unimaginative person skilled in the art to the rod and the features for protecting it. I further agree that until one had decided on the use of a rod as the attaching implement, one would not be likely to think of the other features in claims 2, 3 and 5 and that these features were therefore not obvious.

Mr Kang submitted that there was no invention in having a rod disposed between the two bodies. He referred to the evidence of Dr Khong who stated that he did not find any inventive step when he read claim 1 alone. Dr Khong did, however, identify the invention as being the mechanism of joining, connecting and securing the main body and the auxiliary body through the rod and the method of protecting the rod. In any case, the inventive step in claim 1 can be discerned when the claim is read in the light of the description and the drawings and I do not accept that if you cannot find an inventive concept by reading a claim on its own, the patent is bad. Section 113 of the Act is opposed to such an exclusive reading. Mr Kang also argued that it did not take Mr Chiu very long to come up with the ideas embodied in the Duro lock and therefore they could not have been inventive steps and were probably simply mechanical contrivances. I do not think degree of inventiveness is to be measured by the time taken to come up with a new concept. Sometimes this takes a while and at other times, one can have a flash of inspiration and come up with a new idea in a jiffy.

It is also my opinion that the Abloy lock would not have directed an unimaginative person to the features found in the Duro lock. As a one-bodied padlock, the Abloy lock would not be secured to a gate in the same way as the patented lock. Like other padlocks, it would have to be used on loops found on the gate and could not be attached directly to it. Hence, the development of a two-bodied lock would not be obvious to a skilled person who was looking at the Abloy padlock. According to the evidence, a European patent has been applied for in respect of this model of Abloy lock and the purported inventiveness in the lock lies in having a lateral cover that shields the key cylinder from access. This is not a feature found in the Duro lock. Further, the Abloy lock was not developed to solve the weaknesses in the Rigoh-type locks. Thus, it would not have been obvious to a person looking at that lock to develop the features that are found in the Duro lock. I note also that the patent for this Abloy lock was one of the prior art cited to and distinguished by the examiner when the plaintiff`s patent was applied for.

As an additional ground for refuting the defence of obviousness, Mr Ng relies on the commercial success of his lock. He proudly claims that he achieved sales of more than $1m during the 15-month period between July 1998 and October 2000. Mr Ng also gave evidence that he had himself carried out informal surveys of some HDB blocks and that the last of these in the first half of 2000 showed that his lock had captured 40% of the market. Further, after he launched Duro, some of the other brands gradually disappeared from the market, for example Crown and Armstrong, and this was

despite the fact that the Duro sold for double or more than double the price of the Crown or Armstrong lock. Then in April 2000, Mr Chua launched the Castle lock which he openly admitted had been copied from the Duro lock. This lock is also being sold at a price well above the prices of the Crown or Armstrong locks though its price is somewhat lower than the Duro lock`s.

Mr Kang does not accept the evidence of commercial success put forward on behalf of Mr Ng. He pointed out that the sales figures were based on an audit done by the firm of Sim Teo & Associates. He considered the audit report to be suspect since it was signed by one Ms Sim who did not come forward to testify as to the accuracy of the report. One Ms Chua testified that she had done the audit work and confirmed that contents of the report were true. She had not signed the report, however, presumably because Ms Sim was the partner and not Ms Chua. Mr Kang did not think that Ms Chua could be regarded as a truthful witness because she said that there had been no prior relationship between her firm and Mr Ng`s companies before the preparation of the report. Subsequently, she was confronted with a search from the Registries of Companies showing that Sim Teo & Associates was the auditor of a company called Duro International Pte Ltd owned by Mr Ng. Mr Kang found Ms Chua`s response that her previous answer had been true because no audit had yet been performed for Duro International Pte Ltd to be unconvincing. I am not convinced that Ms Chua is a liar simply because of this, at the most, technical, untruth. Ms Chua did the audit. She was not shaken on her mode of audit or on its results and I consider those results to have been proved.

Even if the plaintiff`s evidence regarding his market share is self-serving and unsubstantiated since he did not produce any records of his surveys (if he had, Mr Kang might have insinuated that he had made them up), the figures as shown in Ms Chua`s audit established that, despite its higher price, the Duro lock has been reasonably successful in the market. Some of this may be due to the advertising gimmicks which Mr Ng frankly admitted he had adopted in order to build up brand awareness and market share. In my judgment, however, the sales figures of the Duro lock cannot be credited to clever advertising alone, especially since the product advertised cost much more than the competing and well-established products already in the market. Whilst commercial success is not conclusive of the non-obviousness of the invention, the success of the Duro brand to the extent that it has replaced some of the brands of prior art does, as submitted by Mr Seah, go some way towards establishing the invention is not obvious.

On this issue, I conclude in favour of the plaintiff.

Has there been an enabling disclosure?

(1)LAW

Section 25(4) of the Act states that:

> *The specification of an application [for a patent] shall disclose the invention in a manner which is clear and complete for the invention to be performed by a person skilled in the art.*

This is reinforced by s 80(1)(c) which allows a registrar to revoke a patent for invention on the ground that its specification does not disclose the invention clearly and completely for it to be performed by a person skilled in the art. Under s 82(1) and (3) the validity of a patent may be put in

issue by way of defence in proceedings for infringement of the patent and the only grounds on which this can be done are the grounds specified in s 80(1) for the revocation of the patent.

