

Ricoh v. Nashua Corp. CV-94-163-M 03/31/97
UNITED STATES DISTRICT COURT FOR THE
DISTRICT OF NEW HAMPSHIRE

Ricoh Company, Ltd.;
Ricoh Corporation; and
Ricoh Electronics, Inc.,
Plaintiffs,

v.

Civil No. 94-163-M

Nashua Corporation,
Defendant.

MEMORANDUM DECISION

This is a patent infringement action in which plaintiffs, Ricoh Company Ltd. ("Ricoh Ltd."), Ricoh Corporation ("Ricoh Corp."), and Ricoh Electronics, Inc. ("REI") (collectively "Ricoh"), assert that Nashua Corporation ("Nashua") has infringed U.S. Patent No. 4,878,603 (the "`603 Patent") by manufacturing and selling certain toner cartridges used in Ricoh photocopiers. In its complaint, Ricoh also asserts that Nashua has infringed U.S. Patent No. 4,611,730 (the "`730 Patent"). The parties have stipulated, however, to the withdrawal of Ricoh's claim for infringement of the `730 Patent.

In defense Nashua argues: (1) that the Patent-in-Suit (`603) is invalid and has not been infringed; (2) that Ricoh's right to recovery is barred by the doctrines of laches and

equitable estoppel; and (3) that Ricoh has misused its control over the `603 Patent.

I. FACTUAL BACKGROUND

A brief review of the factual background, the parties, the technology at issue, and the relevant patents, products, and events may be helpful in putting the issues in context. Unless otherwise noted, the facts are taken directly from the parties' Joint Statement of Undisputed Facts ("Jt. Facts").

A. The Parties

Plaintiff Ricoh Ltd. is a Tokyo-based corporation that manufactures and sells electronic products, including electrophotographic plain paper copiers ("Ricoh Copiers"). Plaintiff Ricoh Corp. is a distributor of Ricoh Copiers and related supplies in the United States. Ricoh Corp.'s principal place of business is located in West Caldwell, New Jersey. Plaintiff REI is a wholly-owned subsidiary of Ricoh, Ltd. and Ricoh Corp. REI manufactures nearly all of the photocopier toners and developers that Ricoh Corp. sells and all of the toner and toner cartridges involved in this suit. When Ricoh Corp. purchases the Ricoh Toner Cartridges from REI they are already

assembled and filled with toner. Ricoh Corp. then sells the assembled and filled cartridges to its customers.

Defendant Nashua, a Delaware corporation having its principal place of business in Nashua, New Hampshire, manufactures and sells a variety of commercial products, including toner cartridges and toner for use in photocopiers made by a variety of copier manufacturers. Nashua sells its toner cartridges under the Nashua brand label, and under labels bearing the brand names of Nashua's customers, and under generic labels with no brand name.

B. The Technology

Ricoh alleges that Nashua has infringed Ricoh's '603 Patent, which describes a toner delivery system, including a toner cartridge. Generally speaking, a photocopier takes a picture of a document by exposing a photoreceptor drum to reflected light from the document. The reflected light, in turn, charges corresponding points on the drum to create a charge pattern duplicating the document. The charge pattern attracts toner particles which are transported by carrier beads. The toner is transferred to a sheet of plain paper, and the paper with toner is heated to fuse the toner to the paper. The resulting

photocopy is then ejected from the photocopier. When the copier is in use, toner is continuously depleted, and when exhausted must be replaced. Replacement toner for copiers is commonly offered in containers or cartridges of different shapes and sizes. The cartridges are generally installed within the copier by the end-user, and replaced with a new container or cartridge as needed.

Ricoh Corp. sells both a Ricoh Type 5000 Toner Cartridge, which is offered for use in the Ricoh 5000 Series Copiers, and a Ricoh Type 670 Toner Cartridge, which is offered for use in the Ricoh 6750 Copier (the Ricoh Type 5000 Toner Cartridge and the Ricoh Type 670 Toner Cartridge, taken together, are referred to as the "Ricoh Toner Cartridges"). Nashua sells its Nashua NT-50 Toner Cartridges for use in the Ricoh 5000 Series Copiers. Nashua also sells a Nashua NT-6750 Toner Cartridge for use in the Ricoh 6750 Copier (the Nashua NT-50 Toner Cartridges and the Nashua NT-6750 Toner Cartridges, taken together, are referred to as the "Nashua Toner Cartridges"). Nashua has been selling Nashua Toner Cartridges continuously since November 7, 1989, the date on which the '603 Patent issued. (Pl. Exs. 90A & 92, Nashua Sales Records.) Both Ricoh and Nashua toner cartridges hold

toner particles and, when installed in appropriate copiers, perform a toner delivery function.

C. The Patents and Product Development

From 1982 through 1983, Ricoh Ltd. began to develop its 5000 series photocopiers and related toner cartridge. Masumi Ikesue and Takashi Ikeda, two Ricoh employees, worked on the 5000 series photocopier project and designed the cartridge to be used in those photocopiers. After Ikesue and Ikeda considered a number of cartridge designs, Ricoh prepared and filed a Japanese patent application, No. 59-1729, on January 9, 1984, in order to patent the Ricoh Type 5000 Toner Cartridge. On April 9, 1984, Ricoh Ltd. filed the first (Serial No. 598,022) of its United States patent applications claiming priority as of the date of Japanese patent application 59-1729. The United States application eventually led to issuance of the `730 Patent to Ricoh Ltd. on September 16, 1986. (Pl. Ex. 11, `730 Patent.)

At the time Ricoh applied for the `730 Patent in 1984, Ricoh and Nashua were parties to a contractual relationship, under the terms of which Nashua, through its Office Systems Division, distributed Ricoh Copiers and Ricoh Copier Supplies throughout the world, excluding the United States and Japan. Due to that

contractual relationship, Nashua's annual purchases from Ricoh totaled between \$100 million to \$200 million during the 1980's.

Nashua began offering one version of the Nashua Toner Cartridge (for use in the Ricoh 5000 Series Copier) for sale in the United States in the spring of 1985. A Nashua product list dated May 21, 1985, discloses that Nashua was offering this cartridge to its dealers. Ricoh obtained a copy of the product list in August of 1985. Nashua has been actually manufacturing and selling toner cartridges for use in the Ricoh 5000 Series Copiers since at least 1986. Throughout 1986 and 1987, the Nashua NT-50 Toner Cartridge was sold in the United States, through Nashua's Products Division, which was headed by John Barnes. The Nashua NT-50 Toner Cartridge offered for sale in the United States during the 1986-1987 period contained an internal spiral guide rib on the inner surface of the cartridge, as well as a removable gear ring.

The Nashua Systems Division was headed, in 1987, by Eric N. Birch. Takayoshi Matsueda headed Ricoh Ltd.'s Reprographics Division. Representatives of the Nashua Systems Division and Ricoh Ltd.'s Reprographics Division held face to face business meetings with each other several times each year. In March of 1987, at a business meeting between Mr. Birch and Mr. Matsueda,

Ricoh first informed Nashua of certain Ricoh patents. On March 30, 1987, Mr. Birch sent a facsimile to Mr. Matsueda stating, in part: "I will personally investigate the problems with France, Egypt, and India as well as the USA patent situation and discuss these with you next time." On March 31, 1987, Mr. Matsueda confirmed, by facsimile, receipt of Mr. Birch's facsimile of the previous day. In his facsimile, Mr. Matsueda stated, "First of all, I appreciate your personal attention on such issues as USA patents, India, Egypt and France. Because, each single issue is, in itself, very serious to each of the departments, and they call for immediate solution."

At or about this time, Nashua asked its outside patent counsel, James E. Cockfield, Esq., to review and comment on Ricoh's '730 Patent. By letter dated April 7, 1987, Nashua received the following advice from Attorney Cockfield:

1. While an argument certainly can be made to the effect that the patent is not infringed because main claim 1 calls for a certain "snugly-fitting" relationship between a removable gear ring and a toner body, a very real issue remains concerning possible liability arising under the doctrine of equivalence; and
2. This patent, in its present form, could be avoided by eliminating the feature which induced the Examiner to allow the case, i.e. the "removable" gear tooth member called for in main claim 1. To be on the safe side, it

would also be prudent to eliminate the spiral indentation formed on the cartridge body, so as to dispose of another claim feature, i.e. the recited "spiral guide rib."

(D. Ex. 143, April 7, 1987 Letter.)

After receiving Attorney Cockfield's recommendations, Nashua redesigned its Nashua NT-50 Toner Cartridge. The redesigned cartridge contained no spiral guide ribs on the inner surface of the cartridge. Nashua also redesigned the manner in which the gear ring mated with the cartridge.

