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An audible sigh of relief....

....was heard across the land on June 16, 1995 as a result of a "Report and Recommendation" filed in the case of Jerome Lemelson vs. Ford Motor Company by a previously little-known Federal magistrate in Reno, Nevada.

Magistrate Phyllis Halsey Atkins recommended in her 38-page report that "summary judgement be entered in favor of Ford based upon Lemelson's undue delay in prosecuting his patent claims in the patent office."

[In October 1992, Ford, Chrysler and General Motors filed suits against Lemelson to invalidate his patents on bar coding and machine vision. Lemelson countersued alleging patent infringement. After some legal maneuvering, the battle came down to just Ford versus Lemelson, with each litigant filing motions for summary judgement after the submission of extensive pre-trial evidence. Magistrate Atkins' report was the response to those motions for summary judgement.]

What was even more significant than her conclusions was the basis upon which magistrate Atkins reached her unflinching decision. "Lemelson's use of continuation applications has been abusive," she wrote, "and...he should be barred from enforcing his asserted patent rights on the basis of laches....In other words, Lemelson is looking at products currently on the market, and drafting new claims within the nomenclature of the early applications so he can get new patents which encompass existing technology."

[The legal concept of "laches," critical to this recommendation, is defined in the document as a restriction which "bars the prosecution of an action for relief where the party claiming certain rights has unreasonably delayed the assertion of those rights, and where such delay resulted in prejudice to the adversarial party."

Lemelson had taken the position that "it is perfectly reasonable for an inventor to draft new claims to cover the products and systems of other inventors which have reached the market during the forty year pendency of his continuing application practice; and that the inventor may do so indefinitely." To which the magistrate replied: "This position is far too broad and extreme.]"



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INCLUDING THE INTERNATIONAL EDITION

The magistrate's report of the detailed history of Lemelson's methods of using continuations of patent applications filed in the 1950s -- and her reasons for rejecting Lemelson's claims against Ford -- are revealing.

Essentially, she describes Lemelson's history of manipulating the statutes and patent office rules in such a way that patents were issued several decades after the disclosures were first made. In particular, she claims that Lemelson filed two patent applications in the mid-1950s which described automated factory operations in very general terms. Subsequently, as new industrial developments were introduced by others -- such as bar coding and machine vision -- Lemelson adopted them as his own and incorporated them into an intricate web of "continuation applications" that were based on the early filing dates of his original applications.

Here are selected excerpts from the report:

"The government rewards inventors with an exclusive monopoly to practice or license their inventions for a period of seventeen years. But there is a price for such a monopoly: the inventor must fully disclose the invention to the public, and the public may freely practice the invention after the patent expires."

"Continuing applications are those which include at least some subject matter which was previously disclosed in a 'parent' application."

"Lemelson's practice of filing continuing copending applications over the past 40 years, and the practical certainty of his extending them indefinitely into the future, present this Court with a set of facts never before contemplated in the jurisprudence of patent law, and clearly not controlled by the cases cited by Lemelson."

"Several new claims which appeared for the first time...purported to find refuge in the disclosure of the great, great, great, great grandparent application filed twenty-eight years earlier."

"The most recent [patent was]...issued on September 27, 1994 (39 years, nine months, and three days after his first related application was filed). This patent will not expire until September 27, 2011, more than 56 years after the first application was filed...[and] illustrates the infinite nature of Lemelson's tactic, and the absurdity of his delay."

"Lemelson is not a manufacturer, and there is no evidence...that he has ever reduced his machine vision or bar code technology to practice."

The deadline for filing objections is July 24, after which the US District Court judge in Reno is expected to make the final determination. Lemelson's very aggressive and successful legal group is not expected to accept this report with equanimity. There are many avenues of appeal available to them. Lemelson's lead attorney, Gerald Hosier, told the *New York Times* (6/26/95) that the magistrate was "inexplicably hostile" toward his client. "The best, the brightest, the most talented lawyers in America have voted with their pocketbooks by taking out licenses [for Mr. Lemelson's patents]," he said. "This decision doesn't say the inventions aren't his, or that Ford didn't use them. It says: 'Oh, it took too long to get the patents'."

