

Doctrine of Equivalents: Scope & Limitations

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The scope of a patent is not limited to its literal terms, but instead embraces all equivalents to claims described in a patent application. Limiting the scope of a patent to its literal elements, would allow a competitor to make an unimportant or insubstantial change to the patented invention and thereby defeat the patent. The doctrine of equivalents is an important tool of law (developed by the courts of United States) to determine infringement in cases of non-literal infringement. The doctrine removes unfairness that could result from an overemphasis on the literal language of patent claims, and thereby affords protection accorded to the patent. The doctrine strikes a balance between a fair scope for the patent and the notice the patent provides for the public, along with a balance between incentives to innovate and costs of uncertainty.

This paper analyses the scope of the doctrine in the light of the different tests and legal bars, developed by courts. The paper also comments upon the problems associated with the doctrine and the significant changes brought about to it, by the landmark judgment of the Supreme Court of United States in *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co.*

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It is not always that the nature of language in a patent application reflects the true essence of an invention. The inventor who chooses to patent an invention and discloses it to the public, rather than exploit it in secret, bears the risk that others will devote their efforts towards exploiting the patent beyond the limits of its language. 'An invention exists most importantly as a tangible structure or a series of drawings. A verbal portrayal is usually an afterthought written to satisfy the requirements of patent law. This conversion of machine to words allows for unintended idea gaps which cannot be satisfactorily filled. Often the invention is novel and words do not exist to describe it. The dictionary does not always keep abreast of the inventor. It cannot. Things are not made for the sake of words, but words for things.'¹

It was because of this difficulty that the US Supreme Court expressed, as early in 1853, that a patent covers 'not only the precise forms [the patentee] has described, but all other forms which embody his [or her] invention.....'¹ Pronouncing a preference for substance over form, the Court said: 'Where form and substance are inseparable, it is enough to look at the form only. Where they are separable; where the whole substance of the invention may be copied in a different form, it is the duty of

courts and juries to look through the form for the substance of the invention--for that which entitled the inventor to his [or her] patent, and which the patent was designed to secure; where that is found, there is an infringement.....'² The Court further highlighted that a patent is an exclusive right that 'is not secured, if the public are at liberty to make substantial copies of it, varying its form or proportions.'³

If the proposition that the scope of a patent is limited to its literal elements is accepted, it would allow a competitor to make an unimportant or insubstantial change to a patented invention and thereby defeat the patent.¹ Instead, '[t]he scope of a patent is not limited to its literal terms but instead embraces all equivalents to the claims described.'¹ This forms the basis of the 'doctrine of equivalents', which was first adopted by the Supreme Court of US in 1854.¹

In short, the doctrine mandates that in the absence of literal infringement, a product may be found to infringe a patented product if it is found to be its substantial equivalent. A non-literal infringer infringes a patent by practicing the invention. However, in the non-literal infringement analysis, practicing the invention involves a product that does not literally meet at least one claim limitation but either literally meets or contains an equivalent to all claim limitations of at least one claim of the patent. For example, the claim reading 'a device comprising

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A + B + C' would be (non-literally) infringed by a product consisted of A + B + D, if D is an equivalent of C.

'Doctrine of Equivalents': Nature of the Doctrine

The 'Doctrine of Equivalents' proposes that despite an absence of literal infringement of express terms of a patent claim, the infringement can still be proven if an element of an accused product or service and a claimed element of patented invention are found to be legally equivalent.⁴ In other words, the doctrine expands the protection an inventor receives for his invention (based on the literal wording of the claims in a patent application), as the doctrine holds that a patentee can claim rights to inconsequential alterations to the thing patented, which are not literally covered by the original claims, but which could be achieved with little effort. It 'prevents a person from practicing a fraud on a patent by substituting obvious equivalents for elements in the claims in order to avoid their literal language.'⁵

A patent owner may invoke the doctrine of equivalents in an infringement suit if the allegedly infringing device 'performs substantially the same function in substantially the same way to obtain the same result.'⁴ In simpler words, it protects a patentee from infringement by a person who makes insubstantial changes to the patented invention by taking a new device out of the literal realm of the claims, yet basically embodying the same invention.⁶ The doctrine also recognizes that 'to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing.'³

The doctrine serves to 'temper unsparing logic and prevent an infringer from stealing the benefit of the invention.'⁷ The existence, scope and extent of the doctrine of equivalents represents a balance between a fair scope for the patent and the notice the patent provides for the public, along with a balance between incentives to innovate and the costs of uncertainty.⁸ It removes the unfairness that could result from an overemphasis on the literal language of patent claims, and thereby ensures protection accorded by the patent. On the other hand, guiding rules, i.e. all elements rule; tri-partite test (function, way, result); insubstantial differences test; obviousness test, and known interchangeability tests, limit the application of the doctrine. They ensure that the doctrine does not take on 'a life of its own, unbounded by the patent claim' to provide protection not within the scope of the

patent, and would thereby eliminate an important function of patents: clear public notice of patentee's scope of exclusive right.⁹³ It is a measure of law that strikes a balance between the interest of the inventor to maintain a temporary monopoly, with the interest of the general public to 'pursue innovations, creations, and new ideas beyond the inventor's exclusive rights.'¹ However, the doctrine does not encompass equivalents that belong to the state of the art or which are obvious to the state of the art.⁹

What Constitutes 'Equivalents'

It was proposed in *Graver Tank* that 'a patentee may invoke this doctrine to proceed against the producer of a device 'if it performs substantially the same function in substantially the same way to obtain the same result.'¹⁰ Further, the Court stated that 'it' means the device as a whole and that '[t]he theory on which it is founded is that 'if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form, or shape.'¹¹

The post-*Graver Tank* environment has been tumultuous. The reason being that the key question of '[w]hat [constitutes] an equivalent?' has never been answered with certainty.¹² It is submitted that the 'finding of equivalence is a finding of fact'.¹³ It must be noted that infringement exists where the alleged device copies the patented mode of operation, even where the copy is 'totally unlike the original in form or proportions.'¹⁴ Furthermore, where a patentee describes his invention and claims it 'in that form, which most perfectly embodies it,' he is 'deemed to claim every form in which his invention may be copied, unless he manifests an intention to disclaim some of those forms.'¹⁵

In *Warner-Jenkinson*, it has been proposed that '[e]quivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case. Equivalence, in the patent law, is not a prisoner of a formula and is not an absolute to be considered in a vacuum.'¹⁶ It does not require complete identity for every purpose and in every respect. In determining equivalents consideration must be given to the purpose for which an ingredient is used in a patent, the qualities it possesses when combined with the other ingredients, and the function which it is intended to perform. Another important factor to determine equivalents should be: whether a person reasonably skilled in the

art would have known of the interchangeability of an ingredient not contained in the patent with one that was.¹⁷

Furthermore, it is submitted that the doctrine should not be limited to those equivalents which were known at the time the patent was issued, or, more strictly, to those that were disclosed within the patent itself.¹ In this regard, the Court in *Warner-Jenkinson* held that ‘the proper time for evaluating equivalency ... is at the time of infringement.’¹⁸

Scope of the Doctrine

The determination of the scope of the doctrine rests upon two factors.

- (i) The test for equivalence, and
- (ii) The legal bars to equivalents.¹⁹

It is submitted that both these steps must be undertaken to determine whether a particular element of the accused product is equivalent to a particular claim limitation as a particular element might meet a test for equivalents and yet still not be considered equivalent because it fails one of the legal bars. For example, the element might perform substantially the same function in substantially the same way to obtain the same result and yet might be barred from equivalents by prosecution history estoppel. Conversely, a particular element might not fail any of the legal bars and still not be equivalent because it does not meet the test for equivalence. Of course, the need for a court to examine either step depends on the arguments put forth by the parties.

The Tests of Equivalence

To restrain the application of the doctrine, the courts have developed five legal tests:

- (i) All elements rule,
- (ii) Tri-partite test: Function, way, result,
- (iii) Insubstantial differences test,
- (iv) Obviousness test, and
- (v) Known interchangeability test.

These tests have been developed by the judiciary in different cases and are now ‘crystallized’ of sorts.