Several cases have discussed the approach to be taken by the court in determining the `sufficiency` of the specification. Relevant passages from two are cited in the following paragraphs of [sect]7.48 of ***Terrell*** :

> *The general principles by which the "sufficiency" of the specification should be determined were stated by Lindley L.J. in* ***Edison and Swan Electric Co. v Holland*** *in the following way:*
>
> *"... in describing in what manner the invention is to be performed, the patentee does all that is necessary, if he makes it plain to persons having reasonable skill in doing such things as have to be done in order to work the patent, what they are to do in order to perform his invention. If ... they are to do something the like of which has never been done before, he must tell them how to do it, if a reasonably competent workman would not himself see how to do it on reading the specification ..."*
>
> *As Lloyd L.J. said in* ***Mentor Corp. v Hollister Inc****.:*
>
> *"The question for decision in the present case is whether the specification discloses the invention clearly enough and completely enough for it to be performed by a person skilled in the art. This obviously involves a question of degree. Disclosure of an invention does not have to be complete in every detail so that anyone, whether skilled or not, can perform it. Since the specification is addressed to the skilled man it is sufficient if the addressee can understand the invention as described and can then perform it. In performing the invention the skilled man does not have to be told what is self evident or what is part of common general knowledge that is to say what is known to persons versed in the art. But the difficulty. How much else may the skilled man be expected to do for himself?"*

Terrell advises in [sect]6.31 that the construction of the specification is for the court alone when properly instructed as a notional skilled addressee. The court is not obliged to accept the construction placed on the claims by either of the parties. Further, the observation of Jacob J in **Minnesota Mining & Manufacturing Co v Plastus Kreativ** [1997] RPC 737 at 743 that the words are to be construed having regard to the inventor`s purpose as set out in the rest of his patent must be remembered. This is reinforced by Aldous J`s directive that the reader must attempt to give the specification a practical meaning as contained in the following passage from **Rediffusion Simulation v Link-Miles** [1993] FSR 369 at 388:

> *There is seldom a case where a person, who is asked to look at every word of a specification to try to destroy it, cannot make out a case of potential ambiguity. That is not the correct approach. The specification should be read through the eyes of the skilled addressee attempting to give it practical meaning and endeavouring to ascertain the intention of the draftsman. I believe that the defendant`s reluctance to accept the word `centre` is clear and means the physical centre has been the result of an attempt to take the specification apart word for word and destroy it rather than trying to give it a practical meaning.*

It must also be remembered that the burden of proving insufficiency rests on the defendant since he is challenging the validity of a registered patent.

There is one small point here which I should dispose of before dealing with the defendant`s submissions on the merits. This relates to what level of description is required under ss 25(4) and 80(1)(c). The wording requires the specification to disclose the invention `clearly and completely` for it to be performed. The equivalent English wording is `clearly and completely enough`. Mr Kang submitted that the requirement of the UK Act is more lax and that the Singapore requirement is stricter so that the specification must be clear and complete. I do not agree. Although the word `enough` does not appear in the Singapore provisions, the phrase `clear and complete` is not an unqualified one in either of those sections. Instead, it is followed by the words `for it to be performed by a person skilled in the art`. This is a clear qualification implying that as long as a person skilled in the art would find the wording of the specification sufficient to enable him to make the invention, it does not matter that the specification does not state every single step that has to be followed in order to make the invention. Thus, the clear meaning of the legislation taken as a whole is that it is sufficient if the specification is clear enough and complete enough and absolute clarity and completeness are not required.

(2)DEFENDANT`S SUBMISSIONS

Mr Kang submitted that the patent specification did not disclose the invention sufficiently and completely enough for it to be performed by a person skilled in the art as required by s 25(4). The defence case on this point is that the specification failed at two levels:

(a) first, that the single embodiment described in the specification is not clear and complete to enable a skilled person to work the invention; and

(b) assuming that the single embodiment is sufficiently described, the specification also fails because the disclosure of the single embodiment (in the description) does not sufficiently enable a skilled person to perform the invention as defined in the claims.

First ground of insufficiency: (i) Disengagement of the two bodies

On the first point, the submissions for the defence went as follows. First, the invention relates to a lock that can be taken apart and reassembled, and the `inventive step` lies in how the stud holding the auxiliary body is protected when the shackle bar is in the locked position. It is only when the shackle bar is in the locked position (and the screws are protected) that the stated object of the invention is achieved: protecting the auxiliary body when the door lock is locked.

The physical example of the Duro lock produced in court showed that the two bodies can be detached so as to be able to mount the lock onto the gate. The problem with the patent specification, however, is that its teaching is that of a lock which cannot be taken apart. The patent specification does not describe the function of how the screws 23 and 24 (in the patent, these are called studs) in the auxiliary body are protected by the shackle bar. In fact, it suggests that the two bodies of the lock cannot be detached, further suggesting that the two bodies are permanently assembled and cannot be taken apart by the user. This understanding of the patent specification is derived from the statement `The first stud 24 and the second stud 23 cannot be detached from the outside.` which appears at the last line of the fourth page of the patent. Mr Kang submitted that if screws 23 and 24 cannot be detached from the outside, the logical assumption is that it would not be possible to detach the two bodies from each other in order to mount the lock onto the gate. He also

relied on Mr Tan`s evidence on how he interpreted that sentence in the patent.

