

United States District Court,
D. New Jersey.

MARS,
INCORPORATED Plaintiff and Counterclaim Defendant.

v.

COIN ACCEPTORS,
INC. Defendant and Counterclaim Plaintiff.

No. CIV A 90-49 JCL

Nov. 5, 1998.

Lanny Steven Kurzweil, McCarter & English, LLP, Newark, NJ, for Plaintiff and Counterclaim Defendant.

Elizabeth J. Sher, Pitney, Hardin, Kipp & Szuch, LLP, Florham Park, NJ, Clyde A. Szuch, Pitney, Hardin, Kipp & Szuch, Morristown, NJ, for Defendant and Counterclaim Plaintiff.

***MEMORANDUM OF FINDINGS OF FACT AND CONCLUSIONS OF LAW RE: U.S. PATENT NO.
3,944,038***

John C. LIFLAND, J.

This Memorandum deals with Mars' U.S. Patent No. 3,944,038 ("the '038' patent"), entitled "Energy Dissipating Device for Coin Handling Mechanism." It constitutes the court's Findings of Fact and Conclusions of Law with respect thereto.

Mars has charged Coinco with infringement of claims 10-13 of the '038 patent, both literally and under the doctrine of equivalents, in violation of 35 U.S.C. s. 271(a). The accused devices ("accused devices") are the Coinco 880 and 881 acceptors, and the acceptor portions of the Coinco 9300 and 3000 series changers. Coinco raises defenses of noninfringement, invalidity due to obviousness and anticipation, prosecution history estoppel, and equitable defenses of laches and equitable estoppel.

Claims 10-13 of the '038 patent are recited below:

10. A coin handling mechanism for identifying acceptable coins of one or more predetermined denominations including

[a] means defining a coin path through the mechanism, the means including at least one energy dissipating device arranged to be struck by a coin traveling along the path and cause a change in direction of the path

[b] the energy dissipating device comprising

[c] a rigidly mounted piece of ceramic material

[d] having a hardness sufficiently greater than that of any coins of the predetermined denominations that the coin has substantially no bounce when it strikes the energy dissipating device.

11. A coin handling mechanism according to claim 10 wherein the ceramic material is aluminum oxide.

12. A coin handling mechanism according to claim 10 wherein one energy dissipating device forms the upstream end of a coin track down which coins can roll along the coin path past a coin identification sensor.

13. A coin handling mechanism according to claim 12 wherein the ceramic material is aluminum oxide.

The accused devices are coin acceptance and validation equipment for coin-operated vending machines. A coin inserted in the slot of the vending machine, impelled by gravity, travels downward through a chute formed by the plastic housing of the accused devices until it strikes the coin debouncer (also called the "anvil" or "snubber"). The debouncer is a piece of aluminum oxide ceramic. The debouncer is at the upstream end of the "coin path". This coin path is a shelf formed in the molded plastic sidewall of the accused devices' housing. The coin rolls along the coin path past various sensors that are used to classify and validate the coin. The debouncer is located in a molded recess in the plastic side-wall of the housing, resting on a horizontal shelf molded into the sidewall. The debouncer is constrained by a plastic clip. Coins strike the debouncer, then roll down the coin path past the sensors.

Claim Construction

Before considering infringement, the Court first construes the asserted claims of the '038 patent. *See* *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The patent law "allows the inventor to be his own lexicographer." *Autogiro Co. of America v. United States*, 181 Ct.Cl. 55, 384 F.2d 391 (Ct.Cl.1967). To ascertain the true meaning of disputed claim language, resort should be made to the claims at issue, the specification, and the prosecution history. *See, e.g.,* *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, (Fed.Cir.1985), overruled on other grounds, *Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059 (Fed.Cir.1998); *McGill, Inc. v. John Zink Co.*, 736 F.2d 667 (Fed.Cir.1984). Claims should be construed as they would be by those skilled in the art. *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1571 (Fed.Cir.1983). However, because a patentee can be his own lexicographer, the meaning of the words may sometimes be different than their ordinary meaning. *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1387-88 (Fed.Cir.1992). But if the patentee is to be his own lexicographer, the patentee's definition, to the extent it differs from the conventional definition, must be clearly set forth in the specification. *See, e.g.,* *Hoganas AB v. Dresser Indus. Inc.*, 9 F.3d 948, 951 (Fed.Cir.1993).