*All-Elements Rule*²⁰

To place some limitation on the doctrine of equivalents, the Federal Circuit in *Pennwalt* and subsequently, the Supreme Court in *Warner-Jenkinson* adopted the so-called ‘All Elements Rule.’ The Court in *Pennwalt* stated: ‘Under the doctrine of equivalents, infringement may be found (but not necessarily) if an accused device performs

substantially the same overall function or work, in substantially the same way, to obtain substantially the same overall result as the claimed invention. That formulation, however, does not mean one can ignore claim limitations.... In applying the doctrine of equivalents, each limitation must be viewed in the context of the entire claim.... To be a ‘substantial equivalent,’ the element substituted in the accused device for the element set forth in the claim must not be such as would substantially change the way in which the function of the claimed invention is performed’ It is clear from this that the district court correctly relied on an element-by-element comparison to conclude that there was no infringement under the doctrine of equivalents, because the accused devices did not perform substantially the same functions as the Pennwalt invention.²¹

‘Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole. It is important to ensure that the application of the doctrine, even to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety.’²² The all-elements rule is not a test in itself, but rather a rule for how the test for equivalents under the doctrine of equivalents is to be applied. The rule states that the test for equivalents must be applied on an element-by-element basis.²³ For each limitation in the claim, the product must have an element that reads on the limitation either literally or equivalently. If the product does not contain a literal or equivalent element for each claim limitation, then there can be no infringement.

The ‘all elements rule’ after *Warner-Jenkinson* is illustrated by the statements of Judge Plager that one must apply either the function/way/result or the insubstantial difference test to each element and check if the claimed and equivalent elements have an insubstantial difference or the claimed and equivalent elements perform substantially the same function, in substantially the same way, to produce substantially the same result. However, a careful reading of *Pennwalt* suggests that in carrying out the element-by-element analysis one should examine the effect on the accused product or process as a whole on substituting only one element with a corresponding claimed element. In short while determining

equivalence each claim of the infringed and infringing patent must be transposed with each other. Besides, one should not examine the effect of substituting several elements of the accused product or process with several claimed elements.

The all-elements rule serves to increase the amount of notice provided by the claims.²¹ By requiring that the accused product contain an equivalent element for each claim limitation, instead of requiring that the accused product be equivalent 'as a whole,' the all-elements rule provides potential infringers with more notice of what may or may not be an infringement of the patent under the doctrine of equivalents.²⁴ It is submitted that the all elements rule requires that all of the elements of a patent claim must be present in an accused product or service, though it need be present only equivalently, to support a finding of patent infringement.²⁵ According to this rule, the doctrine of equivalents may not be used to supply limitations that are wholly missing from an accused product or service.²⁶ Because the all elements rule protects the materiality of each claim limitation, it is also often described as a rule against vitiating a limitation.²⁷

Tri-Partite Test: Function, Way, Result²⁸

The tri-partite test, or function-way-result test, is the most traditional test for determining what is equivalent under the doctrine of equivalents. The tri-partite test states that an accused product infringes under the doctrine of equivalents if it 'performs substantially the same function in substantially the same way to obtain the same result' as the claimed invention.¹⁰ 'It is an offshoot of the 'all elements rule'.'²⁰

A combination of the test with the all-elements rule, states that the accused product must contain an element that performs substantially the same function in substantially the same way to obtain the same result for each claim limitation, in order for the accused product to infringe under the doctrine of equivalents.²⁹

Insubstantial Differences Test¹

The Federal Circuit Court interpreted *Graver Tank* and other precedents as establishing an ultimate test of equivalents: the insubstantial differences test.¹ The substantiality of the differences between the claim and accused product is the ultimate question under the doctrine of equivalents.¹ '[A] finding of infringement under the doctrine of equivalents requires proof of insubstantial differences between the claimed and accused products or processes.'¹

When combined with the all-elements rule, the test states that a finding of infringement under the doctrine of equivalents requires proof of insubstantial differences between each claim limitation and the corresponding element of the accused product or processes.³⁰

Obviousness Test³¹

The obviousness test for equivalents under the doctrine of equivalents has never been used or even recognized in a majority court opinion, but it has been proposed by one Federal Circuit judge in a concurring opinion,³² mentioned as a possibility worth consideration by another Federal Circuit judge,³³ and championed by at least one commentator.³⁴ Essentially, the proposed test would involve the use of the test for non-obviousness to determine if the differences between the accused product and the claimed invention are substantial. If the differences meet the test for non-obviousness, then the differences are substantial and the accused product does not infringe under the doctrine of equivalents. If the differences do not meet the test for non-obviousness, then the differences are insubstantial and the accused product infringes under the doctrine of equivalents.³⁵

One advantage of using the obviousness test for determining equivalents under the doctrine of equivalents is that the test is a well-understood, well-developed test, with which judges and practitioners are comfortable.³³ Furthermore, the obviousness test has greater predictive value than either the tri-partite test or the insubstantial differences test, because the obviousness test refers to prior art instead of referring to abstractions.³³ Finally, because the overall conclusion of obviousness is a matter of law, using the obviousness test to determine equivalents under the doctrine of equivalents would gain the benefits to accuracy and predictability that come with deciding issues as legal questions as opposed to deciding them as factual questions.³⁶

Known Interchangeability Test

The concept of 'known interchangeability' has been used in the doctrine of equivalents analysis for some time.³⁷ It has long been considered a possible factor to examine when determining equivalents.³⁸ This factor could be developed into a test.³⁶ Such a known interchangeability test could state that proof of known interchangeability would either be necessary or sufficient to prove equivalents under the doctrine

of equivalents. As a necessary test, a patent holder would have the burden of showing that the element in question was known to be interchangeable with the claim limitation in order to prove infringement under the doctrine of equivalents. As a sufficient test, a showing of known interchangeability would establish that the relevant element and the claim limitation were equivalent, but a showing of known interchangeability would not be the only way for the patent holder to prove equivalents.

Legal Bars to the Application of the Doctrine of Equivalents

In addition, legal equivalency requires the patent owner's assertion of infringement to fall outside various legal defenses to the doctrine.³⁹ Legal bars define an area or products that lie outside the scope of the patent. They do not define what is within the scope of a patent; that is the function fulfilled by the test for equivalents. The legal bars and the test do not create one co-extensive line dividing what is and what is not equivalent. An element of an accused product that is not placed outside the range of equivalents by a legal bar might nonetheless fail to meet the test for equivalents. Conversely, an element that meets the test for equivalents might be placed outside the scope of the doctrine of equivalents by a legal bar. Thus, in order to determine if a particular element is equivalent to a claim limitation, the test for equivalents must be applied, and the legal bars to equivalents must be examined. The courts have recognized four legal bars: prosecution history estoppel, public dedication, after-arising equivalents for means-plus-function claims, and prior art patentability.⁴⁰

Prosecution History Estoppel

The price of broadening of a patentee's rights enabled under the doctrine of equivalents is uncertainty.⁴¹ Innovators and competitors are left without a clear indication of what is and is not covered by a patent. One helpful source of clarity has been the prosecution history of the patent. Prosecution history estoppel dictates that the claims of a patent must be interpreted in the light of prosecution history, or the process through which USPTO issued the patent based on a submitted application.⁴² More specifically, the claims must be interpreted in the light of their rejections, cancellations and amendments. A patentee is estopped from asserting equivalents for a claim element when, for the purpose of patentability, he has amended a claim in a way that surrenders the subject matter that he is now alleging is an equivalent.⁴³

As an estoppel doctrine, prosecution history estoppel prevents a litigant from denying an earlier admission when another has relied upon it.⁴⁴ In the context of patent prosecution, 'the admission is the applicant's surrender of claim scope to acquire a patent.'⁴⁵ 'Prosecution history estoppel applies both to claim amendments to overcome rejections . . . and to arguments submitted to obtain the patent.'⁴⁶ Thus, the scope of the surrender, normally, must be determined before the estoppel applies.