Mr Kang also submitted that the description in the specification read together with the drawings would lead a person skilled in the art to conclude that the bodies could not be taken apart. In this respect, he relied on a passage from the re-examination of Mr Chiu where Mr Chiu had apparently admitted that there was nothing in the diagram to teach one how to make the lock and that he had had difficulty understanding the drawings. This passage was, however, quoted out of context. The difficulty that Mr Chiu expressed was in relation to the Abloy lock and diagrams for it and not in relation to the Duro lock. In that passage of the re-examination, Mr Chiu was being asked about the Abloy lock alone. He was not commenting in any way on the diagrams relating to the Duro lock.

The invention was intended to allow the user to detach the two bodies and mount them on the gate. Mr Kang`s submission was that the specification read with the drawings gives the opposite impression, ie that the two bodies cannot be taken apart. Therefore, the description is not clear and complete for a person skilled in the art to perform the alleged invention.

The above argument was somewhat different from that pleaded. The pleaded particulars of insufficiency read:

> *The alleged invention relates to a "door lock which can protect an auxiliary body from detaching while the door is locked". It is not possible to perform the alleged invention to achieve the stated objective in that there is no disclosure in the body of specification how the "auxiliary body" can be protected "from detaching while the door is locked". Further or alternatively, it is not disclosed clearly and completely in the specification of the Patent to show how the alleged invention is performed to achieve this stated objective.*

From the above, it can be seen that the argument on insufficiency related only to the stated objective of preventing the auxiliary body from being detached from the main body while the lock was in the locked position. The particulars said that it was not possible to perform the alleged invention to achieve this objective of preventing detachment because the specification did not disclose how the auxiliary body was to be protected from detachment. The particulars did not specify that the specification was inadequate because the description did not show how the two bodies were to be disengaged in order to achieve the mounting of the lock onto a gate nor did they allege that the description in fact gave the opposite impression, ie that disengagement was not possible since the two screws could not be accessed from the outside.

Mr Seah submitted that since the particulars of the objections did not expressly or even implicitly allude to the alleged difficulty in disengaging the auxiliary body from the main body, I should disregard that objection. He quoted **Alsop Flour Process v Flour Oxidizing Co** [1908] 25 RPC 477 where the English Court of Appeal refused to entertain an objection that was not mentioned in the particulars of objection and **British United Shoe Machinery Co v A Fussell & Sons** [1908] 25 RPC 631 where the court refused to admit evidence on matters which the defendant had not set forward as an objection in the particulars.

In his reply to the above point, Mr Kang shifted ground. He said that the patentee had stated the objective as being `to protect an auxiliary body from detaching while the door lock is locked`. The defendant`s position was that the specification did not teach how one achieved the stated objective. The physical product (Duro lock) shows that this is achieved by using a shackle bar to protect screws 23 and 24; and that aperture 103 had to be aligned with through aperture 25 (ie in the unlocked

position) before screws 23 and 24 could be detached. None of that was disclosed in the patent specification and the defendant`s pleaded objection that the specification did not disclose how the auxiliary body could be protected from detaching while the door is locked clearly encompassed the objection.

Mr Kang went on to contend that:

(a) the specification is silent on whether the main body and the auxiliary body can be detached;

(b) the specification is silent on how this detachment (if possible) and reattachment can be achieved;

(c) there is a clear direction that screws 23 and 24 cannot be detached from the outside; and

(d) fig 6 shows the cross-sectional view of the lock and this is the only longitudinal cross-sectional view showing all through holes that are present in the lock. Aperture 103 is not indicated at all or as a through hole.

The submission was that the above afforded a very reasonable basis for the defendant`s contention that it was not clear how the invention was to be performed to achieve the stated objective - the use of the shackle bar to block access to the internal studs and permitting access only when in the unlocked position. How could the specification be clear, he asked when the plaintiff could not explain why the statement `stud 23 and stud 24 cannot be detached from the outside` is included in the specification.

Thus, at the end of the day, the objection relating to the statement regarding screws 23 and 24 was subsumed in the main objection relating to the stated objective of the lock which was to protect the auxiliary body from detaching while the door lock is locked. It was not put forward as a separate objection relating to the inability to mount the lock on the gate. As such, I will deal with it in relation to the main objection. I will not deal with it in relation to the assertion that a skilled person would not know how to achieve the invention in that he would be misled by the statement on the two screws into thinking that the two parts could not be detached from each other and therefore would not be able to work out how the mounting would take place. As regards that assertion, it is not pleaded as such and therefore cannot form part of the defendant`s case.

(ii)How is the stated objective achieved?

I now go back to the defendant`s first ground on insufficiency, viz that the specification describing the single embodiment of the invention is not clear and complete to enable the skilled person to work the invention in that it does not show how the auxiliary body is protected from detachment when the lock is in the locked position. The plaintiff`s response to this objection is that achieving the stated objective would be evident to a skilled person from the description and drawings. Such a skilled person would have within his knowledge the following:

(a) the prior Rigoh, Crown and Armstrong locks;

(b) the use of an Allen key to disengage screws; and

(c) (at least according to the defendant) the use of an internal screw to hold part of a lock.