On or about June 17, 1987, Nashua representatives, including John Barnes, attended a business meeting in New Hampshire with representatives of Ricoh, including Mr. Matsueda. At that meeting, Nashua reported to Ricoh that Nashua intended to modify the design of the Nashua NT-50 Toner Cartridge by eliminating the internal spiral guide rib and by fixing the gear to the cartridge body, thereby eliminating the removable feature. Nashua also stated that it did not yet have a response regarding another patent issue that Ricoh had raised (related to the formulation of a certain developer and not at issue in this suit) but that such a response would be forthcoming.

By letter dated June 29, 1987, Ricoh asked Nashua to send a sample of its redesigned cartridge to H. Tatsumi, Ricoh's patent expert, for review. In the same letter, Ricoh asked Nashua to

propose convenient dates for a "patent meeting" between the two companies. As confirmed by letter dated July 8, 1987, John Barnes of Nashua sent to Mr. Tatsumi a prototype of the modified Nashua NT-50 Toner Cartridge. In that letter, Mr. Barnes stated, in part:

In regard to the toner cartridge patent issue, to follow up on your request, I am sending to you, via Purolator, both Nashua's original toner cartridge and the redesigned one. While our patent people indicate to us that the Ikesue patent (the `730 Patent) is not infringed by our product, to eliminate even the chance of disagreement, we have created a cartridge which eliminates the removable gear ring and spiral indentation characterizing the cartridge in that patent.

Our patent counsel continue to research the toner patent issue and we will get back to you on this subject in the very near future.

On July 10, 1987, Mr. Matsueda responded:

I received copy of your letter of July 8, 1987, to Mr. Tatsumi and thank you very much for sending toner cartridges. We will get back to you soon after finishing the examination of those cartridges.

Concerning the toner patent issue, we are hoping to get your reply in July.

We will very much appreciate it if you could tell us when we can expect to receive it.

In order to arrange the schedule of our patent group, we would like to have this information urgently.

Thank you very much for your assistance.

On July 17, 1987, Mr. Matsueda again wrote to Barnes at Nashua, stating in part:

I am pleased to hear that Mr. Tatsumi of Ricoh NJ received Nashua's new sample toner bottles. Thank you very much.

I now wonder if you have come to be ready to have a patent meeting with Mr. Tatsumi and Ricoh's patent attorney. Please advise me of your convenient dates.

I also recollect that, at the June NH meeting, you showed your willingness to consider a possible-cooperation with Ricoh in the toner business. Have you had any positive thoughts on this?

On July 23, 1987, Mr. Barnes responded, stating:

I am in receipt of your facsimiles inquiring about the status of our evaluation of Ricoh's Inoue et al patent [the Ricoh Developer Patent], brought to Mr. Birch's attention at a recent meeting. Our patent attorneys have advised that the patent is unenforceable against Nashua because of the relevant prior art believed to have been available to Ricoh at the time the U.S. patent application was filed. Consequently, I see no need to meet with Mr. Tatsumi of Ricoh of America and his patent counsel.

(emphasis in original). Mr. Barnes' letter did not mention the '730 Patent or the smooth-walled NT-50 cartridge referenced in Mr. Matsueda's letter of July 17. (Pl. Ex. 58, July 23, 1987 Letter.)

By August 1987, Nashua was testing a prototype of its smooth-walled cartridge, and in September 1987, Nashua obtained quotes on molds for the cartridge. (Pl. Ex. 124, Sept. 30, 1987 Memo.) In November 1987, Nashua initiated an internal appropriation request in the amount of \$71,390 to obtain new manufacturing molds for its smooth-walled Nashua NT-50 Toner Cartridge. During the first half of 1988, Nashua began selling the smooth-walled Nashua NT-50 Toner Cartridge to some of its customers. During a portion of 1988, Nashua continued to make and sell both the spiral-walled Nashua NT-50 Toner Cartridges and the smooth-walled Nashua NT-50 Toner Cartridges. Nashua discontinued sale of the spiral-walled NT-50 Toner Cartridges in 1988.

On April 8, 1988, Ricoh filed U.S. Patent Application No. 179,626 (the `626 Application"), which eventually issued as the `603 Patent on November 7, 1989. (Pl. Ex. 8, `603 Patent.) Although the `626 Application did not claim either the spiral guide rib or a removable gear ring, Ricoh asserted that this application was a continuation of U.S. Patent Application No. 866,414 and Application No. 598,022 (the application that became the `730 Patent). On September 20, 1988, the United States Patent and Trademark office (the "PTO") issued a first Office

Action on Ricoh's `626 Application (the "First Office Action"). (Pl. Ex. 9, `603 File Wrapper.) In the First Office Action, the Patent Examiner rejected all pending claims (claims 19-32 of the application) for two specific reasons. The Patent Examiner stated, in part:

2. Claims 19 to 32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the prior invention as set forth in claims 1 to 20, 1 to 3 and 1 to 13 of U.S. patent nos. 4,611,730; 4,641,945; and 4,744,493. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in the instant application are merely broader in scope and fail to define over the previously claimed subject matter on the basis of obviousness.

3. The obviousness-type double patenting rejection is a judicially established doctrine based upon public policy and is primarily intended to prevent prolongation of the patent term by prohibiting claims in a second patent not patentably distinct from claims in a first patent. In re Vogel, 164 USPQ 619 (CCPA 1970). A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) would overcome an actual or provisional rejection on this ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

4. Claims 19 to 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 19, the claimed rotational and sealing engagement is inferentially claimed and renders the claim indefinite. The following additions would overcome this rejection:

line 16 after "within" insert -- and relative to --;

line 20 after "body" insert -- for rotatably driving said cartridge --.

In claim 26, the relative movement between the claimed elements is not positively set forth which renders the claim indefinite. The following addition would overcome this rejection;

line 24 after "axis" insert -- whereby said cartridge rotates relative to said cap shaped receptacle --.

(Pl. Ex. 9, `603 File Wrapper (emphasis added).)

On October 24, 1988, Mr. Matsueda of Ricoh and Mr. Birch of Nashua met in Boston and Mr. Matsueda gave Mr. Birch a copy of the `730 Patent and raised the issue of Nashua's possible infringement. (Pl. Exs. 61, 61A, 63.) On October 25, 1988, Steven Caldeira of Nashua wrote a memorandum to Nashua's in-house counsel, Paul Buffum, stating:

Please find attached copies of two Ricoh patents pertaining to developer and cartridge patents. Ricoh has asked for our comments (OPD) as to whether we are violating these patents. Please let me know.

On or about October 26, 1988, Mr. Buffum sent to Attorney Cockfield, Nashua's outside patent counsel, a copy of Mr. Caldeira's October 25, 1988, memorandum. On or before November 11, 1988, Nashua decided to discard all of the spiral-walled Nashua NT-50 Toner Cartridges in its inventory. Nashua continued, however, to sell the smooth-walled Nashua NT-50 Toner Cartridges.

On December 5, 1988, Mr. Matsueda wrote to Mr. Birch stating:

I believe that you will come back to us with a [conclusion] as to our U.S. patents for NASHUA 7150 Toner [Bottle] and 4100 Developer based on the documents we handed over to you in Boston, Octo[b]er 24.

I will appreciate it if you could pass on your report to Mr. Yuasa and Mr. Mizutani who are going to have a meeting with you on December 5th and 6th.

("Nashua 7150" is a product code that Nashua uses to refer to the NT-50 Toner Cartridge.) On December 5, 1988, Mr. Birch responded to Mr. Matsueda's letter of that same date as follows:

I know Nashua's Office Products Division has been studying the patents I passed to them at your request. I will meet with them today to have some information on the status of their thinking to pass to Messrs. Yuasa and Mizutani - tomorrow.

On December 15, 1988, Mr. Birch wrote to Mr. Matsueda, stating, in part:

During our companies [sic] meetings in both Boston, Massachusetts and Fairfield, New Jersey, I discussed Nashua's thoughts on the toner bottle and developer patents presented to me by yourself.

I recognize Ricoh's concerns and therefore, it is my opinion that we should get the appropriate and most knowledgeable people from each of our companies together to discuss this matter; as I prefer to have Nashua's Office Systems Division concentrate its efforts to increase market share.

In this light, I have had discussions with my colleague, Mr. John Barnes, Vice President of Nashua Corporation's Domestic Office Products Division. He has agreed to meet with whomever you suggest, at a time and place of their convenience.

On December 19, 1988, Mr. Hisao Yuasa of Ricoh, wrote to Nashua, stating:

I like first of all to thank you for the times you and your staffs spent with us, and it was indeed the great pleasure for me to have discussed several important topics for mutual interest.