According to the *Times*, Hosier contended that "the great bulk of the delays were entirely the Patent Office's fault." Ford's attorney, Jesse Jenner (of Fish & Neave), replied: "The Patent Office didn't even know about some of these claims for 35 years. Mr. Lemelson probably didn't even think of them for 35 years."

Comment

It would be easy and tempting at this point to agree with the optimistic conclusion expressed by a corporate attorney from an ADC company. "That's the end of Lemelson's patents," he told SCAN. "He is out of the suing business. His whole game is gone."

A more cautious approach would be to wait for the next moves by the contentious 71-year-old inventor. Maybe he has mellowed -- lulled by the hundreds of millions of dollars he won in recent settlements with Japanese, European and American manufacturers. Maybe he would rather spend his time administering the Lemelson Foundation and the many new projects he has funded to burnish his image.

[Two examples of Lemelson's new philanthropic ventures have recently been publicized: Last year, he gave \$6.7 million to MIT to finance a dozen scholarships and a \$500,000 annual reward to an inventor who personifies "American ingenuity." Last month, Lemelson gave the Smithsonian Institution \$10.4 million -- its largest-ever cash donation -- to establish the Lemelson Center for the Study of Invention and Innovation.]

It took a full nine months....

...but everyone involved seems pleased with the results of one of the largest acquisitions ever made in the ADC industry: the sale by Pitney Bowes of its Monarch Marking Systems unit.

Last September, Pitney Bowes announced that it had decided to divest itself of Monarch (and Dictaphone) because it wanted to "refine its strategic focus"; i.e., to concentrate on its core businesses of mailing systems, copying systems, and management and financial services (SCAN Oct 94). A number of companies reportedly expressed interest -- P-B was insisting on a cash deal only -- and the list of active bidders had been winnowed down by March to fewer than six companies.

The buyer is a newly-formed company jointly owned by Paxar Corporation (Pearl River, NY) and Odyssey Partners (New York City). The final purchase price was \$127 million. Each partner contributed \$15 million, with an additional \$100 million to be borrowed by the new company.

Paxar was founded as a label company in 1918. It was acquired by the Hershaft family in 1946 and continued to specialize in manufacturing labels for the apparel industry. In 1958, the company moved into the packaging business; over the next 25 years it became the largest blister packaging manufacturer in the country. In 1969, Paxar became a public company.

In 1985, Paxar exited the packaging business in order to devote all of its resources to creating what its Chairman, Arthur Hershaft, calls a "one-stop

shopping supplier" of all identification products for the apparel market on a global basis. "We can supply everything an apparel manufacturer needs in the form of identification," Hershaft recently told *SCAN*, "from bar code tickets, to care labels, brand labels, merchandise tags, patches for jeans -- and we can do all of that any place in the world that you are sewing the garment."

Last year, Paxar earned \$11.6 million (\$.66 per share) on revenues of \$166 million. From 1990 to 1994, the company posted a 23% compound annual growth in sales. In 1994, Paxar formed a strategic alliance with Sensormatic Electronics to develop special tags and labels -- embedded with Sensormatic transponders -- to prevent retail theft. These devices will be sold by Paxar to apparel companies which will apply them to garments during the manufacturing process.

Odyssey Partners, the other principle in the Monarch deal, is a private investment firm (founded in 1982) which manages more than \$2 billion. Since its inception, Odyssey has acquired more than fifty companies; it currently has a portfolio of more than twenty companies covering a wide range of industries.

According to Hershaft, Monarch will continue to operate as a stand-alone company. "I do not see any integration of Monarch and Paxar at any level," he said. "Although approximately 25% of Paxar's business is bar code-related, we are totally dedicated to the textile and apparel market. Monarch's products, by contrast, are sold to the retail and industrial sectors."

One of the more interesting players in the Paxar/Monarch deal is Tom Loemker. He was the president of Monarch Marking from 1969 -- the year after it was acquired by Pitney Bowes -- until 1981. He then became a P-B group vice president, with Monarch remaining as one of the companies under his wing. Loemker left P-B in 1984 and subsequently moved to Paxar, where he was president from 1987 to 1991, when he retired. Paxar called him back six months later -- after the company had completed some acquisitions -- and he served as vice chairman and chief operating officer from 1992 to 1994. He retired a second time last September.