Construing the description and the drawings in order to ascertain the inventor`s purpose, with the view to giving the patent a practical meaning and not destroying it, it is clear from the description

and the drawings that the objective of the patent as stated above is achieved by having a rod in place of the screws or bolts found in the prior art. The rod is disposed between the main body and the auxiliary body in the manner shown in figs 3 and 6. The rod is attached to the main body by means of a stud at pinhole 18 and to the auxiliary body by means of a screw 24 engaging groove 202. To detach the auxiliary body from the main body, one has to disengage screw 24. This means also disengaging screw 23 which lies immediately above screw 24 in the auxiliary body. Both screws are inserted into the auxiliary body through hole 25 and when the padlock is in the locked position, hole 25 is blocked by the shackle bar and the auxiliary body cannot be detached since the shackle bar makes it impossible for anyone to access screws 23 and 24.

Mr Tan testified that he was able to understand from the specification how the objective is achieved but only after he saw the Duro lock as the physical embodiment of the specification and the instructions given for the use of the Duro lock. Mr Tan did not, however, identify what it was that he saw in the Duro lock and the Duro instructions that he could not find in the specification. Further, Mr Tan`s evidence that he could not understand from the specification alone how the objective was achieved does not undermine the plaintiff`s case in view of my finding that Mr Tan is not a person who is skilled in the art of lock making.

As Mr Seah submitted, when the Duro lock is compared with the specification, it is clear that the Duro lock is the physical embodiment of the lock illustrated in the drawings. In fact the drawings show more than could be seen from an examination of the physical lock alone as many of them give exploded perspectives of the parts of the lock and fig 3 gives an exploded perspective view of the entire lock. The Duro instructions are meant for customers, not the skilled person. The skilled person needs less explicit instructions since he can be expected to do some trial and error in the workshop while trying to perform the invention. Even so if the Duro instructions are compared with the specification, the only thing that is shown in the instructions that is not found in the specification is the use of the Allen key. This, however, is a matter within the common general knowledge of lock makers and need not be stated in the specification.

The physical embodiment in the shape of the Duro lock and the Duro instructions may make it easier for even an unskilled person to understand the specification but the issue is whether it would require any invention on the part of the skilled person to perform the invention without the physical embodiment and the accompanying instructions. No evidence was adduced by the defendant to establish that the skilled person would need to exhibit any inventive ingenuity in order to perform the invention.

The invention is a simple mechanical device. A person skilled in the art of making locks should be able to work out the invention even though not everything is stated in the specification. Looking at the defendant`s criticisms detailed in [para]58 above, it seems to me irrelevant that the specification does not say expressly that the main body and the auxiliary body can be detached from each other or explain how the detachment and reattachment can be achieved. The skilled person would start from the premise, based on the prior art, that the invention is a two-bodied lock. He would know from the drawings that the lock was constructed with separate bodies and that these would have to be attached to each other in some way. If he worked his way through the description with the aid of the drawings, he would be able to work out how the attachment takes place and that this attachment is not a permanent attachment (no welding is required to effect it) and that the method of attachment would, in reverse, be the manner of detachment.

The third point mentioned was the statement in the specification that `the first stud 23 and the second stud 24 cannot be detached from outside`. The existence of that statement is the basis of the defence`s contention that the specification shows a lock with an auxiliary body that cannot be

detached from the main body. The statement does not, however, say expressly that the auxiliary body is permanently attached to the main body. The defendant has drawn an inference from the reference to the screws being not detachable from the outside. Whilst that inference might be permissible if there was nothing else in the specification, the specification is much longer than that and it is wrong to read the sentence in isolation without reading the rest of the specification to ascertain the inventor`s intention, and to give it a practical meaning as opposed to destroying it. When the specification is read as a whole together with the common general knowledge, it is clear that the main body and the auxiliary body are not intended to be permanently attached to each other. The prior art would have told a skilled person that such two-bodied locks are designed to have the two bodies detachable so that the locks can be secured to the gates. This is a matter within the common general knowledge and as such need not be stated in the specification. Once the purpose of having two bodies is understood, the skilled person would never conclude that the two bodies are permanently attached to each other as this would defeat such purpose. The skilled person would know the reason why, in the Singapore market, the two-bodied lock had been promoted as more suitable and convenient than the standard and safer one-bodied padlock.

The fourth point was built around aperture 103 and the failure, as the defence saw it, of the drawings to indicate that aperture 103 is a through hole. The defendant contended that because of this, the skilled person would conclude that the two bodies were permanently attached to each other. Mr Seah`s response was that it is clear from figs 2, 3, 6A and 7A that aperture 103 is a through hole. If it was not the case, why bother to align aperture 103 with hole 25? If aperture 103 is only a recess hole, the alignment serves no purpose. Mr Seah also submitted that, logically, the skilled person would first determine the overall design intent of having two bodies before looking at details like aperture 103. In determining the overall design, he would have known from the prior art that the main body and the auxiliary body are detachable and then, in trying to give the specification a practical meaning, he would perceive aperture 103 as a through hole. Further, it was not correct to simply look at fig 6 and interpret the nature of aperture 103. To do this one has to look at fig 3 and fig 7A as well. I accept the plaintiff`s submission on this point. It is logical and aimed at making the specification work rather than at destroying it. Further, Mr Chiu testified that if he were shown the drawings attached to the patent specification, he would, as a lock manufacturer, have been able to produce an article in accordance with those drawings. He believed that any lock manufacturer would have been able to do the same. The defendant had no evidence from a skilled person to contradict that assertion on the part of Mr Chiu who was the only skilled person to testify. I therefore reject the first submission made by the defendant on insufficiency.