Secondly, as to Ricoh's US patent issue discussed in your December 15 fax, to the attention of Mr. Matsueda, we were expecting to hear Nashua's explanation on whether or not it manufactures products which may infringe Ricoh's patents, and on how Nashua intend [sic] to settle this issue in the future. Since you think Mr. Barnes is the appropriate person to discuss first of all,

we are prepared to do so. Let us propose the time and place sometime in early January.

Nashua and Ricoh agreed to meet on February 2, 1989.

The February 2, 1989, meeting was held at the offices of Lahive & Cockfield, Nashua's outside patent counsel. Mr. Yuasa and Mr. Tatsumi represented Ricoh, together with Ricoh's outside patent counsel, Norman Oblon. John Barnes, William Price, and Steven Caldeira of Nashua's Products Division represented Nashua, together with Nashua's in-house counsel, Paul Buffum, and outside patent counsel, Mr. Cockfield. At the meeting, Ricoh first learned that Nashua had launched the smooth-walled NT-50.

(Price, Day 5 (a.m.) at 101.) Although the '603 Patent had not yet issued, Ricoh disclosed the existence of the '626 Application and offered to provide Nashua with a copy of the continuation patent's claims. Mr. Cockfield declined to look at documents relating to the pending application citing the confidential nature of pending applications. (Cockfield, Day 6 (p.m.) at 29-30.)

On March 20, 1989, Ricoh filed a response to the First Office Action with the PTO. The response included an Assignment and Terminal Disclaimer of Assignee in compliance with 37 C.F.R. 1.321(b), as suggested by the PTO in its First Office Action. The response also included all amendments to the claim language

suggested by the PTO. On April 20, 1989, the PTO issued a Notice of Allowance with respect to Ricoh's patent application. The `603 Patent as issued states:

Related U.S. Application Data

Continuation of Ser. No. 866,414, May 23, 1986. Pat. No. 4,744,493, which is a continuation of Ser. No. 598,022, Apr. 9, 1984 Pat. No. 4,611,730.

(Pl. Ex. 8, `603 Patent (emphasis added).)

Claims 1 through 4 of the `603 Patent are at issue in this case. Claim 1 of the `603 Patent, the only independent claim, reads:

1. A cartridge for use with a toner replenishing device and for detachable, sealingly and rotationally engaging within a cylindrical portion of a cap-shaped receptacle of the toner replenishing device for the feeding of toner from said cartridge into the toner replenishing device, comprising:

a main body containing a quantity of toner, said main body comprising a substantially hollow container having a longitudinal axis and first and second oppositely-disposed ends, said first end being closed, said second end comprising a mouth portion, said mouth portion comprising a substantially annular sidewall terminating in a place substantially perpendicular to said longitudinal axis, said mouth portion having a configuration suitable for rotational and sealing

engagement within and relative to the cap-shaped receptacle of the toner replenishing device, said main body being open at said plane for the egress of toner; and a gear disposed on and extending circumferentially of said main body for rotatably driving said cartridge.

In the November 7, 1989, issue of the Official Gazette, the PTO printed Claim 1 and figure 2a of the '603 Patent, at page 131 of 527 pages. In early 1990, Nashua sold its Systems Division business to Gestetner, including Nashua's Ricoh Copier distributorship. Ricoh and Nashua therefore ended their contractual relationship. In April of 1990, Ricoh and Nashua entered into a General Release Agreement (the "General Release Agreement"). Exhibit D to the General Release Agreement excepts from the general release, inter alia, "any other claims of which Ricoh will notify Nashua by the end of April, 1990." On April 27, 1990, Mr. Asano wrote to Mr. Buffum as follows:

Pursuant to Section II of the EXHIBIT D ("Ricoh's Exception") of General Release of April 2, 1990, we hereby notify Nashua of Ricoh's claim as follows:

Any and all claims caused by infringement of Ricoh's U.S. Patents by Nashua's toner cartridges and developers.

Your acknowledgment of receipt of this letter will be appreciated.

Mr. Buffum acknowledged Ricoh's notice by letter to Ricoh dated May 2, 1990, in which he wrote:

I have received your facsimile message of April 27, 1990, notifying Nashua of Ricoh's claim as follows:

Any and all claims caused by infringement of Ricoh's U.S. Patents by Nashua's toner cartridges and developers.

Prior to September 18, 1992, Attorney Cockfield orally communicated to Nashua his opinion that the Ricoh `603 Patent was invalid. On December 11, 1992, Mr. Cockfield provided Nashua with a formal written opinion. Daniel Lyman, Esq., the addressee of Mr. Cockfield's December 11, 1992, letter, served on the staff of Nashua's in-house counsel. In his formal opinion letter, Cockfield elaborated on the bases for his conclusion that the `603 Patent was invalid. Cockfield stated, in part:

In response to Dave Dubeil's inquiry of September 1, 1992, we undertook an investigation with respect to possible issues which might arise out of Nashua's planned utilization of a toner cartridge to replace the Ricoh 6750 cartridge.

Dave indicated to us that all prior design changes which had been contemplated in connection with this type of cartridge would be maintained, i.e., there would be no internal spiral groove or ridge, etc.

We advised Dave (cc to you) through our letters of September 8 and September 18, 1992

that the most recent of the four Ikesue patents pertaining to this type of cartridge, i.e., Ikesue et al [sic] 4,878,603, contained an extraordinarily broad claim 1 which on its face would seem to present issues. However, it was our conclusion that this claim was demonstrably invalid.

Shortly thereafter, Nashua began developing toner cartridges for use in the Ricoh 6750 Copier. This cartridge later became known as the smooth-walled NT-6750.

On July 23, 1993, Ricoh filed suit (the "ICMI Lawsuit") against International Communication Materials, Inc. ("ICMI"), alleging patent infringement claims under the `730 and `603 Patents, and trademark infringement and false advertising claims. On July 26, 1993, Ricoh commenced a lawsuit against Densigraphix (the "Densigraphix Lawsuit") in the United States District Court for the District of New Jersey, asserting claims of patent infringement under the `730 and `603 Patents as well as trademark infringement claims. Mr. Lyman obtained a copy of court filings from the Densigraphix and ICMI lawsuits.

On December 2, 1993, at the request of Ricoh, Mr. Barnes of Nashua met with Mr. Yuasa of Ricoh in Boston. At that meeting, Mr. Yuasa directly raised Ricoh's concerns regarding Nashua's alleged infringement of Ricoh's cartridge patents. On January 7, 1994, Mr. Barnes wrote to Ricoh as follows:

Based upon your observations in our meeting of December 2, 1993 in Boston, we have thoroughly reviewed Nashua's position with regard to the two Ricoh patents you mentioned.

We firmly believe that Ricoh has no valid patent claim against Nashua.

On January 19, 1994, Mr. Yuasa wrote to Nashua:

I have received and am deeply disappointed by your January 7 letter. I traveled to Boston and met with you in the hope that we could work constructively toward an amicable resolution of Nashua's infringement of Ricoh's patents, a matter which our two companies have discussed for some time. At the end of our meeting, you asked for a month to consider this matter anew and to provide Ricoh with Nashua's position. I inferred from your request that Nashua would approach this subject as constructively as we had first hoped, especially in light of our companies' prior relationship.

Your January 7 letter is inconsistent with such a constructive approach. You have summarily denied liability to Ricoh without offering any reasons for that position. Nashua's current posture will not allow us to continue a dialogue for avoiding litigation between our companies. I therefore invite you to reconsider your approach and inform me whether Nashua wishes to work with Ricoh to resolve this matter short of a lawsuit. I am prepared to visit you in Boston again, if we can have a constructive meeting. Otherwise, Ricoh will have no choice but to pursue the remedies that are available to it.

Ricoh and Nashua and their respective patent counsel met again on March 17, 1994, at the offices of Nashua's outside patent counsel

in Boston. Nashua advised Ricoh of its belief that Ricoh's toner cartridge patents were invalid and unenforceable.

On March 31, 1994, ICMI filed with the PTO a request for reexamination of the `603 Patent and the `730 Patent. That action was commenced on April 1, 1994. On November 8, 1994, the PTO issued Reexamination Certificates confirming the patentability of claims 1-14 of the `603 Patent. (Pl. Ex. 10, Reexamination Certificate.)

In April of 1994, Ricoh filed suit against Nashua, alleging that Nashua's smooth-walled NT-50 and NT-6750 cartridges infringe the `730 and `603 Patents.

This case presents questions related to both infringement and validity of the `603 Patent. District courts are encouraged to adjudicate both infringement and validity issues when both are raised. Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 330 (1945). The appellate courts have not, however, indicated a preference as to which issue should be resolved first. Here, the court will first rule on Ricoh's single, and relatively straightforward, claim of infringement. It will then consider Nashua's multifaceted defense of invalidity, as well as its equitable and misuse defenses.