Here, the parties dispute the meaning of "rigidly mounted" and "substantially no bounce" in '038 claim 10. In construing "rigidly mounted" the Court first reviews the language of the '038 patent specification. The '038 specification indicates the use of bolts and "pins of appropriate lengths onto which the [ceramic debouncer] is placed". PX-184, col. 4, lines 3-7. The '038 patent also notes that "other mounting methods may be employed" to mount the ceramic debouncer. PX-184, col. 4, lines 4-5. Although bolts or pins might allow some movement of the debouncer, that does not suggest that any noticeable movement is desirable, and one could reasonably infer that the use of a bolt implies that motion is undesirable. Nothing in the language "other mounting methods" implies a mounting method that allows noticeable freedom of

movement.

Also relevant is the "plain language" meaning of rigid. The American Heritage Dictionary of the English Language (1969 Ed.) includes the following definition of rigid: "1. Not bending; stiff; inflexible. 2. Not moving; fixed". Webster's Third New International Dictionary (1971 Ed.) includes the following definitions of rigid: "1 a: very firm rather than pliant in composition or structure: lacking or devoid of flexibility: inflexible in nature." Cf. *Marquip, Inc. v. Fosber America, Inc.*, 155 F.3d 567 (Unpublished Disposition) 1998 WL 314628 (Fed.Cir., May 19, 1998) (NO. 97-1441) (a rigid body does not flex, although a body that flexes might be equivalent to a rigid body); *Kegel Co., Inc. v. AMF Bowling, Inc.*, 127 F.3d 1420 (Fed.Cir.1997) ("rigid" wicks are "not flexible"); *Derrick Mfg. Corp. v. Southwestern Wire Cloth*, 152 F.3d 944 (Unpublished Disposition), 1998 WL 161091 (Fed.Cir.Mar 20, 1998) (suggesting "rigid" is the opposite of "resilient"). Because the "plain language" definition of "rigidly mounted" is consistent with the '038 specification, and no other convincing evidence suggests an alternative definition was intended by the patentee, the Court adopts the plain language. The Court holds that "rigidly mounted" in the '038 patent means mounted in a manner which is (1) immovable, (2) fixed, (3) stiff, or (4) inflexible.

The parties also dispute the meaning of "substantially no bounce". Substantially no bounce is not "no bounce". Having a "detectable" bounce does not exclude having "substantially no bounce"; if this were not the case, the definition would depend on the accuracy and resolution of available detection equipment. A coin may bounce several times or have a detectable movement and still have "substantially no bounce". The '038 patent invention description states that the energy dissipating device may only dissipate "some" of the kinetic energy of a coin moving through the mechanism. See PX-334, p. 27. If the movement of the coin after impact is small relative to the size of the coin, or if the kinetic energy of the coin is an order of magnitude less than the kinetic energy the coin had prior to impact, the result is substantially no bounce. In practical application, a coin which impacts the debouncer and rolls off smoothly can be said to have "substantially no bounce".

Literal Infringement

To support an infringement determination, an accused device must embody exactly each claim limitation or its equivalent. *Julien v. Zeringue*, 864 F.2d 1569, 1571 (Fed.Cir.), *cert. denied*, 493 U.S. 917, 110 S.Ct. 276, 107 L.Ed.2d 256(1989). Having construed the claim asserted to be infringed to determine its meaning and scope, a court then compares the properly-construed claim to the accused product or process. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed.Cir.1995) (in banc), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). In addressing these two steps, the burden is on the patent owner to establish infringement by a preponderance of the evidence. *SmithKline Diagnostics Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 889 (Fed.Cir.1988). The patent owner must show that every limitation of the patent claim asserted is found in the accused process or product, either literally or under the doctrine of equivalents. *Id.*

Here, the parties have stipulated that all of the accused Coinco devices satisfy the claim 10 preamble, and elements [a] and [b] of claim [10]. The accused devices contain a coin debouncer anvil (sometimes referred to as a "snubber"). The Court finds that this anvil has a hardness greater than coins and that coins which strike the anvil have substantially no bounce after striking the anvil. Therefore, the accused devices satisfy element [d] of claim [10]. The anvil in the accused devices is loosely mounted, but not secured directly to the frame. The anvil is constrained by a snap-in mounting and has some, albeit limited, freedom of movement. The anvil rattles when shaken. Particularly convincing to the Court was the movement of the anvil shown in Coinco's video evidence of the accused device in operation. The Court finds that the anvils in

the accused Coinco devices do not literally infringe because they are not rigidly mounted. Thus, they do not satisfy element [c] of claim 10 of the '038 patent. The Court finds that the accused devices literally infringe all the other elements of claim 10 of the '038 patent.

