

# **When can no reasonable jury find patent infringement under the doctrine of equivalents?**

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**Tokyo, Japan  
April 1999**

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## I. Introduction

### A. The Need For Certainty And Predictability With Respect To Patent Infringement

As you know, patent litigation is very risky. Attorneys' fees alone can exceed ¥ 100M if the case is tried to a jury. Damages can often exceed ¥ 1B, and of course they can be trebled. Finally, of course, the entry of an injunction can be devastating to a business.

The time required for patent litigation is another problem. Five years is typical. Such high risk over such a long period of time is a problem for business owners, banks, investors, employees, and even the government, because it threatens stability in an unpredictable, sometimes drastic manner. For these reasons, there is a need to be able to predict the outcome of litigation in opinions with a reasonable degree of certainty.

### B. Sources Of Uncertainty

Unfortunately, there are many sources of uncertainty in patent cases, such as the effectiveness of counsel, the credibility of witnesses, and many other things. We will discuss two sources of uncertainty today: juries and the true meaning of equivalents.

#### 1. Jury Trials

In the United States, the right to a jury trial is constitutional. While its origins perhaps lie in criminal law, the right to a jury trial extends to many civil actions, including patent infringement cases, as well. Even complex issues are usually decided by juries.

People often disagree with jury verdicts which are reported by the press, yet there is no general feeling that the system should be changed. Unfortunately, a jury's reaction to the evidence is difficult to predict.

Historically, almost all questions related to patent infringement, including claim construction, equivalents, etc., were decided by the jury. At the end of the trial, the judge would give the jury very general instructions regarding claim construction, the doctrine of equivalents, and so forth, and all of those issues were decided by the jury. The result was usually a general verdict in which the jury selected "yes" or "no" to decide the infringement question. There was no explanation as to the reasons for the verdict, and no easy way to challenge the thinking and analysis of the jury on appeal. Great deference is given to jury verdicts on appeal, which makes it very difficult to overturn a verdict. This deference adds another layer of uncertainty and unpredictability.

To better understand how the courts defer to the jury, consider *Read v. Portec*.<sup>1</sup>

The claim in that case and drawings of the patented device (portable screening apparatus) are shown below.

2. A portable screening apparatus for separating coarse material from finer material comprising:

a frame of generally rectangular cross section and having a tall end and a short end joint [sic] by sides, said short end being *closed* from an upper edge of said short end *to the ground* and the lower portion of said tall end being *completely open* from the ground to a height sufficiently high

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<sup>1</sup>970 F.2d 816, 23 USPQ2d 1426 (Fed. Cir. 1992).

Fig. 1 of '194 patent

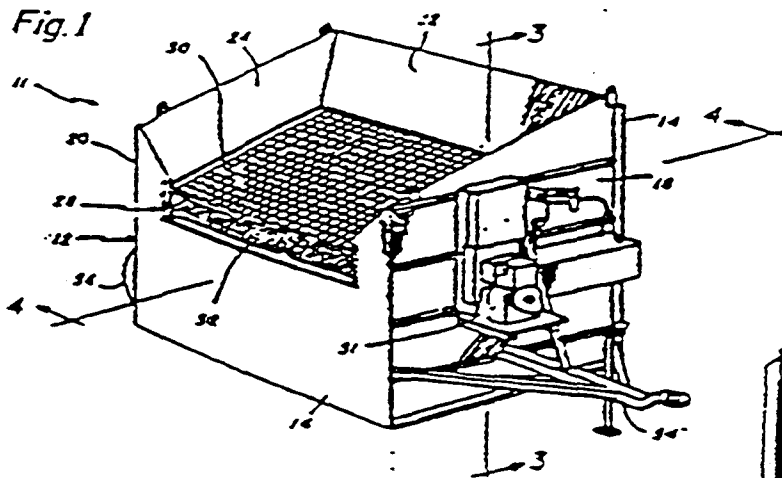
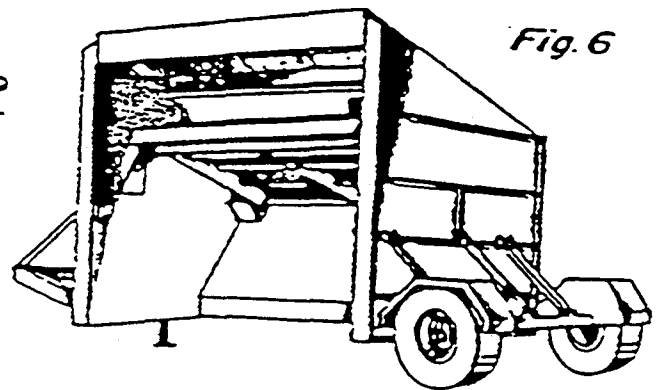


Fig. 6 of '836 patent



to permit a pay loader to collect the finer material from within the frame;

said frame at said tall end having a width sufficient to accommodate the shovel of a pay loader;

a material separating shaker screen sloping downwardly from *near* the upper edge of said tall end to *near* the upper edge of said short end;

a set of wheels mounted to one of said sides and movable relative to said frame from an operative position for transporting said apparatus to an inoperative position for resting said frame flush on the ground; and

a trailer hitch mounted to the other of said sides.

One of the issues in the case involved the interpretation of "closed. . .to the ground", because the defendant's device was six inches off the ground. The jury found infringement. The court found that the jury could have interpreted "closed to the ground" to literally cover the defendant's device, in part because the claim required another part of the device to be "completely open". Since the "closed" language was not similarly described ("completely closed"), the court found the evidence sufficient to support the verdict.

The jury verdict was upheld even though another part of the claim called for a screen to slope from "near" one edge to "near" another edge. If the jury had found no infringement, the court might have used this language to uphold the verdict of noninfringement. Also, of course, the court might have interpreted the claim differently if it were not required to give deference to the verdict. Thus, this example shows how

deference is given to jury verdicts, and the uncertainty inherent in the jury system caused by that deference.

## 2. Equivalents

Another source of uncertainty is the concept of equivalence, under § 112(6) and the doctrine of equivalents. The tests for equivalence (such as function, way, result) are easy to recite, but difficult to apply. In the absence of prosecution history estoppel or close prior art, the allowable range of equivalents is hard to visualize or define because we do not encounter this concept in our daily lives. The only practical way to get a feeling for equivalents is to look closely at the facts of cases which address this question, which we will do today. First, however, we need a better understanding of some important legal rules.

### C. Legal Questions For The Court And Factual Questions For The Jury

The practice of allowing the jury to construe the claims was changed in *Markman*<sup>2</sup>. In that case, the court decided that claim construction is a question of law, to be decided by the court and given to the jury through instructions. This was done in part to increase certainty and predictability in patent infringement cases, by (i) requiring a legal analysis according to rules set by the court, and (ii) requiring that the analysis be written, so it could be reviewed by the appellate court. In *Markman*, the court also held that claim

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<sup>2</sup>52 F.3d 967, 34 USPQ2d 1321 (Fed. Cir. 1995), *aff'd.*, 517 U.S. 370, 116 S.Ct. 1384, 38 USPQ2d 1461 (1996).

interpretation would be reviewed *de novo*, which means that the appellate court reviews claim construction without deference to the trial court. This removed some of the uncertainty we saw in the *Read* case.

When *Markman* was decided, many people believed that it would greatly improve the process, causing early settlement of patent litigation, because interpreting the claims usually resolves the issue of literal infringement. As we know, though, even when there is no literal infringement, there can still be infringement under the doctrine of equivalents, which of course is a source of great uncertainty, particularly when it is decided by a jury.

In *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, the Supreme Court apparently recognized the potential uncertainty which overreaching theories of infringement could create.<sup>3</sup> The court recognized the importance of prosecution history estoppel in reducing that uncertainty, and it recognized the lower courts' duty to insure that a theory of infringement would not effectively eliminate a claim limitation. Nonetheless, the court left open the question of exactly when a defendant's device is so different that a jury trial can be avoided when there is no estoppel. We will address this question today, by examining cases decided after *Warner-Jenkinson* which considered the range of available equivalents, irrespective of estoppel.

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<sup>3</sup>117 S.Ct. 1040, 41 USPQ2d 1865 (1997).



D. The Standards For Summary Judgment, Which Avoids A Jury Trial

In any litigation, a party can ask the court to decide one or more issues in the case, even when a jury trial is demanded, by moving for summary judgment. Rule 56 of the Federal Rules of Civil Procedure provides that the trial court can grant summary judgment if there are no genuine issues as to material facts, or if, giving all reasonable inferences to the nonmoving party, the nonmoving party could not prevail. Stated another way, the trial court can grant summary judgment if no reasonable jury could find for the nonmoving party on the undisputed facts. In a patent case, if summary judgment of infringement or non-infringement is granted, the infringement question is decided without a jury trial.