II. INFRINGEMENT

Ricoh claims that Nashua's NT-50 and NT-6750 toner cartridges infringe claims 1 through 4 of the '603 Patent. The burden of proving infringement rests, of course, with Ricoh. Smithkline Diagnostics, Inc. v. Helena Lab. Corp., 859 F.2d 878, 889 (Fed. Cir. 1988). "Such proof must show that every limitation of the patent claims asserted to be infringed is found in the accused device, either literally or by an equivalent." Id. Determining whether a patent has been infringed necessarily involves two steps: (1) determining the scope of the asserted claim; and (2) determining whether the claim covers the accused product or device. Id.

A. Claim Construction

Claim construction is now entirely a matter of law. Markman v. Westview Instruments, Inc., 116 S. Ct. 1384 (1996). Because a patent is written for and speaks to those skilled in the art to which it pertains, a claim is interpreted according to how one of ordinary skill in the relevant art would understand the claim language in light of the specification, other claims in the patent, drawings, the Patent Office history, and the prior art. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979-80 (Fed.

Cir. 1995) (en banc), aff'd, 116 S. Ct. 1384 (1996). The terms of a patent claim must be given their plain and ordinary meaning unless it appears that the patentee has chosen to give them special meaning. Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620-21 (Fed. Cir. 1995). Nonetheless, in construing the patent's terms, the court may consider evidence external to the patent and prosecution history, including expert and inventor testimony, either to explain technical terms and terms of art or to demonstrate the state of the prior art at the time of the invention. Markman, 52 F.3d at 980.

As an initial matter, then, the court must determine the qualifications of a typical person of ordinary skill in the relevant art. The parties in this case agree on the level of skill that should be attributed to that person: he or she has a bachelor's degree and five years experience working in the art. (See, e.g., Johnson, Day 9 (p.m.) at 77) They disagree slightly, however, on the nature of the relevant art. Nashua argues that the relevant art is the field of photocopiers and toner, while Ricoh argues that the relevant art is the design of hardware in the field of photocopiers and toner. Because the issues in this case relate primarily to the design of hardware, and because any

person reading Claims 1-4 of the `603 Patent for the purpose of understanding and practicing the invention described therein would most likely have some experience in relevant hardware design or operation, the court accepts Ricoh's description of the person of ordinary skill in the relevant art: a person with a bachelor's degree in engineering and five years or so of experience in the design of hardware used in the photocopier and toner field.

As all parties agree in their post-trial briefs, the only real dispute regarding infringement is whether Claims 1-4 of the `603 Patent require a "side seal" or a "top seal." The answer depends, in turn, on the proper construction given Claim 1, the only independent claim on which Ricoh sues. Claims 1-4 of the `603 Patent read:

1. A cartridge for use with a toner replenishing device and for detachable, sealingly and rotationally engaging within a cylindrical portion of a cap-shaped receptacle of the toner replenishing device for the feeding of toner from said cartridge into the toner replenishing device, comprising:

a main body containing a quantity of toner, said main body comprising a substantially hollow container having a longitudinal axis and first and second oppositely-disposed ends, said first end being closed, said second end comprising a mouth portion, said mouth portion

comprising a substantially annular sidewall terminating in a plane substantially perpendicular to said longitudinal axis, said mouth portion having a configuration suitable for rotational and sealing engagement within and relative to the cap-shaped receptacle of the toner replenishing device, said main body being open at said plane for the egress of toner; and a gear disposed on and extending circumferentially of said main body for rotatably driving said cartridge.

2. The cartridge of claim 1, said main body being substantially cylindrical, an outside diameter of said mouth portion being substantially equal to an outside diameter of said main body.

3. The cartridge of claim 1, said gear being disposed proximate said open end of said main body, said mouth portion being disposed between said gear and said open end.

4. The cartridge of claim 1, comprising a substantially annular gear-tooth-bearing member, said gear being formed thereon, said gear-tooth-bearing member being disposed on said main body.

(Pl. Ex. 8, `603 Patent at col. 7 & 8, lines 49-68, 1-12

(emphasis added).) Nashua's sole argument against infringement is that the `603 Patent, properly construed, claims a side seal and does not claim the top seal exhibited by the NT-50 and NT-6750 cartridges. Nashua's argument rests on a rather strained interpretation of both the claim language and the specification of the `603 Patent.

Nashua relies heavily on the testimony of its expert, Dr. Schein, who suggested that a person of ordinary skill in the art would conclude that the "mouth portion" described in Claim 1 does not include the "plane substantially perpendicular to said longitudinal axis" in which the mouth portion terminates. Because the "mouth portion," but not the plane in which it terminates, must be "suitable for rotational and sealing engagement within and relative to the cap-shaped receptacle," the argument continues, the `603 Patent necessarily describes a seal along the outer circumferential sidewall of the cartridge. (Schein, Day 7 (a.m.) at 47-49.)

Unsurprisingly, Ricoh's expert, Dr. Sturges, disagreed. He testified that a person of ordinary skill in the art would read Claim 1, in the context of the rest of the `603 Patent, to describe a top seal. In his opinion, the mouth portion as described includes the plane in which it terminates. Stated more simply, perhaps, the surface of the mouth portion lying along the plane substantially perpendicular to the cartridge's longitudinal axis is a part of the mouth portion, just as the top surface of a brick wall terminating in a horizontal plan perpendicular to the ground is part of the wall. Because the top edge of the mouth portion is part of the mouth portion, the sealing engagement

described is consistent with a top seal. (Sturges, Day 2 (p.m.) at 63-65.)

When Claim 1 is read in light of the `603 Patent as a whole, as the law requires, Ricoh's interpretation becomes demonstrably correct. First, the phrase "substantially annular sidewall terminating in a plane" is most naturally read as including the terminating plane as part of the mouth portion. The cartridge is, after all, a three-dimensional object and the plane in which the mouth portion of the cartridge terminates gives depth to the sidewall. Nashua's reading would divorce the top surface of the bottle (viewing the cartridge as standing on the closed portion) from the "mouth portion" that constitutes the top of the bottle and would result in the seemingly absurd real world deduction that the mouth of the cartridge – that is, the opening designed to allow for the egress of toner – is also not part of the mouth portion of the cartridge.

In addition, the specification of the `603 Patent shows conclusively that the plane is part of the mouth portion and that the patent describes a top seal. Figure 16 and the accompanying text show that the terminating surface of the mouth portion is considered a part of the mouth portion. (Pl. Ex. 8, `603 Patent at col 7, lines 7-10.) Most convincingly, Figure 4 unambiguously

depicts a top seal; the drawing shows no gap between the top edge of the cartridge and the cap-shaped receptacle when the spring is fully recovered and the cartridge is fully engaged in the toner replenishing device. That same figure does, however, depict a gap between the sidewall of the cartridge and the cap-shaped receptacle, ruling out a side seal. (Pl. Ex. 8A, '603 Patent, fig. 4 enlargement.)

Despite Nashua's arguments to the contrary, the finding that Claim 1 describes a top seal is also consistent with the portion of Claim 1 that calls for sealing engagement within the "cylindrical portion of a cap-shaped receptacle." Dr. Schein opined that Claim 1 requires sealing along the outer circumferential sidewall of the receptacle. The claim, however, contains no such limitation, either on its face or in light of the relevant drawings, each of which more persuasively supports the conclusion that the '603 Patent describes a top seal effected between the terminating surface of the cartridge's open end and the top of the cap-shaped receptacle. (Pl. Ex. 8, '603 Patent, figs. 2b, 4, 7b.)

B. Applying the Claims

An accused device literally infringes a patent claim if it meets every limitation set forth in the asserted claim. Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1535 (Fed. Cir. 1991). Nashua concedes (its invalidity and equitable arguments aside) that if Claims 1-4 of the `603 Patent are properly interpreted to require a top seal, its NT-50 and NT-6750 toner cartridges literally infringe Claims 1-4 of the `603 Patent. They do. In addition, Ricoh has demonstrated through the testimony of its engineering expert, Dr. Sturges, that the Nashua toner cartridges infringe Claims 1-4 of the `603 Patent. (Sturges, Day 2 (p.m.) at 58-69; Pl. Exs. 28 & 29.)

III. VALIDITY

Nashua's next line of defense to Ricoh's claim of infringement is that the `603 Patent is invalid due to its failure to meet four separate statutory standards which every patent must meet. Specifically, Nashua contends that the `603 Patent: (1) fails to meet the written description and enablement requirements of 35 U.S.C. § 112; (2) fails to set forth the best mode of practicing the invention, also required by section 112; (3) fails to describe the invention with the definiteness

required by section 112; and (4) is obvious in light of the prior art, in contravention of 35 U.S.C. § 103.