(iii)Second ground of insufficiency

Mr Kang submitted that the specification does not provide an enabling disclosure to work the full extent of the invention in each of the claims. He said that the entire description disclosed a single embodiment of the invention and the claims were derived from parts of this description and pointed out that when he had asked Mr Chiu whether the inventive step was described in claim 1 or in all the claims together, Mr Chiu had replied that it was described in the whole document. Counsel then went on to submit that the inventive steps were not found in the individual paragraphs of the description. The whole thing had to be read together. Each of the claims of the patent sought to claim a part of the embodiment of the invention and one could therefore not work the inventions in the individual claims as one should be able to. Mr Kang also analysed each of the claims in detail in order to support his point that there was no disclosure in each such claim to enable a person who was skilled in the art to perform the invention in it. He said that, for example, looking at the broad features in claim 1 one could not achieve the stated objective. There was no disclosure in the description to teach this without the additional features in claims 2 to 6. Those additional features even if combined were not the complete integers necessary to work the invention as described. In order to describe the

invention sufficiently clearly, the claim should include references to the following parts of the drawings and set out their functional relationships.

The plaintiff`s response was that this ground was not pleaded and hence should not be heard. He contended he would be prejudiced as he had not been given time to review the ground and to adduce the evidence necessary to meet it. Mr Kang in his reply on this issue took the stand that his pleading was adequate. He referred to the portion of his particulars which read `Further or alternatively, it is not disclosed clearly and completely in the specification of the patent to show how the alleged invention is performed to achieve this stated objective`. Counsel contended that the word `invention` in that pleading could only mean invention as defined in the specification which included the claims. The description was to enable the invention as defined in the claim to be performed and the plaintiff could not complain if he had not asked for further and better particulars from the defence as to why it had said that the specification did not disclose how the alleged invention was performed.

Reading the defendant`s pleading it appears to me to be inadequate to justify the extended criticisms which Mr Kang levelled against the description in relation to each of the claims. It is worthwhile reproducing the `particulars` in full. They read:

> *The alleged invention relates to a "door lock which can protect an auxiliary body from detaching while the door is locked". It is not possible to perform the alleged invention to achieve this stated objective in that there is no disclosure in the body of specification how the "auxiliary body" can be protected "from detaching while the door is locked". Further or alternatively, it is not disclosed clearly and completely in the specification of the Patent to show how the alleged invention is performed to achieve this stated objective.*

The first sentence of the particulars contains a description of the alleged invention and its objective. The second sentence contains the assertion that it is impossible to perform the invention to achieve the objective because of a lack of disclosure. Looking at the third sentence, the sentence in issue, its meaning does not appear radically different from that of the second sentence in that it states that the specification does not disclose clearly and completely `how the alleged invention is performed` to achieve the objective. Instead of adding material it repeats the original criticism. In my judgment, it cannot be implied from this sentence that the defendant was in fact alleging that the description of the patent was inadequate to enable the skilled person to perform the invention disclosed in each of the claims. I do not think it is an answer to the plaintiff`s criticism of the pleading to say that the plaintiff should have asked for further and better particulars. No one reading the sentence would have thought that any further and better particulars were required since the third sentence appeared to be only a repetition of the second.

I therefore accept the submission made by Mr Seah that the court should not entertain the defendant`s arguments on the assertion that the description does not enable the person skilled in the art to perform the various claims. This ground must therefore fail.

Other objections on the validity of the patent

During the course of the proceedings, Mr Kang mounted a strong criticism of the drafting of the individual claims. First he argued that they did not disclose any inventive concept. That is an argument that I have already considered above in connection with the issue of obviousness. Secondly, he made the point that the claims were not clear and concise and were not supported by

the description because they did not indicate how the invention would work and how the components interacted with each other. Mr Seah objected to the second point on the basis that it was not pleaded and also that it was in effect an allegation that the claims did not comply with s 25(5) of the Act.

Section 25(5) is part of the section laying down the requirements of a patent application. Subsection (5) deals specifically with the claims and it requires that these meet the following criteria:

(a) that they define the matter for which the applicant seeks protection;

(b) that they be clear and concise;

(c) that they be supported by the description; and

(d) that they relate to one invention or to a group of inventions which are so linked as to form a single inventive concept.

There was at one point a legal argument as to whether the failure of the claims to comply with the criteria in s 25(5) would, after registration of the patent, be a ground for revocation. At one stage, Mr Kang appeared to be putting forward the position that such failure would allow for revocation. The law, however, has come down firmly in favour of the opposite position.

As stated, s 25 has to be referred to at the very first stage in the patent process, ie the stage at which a patent application is prepared and filed. Once the patent has been granted, it remains valid for its legal term unless revoked by the Registrar of Patents or the court. The grounds on which such revocation may be made are set out exclusively in s 80 of the Act. It has been judicially commented, for example, in the ***M"Inlycke*** case (supra) that the statutory code set out in the Act is a complete code and therefore one can only have reference to the Act in order to determine the grounds for revoking a patent. This does not mean looking at the whole Act but only at s 80 itself since, as the words of sub-s (1) make clear, the revocation of a patent may take place `on (but only on) any of the following grounds ...` and this is followed by sub-s (1)(a) to (g) which set out the complete and only grounds of revocation of a patent. Thus, if a party is asking for the revocation of a patent he must establish circumstances falling within any of s 80(1)(a) to (g). If he cannot do so, the request for revocation must fail.