E. The Standard For Granting Judgment As A Matter Of Law (JMOL) During Or After Trial.

When a party finishes presenting its evidence at trial, the opposing party can ask the trial court for judgment as a matter of law, pursuant to Rule 50 of the Federal Rules of Civil Procedure. As with summary judgment, the district court can grant judgment as a matter of law if no reasonable jury could find for the nonmoving party based on the evidence presented. This type of motion can also be made after trial. The standard for granting judgment as a matter of law is essentially the same as the standard for granting summary judgment.

F. The Range Of Available Equivalents In Patent Infringement Cases

Because of the deference given to juries, courts usually set a fairly wide scope of fact patterns upon which a reasonable jury can base its conclusion. However, as we will see in the post *Warner-Jenkinson* cases which we will discuss today, the Federal Circuit is at least arguably setting the range of available equivalents in patent infringement cases relatively narrow as compared with other areas of the law. To understand the range of available equivalents, we will now examine the facts in cases which address this issue.

II. When Can No Reasonable Jury Find Patent  
Infringement Under The Doctrine Of Equivalents?

A. *Eastman Kodak Co. v. Goodyear Tire & Rubber Co.*

The first case we will consider is *Eastman Kodak Co. v. Goodyear Tire & Rubber Co.*<sup>4</sup>. In that case, the patent in suit was for a process for making granules of container-grade polyethylene terephthalate (PET) in an “inert gas atmosphere”. A jury found infringement, but the trial court granted judgment as a matter of law of no infringement with respect to several production lines which used heated air.

The doctrine of equivalents was discussed with respect to this claim limitation. There was no discussion of the prosecution history, so there was presumably no estoppel, but the term was discussed several times in the specification.

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<sup>4</sup>114 F.3d 1547, 42 USPQ2d 1737 (Fed. Cir. 1997).

According to the present invention, prior to the start of the solid state polycondensation reaction, the granulate is crystallized. . . in an inert gas atmosphere. The crystallized granulate is then transferred, at the same temperature or at a lower temperature, *while avoiding the addition of air*, to a continuously operating, fixed bed reactor. . . .<sup>5</sup>

The court found that under these circumstances, no reasonable jury could find infringement. In this case at least, exclusionary language in the specification precluded infringement under the doctrine.

B. *Wright Medical Technology, Inc. v. Osteonics Corp.*

In the next case we will consider, the court found that a reasonable jury *could* find infringement under the doctrine of equivalents. In *Wright Medical Technology, Inc. v. Osteonics Corp.*,<sup>6</sup> the Federal Circuit affirmed summary judgment of no literal infringement, but reversed summary judgment of no infringement under the doctrine of equivalents. The case was returned to the trial court for further proceedings on equivalents.

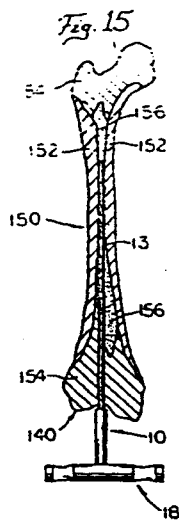
The patented invention was a device for attaching an artificial knee. In order to attach the artificial knee, the thigh bone had to be reshaped.

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<sup>5</sup>*Eastman Kodak*, 114 F.3d at 1560, 42 USPQ2d at 1746.

<sup>6</sup>122 F.3d 1440, 43 USPQ2d 1837 (Fed. Cir. 1997).

Patent: Device for attaching an artificial leg.



**Claim:** As an article of manufacture, a distal femoral surface shaping guide comprising the combination of

(A) an intramedullary alignment guide comprising (1) an intramedullary rod portion adapted to *closely fit in and extend through the narrowest portion of the human femur* such that the central long axis of said femur passes through the central long axis of said intramedullary rod portion. . .

Issue: Whether the STAT-IM rods, which do not "closely fit in and extend through the narrowest portion of the human femur," [footnote omitted] substantially differ from the claimed rod, and whether the STAT-IM rods perform substantially the same *function*, in substantially the same *way*, to achieve substantially the same *result* as the claimed rod.

Held: Summary Judgment of no literal infringement affirmed.  
Summary judgment of no equivalents reversed and remanded  
because a reasonable jury could find infringement.

The Federal Circuit agreed that there was no literal infringement, but concluded that this was not a case in which an assertion of equivalents was an attempt to ignore claim limitations on which the public is entitled to rely.

Wright's assertion of infringement under the doctrine of equivalents is a permissible attempt to prohibit Osteonics from making and selling a device that combines "elements identical or equivalent to each claimed element of the patented invention." *Warner-Jenkinson*, 117 S.Ct. at 1054, 41 USPQ2d at 1875. Both the claimed invention and the STAT-IM device employ an intramedullary rod element, and Wright's argument is that the STAT-IM rods are equivalent to the claimed rod.

\* \* \*

On remand, the fact-finder must determine whether the intramedullary rod of the claimed distal femoral surface shaping guide, the one element that is not literally met by the STAT-IM device, is equivalent to the intramedullary rods used in the STAT-IM device.<sup>2</sup> . . . This inquiry may be restated as whether the STAT-IM rods, which do not "closely fit in and extend through the narrowest portion of the human femur," [footnote omitted] substantially differ from the claimed rod, and whether the STAT-IM rods perform substantially the same *function*, in substantially the same *way*, to achieve substantially the same *result* as the claimed rod.<sup>7</sup>

Evidently, the components were the same, but they were rearranged or changed in dimensions. Infringement by equivalents was not precluded.

Thus, we see that in *Wright Medical* the patent owner had the opportunity to present evidence of equivalents, but the patent owner in *Eastman Kodak* did not. "Closely

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<sup>7</sup>*Wright Medical*, 122 F.3d at 1445-46, 43 USPQ2d at 1842.

fit in" and "extend through" did not specifically exclude equivalents, but "inert gas" did. The difference, of course, was in the specification in *Eastman Kodak*, but we can already see the potential difficulty of predicting when particular claim language will or will not specifically exclude equivalents. The court addressed this problem in the next case we will discuss.

C. *Sage Products, Inc. v. Devon Industries, Inc.*

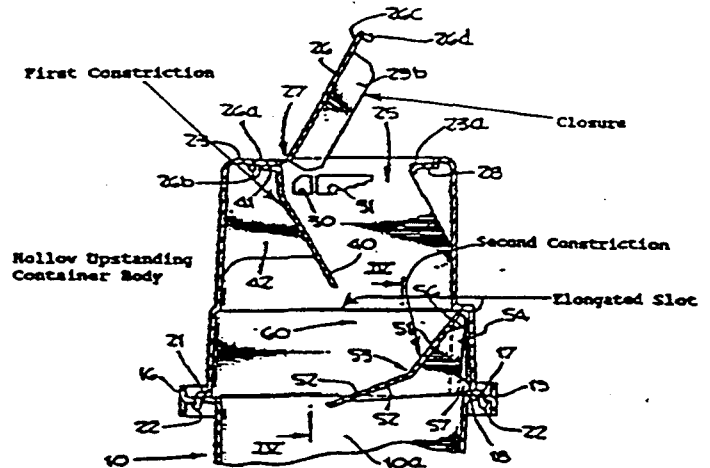
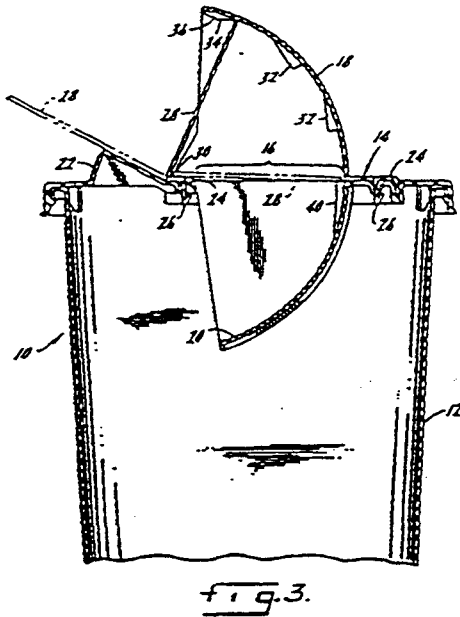
In *Sage Products, Inc. v. Devon Industries, Inc.*,<sup>8</sup> there were three patents in suit, two owned by the plaintiff and one owned by the defendant. The trial court granted summary judgment that none of the patents were infringed, and the Federal Circuit affirmed, "[b]ecause the district court properly interpreted the claims of each patent to preclude literal infringement and properly determined that there could be no infringement under the doctrine of equivalents."<sup>9</sup>

One patent in suit was Sage's '728 patent. The '728 patent covers a disposal container with a slot at its top to allow entry of waste materials into the container. It also has constrictive barriers above and below that slot to restrict access to the interior of the container. Fig. 3 and claim 1 of the '728 patent (with reference numerals) are shown in the overhead for this case.