The '603 Patent is, by statute, presumed valid. 35 U.S.C. § 103. This presumption is based on the PTO's particular expertise in interpreting language used in patent applications as well as its familiarity with the ordinary level of skill in the relevant art. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 446-447 (Fed. Cir. 1986), cert. denied, 484 U.S. 823 (1987). Given those presumptions, Nashua bears the burden of proving invalidity, and must do so by clear and convincing evidence. Gillette Co. v. S.C. Johnson & Son, Inc., 919 F.2d 720, 723 (Fed. Cir. 1990).

A. Enablement and Written Disclosure

Section 112 provides that:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same
. . . .

35 U.S.C. § 112. The so-called "enablement requirement" contained in section 112 is satisfied if the patent teaches those skilled in the art how to make and use the claimed invention

without undue experimentation. In re Wright, 999 F.2d 1557, 1561 (Fed. Cir. 1993). Therefore, the `603 Patent must teach a person with a bachelor's degree in engineering and five years' experience in the design of hardware used in the field of photocopiers and toner delivery systems, how to make the claimed invention. Because a patent is directed at this hypothetical person, "a patent need not teach, and preferably omits, what is well known in the art." Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987).

All of Nashua's arguments regarding description and enablement rest on the alleged inadequate disclosure of the sealing mechanism claimed in the specification of the `603 Patent. First, Nashua contends that a person of ordinary skill in the art could not, upon reading the specification, make and use the claimed invention, because the specification does not adequately display the location of the seal.

The "Description of the Preferred Embodiments" contained in the `603 Patent clearly indicates that a seal is formed between the cartridge and the cap-shaped receptacle, within the receptacle itself. Describing figure 2b, the specification states, "A supporting sleeve 44 is rotatably fitted into the

cylinder member 41, and integrally provided with the supporting sleeve 44 is a cap-shaped receptacle 45 in which the mouth of the cartridge 6 may be rotatably and sealingly received." (Pl. Ex. 8, '603 Patent at col. 3, lines 61-65.) In column 5 lines 1-5, the specification describes the operational position of the cartridge, stating, "[W]hen the knob 49 is pivotted [sic] back to its original position, the holder 52 now holding therein a new cartridge 6 moves forward due to the recovery force of the spring 48 so that the mouth 61 of the new cartridge 6 is fitted into the cap-shaped receptacle 45." Further, as concluded above in the context of infringement, figures 4 and 16 and their accompanying texts make clear that within the cap-shaped receptacle the seal is effected between the top surface of the cartridge and the inner surface of the top (or, the underside surface of the top) of the receptacle. Indeed, the only element of the cap that would stop the upward motion of the bottle cause by the spring is the top end of the receptacle. (Sturges, Day 3 (a.m.) at 25.)

In light of the information contained in the specification, and accepting the testimony of Dr. Sturges as persuasive, the court finds that a person of ordinary skill in the art, reasonably motivated to understand the invention, would fully understand the specification as describing a rotating face seal

that is effected by urging the top surface of the cartridge into contact with the cap-shaped receptacle. (Sturges, Day 3 (a.m.) at 25-26.) Little experimentation would be required of a person of ordinary skill in the art in order to attain and practice the seal described in the specification of the '603 Patent.

Necessarily included in this determination is a rejection of Nashua's argument that the specification of the '603 Patent cannot adequately teach the patent without disclosing the existence or location of a foam gasket seal between the cartridge and the receptacle.¹ The court's rejection of Nashua's argument has two bases. First, Nashua has not carried its burden of proving by clear and convincing evidence that a foam seal is necessary to practice the invention. Dr. Schein testified that a normal blow molded cartridge could not display along its top surface a "flatness tolerance" or "surface roughness" of a tolerance fine enough to prevent the leakage of minute toner particles during operation. (Schein, Day 7 (a.m.) at 70-71, Day 7 (p.m.) at 6, 98.) Jerome Johnson, Ricoh's rebuttal expert, however, gave credible and unrebutted testimony that the top surface of the cartridge could be manufactured to an acceptable

¹ The commercial versions of Ricoh's toner replenishing device contain such a foam seal, but none is disclosed anywhere in the '603 Patent.

tolerance through other, albeit more expensive, molding, trimming, and finishing techniques. (Johnson, Day 9 (p.m.) at 64-68.) The court so finds. Thus, a seal could be effected without the use of a foam gasket, though commercial success probably requires its use.

Furthermore, even if a foam gasket were necessary to practice the invention, Nashua has not proven that a person of ordinary skill in the art, reasonably motivated to understand and practice the invention, could not have recognized the utility of a foam or similar gasket without undue experimentation. Nashua offered no evidence that the use of such seals in the photocopier/toner field was anything but commonplace, and certainly did not establish that the use of such seals was beyond the ken of the prototypical person of ordinary skill in the art. To the contrary, use of a foam gasket seal was well known in the art and, for that reason, was perhaps best left out of the specification. For these reasons, Nashua has not met its burden of proving that the specification of the '603 Patent does not describe the invention in "such full, clear, concise and exact terms as to enable any person skilled in the art . . . to make and use same."

B. Best Mode

Section 112 of the Patent Act also provides that "the specification . . . shall set forth the best mode contemplated by the inventor of carrying out his invention." 35 U.S.C. § 112. "Patent invalidity for failure to set forth the best mode requires that (1) the inventors knew of a better mode of carrying out the claimed invention than they disclosed in the specification, and (2) the inventors concealed that better mode." Engel Indus., Inc. v. Lockformer Co., 946 F.2d 1528, 1531 (Fed. Cir. 1991). Nashua contends that the '603 Patent fails to set forth the best mode for carrying out the invention because it does not disclose the use of a foam gasket to effect a seal between the cartridge and the cap-shaped receptacle. Of course, Nashua must prove both the "subjective" and "objective" prongs of the best mode defense by clear and convincing evidence in order to prevail.

1. The Inventors' Subjective Knowledge of Best Mode

As an initial matter, Nashua must prove that, at the time of filing, the inventors of the device described in the '603 Patent knew the utility of foam gaskets as sealing mechanisms and considered a seal effected by a foam gasket to be better than a

seal effected by face-to-face contact between the cartridge and the cap-shaped receptacle. Nashua points first to the commercial version of the Ricoh 5000 Series Copier, which has always been sold with a foam gasket permanently affixed to the cap-shaped receptacle. (Pl. Ex. 23, Toner Replenishing Device.) While potentially relevant, the commercial embodiment of the patented device does not, by itself, speak to the inventors' state of mind. Indeed, it is far more probative of what Ricoh thought to be the best mode of mass producing and commercially employing the invention. (Johnson, Day 9 (p.m.) at 68.) The fact that a particular embodiment is best for mass production does not necessarily make it the best mode of practicing the invention known to the inventor:

Any process of manufacture requires the selection of specific steps and materials over others. The best mode does not necessarily cover each of these selections. To so hold would turn a patent specification into a detailed production schedule, which is not its function.

Wahl Instruments, Inc. v. Acvious, Inc., 950 F.2d 1575, 1581 (Fed. Cir. 1991).

In order to bolster its argument that the commercial version of the toner replenishing device is reflective of the inventors' intent, Nashua points to the testimony of the inventors

themselves. (Ikesue, Day 2 (a.m.) at 42-48; D. Ex. 237(a), Ikesue dep. at 71, 78-79, Ikeda dep. at 79-82.) Mr. Ikesue's testimony establishes that he and Mr. Ikeda experimented with several sealing mechanisms; some utilized foam seals and some did not. At best, his testimony supports the notion that the inventors thought using a foam gasket was a mode of practicing the invention. The inventors also testified, however, that they preferred a "face seal" without a foam gasket as the best mode of practicing the invention; it was the cost constraints imposed by mass production, not their preference, that made the foam gasket utilized in the commercial version advisable. (Ikesue, Day 2 (a.m.) at 42-44; Ex. 237(a), Ikeda dep. at 81.)

In short, Nashua has introduced no clear and convincing evidence that the inventors considered anything but the face seal depicted in the '603 Patent as the best mode of practicing the invention. As a result, consideration of the objective prong is unnecessary and Nashua's best mode defense fails.

C. Definiteness

Implicit in Nashua's proposed reading of Claim 1, as well as in all of the statutory invalidity arguments considered so far, is an assertion that the '603 Patent does not meet the final

requirement of section 112 that 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." 35 U.S.C. § 112. The test governing this "definiteness" challenge is similar to the principle guiding claim construction in the context of infringement and asks "whether one skilled in the art would understand the bounds of the claim when read in light of the specification. If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, § 112 demands no more." Miles Labs., Inc. v. Shandon Inc., 997 F.2d 870, 875 (Fed. Cir. 1993) (citations omitted) cert. denied, 510 U.S. 1100 (1994).