The Court in *Warner-Jenkinson*, noted that prosecution history estoppel most frequently arises when the applicant narrows a claim to overcome a rejection based on the prior art. It was held: 'Prosecution history estoppel continues to be available as a defense to infringement, but if the patent-holder demonstrates that an amendment required during prosecution had a purpose unrelated to patentability, a court must consider that purpose in order to decide whether an estoppel is precluded.'⁴⁷ The Court stated that the better rule would allow the patent holder to demonstrate that an amendment was made for a purpose unrelated to patentability.⁴⁸ If, however, the patent holder is unable to establish such a purpose, the court should presume that prosecution history estoppel applies.⁴⁹

Prosecution history estoppel has received a great deal of attention from the courts recently.⁵⁰ This bar prevents a patent holder from reclaiming, through the doctrine of equivalents, subject matter that was given up during prosecution of the patent.⁵¹ A claim amendment, claim cancellation, or argument in support of patentability can create an estoppel. A claim amendment creates a presumption that the change was made for reasons of patentability. This presumption is refutable if the patent holder can show that the change was made for reasons other than patentability.⁵²

Prosecution history estoppel is strongly linked to the notice function of the patent. The arguments and amendments made during prosecution of the patent serve as sources of notice as to what the patent covers in addition to the notice provided by the issued patent and its claims. Prosecution history estoppel has been treated as a way to limit the range of equivalents, and not as a method to entirely eliminate the doctrine of equivalents as a form of infringement.⁵³ In keeping with this tradition, prosecution history estoppel should remain subservient to the doctrine of equivalents. This limitation has been altered by *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*.⁵⁴

Impact of Festo on Prosecution History Estoppel

In *Festo*, the Supreme Court of the United States, while continuing its support for the doctrine,¹ unanimously agreed with the decision of Federal Circuit on the point ‘that prosecution history estoppel may apply any time an amendment is made to the application for reasons of patentability, not just when the amendment is made to avoid the prior art’.¹ However, the Court rejected an attempt by the Federal Circuit to severely restrict application of the doctrine of equivalents in situations where prosecution history estoppel applies.¹ It held that a presumption exists that prosecution history estoppel bars a finding of equivalence, but the patentee may rebut that presumption.¹ In order to rebut the presumption, a patentee ‘must show that at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent.’⁵⁵ The Court further held that not only is the burden on the patentee to show that an amendment was not made for the purpose of patentability,⁵⁶ but he or she must also show that the amendment does not surrender the particular equivalent in question.⁵⁵

The Supreme Court recognized that usually a ‘patentee’s decision to narrow his claims through amendment should be presumed to be a general disclaimer of the territory between the original claim and the amended claim.’¹ However, even if a patentee narrows a claim, he may rebut the presumption by showing that ‘at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent.’¹ Specifically, the Court states that the patentee can rebut the presumption that prosecution history estoppel bars a finding of equivalents if: ‘[t]he equivalent may have been unforeseeable at the time of the application; the rationale underlying the amendment may bear no more than a tangential relation to the equivalent in question; or there may be some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitute in question.’¹

In this regard, it is submitted that the complete bar would have had enormous consequences if it had been allowed to stand. As a matter of fact very few patents are issued in which the claims are not amended during prosecution.⁵⁷

Public Dedication⁵⁸

The public dedication bar blocks the application of the doctrine of equivalents to cover an embodiment that was disclosed in the patent but not claimed.⁵⁸ As the Federal Circuit has stated, ‘subject matter disclosed in the specification, but not claimed, is dedicated to the public.’⁵⁹ Subject matter that has been dedicated to the public cannot be the basis for infringement under the doctrine of equivalents.⁶⁰ The bar has been limited to specific factual situations in which a distinct alternative embodiment has been disclosed but not claimed.⁶¹ Put another way, the bar does not exclude all subject matter disclosed but not claimed from equivalency.⁶² Disclosed subject matter can actually form the basis for equivalency under the doctrine of equivalents, even if the subject matter is not literally claimed.

Like prosecution history estoppel, the public dedication bar is strongly linked to the notice function of the patent.⁵⁸ By disclosing but not claiming subject matter, a patentee tells the public that that subject matter is not covered by the patent; instead, it is dedicated to the public. By reading the patent and the file history, a member of the public can identify subject matter that has been disclosed but not claimed, and can, therefore, practice that subject matter with the knowledge that it is outside the scope of the patent. Application of the doctrine of equivalents to recapture subject matter deliberately left unclaimed is ‘contrary to our system of patent examination, in which a patent is granted following careful examination of that which an applicant claims as her invention.’⁶³

After-Arising Requirement for Equivalents for Means-Plus-Function Claims

This bar affects the application of the doctrine of equivalents to a specific type of claim limitation, namely, means-plus-function limitations allowed under 35 USC § 112, paragraph 6. Equivalence, for the purpose of the doctrine of equivalents, is limited to those elements developed after the patent was granted.⁶⁴ An equivalent element, for the purposes of literal interpretation of the claims under § 112, paragraph 6, must have arisen before grant of the patent.⁶⁵ Thus, if the element arose before the grant of the patent, infringement under the doctrine of equivalents is barred. It is submitted that this bar is an application of the principle of *estoppel*. It recognizes that a known equivalent element not claimed at the time of filing the patent application is deemed to be disclaimed, and cannot be claimed with the help of the doctrine.

This bar is indirectly linked to the notice function. The rule as to what can be an equivalent for the purposes of literal interpretation of the claims under § 112, paragraph 6 is designed to give notice to the public about what the means-plus-function limitation covers. The after-arising bar to the doctrine of equivalents is a corollary to this rule.

Prior Art Patentability

The Court in *Graver Tank* said that '[a]n important factor [for determining equivalency] is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was.'³⁷ The existence of prior art also limits the application of the doctrine of equivalents to extend a patentee's protection beyond literal claims.

The doctrine of equivalents exists to prevent a fraud on a patent, not to give a patentee something which he could not lawfully have obtained from the PTO had he tried. Thus, since prior art always limits what an inventor could have claimed; it limits the range of permissible equivalents of a claim.⁶⁶ The scope of equivalents cannot be taken in a vacuum, free from the prior art.⁶⁶ When a question of equivalency is under study, it is also necessary to know if the patent is a pioneer in a whole new field or if the patent shows only a narrow improvement of a subject that is well known.⁶⁷ Typically, pioneer patents will be given a broader range of protection than an improvement patent under the doctrine of equivalents.⁶⁷

If an accused product is found in the prior art, or is obvious in the light of prior art, then the product cannot be infringing under the doctrine of equivalents.⁶⁸ To allow such a product to be covered under the doctrine of equivalents would allow the patent holder to gain rights to something which he could not lawfully have obtained rights to in the first place during prosecution of the patent in the Patent Office.⁶⁶ In applying the prior art patentability bar, the court must look at the product as a whole to determine if that product, or a hypothetical claim covering the product, would have been unpatentable in light of the prior art.⁶⁹

Unlike the previous bars, the prior art patentability bar is not based on the notice function of patents. This bar is instead based on the concept of what is patentable, because it essentially says that products that would not have been patentable at the time of

filing cannot be a part of the invention and therefore cannot be covered under the doctrine of equivalents.

The Obviousness Bar

The obviousness test has been proposed as a test for equivalence under the doctrine of equivalents, but perhaps makes more sense as a legal bar to the application of the doctrine. The rationale for using the obviousness test in conjunction with the doctrine of equivalents is summed up by a single statement: 'A substitution in a patented invention cannot be both non-obvious and insubstantial.'³⁵ What follows naturally from this statement is the following: If a substitution is non-obvious, then that substitution is not insubstantial.⁷⁰ If the differences between the accused product and the claim are non-obvious, then the differences are not insubstantial, and the product therefore does not infringe under the doctrine of equivalents.

Regardless of from where the problem stems, the doctrine of equivalents is an attempted solution for the inherent imperfection in the ability of language to define an invention perfectly.⁷¹ This imperfection of language as a means for defining an invention plays a significant role in the failures of past attempts to improve the doctrine of equivalents and will be important in fashioning improvements in the future.

Problems Associated with the Doctrine

The doctrine of equivalents has been criticized on several related grounds: the unpredictability caused by the lack of a precise linguistic framework for the doctrine; the harm that the doctrine causes to the notice function of the claims; the unpredictable results reached while deciding the issue of equivalents; and the lack of appellate review of decisions made under the doctrine.⁷² Despite the doctrine having been around for over 150 years, a precise, settled linguistic framework for decisions made under the doctrine is yet to evolve.⁷³ The lack of a precise linguistic framework causes the doctrine to be unpredictable. In *Warner-Jenkinson*, the Supreme Court acknowledged that neither the tri-partite test nor the insubstantial differences test were completely satisfactory formulations for the test for equivalence under the doctrine.

The doctrine has primarily been disapproved on the premise that 'courts have no right to enlarge a patent beyond the scope of its claims.'²² Certainly, the doctrine of equivalents is a tool to determine non-literal infringement; however, when applied too

broadly, the doctrine increases uncertainty to the scope of patent claims and interferes with the public-notice function of the statutory claiming requirements.⁷⁴ One of the primary functions of the claims is to put the public on notice as to what the patentee regards as the invention.⁷⁵ The public can therefore look at the patent and tell what actions they may take without infringing the patent. If a member of the public, after reviewing a patent, creates a product that falls outside the literal scope of the claims of that patent and is later found to have infringed that same patent under the doctrine of equivalents, then the notice function served by the claims has failed.⁷⁶

The doctrine is often alleged to decrease the public's ability to rely on the claims and thereby increase uncertainty.⁷⁷ The claims, along with the rest of the issued patent and the prosecution history, put the public on notice as to what the public can and cannot do with respect to the patent. If a product is found to infringe a patent even though the product is outside the scope of the claims, i.e., if it infringes under the doctrine of equivalents, then the notice function of the claims is significantly weakened, if not defeated altogether.