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<sup>8</sup> 126 F.3d 1420, 44 USPQ2d 1103 (Fed. Cir. 1997).

<sup>9</sup> *Sage*, 126 F.3d at 1421, 44 USPQ2d at 1104.



1. A disposal container comprising:
  - a. a hollow upstanding container body,
  - b. an elongated slot [16] at the top of the container body [12] for permitting access to the interior of the container body,
  - c. barrier means disposed adjacent said slot for restricting access to the interior of said container body, at least a portion of said barrier means comprising
    - i. a first constriction [18] extending over said slot, [16] and
    - ii. a complementary second constriction [20] extending beneath said slot, and
  - d. a closure [28] disposed adjacent said slot.

Sage's theory of infringement is also shown in the overhead. Sage identified an interior part 40 as the first constriction, a second interior part 52 as the second constriction, and the space between them as the elongated slot. Summary judgment of no literal infringement was affirmed. With respect to the doctrine of equivalents, the Court said,

A device that does not literally infringe a claim may nonetheless infringe under the doctrine of equivalents if every element in the claim is literally or equivalently present in the accused device . . . . A claim element is equivalently present in an accused device if only "insubstantial differences" distinguish the missing claim element from the corresponding aspects of the accused device . . . . Although equivalence is a factual matter normally reserved for a fact finder, the trial court should grant summary judgment in any case where no reasonable fact finder could find equivalence . . . . The district court properly discerned that this case falls in that category.<sup>10</sup>

*Sage* offered several alternative theories of infringement, all of which were rejected because they did not satisfy both the "at the top of the container body" limitation and the "over said slot" limitation.

There was no need for fact-finding because:

The claim at issue defines a relatively simple structural device. A skilled patent drafter would foresee the limiting potential of the "over said slot" limitation." [footnote omitted]. No subtlety of language or complexity of the technology, nor any subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of this limitation at the time of its incorporation into the claim.

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<sup>10</sup>*Sage*, 126 F.3d at 1420, 44 USPQ2d at 1106.



In sum, the '728 patent claims a precise arrangement of structural elements that cooperate in a particular way to achieve a certain result. Devon achieves a similar result-restricted entry to a medical disposal container-but it does so by a different arrangement of elements. Because this issued patent contains clear structural limitations, the public has a right to rely on those limits in conducting its business activities. This court will not effectively remove such a limitation under a doctrine designed to prevent "fraud on a patent." Accordingly, this court affirms the judgment of the district court that Devon does not infringe the '728 patent, either literally or under the doctrine of equivalents.<sup>11</sup>

Here, we learn that if the claim language is specific enough, infringement can be avoided by a re-arrangement of components and change of location. In my view, the decision did not adequately explain how attorneys can advise clients as to the scope of available equivalents, but we can learn something about that scope by understanding the facts of the case.

D. *Laitram Corp. v. Morehouse Industries, Inc.*

In *Laitram Corp. v. Morehouse Industries, Inc.*,<sup>12</sup> a plastic "module" (10) was connectable to other modules to form a conveyor belt. Among other things, the center of each module had several "sprocket recesses" (50) which mated with sprockets (52) of a sprocket wheel (54) during operation of the conveyor belt, as seen in the overhead for this case. The sprocket recesses (50) included two transverse sections (32 and 34).

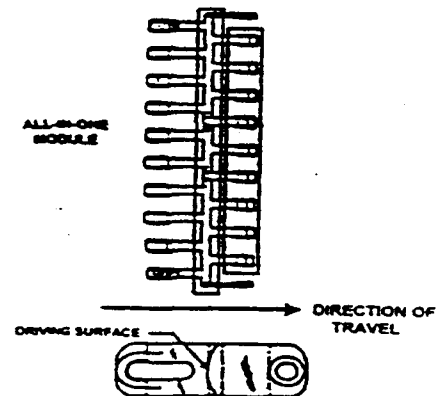
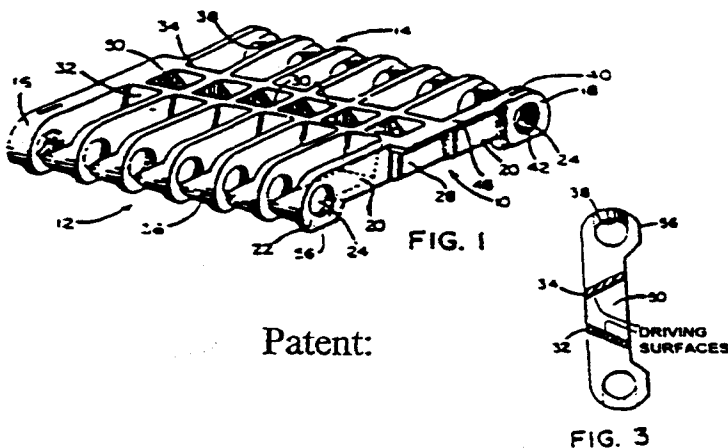
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<sup>11</sup>*Sage*, 126 F.3d at 1425-1426, 44 USPQ2d at 1107-1108.

<sup>12</sup>143 F.3d 1456, 46 USPQ2d 1609 (Fed. Cir. 1998).

**Patent:** A plastic "module" connectable to other modules to form a conveyor belt. Each module had several "sprocket recesses" which mated with sprockets of a sprocket wheel during operation of the conveyor belt.

**Accused Device:** A single transverse section formed a single driving surface, without a sprocket recess as such.



Accused Device

**Claim:** At least two transverse elements . . . defining at least two sprocket recesses . . . capable of receiving cooperative sprocket teeth.

**Held:** No reasonable fact finder could conclude that the single bar of the all-in-one module was equivalent to the "sprocket recess" limitation. Using a single bar rather than opposing transverse elements created a module that produced a different result, that is a module capable of moving in only one direction rather than two.

One of the accused devices (the "all-in-one module") contained a single transverse section forming a single driving surface, and did not have a sprocket recess as such.

The claim limitation at issue read as follows:

At least two transverse elements . . . defining at least two sprocket recesses . . . capable of receiving cooperative sprocket teeth.

The Federal Circuit affirmed the district court's holding that the sprocket recess limitation required two opposing transverse elements capable of mating with a corresponding sprocket tooth, so there was no literal infringement. With respect to the doctrine of equivalents, the court found that there was prosecution history estoppel. However, the court also (and apparently separately) found that the plaintiff could not successfully argue that the single bar of the all-in-one module was equivalent to the "sprocket recess" limitation in any event, because no reasonable fact finder could conclude that such a difference was insubstantial. The court felt that using a single bar rather than opposing transverse elements created a module that produced a different result, that is a module capable of moving in only one direction rather than two.

E. *Digital Biometrics, Inc. v. Identix, Inc.*

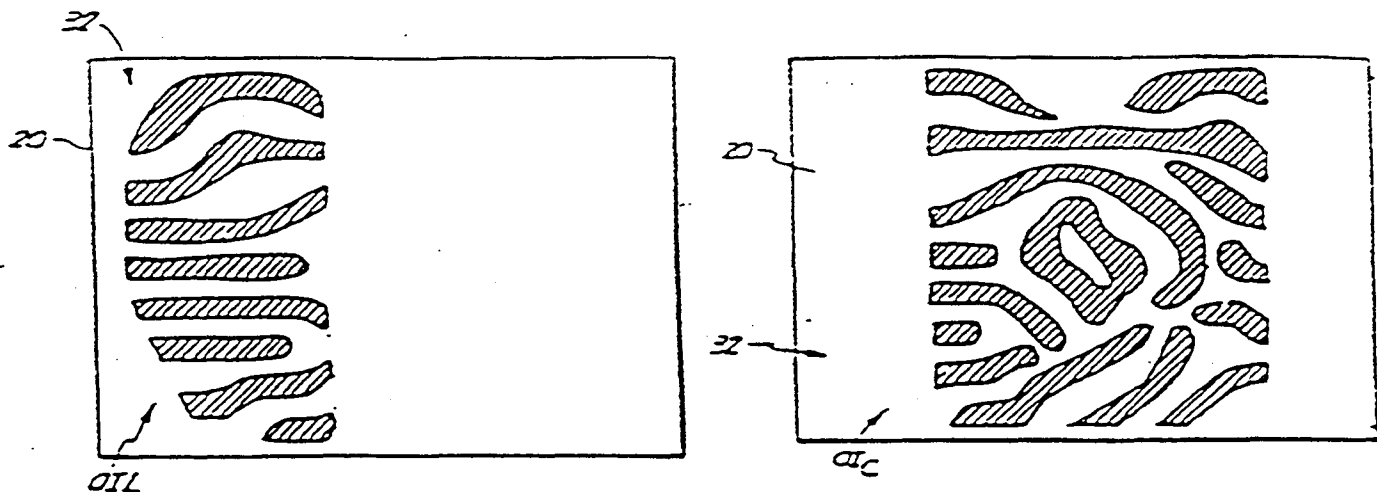
In *Digital Biometrics, Inc. v. Identix, Inc.*,<sup>13</sup> the patented invention related to a computer controlled imaging and retrieval system for capturing, storing, and displaying

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<sup>13</sup> 149 F.3d 1335, 47 USPQ2d 1418 (Fed. Cir. 1998).