As the court found in the context of infringement, Claim 1 of the '603 Patent would be read by a person of ordinary skill in the art to describe, with the requisite specificity, the claimed toner cartridge, including the top seal between the cartridge and the cap-shaped receptacle. This is particularly true when Claim 1 is read in light of the specification. For the same reasons the court rejected Nashua's proposed reading of Claim 1 in the context of infringement, it rejects Nashua's definiteness challenge to the validity of the '603 Patent.

D. Obviousness

As its final statutory challenge to the validity of the '603 Patent, Nashua argues that Claims 1-4 are obvious in light of the prior art. Section 103 of the Patent Act states:

A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. § 103.

Although obviousness is a question of law, it turns on several factual inquiries:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. . . . Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.

Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966).

Because the '603 Patent is presumptively valid, "the presumption is that the invention would not have been obvious."

Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1570 (Fed.

Cir.), cert. denied, 481 U.S. 1052 (1987). In most instances, then, the party claiming obviousness must prove it by clear and convincing evidence. However, when the party contending that the invention was obvious bases its argument on prior art that the PTO has already determined does not render the invention obvious, the challenger "has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job." American Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1359 (Fed Cir.), cert. denied, 469 U.S. 821 (1984).

Here, Nashua relies on seven prior art references that it believes render claims 1-4 of the `603 Patent obvious. Namely, Nashua points to the Knechtel, Kawata, Johnston, Stoffel, Dubois, Feldiesen, and Suzuki Patents, arguing that one and/or a combination of these patents render obvious a toner cartridge with a gear disposed on and extending circumferentially of the main body for rotatably driving the cartridge and a mouth portion suitable for rotational and sealing engagement within and relative to the cap-shaped receptacle of a toner replenishing device. The PTO has already considered each of these patents and the relationship of each, both alone and in combination with others, to the invention claimed in the `603 Patent. During the

original prosecution of the `603 Patent, the PTO Examiner considered the Johnston, Kawata, and Knechtel patents. (Pl. Ex. 8, `603 Patent.) In 1994, ICMI challenged the validity of the `603 Patent through a reexamination proceeding, relying on an obviousness argument and all of the seven prior art references Nashua relies upon here. (Pl. Ex. 10, Reexamination Proceedings.)

Section 103 again requires the court to stand in the shoes of a person having ordinary skill in the art. In this instance, however, the court must make a further assumption and view the prior art only from the vantage afforded this hypothetical person at the time the invention was made.

The primary value in the[se] requirement[s] . . . lies in [their] tendency to focus the mind of the decisionmaker away from what would presently be obvious to that decisionmaker and toward what would, when the invention was made, have been obvious, as the statute requires, "to one of ordinary skill in the art."

Kloster Speedsteel AB v. Crucible, Inc., 793 F.2d 1565, 1574 (Fed Cir. 1986), cert. denied, 479 U.S. 1034 (1987). Further, "[t]he statutory emphasis is on a person of ordinary skill" who is "presumed to be one who thinks along the line of conventional wisdom in the art and is not one who undertakes to innovate, whether by patient, and often expensive, systematic research or

by extraordinary insights." Standard Oil Co. v. American Cyanamid Co., 774 F.2d 448, 454 (Fed. Cir. 1985).

1. Scope of Prior Art and the `603 Patent

Simply put, none of the seven prior art references upon which Nashua relies, either alone or in combination with the other six, renders the subject matter of the `603 Patent obvious. No single prior art reference introduced by Nashua anticipates a toner cartridge that detachably and sealingly engages within and relative to a cap shaped receptacle and exhibits a gear disposed on and extending circumferentially of the body for the purpose of rotatably driving the cartridge.² Indeed, no combination of the

² Specifically, the Knechtel and Kawata Patents disclose a toner cartridge of the same general shape described in Claim 1 of the `603 Patent, but exhibit no other attributes relevant here. (D. Ex. 209, Knechtel Patent; D. Ex. 210, Kawata Patent.) The Stoffel Patent describes a toner cartridge that rotates by means of a gear. The gear, however, is located on the receptacle and not on the cartridge itself. The cartridge is located entirely within the receptacle, or "housing" and dispenses toner not through a mouth portion, but by means of a "plurality of chutes." (D. Ex. 212, Stoffel Patent.) The Feldiesen and Suzuki Patents, both of which describe a one time dump of toner, rather than a continuous feed of toner, both disclose a toner cartridge that fits within a cap-shaped receptacle. Neither patent, however, describes a gear or other drive mechanism suitable for mechanically rotating the cartridge. Indeed, Suzuki doesn't rotate at all within the receptacle. (D. Ex. 214, Feldiesen; Patent D. Ex. 198, Suzuki Patent.) The Dubois and B.H. Johnston Patents display many, but not all of the pertinent attributes. Neither describes a gear for means of rotating the cartridge. The Dubois Patent does not fit

relevant aspects of the prior art would have yielded the device described in the `603 Patent because none of the prior art references described a gear disposed on the cartridge for mechanically rotating the cartridge.

Finally, even if, in hindsight, the court could identify all of the relevant limitations of the `603 Patent in some combination of the prior art references, Nashua has not proven that the combination itself would have been obvious at the time of filing. It is black letter law that "[o]bviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577 (Fed. Cir. 1984). No such combination is suggested by the prior art Nashua introduced. Thus, Nashua has failed to demonstrate by even a preponderance of the evidence that the invention described in the `603 Patent would have been obvious to a person of ordinary skill in the art and has certainly not shouldered the heightened burden applicable here.³

within a cap-shaped receptacle and the Johnston Patent does not rotate relative to a cap-shaped receptacle. (D. Ex. 213, Dubois Patent; D. Ex. 211, Johnston Patent.)

³ Because the court finds Nashua's evidence lacking, it need not consider the secondary indicia of nonobviousness offered by Ricoh.

IV. EQUITABLE DEFENSES

Nashua also argues that Ricoh is barred from recovery, in whole or in part, by the doctrines of equitable estoppel and laches. A successful laches defense "bars relief on a patentee's claim only with respect to damages accrued prior to suit." A.C. Aukerman Co. v. R.L. Chaides Constr. Co., 960 F.2d 1020, 1041 (Fed. Cir. 1992) (en banc). A successful equitable estoppel defense, on the other hand, may bar relief entirely. Id. Unlike defenses challenging the validity of a patent, equitable defenses need only be proved by a preponderance of the evidence. Id. at 1037, 38.

In order to succeed in its laches defense, Nashua must prove that: (1) Ricoh unreasonably and inexcusably delayed filing suit from the time Ricoh knew or reasonably should have known of its claim against Nashua; and (2) Nashua suffered material prejudice or injury as a result of the delay. Id. at 1032.

In order to succeed in its equitable estoppel defense, Nashua must prove that: (1) Ricoh, through misleading conduct, led Nashua reasonably to infer that Ricoh did not intend to enforce the '603 Patent against Nashua; (2) Nashua relied on that conduct; and (3) due to its reliance, Nashua would be materially prejudiced were Ricoh allowed to proceed with its claim. Id. at

1028. The "misleading conduct" may include specific statements, actions, inaction, or silence where there is an obligation to speak. Id.

Nashua must establish as an essential element of both of its equitable defenses that there existed a causal nexus between Ricoh's delay or misleading conduct and Nashua's decision to go forward with its smooth-walled cartridges. In order to prove laches, Nashua must demonstrate that its "change in economic position would not have occurred had the patentee sued earlier." Gasser Chair Co. v. Infanti Chair Mfg. Corp., 60 F.3d 770, 775 (Fed. Cir. 1995). Similarly, in order to establish the defense of equitable estoppel, Nashua must prove that "in fact, it substantially relied on the misleading conduct of [Ricoh] in connection with taking some action." A.C. Aukerman, 960 F.2d at 1042-43. Nashua expended a good deal of energy at trial, and much space in its post-trial brief, attempting to prove that Ricoh's delay was unreasonable and inexcusable and that Ricoh's actions were misleading; it did not, however, prove the causal nexus necessary to its equitable defenses. Thus, even assuming, for argument's sake, that Ricoh inexcusably and unreasonably delayed in filing suit or that Ricoh's conduct supported a reasonable inference that it did not intend to press its patent

claims against Nashua, Ricoh's suit is not barred, either in whole or in part, by the doctrines of equitable estoppel or laches.

The evidence presented at trial conclusively established that Nashua's decision to go forward with its NT-50 and NT-6750 smooth-walled cartridges had little, if anything, to do with Ricoh's conduct and everything to do with Nashua's good-faith but mistaken belief that its smooth-walled cartridges infringed neither the `730 nor the `603 Patents. Nashua admittedly obtained and relied upon the advice of its outside patent counsel, James Cockfield, prior to developing the smooth-walled NT-50 and NT-6750 cartridges and, armed with Cockfield's opinions regarding validity and infringement, proceeded to produce the cartridges. (D. Exs. 143, April 7, 1987 Letter, 145, Sept. 8, 1992 Letter, 146, Sept. 18, 1992 Letter, 147, Dec. 11, 1992 Letter, 207, Jan. 24, 1994 Letter, 208, March 2, 1994 Letter.) Indeed, Nashua's reliance on the advice of counsel is also central to its defense against Ricoh's claim of willful infringement.