By extending the scope of the patent beyond the literal meaning of the claims, the doctrine of equivalents weakens the public notice function of the claims.⁷⁷ In theory, the policy of fair notice to the public limits the doctrine of equivalents by essentially saying that any imperfection that may exist in the claims' definition of the invention does not matter; the literal meaning of the claims are what the patentee gets because that is what the public has notice of.⁷⁸ In practice, the policy limits the doctrine of equivalents through the all-elements rule and the legal bars of prosecution history estoppel, dedication to the public, and after-arising equivalents for means plus function claims.⁷⁹

[A] patentee should not be able to obtain, [under the doctrine of equivalents, coverage which he could not lawfully have obtained from the PTO by literal claims. The doctrine of equivalents exists to prevent a fraud on a patent ..., not to give the patentee something he could not lawfully have obtained from the PTO had he tried. Thus, since prior art always limits what an inventor could have claimed; it limits the range of permissible equivalents of a claim.⁸⁰

It has been a common concern that those who were genuinely trying to design around an invention and

thought in good faith they had successfully done so can be held to infringe under the doctrine of equivalents; likewise, those who have acted in bad faith can be found not to infringe under the doctrine. It is submitted that the doctrine's purpose is not to punish those with a bad intent.⁸¹

The ability of a potential infringer to create his product such that it is just outside the doctrine of equivalents is not a problem, i.e., it does not defeat the original purpose of the doctrine, if the highly predictable linguistic framework perfectly describes and defines the invention. After all, intent is not an element of the infringement.⁸² In fact, creating a product just beyond the scope of the patent, i.e. referred to as 'designing around' the patent, is an encouraged practice.¹ Therefore, a potential infringer creating his product such that it falls just outside the doctrine of equivalents is not a problem if the improved linguistic framework perfectly describes the invention.

According to the Court compromise away from strict notice was the long-standing reason for the Doctrine. 'It is true that the doctrine of equivalents renders the scope of patents less certain These concerns with the doctrine of equivalents, however, are not new. Each time the Court has considered the doctrine, it has acknowledged this uncertainty as the price of ensuring the appropriate incentives for innovation, and it has affirmed the doctrine over dissents that urged a more certain rule.¹ As the Court in *Graver Tank* has rightly remarked, 'Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in vacuum.'⁸³

Writing for a unanimous judgment of *Warner-Jenkinson*, Justice Thomas set out to 'clarify the proper scope of the doctrine [of equivalents].'⁸² After rejecting arguments that the doctrine should be abolished altogether, the Court observed that unbridled application of the doctrine conflicts with the 'definitional and public-notice functions of the statutory claiming requirement [s].'⁸² The Court squarely adopted the point of view of the Federal Circuit in *Pennwalt* that the doctrine should be applied on an element-by-element basis: 'Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole.'⁸² Furthermore, the Court emphasized that '[i]t is important to ensure that the

application of the doctrine, even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety.⁸² It is for these reasons that the court addressed this issue by holding that the doctrine must only be applied to individual elements or parts of a patent's claims, and not to the invention as a whole.⁸²

Despite all the aforementioned drawbacks of the doctrine, it cannot be ruled out that the doctrine holds paramount importance in cases of patent infringement, as it removes the unfairness that could result from an overemphasis on the literal language of the patent claims, and thereby affords protection accorded to the patent. As stated earlier, the scope and application of the doctrine is not absolute, but limited by the guiding rules, developed over a period of time by judicial decisions.

It was due to the above stated reasons that the United States Supreme Court seemingly rescued the doctrine of equivalents from the near fatal wounds inflicted by the Court of Appeals for the Federal Circuit.⁸⁴ The decision of *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co*⁸⁵ has in particular been a catalyst in the revival of the doctrine. The Court's opinion in *Festo* reaffirmed the importance of the doctrine of equivalents, emphasized the need for stability in the law, and reiterated that 'language is an imperfect fit for invention,' while acknowledging the difficulty in balancing the goals of protection for innovators and notice to the public. *Festo* and its impact on the doctrine of equivalents have been dealt with under the next topic.

Revival of the Doctrine

Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd

Justice Kennedy in *Festo* observed that the Courts have by way of the doctrine attempted to maintain a 'delicate balance ... between inventors, who rely on the promise of the law to bring the invention forth, and the public, which should be encouraged to pursue innovations, creations, and new ideas beyond the inventor's exclusive rights.'¹ The Court acknowledged that a patent is 'a temporary monopoly. The monopoly is a property right; and like any property right, its boundaries should be clear.'¹ *Festo* reaffirmed the doctrine as necessary to protect patent holders 'against efforts of copyists to evade liability for infringement by making only insubstantial changes to a patented invention.'¹ However, it also recognized that 'the doctrine of equivalents can create substantial uncertainty about where the patent monopoly ends,'⁸⁶

When the Supreme Court issued its opinion in the case in 2002, it took a markedly different position from that of the majority of the Federal Circuit Court.¹ This difference stemmed from a sharply different view of how the policies relevant to prosecution history estoppel should be balanced.¹ True, the technological boundary of the patent right must be tolerably clear.¹ But in the view of the Supreme Court, the realization of this clarity was to be considered along with need for the patent to accurately define the patentee's contribution to the art, to preserve the role of patents as incentives to invent.⁸⁷ Paying adequate heed to this second objective meant that the law could not simply insist on the highest clarity.⁸⁸

The ruling in *Festo* made three significant changes to the prior law regarding the doctrine of equivalents and prosecution history estoppel. First, it makes prosecution history estoppel applicable to any claim amendment made during the course of prosecution proceedings. This is in contrast to its prior application only to amendments made for a limited number of reasons. Second, it eliminates the complete bar to the use of the doctrine of equivalents imposed by the Federal Circuit whenever an amendment is made. This enabled patentees to assert claims of equivalence despite amendments made during the prosecution proceedings. Third, the Court added guidelines on how the flexible bar should be applied. These guidelines shift more of the burden onto the patentee to disprove the presumption that he surrendered any right to equivalence when he made the amendment.⁸⁹

The judicial decision in *Festo* has brought a significant change while applying the 'prosecution history estoppel' bar. The primary impact of the decision comes from the change of the test to determine whether prosecution history estoppel should bar a finding of equivalence. It has also altered the previous test, called the 'reasonable competitor' test, which dates to at least 1984.⁹⁰ This test asked 'whether a competitor [reading the prosecution history] would reasonably believe that the applicant had surrendered the relevant subject matter.'⁹¹ However, the new test established in *Festo* asks, whether one skilled in the art could have reasonably been expected to have drafted a claim that would have literally encompassed the alleged equivalent.¹ A more detailed discussion on this issue has been dealt with earlier in this paper, under the topic of 'prosecution history estoppel'.

Beyond *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 122 S Ct 1842.

Besides *Festo*, 2002 produced another landmark decision on the doctrine of equivalents. The Federal Circuit in *Johnson & Johnston Associates Inc v R E Service Co* adopted a *per se* rule that patent owners cannot use the doctrine of equivalents to protect disclosed but unclaimed subject matter.⁹²

The Court in *Johnson & Johnston* stressed that it is the claims that define the scope of patent protection. A patent applicant 'cannot narrowly claim an invention to avoid prosecution scrutiny by the USPTO' and then use the doctrine of equivalents because the specification discloses equivalents.⁹³ The Court noted that a patent applicant has the options of filing a reissue application within two years after issuance or of filing continuation applications that cover the equivalents disclosed but not originally claimed.⁹⁴

One could argue that the *Festo* and *Johnson & Johnston* decisions will have divergent effects on drafting and prosecution of patent claims: *Festo* will encourage narrow original claims (that will possibly be allowed without amendment), while *Johnson & Johnston* will encourage broad claiming of all disclosed subject matter. However, the combined effect of the *Festo* and *Johnson & Johnston* decisions may encourage a patent applicant to write narrower claims and to disclose only those embodiments claimed. Applicants will also tend to omit even identifying equivalents known to them, but possibly unknown to the public at the time of filing the patent application. This behavior would inhibit disclosure and therefore not 'promote the Progress of ... useful Arts,' for which patent law have been created under the Constitution.⁹⁵

It is submitted that the above argument has not been resorted to in cases that arose in the following years.⁹⁶ The mandate laid down by the Supreme Court has been applied by the lower courts in much the same way as laid down by the court. In 2003 the Federal Court in *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*⁹⁷, held that a patentee's failure to overcome the *Warner-Jenkinson* presumption, that treats a narrowing amendment as having been made for a substantial reason related to patentability when the record do not reveal the reason for the amendment, gives rise to the *Festo* presumption. An 'unexplained' narrowing amendment surrendered the entire territory between the original and the amended claim limitations. However, the

patentee was held to be entitled to rebut that presumption. Further, the patentee's rebuttal of the *Warner-Jenkinson* presumption was viewed to be restricted to the evidence in the prosecution history record. It was emphasized that the question 'whether a patentee had established a merely tangential reason for a narrowing amendment', in the analysis of whether a patentee had rebutted a presumption of surrender of all subject matter between an original claim limitation and the amended claim limitation, was to be determined by the court from the prosecution history record without the introduction of additional evidence. The Court in line with the Supreme Court provided that a patentee may overcome the presumption of surrender of all subject matter between the original claim limitation and the amended claim limitation by demonstrating that the alleged equivalent would have been unforeseeable at the time of narrowing the amendment.