As regards the claims, the law is that non-compliance with s 25(5) is a ground for rejection of the patent application but not a ground for revoking the patent once granted. In **Genentech Inc`s Patent** [1989] RPC 147, Mustill LJ as he then was, commented on the effect of s 25(5) (the UK s 14(5)) and s 80(1) (the UK s 72(1)). There the claims had been challenged on various grounds including that they did not relate to inventions and that they were not supported by the description in the specification and therefore did not comply with the UK s 14(5). Mustill LJ observed:

> *I now turn to the claims themselves, beginning with those numbered 2 and 4. In company with all the other claims except claim 9, these were struck down by the learned judge on the second of the grounds just stated, namely that they were not supported by the description, and hence failed to comply with section 14(5).*
>
> *If I had thought that the learned judge had jurisdiction to take this course I would have agreed with his conclusion, and with the whole of his reasons for it, which I need not repeat. I now consider it clear that this is a patent which should not have been granted, at least in its present form. In saying this I*

intend no disrespect to the Patent Office, for we have had the advantage, denied to the examiner, of sustained and skillful adversarial argument, together with the invaluable assistance of a renowned authority, to help us in the penetration of an outstandingly difficult technology. Nevertheless, the application did not comply with section 14(5)(c), and should have been rejected.

Common sense would suggest that the matter now can and should be put right. Unfortunately this is not so. My Lords have already given the reasons, in terms with which I respectfully agree. The opening words of section 72(1) are simply too strong to enable the court, as guardian of the public interest, to assert an inherent power to revoke a patent on grounds not expressly conferred by the statute. This is a conclusion which I much regret, for it erects an obstacle not only to the trial judge`s route, but also to other grounds of objection which, as I shall suggest at a later stage, I also believe to be intellectually sound. [at pp 260-261]

The other judges of the Court of Appeal in the ***Genentech*** case agreed with Mustill LJ on this point and it was unanimously held that s 14(5) of the UK Patents Act was not a ground for invalidating a patent. The effect of this decision is that a patent cannot be invalidated on the ground that there is no subject matter and no patentable invention merely because the claims had been framed too widely.

It would be noted from the extract from Mustill LJ`s judgment above that the judge was not happy with the decision which he had perforce to come to by reason of the wording of the statute. He thought it unfortunate that a patent could not be revoked even though it was later established that the claims did not comply with the statutory requirements. The House of Lords had, however, an opportunity to explain this seeming inconsistency within the statute. This was done in **Biogen Inc v Medeva plc** [1997] RPC 1, an action for infringement of a patent.

The relevant passage appears in the judgment of Lord Hoffmann at p 47. He said:

The concept of an enabling disclosure is central to the law of patents. For present purposes, it touches the matters in issue at three different points. First, as we have seen, it forms part of the requirement of "support" in section 5(2)(a). Secondly, it is one of the requirements of a valid application in section 14. And thirdly, it is essential to one of the grounds for the revocation of a patent in section 72. I shall start with section 14. Subsection (3) says:

"The specification of an application shall disclose the invention in a manner which is clear enough and complete enough for the invention to be performed by a person skilled in the art."

*This is plainly a requirement of an "enabling disclosure". In addition, subsection (5)(c) says that the claim or claims shall be "supported by the description". It was by reference to subsection (3) that Lord Oliver of Aylmerton, who gave the leading speech in **Asahi**, reasoned at page 536 that a description would not "support" the claims for the purpose of subsection (5)(c) unless it contained sufficient material to enable the specification to constitute the enabling disclosure which subsection (3) required: "the Act can hardly have contemplated a complete application for a patent lacking some of the material necessary to sustain the claims made". By parity of reasoning, he said that "support" must have the same meaning in section 5(2)(a).*

The absence of an enabling disclosure is likewise one of the grounds for the revocation of a patent specified in section 72(1). Paragraph (c) says that one such ground is that -

"the specification of the patent does not disclose the invention clearly enough and completely enough for it to be performed by a person skilled in the art."

This is entirely in accordance with what one would expect. The requirement of an enabling disclosure in a patent application is a matter of substance and not form. Its absence should therefore be a ground not only for refusal of the application but also for revocation of the patent after grant. Similarly, the same concept is involved in the question of whether the patent is entitled to priority from an earlier application. This is not to say that the question in each case is the same. The purposes for which the question is being asked are different. But the underlying concept is the same.

*The explanation of section 14(5)(c) in **Asahi** seems to me to provide an answer to a point which puzzled the Court of Appeal in **Genentech Inc.`s Patent** (Unreported) The court noted that although section 14(5)(c) is a statutory requirement for a valid patent application, non-compliance is not a ground for revocation of a patent which had been granted. Section 72(1) states exhaustively the grounds upon which a patent may be revoked. These grounds do not, as such, include non-compliance with section 14(5). But the substantive effect of section 14(5)(c), namely that the description should, together with the rest of the specification, constitute an enabling disclosure, is given effect by section 72(1)(c). There is accordingly no gap or illogicality in the scheme of the Act.*

It can be seen that the ***Biogen*** decision upheld the finding in ***Genentech`s*** case. Thus, no argument can be made that non-compliance with s 25(5) is a ground for revocation. It would not therefore, be a ground for revocation if the claims were bad because they did not describe the functions and inter-relationship of the features of the lock.