Doctrine of Equivalents Infringement

If there are insubstantial differences between the claimed invention and the accused product or process, the court may find infringement under the doctrine of equivalents. One (not exclusive) way to find this equivalence is if the alleged infringer's product or process performs substantially the same function in substantially the same way, to accomplish substantially the same result as the patented inventions. *See Warner Jenkinson Co. v. Hilton-Davis Chem. Co.*, 520 U.S. 17, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). Whether a product infringes the properly-construed claims of an asserted patent under the doctrine of equivalents is a question of fact. *Tanabe Seiyaku Co., Ltd. v. U.S. Intern. Trade Com'n*, 109 F.3d 726, 731 (Fed.Cir.1997), *cert. denied*, 522 U.S. 1027, 118 S.Ct. 624, 139 L.Ed.2d 605 (1997). The substantiality of the differences is considered on an element-by-element basis. *See Warner Jenkinson*, 117 S.Ct. at 1054.

The patent owner has the burden of showing that the expanded scope of assertion of the claim under the doctrine of equivalents is permissible in view of the prior art and the prosecution history. *See Warner Jenkinson*, 117 S.Ct. at 1051, on remand sub. nom., *Hilton-Davis Chem. Co. v. Warner Jenkinson, Co.* 114 F.3d 1161 (Fed.Cir.1997).

Before evaluating infringement under the doctrine of equivalents, the Court first considers whether the '038 patent could be extended to cover the accused devices without entangling prior art. The court determines if prior art restricts the range of equivalents by examining a hypothetical claim that literally reads on the accused product or process and determining if that hypothetical claim would have been patentable. If the hypothetical claim is patentable, then the prior art is not a bar to applying the doctrine of equivalents. If, however, the hypothetical claim is not patentable, then finding infringement under the doctrine of equivalents is not proper. *Wilson Sporting Goods Co. v. David Geoffrey & Associates*, 904 F.2d 677, 684-687 (Fed Cir.19); *Key Mfg. Group, Inc. v. Microdot, Inc.*, 925 F.2d 1444, 1449 (Fed.Cir.1991).

Mars presented the following hypothetical claim:

A coin handling mechanism for identifying acceptable coins of one or more predetermined denominations included

[a] means defining a coin path through the mechanism, the means including at least one energy dissipating device arranged to be struck by a coin traveling along the path and cause a change in direction of the path,

[b] the energy dissipating device *forming the upstream end of a coin track down which coins can roll along the coin path past a coin identification sensor and comprising*

[c] a [rigidly mounted] piece of *aluminum oxide* ceramic material

[d] having a hardness [sufficiently] *substantially* greater than that of any coins of the predetermined denominations, [that] *wherein* the coin has substantially no bounce when it [strikes] *moves down the track from* the energy dissipating device.

Although the Court did not conduct "a full-blown patentability analysis" of the hypothetical claim, the Court considered the expert reports presented by both parties and the prior art brought to the Court's attention. The Court finds that the hypothetical claim covers the accused devices and that the none of the prior art presented to the Court either anticipates the hypothetical claim or renders it obvious. None of the prior art teaches or suggests using a ceramic material, and, in particular aluminum oxide, for a debouncer which forms the upstream end of a coin track. Accordingly, the doctrine of equivalents can be used to find infringement by the accused devices if they perform substantially the same function, in substantially the same way, and accomplish substantially the same result as the '038 invention.

The Court finds that the function of both the accused devices and the patented invention is identical, to de-bounce coins so that a coin rolls smoothly off the debouncer along the coin path. *See, e.g.*, PX-8, p. 6; PX-343; PX-221, p. 6. (Coinco's own product literature indicating that this is the accused devices' function). Similarly, the Court is convinced that the accused devices achieve substantially the same result as the patented invention. Even if the accused devices arguably worked less well than the patented invention, inefficient infringement is still an infringement. *See Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 72 F.3d 857 (Fed.Cir.1995), vacated on other grounds and remanded for further consideration, 520 U.S. 1111, 117 S.Ct. 1240, 137 L.Ed.2d 323 (1997).

A significant amount of time at trial was spent by both sides on the issue of the way the accused devices operate. Both sides presented expert testimony and experiments in an attempt to demonstrate that the accused devices did (or did not) operate in the same way as the invention disclosed in the '038 patent. The Court accepts the testimony of Mars' expert, Dr. Benner, finding it more persuasive than the testimony of the Coinco experts. Mars' expert testified that more than 90% of the kinetic energy of a coin impacting the debouncer is in the vertical direction. No vertical movement of the anvil is possible because the anvil is supported by the shelf. *See Record*, 8/128-129. The Court finds that the Coinco experts, unlike Dr. Benner, did not quantify or isolate the mechanisms that dissipate the energy of an impacting coin. Coinco's evidence was only that the small amount of horizontal movement "may" affect the operation of the device, without verifying or quantifying the effect. *See DX-29*, p. 3. This lack of specificity rendered the Coinco experts' testimony less convincing.