***Digital Biometrics, Inc. v. Identix, Inc.*, 47 USPQ2d 14, 18 (Fed. Cir. 1998)**

Patent: A computer controlled imaging and retrieval system for capturing, storing, and displaying fingerprint images.



Claims: Store "slices" of digital information in order to make a composite array of a fingerprint as a finger is rolled over a plate.

Accused  
Device:

The accused system had a memory which stored the fingerprint image produced by the imaging system, but each digital data value produced by an A/D converter was stored in a location in the memory system corresponding to its pixel location in a charged coupled device. The system used a mathematical function to determine what value to store in a particular memory location based on the value of current digital information and an existing digital value.

Held: No infringement under the doctrine of equivalents.

fingerprint images. The claims called for the system to store and process overlapping slices of digital information in order to make a composite image of a fingerprint as a finger was rolled over a plate.

One accused system (TP-600) had a memory which stored the fingerprint image produced by the imaging system, but each digital data value produced by an A/D converter was stored in a location in the memory system corresponding to its pixel location using a charged coupled device. The system used a mathematical function to determine what value to store in a particular memory location based on the value of current digital information and an existing digital value.

The Federal Circuit affirmed the trial court's grant of summary judgment of non-infringement. There was no literal infringement because the accused device did not generate arrays of slice data, as required by the claims. There was also no infringement under the doctrine of equivalents.

The TP-600 is too different from the patented invention to support a verdict of infringement under the doctrine of equivalents; no reasonable jury could find otherwise. In the TP-600, each digital data value produced by the A/D converter is temporarily held in a register while that value is processed. These values are not accumulated and then stored in memory, as in the claimed invention. The data value produced by the A/D converter is not filtered to eliminate the blue-sky data [where the finger does not touch the screen] from the non-blue sky data, as in the claimed invention. The prosecution history, as discussed above, confirms the significance of the slice data to the invention. DBI distinguished the Ruell reference, *inter alia*, on the ground that "Ruell does not teach a system which identifies *active portions* of the image." The A/D converter generates only a single value; therefore, it does not and can not differentiate between individual values, as in the claimed

invention. In light of these significant differences, no reasonably jury could find that the TP-600 infringes either claim 1 or 16 under the doctrine of equivalents.<sup>14</sup>

This case gives one example of technical differences which can avoid infringement as a matter of law in electronics cases.

F. *Dawn Equipment Co. v. Kentucky Farms Inc.*

In *Dawn Equipment Co. v. Kentucky Farms Inc.*,<sup>15</sup> the jury found no literal infringement, but did find infringement under the doctrine of equivalents. The district court denied the defendant's motion for judgment as a matter of law (JMOL). On appeal, the Federal Circuit reversed the denial of JMOL and ordered judgment entered for the defendant.

The case involved the means-plus-function limitation in the overhead.

The patent described a mechanism for raising and lowering a farm implement. The locking means disclosed in the patent included a handle, cylindrical rods, a cylindrical shaft and a transverse pin carried on the shaft. A spring biased the mechanism in the raised position, and in the lowered position, the pin was engaged in the slot, against the bias of the spring. To move the implement from the lowered position to the raised position, the operator pressed down on and turned the handle to rotate the pin out of the slot. The spring then overcame the weight of the farm implement and pushed the implement into the raised position. Thus, when the mechanism was released, the implement went up, not down.

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<sup>14</sup>*Digital Biometrics*, 149 F.3d at 1349, 47 USPQ2d at 1429.

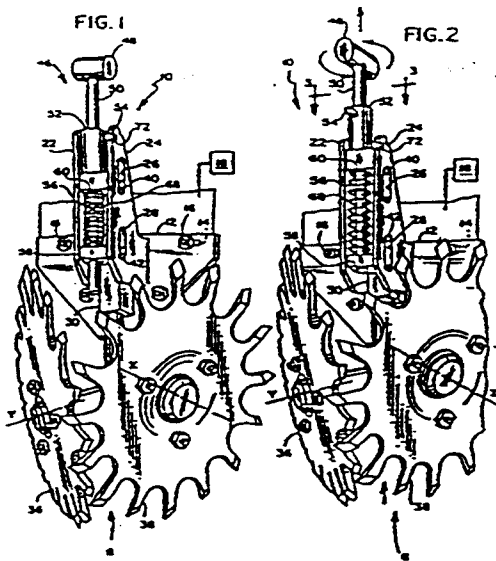
<sup>15</sup>140 F.3d 1009, 46 USPQ2d 1109 (Fed. Cir. 1998).

***Dawn Equipment Co. v. Kentucky Farms Inc.*, 140 F.3d 1009, 46 USPQ2d 1109 (Fed. Cir. 1998)**

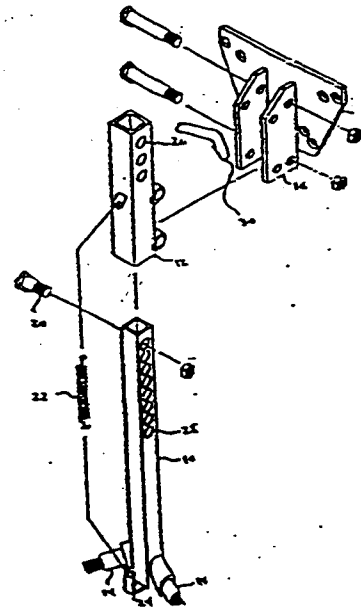
Claim language in issue:

means for locking the connecting means in one of the first and second positions and for selectively releasing the connecting means to allow the connecting means to be slid into the other of the first and second positions therefor,

Patent



Accused Device:



Held:

No reasonable jury could have found equivalence.

The patent described problems with the prior art, including prior art which used "multi-hole pinned height adjustment" mechanisms. The patent explained that raising or lowering such prior art mechanisms can be very time-consuming, tedious and repetitive. Adjusting the height of such mechanisms requires the operator to manually elevate and shift the farm implement to align holes and insert pins. The patent also explained that the loose pins used in the prior art mechanisms were easily lost, and of course the operator had to get under the implement to find loose pins, which was dangerous.

The accused device used a multiple-hole, pinned height adjustment mechanism.

The Federal Circuit defined the issue as whether the loose pin and holes combination in the accused device performed substantially the same function, in substantially the same way, to achieve substantially the same result as the rotatable shaft, pin and slot mechanism shown in the patent. The Court held that no reasonable jury could have found infringement under the doctrine of equivalents. Advantages touted in the patent but not produced by the defendants' device were a problem for the patentee. Also, the statements about the prior art strongly suggested, if not mandated, judgment in defendants' favor.

G. *Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*

In *Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*,<sup>16</sup> an apparatus patent was directed to an invention for cutting concrete before it hardened completely. The claims were directed to a rotary saw in which the leading edge of the saw

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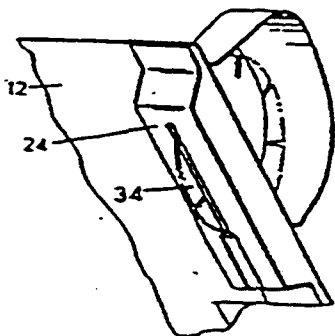
<sup>16</sup> 145 F.3d 1303, 46 USPQ2d 1752 (Fed. Cir. 1998).