Conclusion on validity

I conclude that the patent is valid and that no permissible grounds have been put forward for its revocation.

Infringement

The next major issue is whether the Castle lock produced by the defendant infringes the plaintiff`s claims in the patent. In relation to this issue, the burden of proof is on the plaintiff. To establish infringement, the patent owner must show that the allegedly infringing article falls within the claims of the patent properly construed. As the ***CIPA Guide to the Patents Acts*** (4th Ed, 1995) states (at p 567) construction of the patent is a matter for the court relying only on evidence on the meaning of technical terms and the background knowledge of the skilled addressee. The expert witness is not entitled to construe words in the specification nor is he entitled to tell the court whether or not the patented invention has been infringed.

The evidence showed that the Castle lock is a two-bodied padlock comprising a main body and an auxiliary body. It has a shackle bar passing through the auxiliary body and into the main body. It has a lock mechanism disposed in the main body. There is a bar disposed between the main body and the auxiliary body which holds the two together. The bar is held in place by a screw inside the auxiliary body which is screwed into the bar with the use of an Allen key. The Allen key can only access the screw by passing through a hole in the top of the auxiliary body and another hole in the shackle bar. When the shackle bar is in the locked position, it blocks access to the screw. When the Castle lock is mounted on a gate and the shackle bar is in the locked position, the screw cannot be removed and the two bodies of the lock cannot be detached from each other. Other features of the Castle lock are also similar to features of the Duro lock including the use of outer casing and lateral casing to protect the vulnerable parts of the lock and the use of a screw to hold the lock in place once it has been mounted on the gate. Overall there is a striking resemblance between the features of the Castle lock and those of the Duro lock.

Mr Kang`s submission was that in order to prove infringement, the plaintiff had to prove that the Castle lock had all of the integers of any one claim of the patent specification. He said this was not so and that there was no infringement of the claims because in claim 1 of the patent there were two integers disclosed that had not been reproduced in the Castle lock. The first of these was that the shackle bar of the Castle lock did not pass through the main body of the lock whereas claim 1 stated that the patented lock comprises, inter alia, `a shackle bar passing through the main body and the auxiliary body`.

The argument was that the claim requires the shackle bar to pass `through the main body and the auxiliary body`. The word `through` applies to both of these bodies. If `through` is given its ordinary meaning with respect to the auxiliary body, ie it passes `through`, it cannot have any other meaning for the main body. This is an application of the principle that a word in different claims must be given the same meaning. A fortiori, we cannot have one meaning for `through` when applied to the auxiliary body and another meaning of the same word when it is applied to the main body. Secondly, `through` is an ordinary word. There is no rule to suppose that its meaning for purposes of the patent should be the direct opposite of its ordinary meaning. There is no middle ground for words like `through` - something is either through or it is not through.

The second difference between the Castle lock and the claim was that the claim required there to be an `outer casing enclosing the main body` whilst in the Castle lock the outer casing does not enclose the main body. Only part of the main body is covered. The word `enclose` means shut in on all sides and the clear meaning of the word does not allow the patentee to cut down the meaning.

Before dealing with these arguments, it is instructive to remind myself of the correct approach. I start with the oft quoted words of Lord Diplock in **Catnic Components v Hill & Smith** [1982] RPC 183[1981] FSR 60:

> *My Lords, a patent specification is a unilateral statement by the patentee, in words of his own choosing, addressed to those likely to have a practical interest in the subject matter of his invention (i.e. "skilled in the art"), by which he informs them what he claims to be the essential features of the new product or process for which the letters patent grant him a monopoly. It is those novel features only that he claims to be essential that constitute the so-called "pith and marrow" of the claim. A patent specification 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. The question in each case is: whether persons with practical knowledge and experience of the kind of work in which the invention was*

intended to be used, would understand that strict compliance with a particular descriptive word or phrase appearing in a claim was intended by the patentee to be an essential requirement of the invention so that any variant would fall outside the monopoly claimed, even though it could have no material effect upon the way the invention worked.

The question, of course, does not arise where the variant would in fact have a material effect upon the way the invention worked. Nor does it arise unless at the date of publication of the specification it would be obvious to the informed reader that this was so. Where it is not obvious, in the light of then-existing knowledge, the reader is entitled to assume that the patentee thought at the time of the specification that he had good reason for limiting his monopoly so strictly and had intended to do so, even though subsequent work by him or others in the field of the invention might show the limitation to have been unnecessary. It is to be answered in the negative only when it would be apparent to any reader skilled in the art that a particular descriptive word or phrase used in a claim cannot have been intended by a patentee, who was also skilled in the art, to exclude minor variants which, to the knowledge of both him and the readers to whom the patent was addressed, could have no material effect upon the way in which the invention worked.

The above passage is reproduced in ***Terrell*** who summarises it (at p 112) by saying that the true question to be asked is whether strict compliance with the particular piece of claim language was intended to be an essential requirement of this invention.