Of course, the fact that Nashua relied on and based its decisions on the advice of its patent counsel does not rule out the conclusion that Ricoh's delay and conduct were also causally

related to Nashua's decision to go forward with its smooth-walled cartridges. Nashua asserts, as it must, that had Ricoh voiced concerns about the smooth-walled cartridges earlier and more vociferously, Nashua would not have produced the infringing products. But the testimony of the head of Nashua's product division, John Barnes, does not support this assertion. Asked whether Nashua would have gone ahead with the smooth-walled cartridges if Ricoh had more forcefully voiced its infringement concerns, Barnes stated that Nashua would have "tried to see if it was easy for us to accommodate Ricoh or get around the problem. After our analysis, our response would have been based upon the expense and the difficulty of trying to resolve the issue in a way that would satisfy them. And I could only speculate on that." (Barnes, Day 5 (a.m.) at 71 (emphasis added).) In short, the best that can be said is that Nashua was prepared to address any infringement concerns Ricoh might raise, but only if appeasing Ricoh did not come at too high a price. In light of this admission, the court cannot find that Nashua has carried its burden of proving by a preponderance of the evidence that but for Ricoh's delay in filing suit or otherwise expressing its concerns over infringement of the '603 Patent Nashua would

not have made a substantial investment in the infringing products.

Similarly, Nashua has not proven that it relied on misleading conduct on the part of Ricoh when it began development of the smooth-walled NT-50 and NT-6750 cartridges. To the contrary, the testimony of Nashua's William Price established that Nashua was operating under the assumption that Ricoh did, in fact, intend to enforce its rights under the '603 Patent. When asked why Nashua did not simply ask Ricoh whether Ricoh was satisfied that the smooth-walled cartridge did not infringe the '730 or '603 Patents, Price conceded that Nashua "didn't expect their blessing. . . . Ricoh wasn't really, I suspect, going to give us that's great; you fixed the problem; we're all happy now." (Price, Day 5 (a.m.) at 127.) Rather than proving that Nashua acted in reliance on Ricoh's conduct, the evidence demonstrates that Nashua went forward with the smooth-walled cartridge either in spite of or in conscious disregard of Ricoh's conduct; Nashua understood well the game being played and, knowing the risks, consciously took them.

Further, Nashua is only entitled to the equitable defenses it asserts if the equities of the case as a whole favor relief. Here, Nashua appears to have "made a deliberate business decision

to ignore [a] warning, and to proceed as if nothing had occurred." Hemstreet v. Computer Entry Sys. Corp., 972 F.2d 1290, 1294 (Fed. Cir. 1992). At regular intervals throughout the period beginning on June 17, 1987, when Nashua first informed Ricoh that it was considering production of a smooth-walled cartridge, and ending on April 1, 1994, when Ricoh filed suit, Ricoh expressed its concern over the possibility that Nashua's smooth-walled cartridges infringed Ricoh's `730 and `603 Patents. (See Jt. Facts ¶¶ 29, 31, 32, 43, 46, 49, 55, 67, 69, 71, 72; Pl. Exs. 56, 57, 58, 61, 63, 75, 76.) It is true, as Nashua asserts, that Ricoh could have voiced its concerns more often, more bluntly, and less civilly. However, given that both companies are run by sophisticated businesspeople, had a longstanding business relationship, and discussed the patents and toner cartridges with each other so often over the course of seven years, Nashua's claimed failure to recognize Ricoh's intent to enforce its rights under the `603 Patent is, if sincere, necessarily attributable to willful blindness on the part of Nashua executives. Any reasonable person would have understood Ricoh's regular communications on the subject of toner cartridges and patent issues as expressing direct concern, albeit polite concern, over Nashua's potential infringement. Nashua either interpreted

Ricoh's actions in an unreasonable manner or made a business decision to manufacture its cartridges in conscious disregard of Ricoh's claimed intent to enforce its rights under the '603 Patent. In either event, Nashua must bear the consequences of its decision to manufacture infringing products. Because Nashua has not met its burden of proving the requisite causal connection required by both laches and equitable estoppel,⁴ and because Nashua displayed willful blindness to Ricoh's intent to enforce its rights under the '603 Patent, Nashua is not entitled to the equitable relief it requests.

A. Intervening Rights

In a final challenge that it labels equitable in nature, Nashua advances a somewhat foggy argument claiming protected "intervening rights" under the '730, '493, '603 Patent trilogy. Interpreted in a light most favorable to Nashua, the argument

⁴ By focusing on the causal nexus required by laches, the court bypasses the question of whether or not Nashua established a presumption of laches by proving a six-year delay on the part of Ricoh. Even if Nashua were entitled to the "double bursting bubble" presumption of laches, Hemstreet, 972 F.2d at 1293, Ricoh has burst that bubble by introducing evidence, recounted above, that it's delay was not unreasonable and that Nashua was not prejudiced as a result of Ricoh's delay. Thus, the ultimate burden of persuasion remained with Nashua. Id., Aukerman, 960 F.2d at 1039.

goes something like this: Although both Ricoh and the PTO have labeled the `603 Patent a continuation patent that is not patentably distinct from the `730 Patent, the `603 Patent is, in reality, a "reissue patent" that expands the scope of the `730 Patent pursuant to 35 U.S.C. § 251. Under 35 U.S.C. § 252, the argument continues, Nashua's rights to make and sell the NT-50 and NT-6750 are protected as "intervening rights" because Nashua invented its cartridges prior to the grant of the `603 Patent.

Nashua points to no legal or factual bases on which this court could rest a decision that the `603 is not the continuation patent that both Ricoh and the PTO consider it to be. Rather, Nashua baldly contends that "Ricoh should have and could have filed for reissue of the original `730 Patent," (D. Post-Trial Mem. at 31.) instead of seeking a continuation patent and executing a terminal disclaimer. In essence, Nashua seems to be crying "foul" because Ricoh applied for and received the `603 Patent after viewing Nashua's smooth-walled cartridge. Nashua's allegation of inequitable conduct rings hollow:

It should be made clear . . . that there is nothing improper, illegal, or inequitable in filing a patent application for the purpose of obtaining a right to exclude a known competitor's product from the market; nor is it in any manner improper to amend or insert claims intended to cover a competitor's product the applicant's attorney has learned

about during the prosecution of a patent application. Any such amendment or insertion must comply with all statutes and regulations, of course, but, if it does, its genesis in the marketplace is simply irrelevant and cannot of itself evidence deceitful intent.

Kingsdown Medical Consultants, Ltd. v. Hollister, Inc., 863 F.2d 867, 874 (Fed. Cir. 1988), cert. denied, 490 U.S. 1067 (1989).

This is precisely what Ricoh did in applying for the `603 Patent, and Nashua has articulated no argument, other than those rejected herein, that the `603 continuation patent does not "comply with all statutes and regulations." Id. Therefore, the court rejects Nashua's intervening rights argument.

V. PATENT MISUSE

In a final attempt to prevent Ricoh from recovering damages for Nashua's infringement of Ricoh's valid `603 Patent, Nashua argues that Ricoh has misused the patent. The doctrine of patent misuse is an affirmative defense to a claim of patent infringement established by showing "that the patentee has impermissibly broadened the `physical or temporal scope' of the patent grant with anticompetitive effect." Windsurfing, Int'l v. AMF Inc., 782 F.2d 995, 1001 (Fed. Cir.) (quoting Blonder-Tongue Labs., Inc. v. University of Ill. Found., 402 U.S. 313, 343

(1971)), cert. denied, 477 U.S. 905 (1986). Nashua contends that Ricoh has engaged in two types of activity that constitute misuse: (1) conditioning sale of a patented product (toner cartridges) on the purchase, use, or sale of a non-patented product (the toner in the cartridges), a practice known as "tying;" and (2) conditioning the sale of a patented product (toner cartridges) on an agreement not to purchase, use, or sell the products of a competitor. See Zenith Radio Corp. v. Hazeltine Research, 395 U.S. 100, 136 (1969).