This can be illustrated by the case of *Ranbaxy v Apotex Inc*⁹⁸ When Apotex originally filed the claims the first claim was rejected and was hence compelled to amend the same. Ranbaxy in its composition of its competent product used ascorbic acid instead of formic acid. According to Apotex, Ranbaxy had committed an equivalent infringement. The District Court held that 'there was a narrowing amendment' and hence there was no infringement on that ground. The Federal Court upheld the decision of the District Court and observed that the 'surrender [was] particularly clear'.

The Federal Court in 2005 in *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co, Ltd*⁹⁹, held that the patentee bears the burden of proving that an amendment was not made for a reason that would give rise to estoppel. The patentee bears the burden of showing that the amendment does not surrender the particular equivalent in question.¹⁰⁰ The patentee, as author of the claim language, may be expected to draft claims encompassing readily known equivalents. A patentee's decision to narrow his claims through amendment may be presumed to be a general disclaimer of the territory between the original claim and the amended claim.¹⁰¹ The patentee in order to rebut the presumption must show that at the time of amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent. *Philips v AWH Corp*¹⁰² has shed greater light, the court has pointed out that the intrinsic evidence would control

the meaning of a claim term if the 'patentee distinguished that term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention',¹⁰³.

In *Amgen Inc v Hoechst Marion Roussel Inc*¹⁰⁴ while determining equivalence the federal court applied the enabling prior art test. According to its *prosecution history estoppel bar* applies where the prior art reference was enabled. A prior art was held to be enabled if some routine experimentation was required in order to practice the claimed invention, while the experimentation not be 'undue', as the court looked at the reference from the perspective of a person of ordinary skill in the art. Further the determination of patent enablement on one hand was held to be reviewed *de novo*, while on the other the underlying factual inquiries made by the court were held to be reviewed for clear error. Also the burden of rebutting the presumption of surrender of all subject matter between an original claim limitation and the amended claim limitation was held to lie with the patentee. The presumption of the surrender of equivalents was held to be a question of law and could be rebutted if a patentee showed that one skilled in the art reasonably could not have been expected to have drafted a claim that would have literally encompassed the alleged equivalent.

Conclusion

It is to be remembered that grant of a patent and disclosure of the patented invention is *quid-pro-quo*. A patentee discloses his invention to the world and that in turn entitles him to enjoy a monopoly over the invention. Conversely, grant of monopoly in favour of the patentee, demands disclosure of the invention by him. However this monopoly is only for a limited period of time. Once the monopoly gets over, the invention falls in public domain so that the public could be benefited from it. This is the rationale behind the law of patents. In this regard, it is submitted that if the courts had accepted the proposition that the scope of a patented invention is limited to the literal interpretation of its claims, it would have not only been unfair to a patentee, but would have also deterred any inventor from revealing his invention to the world. In the absence of the doctrine, the scope of a patent would have been of no great significance. The doctrine of equivalence widens the scope of a patent and prevents any infringement made in the garb of an insubstantial alteration or substitution.

The doctrine certainly strikes a balance between a fair scope for the patent and the notice the patent provides for the public, along with a balance between incentives to innovate and the costs of uncertainty. The doctrine is further justified in that it is not absolute but well guided by the legal bars imposed on it, which see to it that the doctrine does not take on 'a life of its own, unbounded by the patent claim' providing for protection not within the scope of the patent, and thereby eliminating an important function of patents: clear public notice of patentee's scope of exclusive right.²²

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References

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- 2 Stating the comparison as one between the claim and the accused product is preferable to stating it as one between the claimed product and the accused product. The former makes it clearer that the accused product is not compared to a particular embodiment of the claim but rather to the claim itself. A claim could include any number of products, all of which could be called claimed products. Another preferable option would be to compare the claimed invention and the accused product.
- 3 Michel, The role and responsibility of patent attorneys in improving the Doctrine of Equivalents, *IDEA: The Journal of Law and Technology*, 40 (2000) 123, 128-129, Zimmerman Scott P, The Doctrine of Equivalents: A call for congressional reinvigoration, *IDEA: The Journal of Law and Technology*, 40 (2000) 599 (calling for the obviousness test to be made the test for equivalence under the doctrine of equivalents through legislative intervention). Siekman Michael T, The expanded hypothetical claim test: A better test for infringement for biotechnology patents under the Doctrine of equivalents, *Boston University Journal of Science & Technology Law*, 2 (1996) 6.
- 4 Hsing Benjamin, *Practicing Law Institute/ Patent Litigation* 115 (2002) ('In Festo... the Supreme Court reaffirmed the vitality of the doctrine of equivalents, stating that 'equivalents remain a firmly entrenched part of the settled rights protected by the patent.'). Alexander Jay I, Cabining the Doctrine of Equivalents in Festo: A historical perspective on the relationship between the Doctrines of Equivalents and Prosecution history estoppel, *American University Law Review*, 51 (2002) 553, 592 (indicating that Federal Courts Improvement Act of 1982 created the Court of Appeals for the Federal Circuit, granting it exclusive jurisdiction over patent appeals in order to promote 'doctrinal stability' and to