Further guidance is obtained from other passages of ***Terrell*** . These are first that whilst it is correct the scope of the patent is defined by the claims, it is legitimate in approaching the construction of the claims to read the specification as a whole. This provides the necessary background and in some cases the meaning of the words used in the claims may be affected by or defined by what is said in the body of the specification. See ***Terrell*** at p 138. Secondly, looking up a disputed word in a dictionary may be a useful starting point but it is not determinative. The dictionary gives only the acontextual meaning whereas the court is interested in the meaning of the word in the context of the patent (at p 133). Finally, an error in the specification would not render the patent invalid provided it is an error that a skilled man can at once observe and correct (at p 194).

It appears to me that the arguments made by Mr Kang in relation to the differences in the Castle lock from the integers of the claim are good examples of what Lord Diplock calls `the kind of meticulous verbal analysis in which lawyers are too often tempted by their training to indulge`. This is particularly the case for the argument relating to `enclose`.

Dealing first with the ostensible requirement that the shackle bar should pass `through` the main body, it is useful to look at the whole of the specification. If this is done, it would be noted that the phrase `passing through` appears three times in relation to the shackle bar. First, it appears under the heading `Background of the invention` in relation to the description of the prior art which is stated as having `a shackle bar 80 passing through the main body 8 and the auxiliary body 81`. Secondly, in the main body of the patent under the heading `detailed description of the invention`, as part of the description of the lock you see `a shackle bar 10 passing through the main body 1 and the auxiliary body 2`. Finally, these same words appear in claim 1.

If you look at these three passages, you would note that they deal with exactly the same point. The drawings both of the prior art and of the invention show clearly that in the end product the shackle

bar does not pass through the main body of the conventional lock (ie the prior art) or the main body of the invented lock. Mr Seah said that the meaning to be given to `passing through` in relation to the main body is not the textbook meaning of `through` but that the phrase should be interpreted as meaning `passing into`. If this is done, then that phrase can be consistently applied to all three descriptions given above. It is obvious from the drawings of the invention and the drawing of the prior art that the shackle bar does not pass through the main body. As far as the invention is concerned, the exploded and cross-sectional figures show that the shackle bar is received within the main body up to a point shortly before the space occupied by the lock cylinders. If the shackle bar were intended to pass right through the main body in the way contended for by Mr Kang, then the top lock cylinder would be omitted and there would be no key hole in the top of the lock (ie the area where the shackle bar is located) but only in the bottom of the lock. This would mean that the lock could not be opened from both ends which would reduce its utility and convenience as a gate lock. That is not the intention of the invention.

Looking at claim 1, one of the integers is `the lock mechanism comprising an upper cylinder and a lower cylinder disposed in the main body in series`. Thus, if one were to insist that the patent requires the literal meaning of the word `through` to be applied to the positioning of the shackle bar within the main body, it would mean that one could not give effect to this integer and would also result in an impractical interpretation of claim 1. Such an interpretation must be avoided. It was obviously an error to use the word `through` in the claim in such a way that it could be argued that `through` applied both to the main body as well as the auxiliary body when the drawings and the prior art made it quite clear that such could never have been the intention of the inventor. This error could, however, be readily corrected by the skilled performer in the art when in the process of making the invention.

When construed with the background given in the specification, ie the drawings and the other integers of claim 1, it is clear that the words `passing through the main body` really mean `passing into the main body` as opposed to the literal meaning propounded by the defendant. The Castle lock has been constructed with its shackle bar passing into the main body in the way that the claim anticipates. This is not a missing integer.

The other missing integer relates to the word `enclose`. The defence relies on the dictionary meaning of `enclosing` to say that the main body must be fully enclosed by the outer casing. As the outer casing in the Castle lock does not fully enclose the main body, the defendant submits that claim 1 was not infringed. As I have noted, however, the dictionary meaning of a particular word is not necessarily its meaning when it is used in a patent. In this case, again looking at the drawings, it is clear that the outer casing does not and was not intended to fully enclose the main body. To give this interpretation would, as Mr Seah submitted, lead to an absurd result because if the main body was fully enclosed, the key cylinders would be inaccessible, the shackle bar would not be able to pass through the auxiliary body and into the main body and the rod would not be disposed between the two bodies. Thus the word `enclosing` cannot, in the context of the patent, bear the all encompassing meaning advocated.

The integers of the invention as disclosed in claim 1 are:

(a) a main body;

(b) an auxiliary body coupling with the main body;

(c) a shackle bar passing through the main body and the auxiliary body;

(d) a lock mechanism disposed in the main body;

(e) a lateral cover covering a lateral of the main body;

(f) an outer casing enclosing the main body;

(g) a side cover covering a side of the auxiliary body;

(h) an outer housing enclosing the auxiliary body;

(i) a rod disposed between the main body and the auxiliary body; and

(j) the lock mechanism comprising an upper cylinder and a lower cylinder disposed in the main body in series.

If the integers (c) and (f) are interpreted in the manner indicated in [para]91 and 93 above, then the defendant`s Castle lock contains all the integers of claim 1 of the patent. Accordingly, it has infringed claim 1 of the patent.

Conclusion

I have found in favour of the plaintiff in relation to the issues of validity and infringement. The counterclaim is dismissed. The plaintiff is awarded the costs of this action and the counterclaim, to be regarded as one set of costs since the issues were intertwined. I make the declaration asked for that the patent is valid and has been infringed by the defendant. I would like to hear the parties on the other consequential orders including any order as to damages.

Note

Please refer to the pdf or hard copy of SLR Volume 3 Part 5 page 517-524 for Figures 1-9 of the Appendix.

Outcome:

Claim allowed.