Loemker has now "unretired" once more to run Monarch for Paxar during the transition period. Daniel Teich, who had been president of Monarch during the past two years, has resigned. Loemker is now interviewing candidates to find a replacement. (No official reason was given for Teich's resignation. Loemker speculated that Teich had put a lot of himself into the company the past two years and "did not want to go through it again with the change in ownership.")

Loemker also sees Monarch and Paxar as two separate companies operating at arms-length, but he anticipates a few areas where cooperation may be beneficial -- particularly in foreign distribution. "Paxar will pick up Monarch's Italian distributor right away," he told *SCAN*. "Monarch will act as Paxar's distributor in Mexico and Canada. There may be other areas where one will be the distributor for the other. We will take the strongest organization in every country. In areas where neither has a presence, we will form a joint venture if there is enough product to get started together."

Paxar and Odyssey will each own 49.5% of the new holding company; Loemker will hold the remaining 1%. "For Paxar," Loemker explained, "this was an off-the-balance sheet transaction. Paxar does not have to put the entire \$127 million on its balance sheet as debt -- which would restrict the company from making any further acquisitions -- while it can still reflect its share of Monarch's

earnings on its profit and loss statements. In addition, Paxar has the option to buy out Odyssey after four years. This enables Paxar to enter an adjacent market which has very little overlap with its own. Paxar will be able to shape Monarch during the next four years and will be able to ultimately acquire it without damaging its current growth plans."

Hershaft and Loemker confirmed that Monarch -- with current annual sales of \$250 million -- has been profitable for the past "few years." From all indications, Pitney Bowes is as pleased with the sale as Paxar and Odyssey are with the purchase. It is just possible that the *Dayton Daily News* headline (6/8/95) of the story covering this event will be prescient: "Monarch-Paxar deal heavenly."

In last month's coverage....

....of ID Expo 95 (Rosemont, IL; May 16-18) we highlighted the latest developments in RFDC, linerless labels and 2-D symbologies (*SCAN* June 95).

We also noted a small downturn (5%) in attendance, compared to last year. However, subsequent reports from the show's sponsors accentuate the positive: attendees came from a wider geographic area than before; many first-time visitors had never been to any previous auto ID trade show; the duplication of registrants with SCAN-TECH was negligible.

In this issue, we will discuss new developments in radio frequency identification (RFID) and bar code scanners that we found at the show.

ID EXPO 95: RFID

At the *ID Systems* symposium at ID Expo, featured speaker David Collins (Data Capture Institute) stated that RFID is an important, growing ADC technology. He predicted: "Automatic toll collection will stimulate interest in RFID the way UPC did for bar codes. However, standards are needed to provide the 'open architecture' environment needed for wider implementation of RFID systems."

[In addition to standards, the other inhibiting factor that has so far restricted the growth of RFID has been the high cost of transponders. These two restraints are inextricably linked; i.e., transponder costs will come down when production quantities increase (and economies of scale can be obtained); volume will increase when standards are established for those important markets which are insisting on open architecture systems.]

A just-released market study by Frost & Sullivan supports Collins' theory. "U.S. sales of radio-frequency identification equipment will grow by more than five times," the F&S report concludes, "from \$144 million in 1994 to \$782 million by the year 2000, at a 33 percent compound annual rate....[This] demand [will be] fueled by the transportation industry."

During the past few years, RFID has emerged from its prosaic image of just being a cattle identifier -- with transponders planted beneath the animal's hide -- to an effective ADC system for many other uses, including retail store security, toll road automation, automobile anti-theft systems, shipping container identification, and waste management control. The F&S study goes so far as to

predict: "As prices fall, RFID is increasingly considered as a replacement of bar code technology."

We discussed these RFID issues at ID Expo with Al McCovey, Texas Instruments Marketing Product Specialist for RFID products. TI appears to be one of the most successful developers of RFID products and systems, particularly for transportation applications. Although automatic fee collection at the toll booths is fast becoming one of the most "visible" RFID applications -- as predicted by David Collins -- McCovey suggests that "vehicle immobilizing systems" will soon be in much greater use.