- 'reduce the widespread lack of uniformity and uncertainty of the legal doctrine' that then existed in the patent law); Federal Courts Improvement Act, Pub L No. 97-164, 96 Stat 25 (1982) (combining the United States Court of Claims with the Court of Customs and Patent Appeals to create the Court of Appeals for the Federal Circuit); Hsing Benjamin, *Practicing Law Institute/ Patent Litigation* 115 (2002), (indicating the doctrine of equivalents prevents an accused infringer from avoiding liability for infringement by changing only minor or insubstantial details of a claimed invention while retaining the invention's essential identity); Garner Bryan A, *Black's Law Dictionary*, 7th edn (West Group, Minnesota), 1999, 496 (defining the doctrine of equivalents as a judicially created theory for finding patent infringement when the accused process or product falls outside the literal scope of the patent claims).
- 5 Chisum Donald S, *Chisum on Patents* (LexisNexis, New York), 2002 at G1-3.
 - 6 'The Supreme Court in *Graver Tank* ... made insubstantial differences the necessary predicate for infringement under the doctrine of equivalence.' *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 62 F 3d 1512, 1517 (Fed Cir 1995). The Court in *Hilton Davis* went on to explicitly hold that 'the application of the doctrine of equivalents rests on the substantiality of the differences between the claimed and the accused products or processes, assessed according to an objective standard.' *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 62 F 3d 1512, 1518 (Fed Cir 1995).
 - 7 *Royal Typewriter Co v Remington Rand Inc*, 168 F 2d 691, 692 (2d Cir 1948).
 - 8 *Royal Typewriter Co v Remington Rand Inc*, 168 F 2d 691, 692 (2d Cir 1948). *Warner-Jenkinson v Hilton Davis Chemical Co*, 520 US at 36. Chisum Donald S & Jacobs Michael A, *Understanding Intellectual Property Law* (Matthew Bender & Co, New York), § 2F(2)(b), Hsing Benjamin C, Proof of equivalence after *Festo*, *Practicing Law Institute/Patent Litigation*, 725 (2002) 115, 127, 1992 ('*Graver Tank's* statement that the doctrine's purpose is to prevent the practicing of 'a fraud on a patent' is hardly precise or accurate. Many accused infringers have and should be found guilty of infringement under the doctrine of equivalents even though they believed in good faith that they had designed around the patented invention.'). What then is the purpose of the doctrine? One can argue that it is to protect inventors from the misunderstandings and shortsightedness of their patent attorneys in drafting claims. Time and time again, patent claims contain word limitations that are unnecessary in view of the nature of the disclosed invention, the prior art, and the actions of the patent examiner. It is not a matter of negligence or incompetence on the part of claim drafters. Drafting appropriate claims is extremely difficult.
 - 9 White Katherine E, *Festo: A case contravening the convergence of Doctrine of Equivalents jurisprudence in Germany, the United Kingdom, and the United States*, *Michigan Telecommunication & Technology Law Review*, 8 (2001-2002) 1.
 - 10 *Supra* note 4 (quoting *Sanitary Refrigerator Co v Winters*, 280 US 30, 42 (1929)).
 - 11 *Supra* note 4 (quoting *Union Paper-Bag Mach Co v Murphy*, 97 US 120, 125 (1877).
 - 12 Chisum Donald S, The scope of protection for patents after the Supreme Court's *Warner-Jenkinson* decision: The fair protection-certainty conundrum, *Santa Clara Computer & High Technology Law Journal*, 14 (1998) 1, 15; Adelman Martin J & Francione Gary L, The Doctrine of Equivalents in patent law: Questions that *Pennwalt* did not answer, *University of Pennsylvania Law Review*, 137 (1989) 673, 687-688.
 - 13 *Winans v Denmead*, 56 US (15 How) at 609, 612, 614.
 - 14 *Winans v Denmead*, 56 US (15 How) at 342.
 - 15 *Winans v Denmead*, 56 US (15 How) at 343.
 - 16 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 24-25.
 - 17 *Winans v Denmead*, 56 US (15 How) at 609.
 - 18 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 37.
 - 19 The Honorable Paul R Michel in a speech given on 11 June 1999 to the New Jersey Intellectual Property Law Association at a ceremony honoring Judge Michel as the 1999 Jefferson Medal recipient. The text of the speech was subsequently published by *IDEA: The Journal of Law and Technology*. The Honorable Paul R Michel, The role and responsibility of patent attorneys in improving the doctrine of equivalents, *IDEA: The Journal of Law and Technology*, 40 (2000) 123, 124.
 - 20 *Pennwalt Corp v Durand-Wayland Inc*, 833 F 2d 931 (Fed Cir 1987); *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 21.
 - 21 *Pennwalt Corp v Durand-Wayland Inc*, 833 F 2d 931 (Fed Cir 1987); *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 29.
 - 22 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 29.
 - 23 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 40.
 - 24 Judge Nies' concurring opinion gives her view of the purpose of the all-elements rule:
'Congress placed in the statute the requirement that the patent application 'conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.' . . . That requirement reflects the need for notice of what constitutes violation of a patentee's rights. The public cannot be held to 'obedience to a rule or standard which was so vague and indefinite as really to be no rule or standard at all.' . . . An infringement standard as vague as application of the 'invention as a whole,' which permits claim limitations to be read out of the claim, would nullify the statutory requirement.' *Pennwalt Corp v Durand-Wayland Inc*, 833 F 2d 931 (Fed Cir 1987); *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 21 (Nies J, concurring).
 - 25 *Ethicon Edo-Surgery Inc v US Surgical Corp*, 149 F 3d 1309, 1329-30 (Fed Cir 1998).
 - 26 *SciMed Life Systems Inc v Advanced Cardiovascular Systems Inc*, 242 F 3d 1337, 1347 (Fed Cir 2001).
 - 27 Gross David J F & Gordon Shawn T, Claim construction, patent infringement, and the growing importance of the claim vitiation defense, *Practicing Law Institute /Patent Litigation*, 841 (2005) 45,75.
 - 28 Robert Greene Sterne & McPhail Donald R, The Doctrine of Equivalents, *American Law Institute-ABA CLE*, 18 (2000) 105, 111-118.

- 29 *Industrias Metalicas Marva v Empresas Lausell*, 1997 WL 557626 at 30.
- 30 Stating the comparison as one between the claim and the accused product is preferable to stating it as one between the claimed product and the accused product. The former makes it clearer that the accused product is not compared to a particular embodiment of the claim but rather to the claim itself. A claim could include any number of products, all of which could be called claimed products. Another preferable option would be to compare the claimed invention and the accused product.
- 31 Michel, *IDEA: The Journal of Law and Technology*, 40 (2000) 123, 128-29. Zimmerman Scott P, The Doctrine of Equivalents: A call for congressional reinvigoration, *IDEA: The Journal of Law and Technology*, 40 (2000) 599 (calling for the obviousness test to be made the test for equivalence under the doctrine of equivalents through legislative intervention); Siekman Michael T, The expanded hypothetical claim test: A better test for infringement for biotechnology patents under the Doctrine of Equivalents, *Boston University Journal of Science & Technology Law*, 2 (1996) 6.
- 32 *Roton Barrier Inc v Stanley Works*, 79 F 3d 1112, 1128 (1996) (Nies J, concurring).
- 33 Michel Paul R, The role and responsibility of patent attorneys in improving the doctrine of equivalents, *IDEA: The Journal of Law and Technology*, 40 (2000) 123, 128-129.
- 34 Zimmerman Scott P, The Doctrine of Equivalents: A call for congressional reinvigoration, *IDEA: The Journal of Law and Technology*, 40 (2000) 599.
- 35 *Roton Barrier Inc v Stanley Works*, 79 F 3d at 1128 (Nies J, concurring).
- 36 *Tec Air Inc v Denso Mfg Mich Inc*, 192 F 3d 1353, 1359 (Fed Cir 1999) (stating that obviousness is a legal question based on underlying factual findings).
- 37 *Graver Tank & Mfg Co v Linde Air Prods Co*, 339 US at 609 ('An important factor is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was').
- 38 *Graver Tank & Mfg Co v Linde Air Prods Co*, 339 US at 609; *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co, Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of America v United States*, 384 F 2d 391, 397 (Ct Cl 1967) ('The known interchangeability of the accused and claimed elements is potent evidence that one of ordinary skill in the relevant art would have considered the change insubstantial.')).
- 39 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of America v United States*, 384 F 2d 391, 397 (Ct Cl 1967) at 39 ('[T]he various legal limitations on the application of the doctrine of equivalents are to be determined by the court, either on a pretrial motion for partial summary judgment or on a motion for judgment as a matter of law at the close of the evidence and after the jury verdict. Fed[eral] Rule Civ[il] Proc[edure] 56; Fed[eral] Rule Civ[il] Proc[edure] 50. Thus, under the particular facts of a case, if prosecution history estoppel would apply or if a theory of equivalence would entirely vitiate a particular claim element, partial or complete judgment should be rendered by the court, as there would be no further material issue for the jury to resolve.');
- Wilson Sporting Goods Co v David Geoffrey & Assocs*, 904 F 2d 677, 681 (Fed Cir 1990) (deciding impact of prior art on permissible scope of equivalents as a matter of law).
- 40 The all-elements rule is sometimes identified as a legal bar. Michel Paul R, The role and responsibility of patent attorneys in improving the doctrine of equivalents, *IDEA: The Journal of Law and Technology*, 40 (2000) 123, 125. However, the all-elements rule helps define what is needed in order for an accused product to satisfy the test for equivalence and thus infringe under the doctrine of equivalents. In contrast, the legal bars define what products cannot be covered under the doctrine of equivalents regardless of whether those products meet the test for equivalence. The all-elements rule can be used in a similar manner to the legal bars in that it is very amenable to a legal conclusion of non-infringement under the doctrine of equivalents (e.g. in a motion for summary judgment). This legal conclusion is merely a court concluding that no genuine issue of material fact exists because no reasonable jury could conclude that the product equivalently infringes because a limitation is completely missing from the product.
- 41 As early as 1886, the Court in *Shepard v Carrigan* [116 US 530, at 593 (1886)] opined that where a patentee gives up claim scope in order to get a patent issued, 'he cannot after the issue of the patent broaden his claim by dropping the element which he was compelled to include in order to secure his patent.' [116 US 597 (1886)] The same year, the Court held in *Sutter v Robinson* [119 US 530, at 541 (1886)] that during the prosecution process, where the patentee limited his claims, '[h]e is not at liberty now to insist upon a construction . . . he was expressly required to abandon and disavow as a condition of the [patent] grant.' In 1900, the Court in *Hubbell v United States* [179 US 77, at 80 (1900)] examined the patentee's file wrapper history. The Court discovered that in order to obtain a patent, patentee was compelled to accept a narrower claim construction than that written in the original application. The Court held that: [I]t is well settled that the claim as allowed must be read and interpreted with reference to the rejected claim and to the prior state of the art, and cannot be so construed as to cover either what was rejected by the Patent Office or disclosed by prior devices. In 1921, the Court in *Weber Electronic Co v E H Freeman Electronic Co* [256 US 668, 677-688 (1921)] held that patentee, having narrowed a claim to obtain a patent, could not through claim construction or by application of the doctrine of equivalents 'give to the claim the larger scope which it might have had without the amendments, which amount to a disclaimer . . . as an operative feature . . .'. That same year, in *Smith v Magic City Kennel Club Inc*, [282 US 784 (1931)] the Court held that when a patentee narrows a claim in order to escape a patent rejection, he may not reclaim what has been disclaimed. In 1942, the Court stated in *Exhibit Supply Co v Ace Patents Corp*, [315 US 126 (1942)] '[i]t follows that what the patentee, by a strict construction of the claim, has disclaimed . . . cannot now be regained by recourse to the doctrine of equivalents . . .'. Alexander Jay I, Cabining the Doctrine of Equivalents in Festo: A historical perspective on the relationship between the Doctrines of Equivalents