Mechanisms in the Coinco debouncer that dissipate a coin's kinetic energy before the coin strikes the anvil are not relevant to determining the way the anvil operates. A moving coin still strikes the debouncer, albeit at a speed less than it would otherwise, and the remaining kinetic energy of the coin must be dissipated for the coin to roll off smoothly. No evidence presented convinces the Court that the small amount of horizontal movement of the Coinco anvil significantly affects its operation. Therefore the Court finds the accused devices operate in substantially the same way as the invention disclosed in the '038 patent.

The Court thus finds that the accused devices perform the same function, in substantially the same way, and achieve substantially the same result as the invention described in the '038 patent. Therefore, the Court finds the accused Coinco devices would infringe claims 10-13 of the '038 patent under the doctrine of equivalents, if Mars is permitted to rely on this doctrine. See discussion of Prosecution History Estoppel below.

Invalidity

Coinco argues that the devices disclosed and claimed in the '038 patent are anticipated by, or are obvious in light of, the prior art.

To find that a claim is anticipated under 35 U.S.C. s. 102 the Court must find that the prior art contains or suggests each element (limitation) of the claimed invention. To find obviousness under 35 U.S.C. s. 103, the Court must find that the invention was obvious in light of prior art to a person of ordinary skill in the art. A patent is presumed valid. 35 U.S.C.A. s. 282. The burden of the party challenging validity is to show, by clear and convincing evidence, that the patent is invalid. *See Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367 (Fed.Cir.1986). Although the challenger's task should be less difficult if the challenger presents material evidence not available to the PTO during the application process, the burden of proof is not lessened. *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720, 723 (Fed.Cir.1990).

In evaluating whether the asserted claims of the '038 patent were obvious, the Court considered the scope and content of the prior art presented by the parties, the differences between the prior art and the asserted claims, and the level of ordinary skill in the art at the time of filing. The Court also evaluated secondary considerations including commercial success, copying, disbelief of experts, commercial acquiescence, and unexpected results.

Uncontroverted testimony at trial indicated that the level of skill in the art of coin processing was low at the time the '038 patent was filed. *See, e.g.*, Record 5/29, 5/51, 5/90, 5/107.

Secondary factors suggest the '038 patent was not obvious. The patent examiner, one presumably knowledgeable about the pertinent art, initially rejected the '038 patent because he believed it would not work. Prior art taught the use of hard anvils to bounce coins, not debounce them, exactly the opposite approach from the '038 patent. These two facts lead the Court to find that the '038 invention was an unexpected result and was disbelieved by experts. The Court also finds evidence of copying. Testimony by Coinco personnel indicated that the patent was considered and discussed during the development of the accused devices. *See, e.g.*, Record 5/38-40, 6/20, 6/26-28. A Coinco internal document is additional evidence that suggests copying occurred. *See* PX-186. Commercial acquiescence and success are suggested by licensing of the technology to Matsushita. *See* Record 1/50-52.

Coinco's post-trial memorandum focuses on four patents as either describing or making obvious the invention described in the Mars '038 patent: Tratsch '356 (DX56), Okolischan '075 (DX-62), Foushee '690 (PX-66A), and Pollock '540 (PX-334a). Coinco also suggests that Coinco's bounce tester DX-198 and five-cent oversize lever (DX-43, DX-41) are field prior art that render the '038 patent invalid for obviousness.

Pollack (PX-334a) and Okolischan (DX-62) both teach techniques for causing coins to bounce, in contrast to reducing the coin's bounce. Similarly, Coinco's bounce tester (DX-198) and five-cent oversize lever (DX-43, DX-41) were intended to cause acceptable coins to take a big bounce, not to debounce coins. Moreover, none of these prior art references disclose or suggest the use of a ceramic or aluminum oxide. Using a hard surface to cause coins to bounce teaches away from using a hard surface to cause coins not to bounce.

Foushee (PX-66a) discloses a coin separator in which an arrestor 13 is loosely constrained between the inner surface of a frame 1 and a plate 7 by a spacer 8. PX 63a, col.2 lines 16-21, Fig. 2. Foushee does not indicate the material of the arrestor 13. Foushee does not teach or suggest a coin debouncer including a rigidly mounted anvil, or the use of ceramic or aluminum oxide as recited in '038 claims 10, 11 and 13. Foushee teaches away from '038, teaching the use of looseness to absorb kinetic energy.