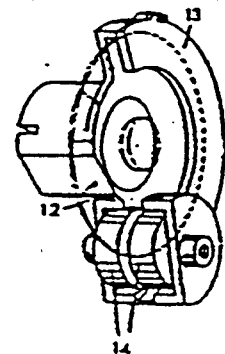
***Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 46 USPQ2d 1752 (Fed. Cir. 1998)**

Patent: A rotary saw in which the leading edge of the saw rotated in an upward direction so as to prevent the accumulation of displaced wet concrete in the groove created behind the saw. A support surface applied downward pressure at the point where the saw blade emerged from the concrete, to prevent the upwardly rotating blade from damaging the concrete.

**An Embodiment of the Invention**



**The Accused Device**



Claim: A saw for cutting concrete even before the concrete has hardened to its typical, rock-like hardness, comprising:  
a circular concrete cutting blade having sides and a leading cutting edge;  
a motor connected to rotate the concrete cutting blade in an up-cut rotation;  
means connected to the saw for supporting the surface of the concrete adjacent the leading edge of the cutting blade to inhibit chipping, palling, or cracking of the concrete surface during cutting;  
wheel means for movably supporting the saw on the surface of the concrete during cutting.

rotated in an upward direction so as to prevent the accumulation of displaced wet concrete in the groove created behind the saw. Also, a support surface applied downward pressure at the point where the saw blade emerged from the concrete, to prevent the upwardly rotating blade from damaging the concrete. The invention was claimed as follows:

A saw for cutting concrete even before the concrete has hardened to its typical, rock-like hardness, comprising:

\* \* \*

means connected to the saw *for supporting the surface of* the concrete adjacent the leading edge of the cutting blade to inhibit chipping, palling, or cracking of the concrete surface during cutting;

wheel means for movably supporting the saw on the surface of the concrete during cutting.

The only structure disclosed for supporting the surface of the concrete was a skid plate. The defendant's device substituted two wheels for the skid plate, shown on the following page.

The court held that a determination of the claimed function is a question of law, reviewed *de novo*, because it is a matter of claim construction. The court also held that a determination of corresponding structure in the specification is a determination of the meaning of the "means" term in the claim, and thus is also a matter of claim construction.

The Federal Circuit interpreted the means-plus-function claim limitation in the following manner. The function was identified as "supporting the surface of the concrete adjacent to the leading edge of the cutting blade to inhibit chipping, palling, or cracking of the concrete surface during cutting."

With respect to the structure which supports the “means for” language, the court referred to the following description in the specification:

A support surface or plate is in movable contact with the surface of the concrete 13 in order to support the surface of the concrete immediately adjacent the groove being cut in the concrete 13. In the illustrated embodiment, this surface takes the form of a skid plate 24 which depends from the base plate 12 in the direction of the concrete 13.<sup>17</sup>

As you can see, the specification describes both a “support surface” and a “skid plate”. The court refused to define the structure for performing the supporting function as a “support surface”, which would have covered the defendants' wheels, and defined the structure as the skid plate, which created an equivalents question. The court decided that no reasonable jury could have found that the accused device has a § 112 equivalent to the disclosed structure.

The court rejected evidence of interchangeability, even though the defendant's saw could have been outfitted with a skid plate, and the patentee's saw could have had the accused wheels.

Because the wheels of the accused device are not equivalent to the skid plate disclosed in the '499 patent, the accused structure is not within the scope of the claim. Accordingly, the district court erred by granting Chiuminatta's motion for summary judgment of literal infringement.<sup>18</sup>

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<sup>17</sup>*Chiuminatta*, 145 F.3d at 1308, 46 USPQ2d at 1756.

<sup>18</sup>*Chiuminatta*, 145 F.3d at 1310, 46 USPQ2d at 1757.

Having found no literal infringement under § 112(6), the court considered the doctrine of equivalents.

In this case there can also be no doctrine of equivalents infringement because, as we have explained, the structure in the accused device, the wheels, operates in a substantially different way compared with the structure of the claimed device, the skid plate. The former support the surface of the concrete by *rolling* over the concrete while the latter *skids*. The former are soft, compressible, and round; the latter is hard and predominantly flat (albeit with rounded edges to prevent gouging of the concrete). Additionally, the wheels rotate as opposed to skid as the saw moves across the concrete and thus have a different impact on the concrete. The wheels flatten slightly, applying more localized pressure against the concrete than that produced by a hard flat skid plate. Accordingly, for this additional reason, it cannot be an equivalent under the doctrine of equivalents and the district court is directed to enter summary judgment of non-infringement.<sup>19</sup>

Thus, in this case, a substitution of components avoided infringement as a matter of law.

H. *Ethicon Endo Surgery, Inc. v. U.S. Surgical Corp.*

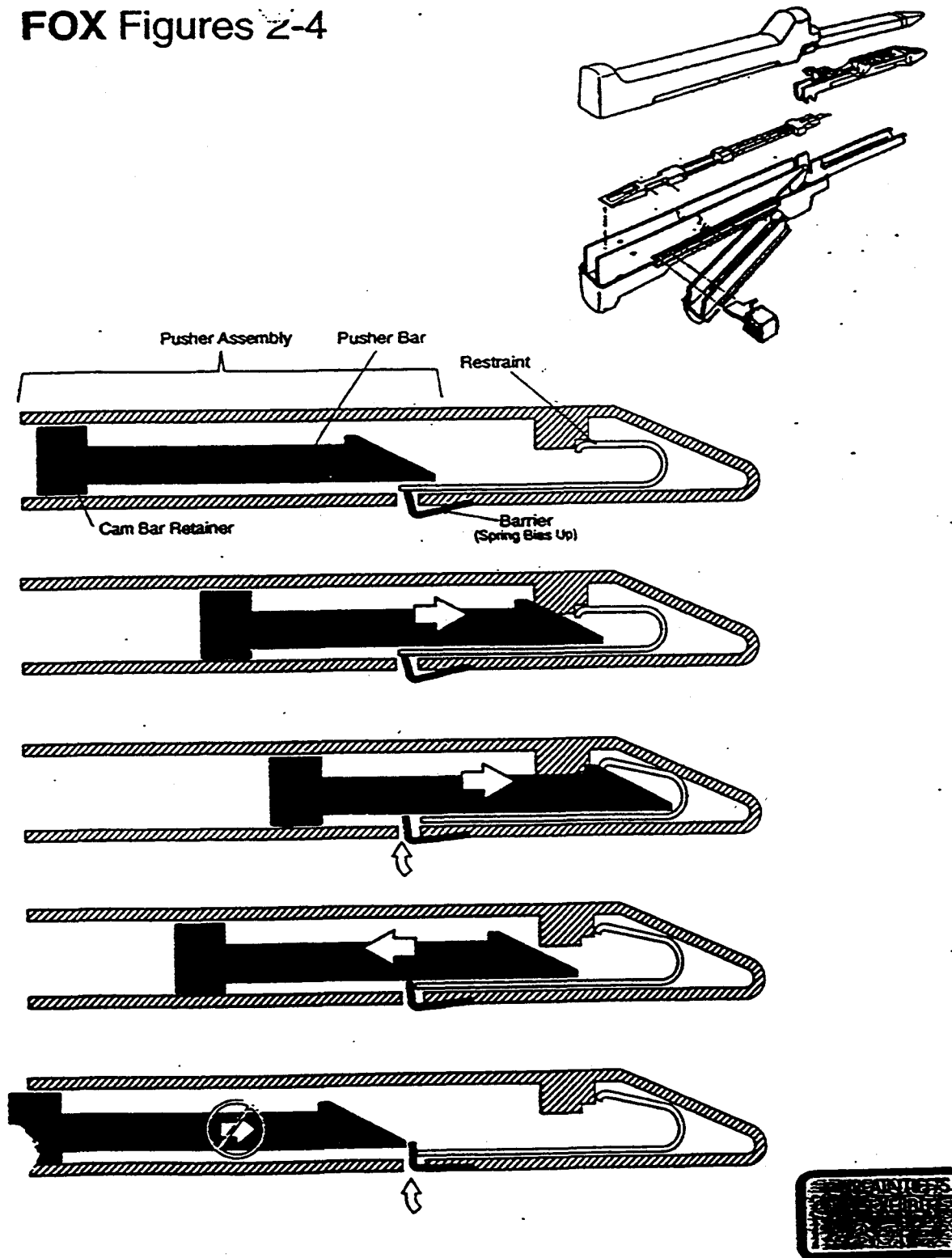
Another case we will consider is *Ethicon Endo Surgery, Inc. v. U.S. Surgical Corp.*<sup>20</sup> In reviewing summary judgment of non-infringement, the court found that one claim (claim 6) was not infringed, but that another claim (claim 24) could be infringed if the fact finder found equivalence. We will examine both claims.

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<sup>19</sup>*Chiuminatta*, 145 F.3d at 1311, 46 USPQ2d at 1757-58.