- and Prosecution history estoppel, *American University Law Review*, 51 (2002) 553.
- 42 Because the purpose of the doctrine of equivalents is to allow the patentee to claim what may have been indescribable at the time of drafting, either because of the limitations of the language, unforeseeability, or general equity, when subject matter is encompassed in the original claim but then eliminated from it in response to a rejection in order to receive a patent, the applicability of the doctrine is no longer justified. The patentee can no longer contend that he or she was unable to put into words or to foresee the particular subject matter, or that it would be equitable to interpret the claims as covering the subject matter that was surrendered [Miller Jennifer, *Festo: Blessing to patent holders or thorn in their sides?* *Duke Law & Technology Review*, (2002) 17 para 12.].
- 43 Miller Jennifer, *Festo: Blessing to patent holders or thorn in their sides?* *Duke Law & Technology Review*, (2002) 17 para 11.
- 44 *Bonito Boats Inc v Thunder Craft Boats Inc*, 489 US 141, 146-47 (1989). If the infringement suit claims infringement under the doctrine of equivalents, rather than direct infringement, the accused infringer may argue that prosecution history estoppel should limit the patentee's use of that doctrine. Prosecution history estoppel, also called file wrapper estoppel, prevents a patent owner from using the doctrine of equivalents to regain, 'through litigation, coverage of subject matter relinquished during prosecution' of the patent [Chisum Donald S, *Chisum on Patents* (LexisNexis, New York) 2002, at G1-9] Subject matter may be relinquished by amendment of the application by the applicant. The patentee may not 'adopt[] a broad construction to establish infringement after urging a narrow one to obtain the claim in the first place.' [Chisum Donald S, *Chisum on Patents* (LexisNexis, New York) 2002, at §11.07].
- 45 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 234 F 3d at 619-20.
- 46 *Townsend Eng'g Co v HiTec Co*, 829 F 2d 1086, 1090 (Fed Cir 1987) (quoting *Hughes Aircraft v United States*, 717 F 2d 1351, 1362 (Fed Cir 1983)).
- 47 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 40-41.
- 48 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 33. Patent claims serve both a definitional and a notice function, which are best served by placing the burden on the patent holder to establish the reason an amendment was made during patent prosecution.
- 49 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 33-34. This rule 'gives proper deference to the role of claims in defining invention and providing public notice, and to the primacy of the PTO in ensuring that the claims allowed cover the subject matter that is properly patentable in a proffered patent application.' If the patentee is unable to establish a reason for the narrowing amendment, the trial court should presume that the amendment was for a 'substantial reason related to patentability,' and, as such, the doctrine of equivalents can not be applied to that element [*Warner-Jenkinson Co v Hilton Davis Chemical Co*, 520 US at 33.
- 50 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of America v United States*, 384 F 2d 391, 397 (Ct Cl 1967),
- Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 21.
- 51 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of America v United States*, 384 F 2d 391, 397 (Ct Cl 1967), *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 30-34.
- 52 *Festo*, 122 S Ct 1831; *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 30-34.
- 53 *Haynes Int'l Inc v Jessop Steel Co*, 8 F 3d 1573, 1581 (Fed Cir 1993) (Newman J, concurring) ('The broadening of prosecution history estoppel is a corollary to the narrowing of the doctrine of equivalents').
- 54 535 US 722, 731-32 (2002).
- 55 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, No. 00-1543.
- 56 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 33.
- 57 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 234 F 3d at 638. *Winans v Denmead*, 56 US (15 How) at 609, 612, 614 ('at most 10-15% of patents are granted without claim amendment') (note overruled on different grounds).
- 58 Phillips Matthew C, Taking a step beyond Maxwell to tame the Doctrine of Equivalents, *Fordham Intellectual Property Media & Entertainment Law Journal*, 11 (2000) 155.
- 59 *Maxwell v J Baker Inc* 86 F 3d 1098, 1107 (Fed Cir 1996), certiorari denied, 520 US 1115 (1997).
- 60 *Maxwell v J Baker Inc* 86 F 3d 1098, 1107 (Fed Cir 1996), certiorari denied, 520 US 1115 (1997). The Court reasoned that: A person of ordinary skill in the shoe industry, reading the specification and prosecution history, and interpreting the claims, would conclude that (the patentee), by failing to claim the alternate shoe attachment systems in which the tabs were attached to the inside shoe lining, dedicated the use of such systems to the public. As a matter of law, (the accused infringer) could not infringe by using an alternate shoe attachment system that (the accused infringer) dedicated to the public.
- 61 Public dedication is also a legal defense to literal infringement. Chisum Donald S, *Chisum on Patents* (LexisNexis, New York), 2001 § 18.04(d).
- 62 *YBM Magnex Inc v US Intl Trade Commn*, 145 F 3d 1317, 1320- 21 (Fed Cir 1998).
- 63 *Maxwell v J Baker Inc*, 86 F 3d at 1107.
- 64 *Chiuminatta Concrete Concepts Inc v Cardinal Indus Inc*, 145 F 3d 1303 (Fed Cir 1998).
- 65 *Al-Site Corp v VSI Intl Inc*, 174 F 3d 1308 (Fed Cir 1999).
- 66 *Wilson Sporting Goods Co v David Geoffrey & Associates*, 904 F 2d 677, 684 (Fed Cir 1990).
- 67 Hsing Benjamin C, Proof of Equivalence after Festo, *Practicing Law Institute/Patent Litigation*, 725 (2002) 115, 127.
- 68 *Streamfeeder LLC v Sure-Feed Sys Inc*, 175 F 3d 974, 982-84 (Fed Cir 1999); *Wilson Sporting Goods v David Geoffrey & Associates*, 904 F 2d at 684-85; *Loctite Corp v Ultraseal Ltd*, 781 F 2d 861 (Fed Cir 1985).
- 69 *Conroy v Reebok Intl Ltd*, 14 F 3d 1570, 1576-77 (Fed Cir 1994).
- 70 The converse statement that flows from the quoted rationale is as follows: if the substitution is insubstantial, then the substitution is not non-obvious.