Tratsch '356 (DX-56) employs a "rigid material" element (# 22) to reduce the kinetic energy of coins. But inspection of the Tratsch patent shows that the rigid element is mounted in the coin select path using a

"loose rocker arm" (# 36) designed to swing and thereby absorb the energy of the coin. Tratch '356 does not teach or suggest the rigidly mounted anvil of the '038 patent. Tratch teaches away from '038, teaching the use of looseness to absorb the kinetic energy of a coin.

Testimony by Mr. Stelling regarding a National Rejector's Opal coin mechanism was not helpful to the Court. Mr. Stelling had not seen one of those devices for over 25 years, and no other evidence such as an example of the device, a design drawing, or even a piece of product literature, corroborate his testimony. This is not clear and convincing evidence that National Rejector's device anticipated or rendered obvious the '038 invention.

The Court finds that the invention described in the '038 patent was neither obvious in light of the prior art to a person of ordinary skill in the art, nor anticipated by the prior art. Therefore, Claims 10, 11, 12, and 13 of the '038 patent are not invalid under 35 U.S.C. s.s. 102 and 103.

Prosecution History Estoppel

The Court is constrained to find that, even though Mars' '038 patent is valid and would otherwise be infringed under the doctrine of equivalents, application of the doctrine of prosecution history estoppel requires a holding that Mars gave up the right to assert the '038 claims against the accused devices.

A patent holder cannot use the doctrine of equivalents to recapture something that the applicant gave up during the patent's prosecution in order to obtain allowance of the patent. *Hughes Aircraft*, 717 F.2d 1351, 1362 (Fed.Cir.1983). The burden is on the patent holder to establish the reason for an amendment required during patent prosecution. *Warner-Jenkinson v. Hilton Davis Chemical Co.*, 520 U.S. 17, 117 S.Ct. 1040, 1051, 137 L.Ed.2d 146 (1997). When a patent claim is amended during prosecution, but prosecution history does not reveal the reason for the change, it should be presumed that there was a substantial reason related to patentability for including the limiting element added by the amendment; pursuant to the presumption, prosecution history estoppel would bar application of the doctrine of equivalents as to that element or claim limitation. *Hilton Davis Chemical Co. v. Warner-Jenkinson Co.*, 114 F.3d 1161, 1162-63 (Fed.Cir.1997). A test for determining what an applicant gave up during patent prosecution is what a business competitor is reasonably entitled to conclude from the prosecution history of the patent. The legal standard for determining what subject matter was relinquished is an objective one, measured from the vantage point of what a competitor was reasonably entitled to conclude, from the prosecution history, that the applicant gave up to procure issuance of the patent. *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 952 (Fed.Cir.1993).

The '038 patent application was originally filed with one independent claim (claim 1) which did not recite any particular manner of mounting or manner of securing the debouncer in the coin handling mechanism. *See* PX-334 at 13-14. By amendment dated July 11, 1975, independent claim 1 was amended to include the requirement that the debouncer be "rigidly mounted" and a new independent claim 11 (which is claim 10 of the issue patent) was added and also required the debouncer to be "rigidly mounted". In the cover letter to the amendment, the patentee brought the Foushee '690 reference (PX-66a), involving a loosely mounted coin debouncer, to the attention of the patent examiner.

Mars argues that the patentee only brought the Foushee '690 reference to the attention of the examiner out of its duty of candor to the PTO. But this does not explain why "rigidly mounted" was added to claim 1. Statements made by the patentee regarding the Foushee reference (PX-66a) made during the prosecution of the application which led to the '038 patent lead the court to conclude that the '038 patent was amended to

include the limitation "rigidly mounted" in both the initial claim 1 and amended claim 11 (now 10) in order to avoid the prior art described in the Foushee patent. The Court finds that a business competitor would be reasonably entitled to conclude from the prosecution history that "rigidly mounted" was added during prosecution in order to secure the patent, that the patentee added "rigidly mounted" to avoid the prior art described in Foushee, and that the patentee had surrendered claim coverage of non-rigidly mounted coin debouncers in order to obtain the '038 patent.

Therefore, the Court holds that prosecution history estoppel applies in the present case with respect to the '038 patent and Mars is estopped from asserting that the loosely constrained manner in which the Coinco debouncer is retained is equivalent to the rigidly mounted limitation in claim 10 of the '038 patent.

Equitable Defenses

The Court concludes that laches is not available as an equitable defense, because Coinco adduced no proof that it had detrimentally changed its position, expecting not to be sued for infringement.

The parties shall submit an agreed form of order in conformance with the foregoing.

D.N.J.,1998.

Mars, Inc. v. Coin Acceptors, Inc.

Produced by Sans Paper, LLC.