<sup>20</sup>149 F.3d 1309, 47 USPQ2d 1272 (Fed. Cir. 1998).

# FOX Figures z-4



The patent described a lockout mechanism for use in linear cutter staplers. Linear cutter staplers are used by surgeons to make an incision in an organ such as the intestine, and simultaneously staple the open ends of the organ closed, to prevent excessive bleeding. The purpose of the lockout mechanism was to prevent the stapler from being used unless an unused cartridge was inserted into it. The patented lockout mechanism is shown in the plaintiff's exhibit called FOX Figures 2-4.

Claim 6 read as follows, with the most important language emphasized:

*In a staple cartridge* insertable within a surgical stapler and containing staples and comprising an elongated body including one or more longitudinal slots for slidably receiving one or more longitudinal pusher bars comprising a firing mechanism of said surgical stapler and a plurality of drivers engageable by said pusher bars for ejecting the staples from the cartridge, said staple cartridge releasably fastened to a [sic] said surgical stapler,

*the improvement comprising a lockout mechanism connected to said longitudinal slots* for prevent said pusher bar from passing more than one time through said longitudinal slots.

(emphasis and paragraphing added).

The other claim in issue (claim 24) was as follows:

A surgical stapler comprising

\* \* \*

a lockout mechanism for preventing firing movement of the pusher assembly in the firing direction after the pusher assembly has been moved to the retracted position, said lockout mechanism including a barrier assemblage for preventing movement of the pusher assembly from said retracted position,

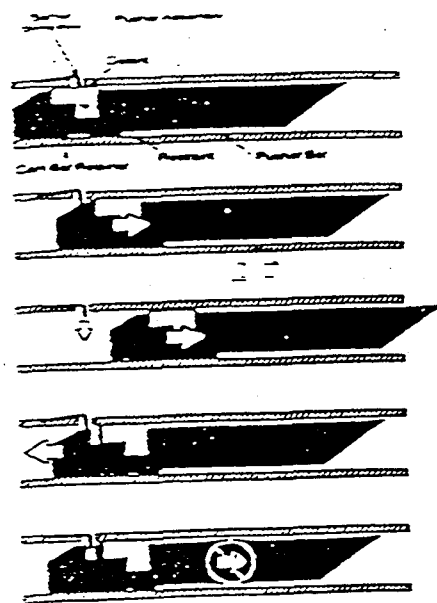
said barrier assemblage comprising a resilient projecting member normally biased toward a position to engage said pusher assembly to prevent movement of said pusher assembly relative to said resilient projecting member after said pusher assembly has been moved to said retracted position, and

*a restraining structure* separate from said pusher bar for blocking said barrier assemblage to maintain said resilient projecting member out of the path of the pusher assembly *during staple firing*, said restraining structure being movable by said pusher assembly during movement of the pusher assembly in the firing position whereby the barrier assemblage is released to allow the resilient projecting member to move into the path of the pusher assembly to prevent firing movement of said pusher assembly after movement thereof to said retracted position.

(emphasis and paragraphing added).

Notice that in claim 6 the location of the lockout mechanism is tied to the longitudinal slots, but in claim 24, the lockout mechanism can be anywhere in the path of the pusher assembly.

In the accused device, the lockout mechanism included a barrier (or "hooking clip") for engaging a cam bar retainer. It was not a pusher bar, but it was part of the pusher assembly. However, it was not in the staple cartridge, but was located at the end of a self-contained "disposable loading unit" (DLU) opposite the staple cartridge. Thus, the defendant's lockout did not physically obstruct the pusher bars' path into the cartridge, but rather prevented the bars from being pushed from behind by obstructing the movement of the cam bar retainer.

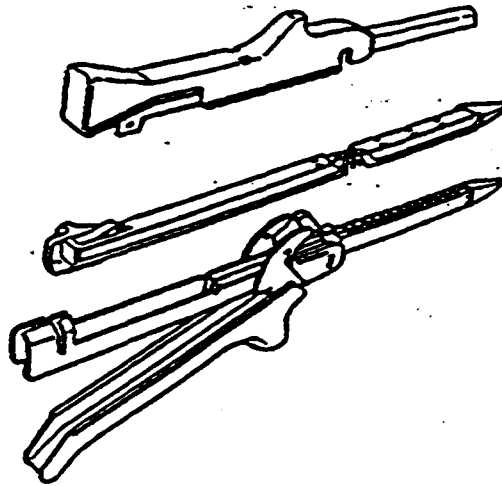




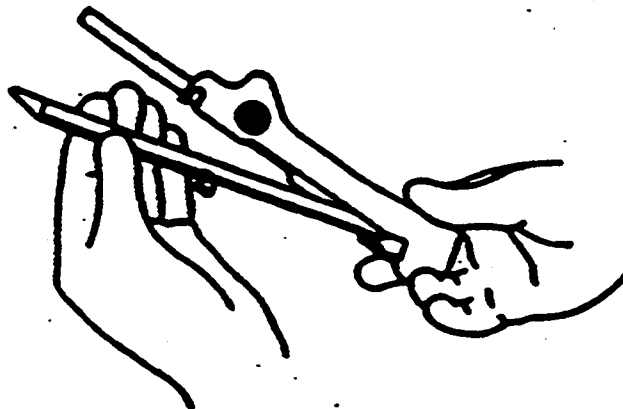
**The Lockout Mechanism In USSC's Stapler Is  
Insertable And Releasable With The Staple Cartridge  
Like The Lockout Mechanism In The Claim 6 Stapler.**

**The Claim 6 Lockout Mechanism Is "In a Staple Cartridge" Which Is "Insertable And Releasable" Within A Stapler**

**The USSC Lockout Mechanism Is Fixed To The Frame That Holds The Staple Cartridge**



**The USSC Lockout Mechanism Is Insertable And Releasable With The Staple Cartridge  
Just The Same As If It Were In The Staple Cartridge**



In an earlier decision, it was determined that there was no literal infringement. In this decision, the court considered only the doctrine of equivalents. The district court found no equivalents as a matter of law.

Some of Ethicon's exhibits are included in these materials. *Ethicon* argued that the language of claim 6 did not exclude a lockout position as in the defendant's staplers, and that the district court's analysis undermined the doctrine of equivalents.

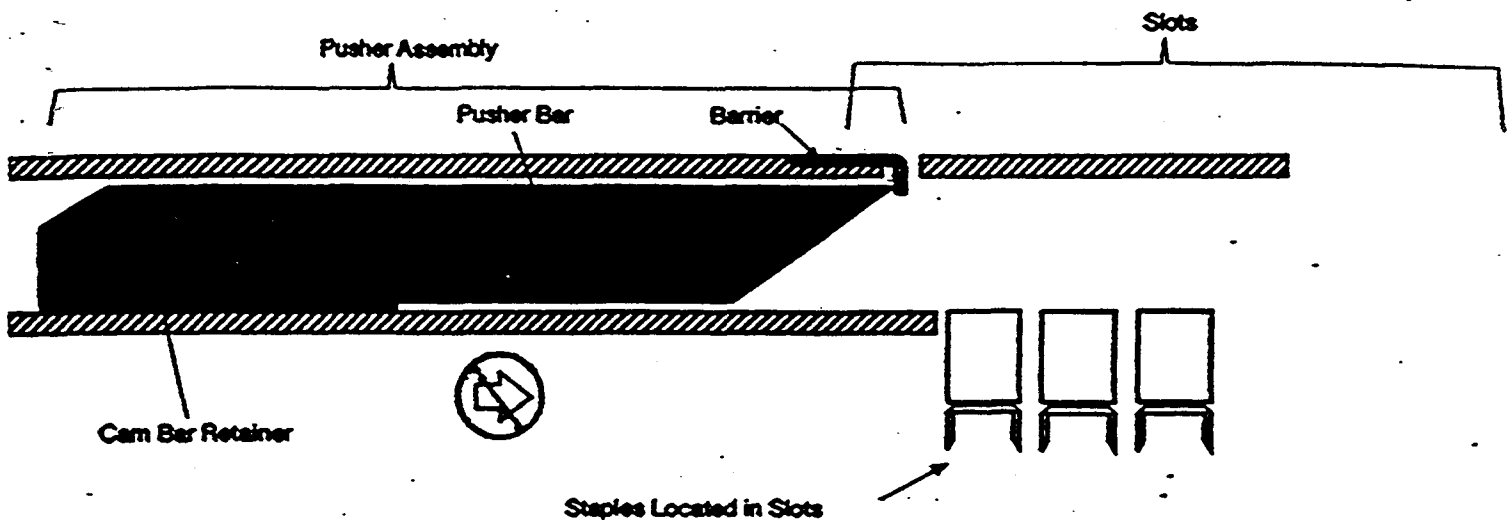
The court agreed that summary judgment with respect to claim 6 was proper.