- 71 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of America v United States*, 384 F 2d 391, 397 (Ct Cl 1967)). The Court noted: The language in the patent claims may not capture every nuance of the invention or describe with complete precision the range of its novelty. If patents were always interpreted by their literal terms, their value would be greatly diminished. Unimportant and insubstantial substitutes for certain elements could defeat the patent, and its value to inventors could be destroyed by simple acts of copying. For this reason, the clearest rule of patent interpretation, literalism, may conserve judicial resources but is not necessarily the most efficient rule. The scope of a patent is not limited to its literal terms but instead embraces all equivalents to the claims described.
- 72 Scott Boone M, Defining and refining the Doctrine of Equivalents: Notice and prior art, language and fraud, *IDEA: The Journal of Law and Technology*, 43 (2003) 645, 658.
- 73 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 39-40.
- 74 *Freedman Seating Company v American Seating Company*, 420 F 3d 1350, 1358 (Fed Cir 2005).
- 75 35 USC § 112 ('The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention').
- 76 Sterne Robert Greene & McPhail Donald R, The Doctrine of Equivalents, *American Law Institute-ABA CLE*, 18 (2000) 105, 109: 'Although designed to protect the patentee from what is deemed a potentially harsh result, the doctrine of equivalents nonetheless represents a deviation from the requirement that the public be clearly and precisely notified of the scope and limitations of the patent grant. With regard to this public notice objective, because a patent represents a right to exclude others from certain intellectual property, it is important that the patent clearly define and circumscribe the boundaries of that intellectual property to the public. The doctrine of equivalents, by expanding the scope of protection beyond the literal words of the claims, injects an uncertainty into what should be a relatively simple and straightforward analysis of what the claims ultimately cover and protect'. *Charles Greiner & Co Inc v Mari-Med Mfg Inc*, 962 F 2d at 1036 ('Most important, however, a court must, in applying the doctrine, avoid significant conflict with the fundamental principle that claims define the limits of patent protection. . . . This court has repeatedly stated that the doctrine must not clash with the legal significance of the claims.').
- 77 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of America v United States*, 384 F 2d 391, 397 (Ct Cl 1967) ('It is true that the doctrine of equivalents renders the scope of patents less certain. It may be difficult to determine what is, or is not, an equivalent to a particular element of an invention. If competitors cannot be certain about a patent's extent, they may be deterred from engaging in legitimate manufactures outside its limits or they may invest by mistake in competing products that the patent secures.').
- 78 One might argue that the public has some notice of the scope of the patent provided by the doctrine of equivalents. After all, the public knows that the doctrine of equivalents is available to the patentee as an option in establishing patent infringement. This presumption should be even stronger after *Hilton Davis* made it explicit that non-literal infringement under the doctrine of equivalents was available to any patent holder. 62 F 3d 1512, rev'd on other grounds, *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 21. The difference may be one of degree, because, as one Federal Circuit judge has stated, '[p]ublic notice implicitly leads to and proxies for predictability.' The less predictable nature of the analysis of non-literal infringement when compared to the analysis of literal infringement weakens the public notice function of the patent. Thus, even though the public is on notice about the availability of the non-literal infringement analysis in establishing patent infringement, the policy of fair notice to the public still supports limits to the doctrine of equivalents.
- 79 Public dedication is also a legal defense to literal infringement. *Chisum Donald S, Chisum on Patents*, (LexisNexis Butterworths, New York), 2001 § 18.04(d).
- 80 *Wilson Sporting Goods Co v David Geoffrey & Assocs*, 904 F 2d 684 (Fed Cir 1990), cert denied, 498 US 992 (1990).
- 81 Scott Boone M, Defining and refining the Doctrine of Equivalents: Notice and prior art, language and fraud, *IDEA: The Journal of Law and Technology*, 43 (2003) 645, 661.
- 82 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 21. Justice Ginsburg, joined by Justice Kennedy, filed a concurring opinion.
- 83 *Graver Tank & Mfg Co v Linde Air Prods Co*, 339 US 605, 609 (1950).
- 84 Hsing Benjamin, Proof of Equivalence after *Festo*, *Practicing Law Institute/Patent Litigation*, 115 (2002) 725 ('In *Festo*... the Supreme Court reaffirmed the vitality of the doctrine of equivalents, stating that 'equivalents remain a firmly entrenched part of the settled rights protected by the patent.'). Alexander Jay I, Cabining the Doctrine of Equivalents in *Festo*: A historical perspective on the relationship between the Doctrines of Equivalents and Prosecution history estoppel, *American University Law Review*, 51 (2002) 553, 592 (indicating that Federal Courts Improvement Act of 1982 created the Court of Appeals for the Federal Circuit, granting it exclusive jurisdiction over patent appeals in order to promote 'doctrinal stability' and to 'reduce the widespread lack of uniformity and uncertainty of the legal doctrine' that then existed in the patent law); Federal Courts Improvement Act, Pub L No. 97-164, 96 Stat 25 (1982) (combining the United States Court of Claims with the Court of Customs and Patent Appeals to create the Court of Appeals for the Federal Circuit); *Supra* note 4 (indicating the doctrine of equivalents prevents an accused infringer from avoiding liability for infringement by changing only minor or insubstantial details of a claimed invention while retaining the invention's essential identity); Garner Bryan A, *Black's Law Dictionary*, 7th edn (West, Minnesota), 1999, 496 (defining the doctrine of equivalents as a judicially created theory for finding patent infringement when the accused process or product falls outside the literal scope of the patent claims).
- 85 535 US 722 (2002). In *Festo*, the district court held that because the amendments made by *Festo* during the prosecution process were not made with the purpose of overcoming prior art, they did not invoke prosecution history

estoppel and Festo was not barred from claiming infringement under the doctrine of equivalents. Shoketsu Kinzoku Kogyo Kabushiki Co's device, therefore, was held to infringe Festo's patents. The Federal Circuit affirmed. However, the Supreme Court vacated and remanded in light of its decision in Warner-Jenkinson where the Court reaffirmed the doctrine of equivalents, but recognized that competitors should be able to rely on the prosecution history, when an amendment is made for the purpose of attaining a patent, to ensure that the subject matter surrendered by that amendment cannot later be recaptured by the patentee. On remand, the Federal Circuit reversed, holding that estoppel arises whenever any amendment is made to the claims in order to comply with the Patent Act, not just amendments made to avoid or escape prior art. The Federal Circuit Court held that whenever estoppel applies, it acts as a complete bar to any claim of infringement under the doctrine of equivalents. This was in sharp contrast to the flexible bar that was applied in prior cases. The court justified its disregard of precedent by concluding that the flexible bar had proved unworkable. It went on to hold that prosecution history estoppel arises any time a narrowing amendment is made during prosecution so as to comply with the requirements of the Patent Act, not just when the amendment is made to avoid prior art. Only one judge dissented from this holding. The Federal Circuit also held that, when prosecution history estoppel does apply, it creates a complete bar to use of the doctrine of equivalents for that narrowed element. This controversial holding garnered four separate dissents. From the onset, the response by commentators to the Federal Circuit's severe approach had, for the most part, been harsh. Likewise, after the Supreme Court granted certiorari, concern over the Federal Circuit's ruling sparked a number of organizations, corporations, universities and individuals to file amicus curiae briefs urging reversal of the Federal Circuit's decision. The depth and breadth of arguments against the complete bar rule strongly suggest that the Supreme Court was correct in rejecting the Federal Circuit's approach, which upset the careful balance between the policy goals of the patent system. The complete bar rule made the scope of equivalents more certain, but in doing so, it undermined the established rights of current patent holders and significantly weakened the protection that patents offer.

86 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of America v United States*, 384 F 2d 391, 397 (Ct Cl 1967) (citing Warner-Jenkinson v *Hilton Davis Chemical Co*, 520 US at 29).

87 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of*

America v United States, 384 F 2d 391, 397 (Ct Cl 1967) ('If patents were always interpreted by their literal terms, their value would be greatly diminished. Unimportant and insubstantial substitutes for certain elements could defeat the patent, and its value to inventors could be destroyed by simple acts of copying').

88 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 535 US 722, 731-32 (2002) (quoting: *Autogiro Co of America v United States*, 384 F 2d 391, 397 (Ct Cl 1967) ('For this reason, the clearest rule of patent interpretation, literalism, may conserve judicial resources but is not necessarily the most efficient rule.').

89 Miller Jennifer, Festo: Blessing to patent holders or thorn in their sides? *Duke Law & Technology Review*, (2002) 17 para 17.

90 The Supreme Court, 2001 Term-leading cases, *Harvard Law Review*, 116 (2002) 402, 408-409.

91 *Cybor Corp v FAS Technologies Inc*, 138 F 3d 1448, 1457 (Fed Cir 1998).

92 *Johnson & Johnston Assocs Inc v R E Service Co*, 285 F 3d 1046, 1055 (Fed Cir 2002) (en banc). (The Federal Circuit held that Johnson & Johnston Associates could not rely on the doctrine of equivalents to establish that accused devices using steel sheets to make circuit boards infringed its patent when the patent disclosed both aluminum and steel sheets but only claimed aluminum sheets.

93 *Johnson & Johnston Assocs Inc v R E Service Co*, 285 F 3d 1054 (Fed Cir 2002) (en banc).

94 *Johnson & Johnston Assocs Inc v R E Service Co*, 285 F 3d 1055 (Fed Cir 2002) (en banc).

95 US Const Article I, Clause 8.

96 *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 68 USP Q2d 1321; *Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Co Ltd*, 75 USP Q 2d 1830; *Amgen Inc v Hoechst Marion Roussel Inc*, 79 USP Q 2d 1705; *Oki America Inc v Advanced Micro Devices Inc*, 2006 WL 3290577.

97 68 USP Q 2d 1321.

98 350 F 3d 1235 (Fed Cir 2003).

99 75 USP Q 2d 1830.

100 *Hilton Davis Chemical Co v Warner-Jenkinson Co Inc*, 520 US at 117.

101 *Exhibit Supply Co v Ace Patents Corp*, 315 US at 126.

102 415 F 3d 1303 (Fed Cir, en banc 2005).

103 415 F 3d 1303 (Fed Cir, en banc 2005), The court looked first to the specification 'to ascertain the meaning of a claim term as it is used by the inventor in the context of the entirety of his invention', 415 F 3d 1313 (Fed Cir, en banc 2005).

104 79 USP Q 2d 1705.