A. Tying

In order to establish an unlawful tying arrangement, Nashua must prove three things: (1) two separate products were tied together; (2) Ricoh has sufficient market power to impose restrictions on the tied market; and (3) the arrangement affects a "not insubstantial" volume of commerce in the tied market. Jefferson Parish Hosp. v. Hyde, 466 U.S. 2, 12-15 (1984); Grappone, Inc. v. Subaru of New England, 858 F.2d 792, 794 (1st Cir. 1988). "[T]he essential characteristic of an invalid tying arrangement lies in the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have

preferred to purchase elsewhere on different terms." Jefferson Parish Hosp., 466 U.S. at 12.

As an initial matter, then, Nashua must prove that the toner cartridge and the toner it contains are separate products. In the patent misuse context, the test for separateness "look[s] only to the nature of the claimed invention as the basis for determining whether a product is a necessary concomitant of the invention or an entirely separate product." Senza-Gel Corp. v. Seiffhart, 803 F.2d 661, 670-71 n.14 (Fed. Cir. 1986) (emphasis added). Application of this test to the invention claimed in the '603 Patent is straightforward. Claim 1 of the '603 Patent describes the patented device as comprising "a main body containing a quantity of toner . . . said main body being open at said plane for the egress of toner." (Pl. Ex. 8, '603 Patent at col. 7, lines 49-66.) Claim 1, therefore, explicitly recognizes that the toner contained within the cartridge is a component of the invention and a necessary concomitant of the cartridge itself; one is useless without the other. The practicality (if not pragmatic necessity) of selling the two component parts of the invention together is even more obvious in light of the stated purposes of the invention, one of which is to "provide a toner replenishing device capable of transferring fresh toner to

a toner storage area from a cartridge securely without loss and scattering," and another of which is to "insure that toner of the same kind or property may be replenished at all times." (Pl. Ex. 8, '603 Patent at col. 1-2, lines 67-68, 1-2, 9-10.) Both of these purposes would be defeated if empty cartridges and bulk toner were sold separately to customers. Nashua has not satisfied the first of the three prongs necessary to prove misuse through tying. Therefore, this defense also fails.

B. Anti-Competitive Marketing and Purchasing Arrangements

Finally, Nashua contends that Ricoh engaged in patent misuse by conditioning the sale of its patented toner cartridges on an agreement not to purchase, use, or sell the products of a competitor. In support of this argument, Nashua points to two types of sales agreements Ricoh has with its dealers. Ricoh offered the option of the Sole Source Blanket Pricing Agreement ("BPA") to its dealers beginning in 1993. The BPA offers Ricoh supplies to dealers at a lower price if the dealers agree to purchase their supplies only from Ricoh during the six-month term of the agreement. (D. Ex. 110, BPA.) For those dealers that do not wish to make a sole source commitment, but will commit to buying a certain volume of products from Ricoh, the plaintiff

offers the Carton Quantity Contract Agreement ("CQC"). (D. Ex. 112, CQC.) The BPA and CQC offer Ricoh Toner Cartridges, and nearly all other Ricoh supplies, to dealers at approximately the same price.⁵ (D. Ex. 110, 111, 112.) Ricoh also sells all of its products to any dealers that do not participate in either the CQC or the BPA, although at prices above those offered under the bulk purchasing plans. (Jt. Facts ¶ 88.)

For obvious economic reasons, most Ricoh dealers purchase Ricoh supplies under either the BPA or CQC. However, none of the purchasing agreements Nashua points to, alone or in combination with the others, constitutes, either explicitly or implicitly, a refusal to sell patented Ricoh Toner Cartridges to dealers who also purchase competitors' products. Only the BPA option is a true sole source agreement, but dealers may purchase under the CQC at nearly the same prices as those offered under the BPA. Finally, dealers always have the option of purchasing supplies on a per-carton basis. Certainly, the economic incentives set out in Ricoh's purchasing plans constitute savvy marketing, and take advantage of the savings generated by selling and shipping their

⁵ Under the Ricoh Advance Inventory Management ("AIM") plan, dealers do receive an indirect 1% discount on all products purchased through the BPA. A 1% discount, however, does not constitute an indirect requirement to buy solely from Ricoh.

products in large quantities at regular intervals. And the plans do take advantage of Ricoh's relative power in the photocopier market. But they do not condition the sale of patented Ricoh Toner Cartridges on an agreement not to purchase, use, or sell the products of a competitor. Nashua has not met its burden of proving unlawful misuse of the '603 Patent.

VI. REMEDIES

Having proven that Nashua infringed a valid patent, Ricoh requests the court to award both injunctive relief and money damages. In addition, Ricoh argues it is entitled to pre-judgment interest and reasonable attorneys' fees. The court will address each type of requested relief in turn.

A. Injunctive Relief

Section 283 of the Patent Act states, "The several courts having jurisdiction of cases under this title may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable." 35 U.S.C. § 283. "It is the general rule that an injunction will issue when infringement has been adjudged, absent a sound reason for denying it."

Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1246-47 (Fed. Cir.), cert. denied, 493 U.S. 853 (1989).

Ricoh has proven that the Nashua NT-50 and NT-6750 literally infringe its `603 Patent, and Nashua has offered no persuasive reason for denying Ricoh the injunction it seeks. Therefore, the court hereby permanently enjoins Nashua from manufacturing, using, or selling the infringing NT-50 and NT-6750 toner cartridges that infringe the `603 Patent.

B. Damages

Damages for patent infringement are to be awarded in an amount "adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court." 28 U.S.C. § 284. Thus, Ricoh is entitled to recover damages to the extent of its incremental lost profits resulting from Nashua's infringing sales, or at least in an amount measured by a reasonable royalty. State Indus., Inc. v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1580-81 (Fed. Cir. 1989), cert. denied, 493 U.S. 1022 (1990). Ricoh argues that several factors unique to this case effectively operate to equate the

concepts of reasonable royalty and lost incremental profits, and that may or may not be so.

But, for the time being that issue need not be resolved. Having carefully reviewed the trial transcripts and the exhibits, particularly the testimony of Creighton Hoffman, Stephen Lakey, and Houssam El Jurdi, the court has determined that sufficient doubt arises from the record to warrant further proceedings prior to entering such an award. While Ricoh says its damages evidence is plain, straightforward, and reliable, which it may well be, Nashua presented a highly qualified expert accountant who leveled a number of criticisms, from an expert's vantage point, directly challenging both the reliability of Ricoh's factual evidence of its incremental costs (essentially Lakey's and El Jurdi's testimony and the records they relied on) and questioning Ricoh's minimal allocation of incremental variable costs to the hypothetical production by Ricoh of the offending cartridges.

To be sure, Mr. Hoffman struck the court as being at least one part advocate for every part dispassionate expert, but still, his expertise was apparent, and some of his points do give the court pause. For example, Mr. Hoffman's suggestion that, at least theoretically, some additional indirect or overhead costs are properly allocable to Ricoh's production of the additional

cartridges seems intuitively correct. He declined to give an opinion as to the exact nature and extent of those costs primarily because he thought he had insufficient financial data, and thought the data made available by Ricoh (and relied on in part by Lakey and El Jurdi) was incomplete and facially inaccurate. Whether properly allocable indirect variable costs are substantial or de minimus; whether the financial documents produced, relied on by Ricoh witnesses, and introduced into evidence establish the absence of substantial variable indirect costs, or are so incomplete and therefore unreliable as to call into question the reliability of the incremental costs asserted by Ricoh; and whether all incremental costs are reasonably, and reliably determinable (as an accounting matter), are but some of the questions which the record addresses but does not provide clear answers, at least not to the court.

The damages sought are sizeable and, given the court's lack of accounting expertise, coupled with its opinion that additional impartial expert analysis and opinion could well shed dispositive light on the damages issues, and, at an absolute minimum, will assist the court in properly construing that evidence, the following orders are entered.

1. Further proceedings shall be held relative to damages;

2. A conference with counsel shall be scheduled at the earliest opportunity, at which the court will hear argument from counsel as to why it should not appoint, on its own motion, an expert accounting or forensic accounting witness, of its own selection, to review the testimony, exhibits, and relevant materials, and give opinion testimony as to: the adequacy, from an accounting perspective, of the financial documents, exhibits, and testimony provided by Ricoh to support a reliable incremental cost determination; the de minimus or substantial scope of any variable indirect or overhead costs properly considered in determining Ricoh's incremental costs; what Ricoh's incremental costs would likely be; and other relevant opinions.

While this step is perhaps unique, the court recognizes that its own expertise is lacking in a field that is or may be critical to a proper appreciation of the damages evidence presented and that defendant's expert's testimony, though informative, did not cover the court's interests in full detail, and, was not sufficiently impartial for the court to rely upon it exclusively.

Rather than make an economic decision important to both parties based upon an inadequate understanding or appreciation of relevant accounting realities, the court deems it prudent to

conduct further proceedings relative to damages. See generally,
Fed. R. Ev. 706.

SO ORDERED.

Steven J. McAuliffe
United States District Judge

March 31, 1997

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