Although Ethicon is certainly correct that it would be insufficient to base a conclusion of non-infringement by equivalents solely on the fact that the allegedly infringing lockout is not connected to the longitudinal slots, the district court determined that USSC's lockout is *not even close* to the longitudinal slots. Instead, it is located at the *far end* of the DLU, near the rear of the stapler. Because *the rear of the stapler is opposite the longitudinal slots*, no reasonable jury could have found that the USSC lockout was substantially "connected to said longitudinal slots."

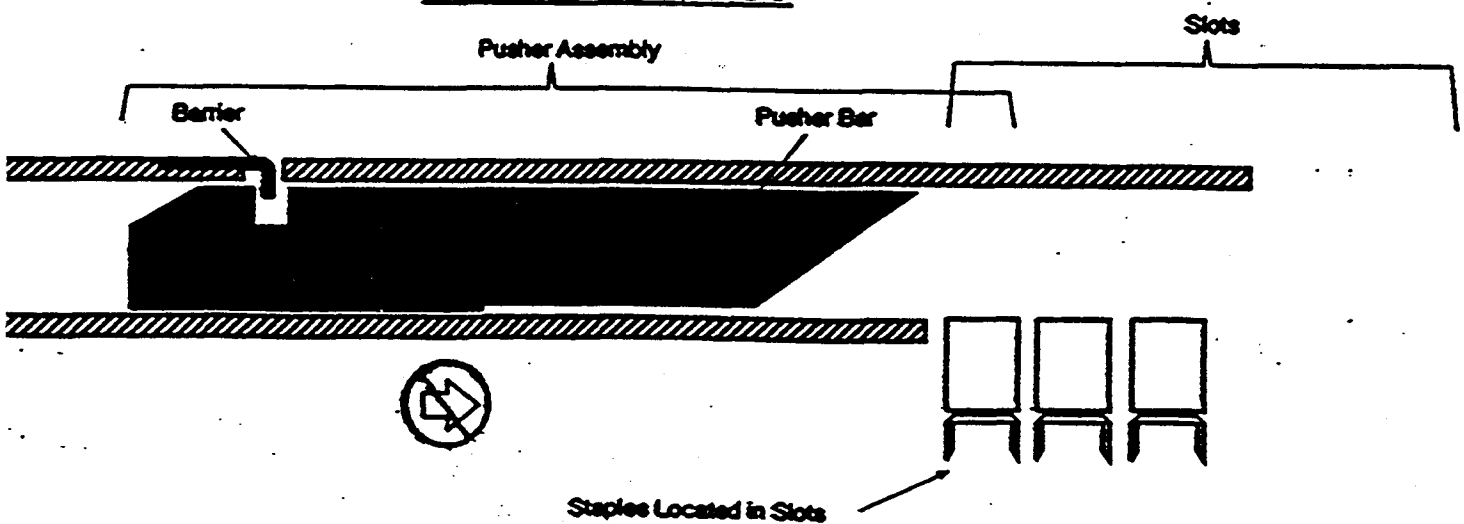
Similarly, no reasonable jury could have found that the "in a staple cartridge" limitation was met by an equivalent. Like the "connected to said longitudinal slots" limitation, the "in a staple cartridge" limitation ties the lockout to a *specific place*. As we held in *Ethicon II*, 93 F.3d at 1578, 40 USPQ2d at 1023, this limitation is material even though it appears only in the preamble of the claim. In fact, it was deemed material when claim 6 was confirmed on reissue, as the examiner expressly stated that two prior art devices did not negate patentability because they "do not have a lockout mechanism in the cartridge". Thus, the district court's reasoning with respect to the "connect to said longitudinal slots" limitation is equally applicable to the "in the staple cartridge" limitation. The USSC lockout is located near the end of the stapler, opposite the cartridge. Not only is it not "in the staple cartridge," it is on the firing means, which is located *nowhere near* the cartridge. This

**USSC's Stapler Is Insubstantially Different From  
The Claim 6 "Connected To [The] Slots" Element**

**CLAIM 6**  
Barrier connected to the slot



**USSC GIA 60/80**



analysis of claim 6 in relation to the accused device shows that, while the claim does not contain a specific exclusion, the accused device does involve substantial differences from the claim that preclude a finding of infringement under the doctrine of equivalents.<sup>21</sup>

With respect to claim 24, the trial court rejected *Ethicon's* theory of infringement by equivalents that the combination of USSC staplers' restraint and cam bar retainer are the equivalent of the claimed restraining structure, based on the "said restraining structure being movable by said pusher assembly" claim limitation. Regarding the "during staple firing" limitation, *Ethicon* argued that the defendant's restraint was equivalent to the claimed restraining structure because the defendant's restraint (1) worked in conjunction with the cam bar retainer to hold the barrier out of the path of the pusher assembly, and (2) held the barrier out of the path of the pusher assembly by itself until immediately prior to staple firing. *Ethicon* asserted that these were insubstantial differences compared with a restraint that holds out the barrier "during staple firing". *Ethicon* presented evidence that if the length of the pusher bars were a few millimeters longer, the defendant's staplers would literally satisfy the "during staple firing" limitation and thus literally infringe. *Ethicon* relied on the *Wright Medical* case discussed earlier.

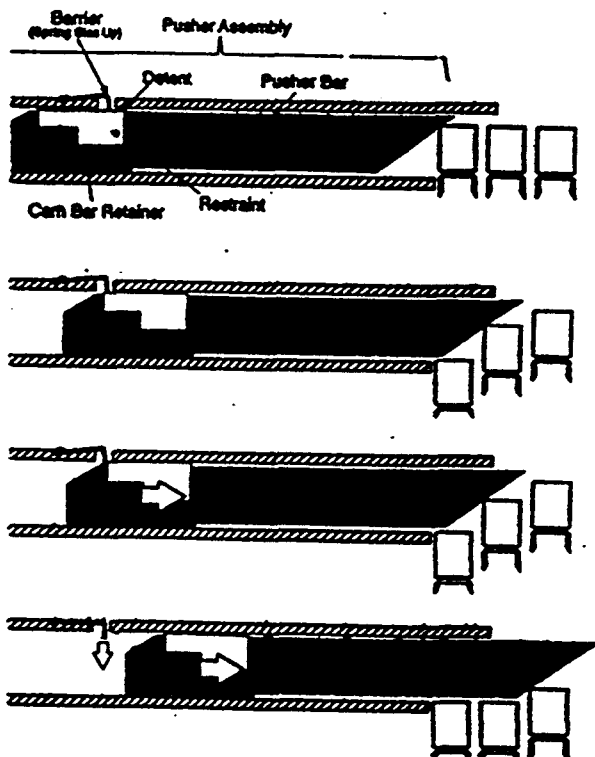
The Federal Circuit agreed that summary judgment of non-infringement by equivalents was improper with respect to claim 24. Relying on *Wright Medical*, the court remanded the case for resolution of the equivalents issue.

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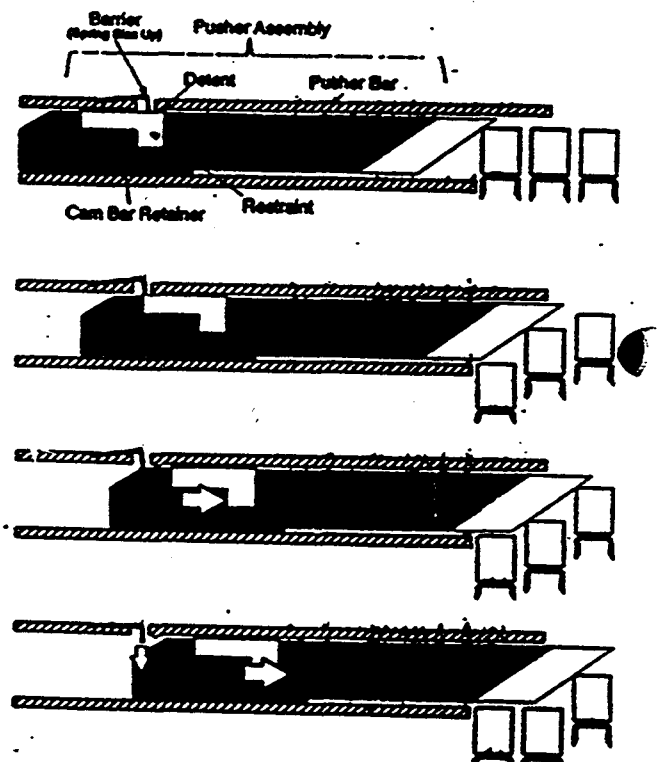
<sup>21</sup>149 F.3d at 1318-19, 47 USPQ2d at 1278-1279 (emphasis added).

**USSC's Stapler Is Insubstantially Different From  
The Claim 24 "Restraining Structure . . . For  
Blocking . . . During Staple Firing" Element**

**CLAIM 24**



**USSC GIA 60/80 (modified)**



The facts in this case are not analogous to those in *Dolly*, *Weiner*, or *Sage*. Rather, as Ethicon asserts, they are more closely analogous to those in *Wright Medical*.

\* \* \*

[Similar to *Wright Medical*], in this case, *only a few millimeters* in the length of the pusher bars distinguishes the claimed restraining structure, which contacts the barrier "during staple firing," from the USSC stapler's restraint, which loses contact with the barrier *just prior* to staple firing. As counsel for USSC acknowledged during oral argument, this physical difference translates into a "very slight," "very quick" temporal difference, a period that is perhaps as short as *a few thousandths of a second*. Thus, we cannot say as a matter of law that this difference is substantial. It is a *subtle difference in degree*, not a *clear, substantial difference or difference in kind*, as was the case regarding claim 6. In light of this *small difference in length and time*, the Collins declaration raises genuine issues of material fact as to equivalence, issues that must be resolved by the finder of fact.

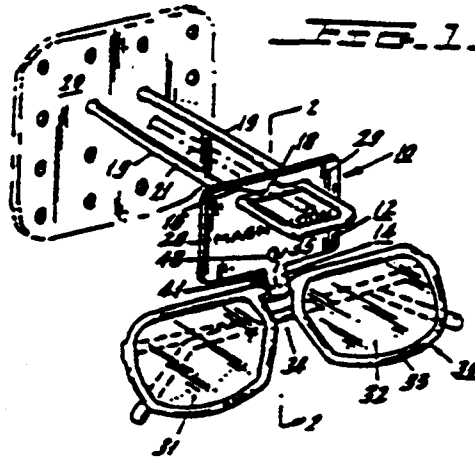
149 F.3d 1320-21, 47 USPQ2d at 1280 (emphasis added).

In this case, we can try to understand when we have a "subtle difference in degree", and when we have a "clear, substantial difference" or "difference in kind". The differences between the accused device and claim 6 were substantial, but the differences between the accused device and claim 24 were not.

I. *Al-Site Corp. v. VSI International*

On March 30, 1999, the Federal Circuit decided *Al-Site Corp. v. VSI Int'l.*<sup>22</sup>

That case involved hangers for displaying eye glasses in point of purchase displays, as seen below.



The claim in one of the patents in suit (the '532 patent) required “fastening means in engagement with said extension” to hold the extension in a closed loop. The trial court instructed the jury that “the fastening means. . .is either a rivet or a button and hole arrangement as shown in the '532 patent or the structural equivalents thereof”. The accused hanger tag had a one piece paper sticker having two large portions connected by a narrow extension. The entire back of the tag, including the extension, was coated with an adhesive. Backing paper covered the adhesive to prevent undesired adhesion before attachment to the

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<sup>22</sup>slip op. Nos. 97-1593, 98-1108 (Fed. Cir. March 30, 1999).

nosebridge of a pair of glasses. When the hanger was attached, though, some of the backing was left on, so that the glasses would not get stuck.

The jury determined that the adhesive was equivalent to the rivet or button and hole arrangement shown in the patent, pursuant to § 112(6). The Federal Circuit found that there was sufficient evidence to sustain the jury's verdict.

The defendant also argued that there was no evidence that the glue was "in engagement" with the extension, because some backing paper was left on the extension to prevent the tag from adhering to the eye glasses. The Federal Circuit rejected this argument.

The jury could have interpreted [plaintiff's expert] testimony to mean that the extension includes more than the narrow, middle portion of the version one tag. Under this interpretation, the extension would also directly engage the glue fastening means. Alternatively, the jury could have determined that the extension is only the narrow portion of the version one tag, but that the fastening means includes one of the two portions of the tag body in addition to the glue. Under any of these reasonable views of the accused product, the extension of the version 1 hanger tag is in engagement with the glue fastening means as required by the claims.

As the finder of fact, the jury receives deference for its function of weighing witness demeanor, credibility and meaning. . .substantial evidence therefore supports the jury's verdict that VSI's version 1 hanger tag literally infringes the '532 patent.<sup>23</sup>

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<sup>23</sup>Slip op., page 7.



By the way, *Al-Site* addresses some related questions which are quite interesting. The decision has strong language to the effect that means-plus-function elements are more narrow in scope than structural elements. The court also explained the distinctions between the term “equivalents” found in § 112(6) and the doctrine of equivalents.

One important difference between § 112(6) and the doctrine of equivalents involves the timing of the separate analyses for an “insubstantial change”. As this court has recently clarified, a structural equivalent under § 112 must have been available at the time of the issuance of the claim. See *Chiuminatta*, 145 F.3d at 1310. An equivalent structure or act under § 112 cannot embrace technology developed after the issuance of the patent because the literal meaning of a claim is fixed upon its issuance. An “after arising equivalent” infringes, if at all, under the doctrine of equivalents. See *Warner-Jenkinson*, 117 S. Ct. at 1052; *Hughes Aircraft Co. v. U.S.*, 140 F.3d 1470, 1475, 46 USPQ2d 1285, 1289 (Fed. Cir. 1998). Thus, the temporal difference between patent issuance and infringement distinguish an equivalent under § 112 from an equivalent under the doctrine of equivalents. See *Chiuminatta*, 145 F.3d at 1310. In other words, an equivalent structure or act under § 112 for literal infringement must have been available at the time of patent issuance while an equivalent under the doctrine of equivalents may arise after patent issuance and before the time of infringement. See *Warner-Jenkinson*, 117 S. Ct. at 1053. An “after-arising” technology could thus infringe under the doctrine of equivalents without infringing literally as a § 112, ¶ 6 equivalent. Furthermore, under § 112, ¶ 6, the accused device must perform the identical function as recited in the claim element while the doctrine of equivalents may be satisfied when the function performed by the accused

device is only substantially the same. *See Cybor*, 138 F.3d at 1456; *Hughes Aircraft*, 140 F.3d at 1475.<sup>24</sup>

While this area of the law is probably still developing, it appears from this case that the range of available equivalents under § 112 is identical to the range of available equivalents under the doctrine of equivalents if a substituted element was known when the patent issued. Under this case, there evidently cannot be § 112(6) equivalents for later developed technology, but there can be infringement under the doctrine of equivalents by such technology.

J. *Seal-Flex, Inc. v. Athletic Track and Court Construction*

On April 1, 1999, the Federal Circuit decided *Seal-Flex, Inc. v. Athletic Track and Court Construction*.<sup>25</sup> In that case, the Federal Circuit found substantial evidence to support a jury's determination that the use of latex as a "adhesive tack coating" equivalently satisfied a § 112(6) claim limitation. The patent specification disclosed emulsified asphalt, hot applied asphalt, most urethanes, and modified epoxies as appropriate adhesive tack coating materials.

This case is unusual because the prosecution history was used to support a finding of infringement. In response to an examiner's objection, the applicant added the word

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<sup>24</sup>Slip op. at 14-15.

<sup>25</sup>Slip op. Nos. 97-1432, -1504, 98-1045 (Fed. Cir. April 1, 1999).

“adhesive” before “tack coating” and clarified its intention to broadly cover “any material”, including latex, that could serve as an adhesive tack coating.

Claim 1 has been amended to add the words “adhesive” and “for adhering the mat to the foundation” to define the term “tack coating”. . . Applicant is entitled to have the term construed to mean any materials suitable for adhering the remaining materials of the mat to the foundation surface in the manner discussed in the specification, whether or not such materials are among those listed as examples and discussed in the specification.<sup>26</sup>

The Federal Circuit found that this statement showed that the applicant intended to cover a broad range of adhesive tack coatings. While the applicant's statement was helpful in this case, it was not determinative. In fact, similar language has been rejected in other cases.

### III. Conclusion

Obviously, there are no clear rules for determining the possible scope of equivalents, and we cannot draw hard conclusions from any of these cases. Nonetheless, by studying the facts in these cases, we can better understand how much of a difference is required to avoid infringement under the doctrine of equivalents as a matter of law, and thereby avoid a jury trial.

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<sup>26</sup>Slip op. at 14.