This automobile security device has already been installed on some 1995 GM and Ford (European) models and TI's version will appear on most Ford cars next year. The RFID transponder is molded into the head of the ignition key and the antenna is fitted inside the car's ignition system. The car will not start unless there is positive communication between the transponder and the matching antenna. "With this system installed," McCovey predicts, "the only way to steal the car will be to load it on a truck." Part of TI's plan is to license "after-market installers" to retrofit existing cars and trucks with this same system.

TI also envisions transponders in your garbage can (to record the weight, date and time of pickup); in parking meters (to monitor maintenance); for access control (at the 1996 Summer Olympics in Atlanta); at the races (runners were tracked and timed at the last Berlin Marathon); and for dozens of other applications in manufacturing, warehousing, transportation, and medical care.

The largest RFID contract "ever awarded," however, is claimed by Savi Technology (Mountain View, CA). Last year, Savi won a three-year \$70 million contract from the US Department of Defense for the "world's first wide area RFID tracking system." The Savi system is comprised of radio tags, hand-held or fixed omnidirectional transmitter/receivers and a central computer.

The Savi Tag, about the size of a deck of cards incorporates a miniature radio transmitter, radio receiver and micro-computer in a strong, tamper-proof, compact case. The unit has a memory capacity of up to 128,000 bytes. Omnidirectional "Interrogators" (transmitter/receivers) are used to locate and identify the tagged items from up to 300 feet away. Each Interrogator can read, write and activate a tag's beeper, making the tagged asset easier to isolate.

Comment

All of these developments lead us to conclude that F&S's optimistic prediction of a 33% growth in RFID revenues over the next five years may not be out of reach. We are skeptical, however that any of this growth will come at the expense of bar code application -- as F&S suggested. RFID is a powerful technology that is carving out its own market segments.

ID EXPO 95: Bar Code Scanners

Add these two new terms to your bar code scanning glossary: Fuzzy Logic; Bumpy Bar Code Reader.

A fuzzy logic laser scanner, the most recent development by Symbol Technologies, is designed to read poorly printed and damaged bar codes. Symbol introduced

their LS 2600 (for retail) and LS 3600 (for industrial) series of these devices at ID Expo. The demonstration at the Symbol booth was very impressive.

Rich Isaacs, Symbol's Director of Marketing for Bar Code Scanning Products, provided SCAN with a more detailed description of this new technique:

"Fuzzy logic is a combination of analog and digital circuitry, and it is hardware and software related. Today's standard scanners have a fixed signal threshold that must be exceeded to recognize an 'edge' -- the transition from a bar to a space. On high quality bar codes, this transition is extremely crisp, and the signal threshold is easily reached. On poor quality bar codes, the transitions are far less distinct.

"With fuzzy logic, this decision criteria is no longer black and white. Rather than having a fixed threshold, the fuzzy logic scanner allows the threshold to vary dynamically to give several alternative interpretations of transitions in the bar code. The system says 'maybe' at some transition points and tries for a successful scan. If unsuccessful, it will then try it a couple of more times with different thresholds and attempt scans at each of them. It retries the scan based on varying probabilities that a bar/space threshold has been crossed."

Isaacs maintains that the probability of misreads is not increased. "The entire symbol must be put together with all of the bars in place," he explains. "The improvement of decode algorithms over the years has helped to eliminate errors."

According to Isaacs, the fuzzy logic principle will be applicable ultimately to all models of Symbol's scanners -- including two-dimensional symbols -- although the cost implications may restrict it initially to only selected models. "The list price for fuzzy logic scanners," he advises, "will be about \$100 more than comparable scanners. Retailers may not rush to pay this added cost because the quality of UPC labels is not as much an issue as it is with industrial labels. It will also take considerable additional engineering -- targeted for future development -- to fit fuzzy logic into our smallest scan engines used in the scanning-integrated terminals."

The other new bar code scanner -- dubbed the Bumpy Bar Code (BBC) reader -- is actually a remake of the GEOscan by Sensis Corp. (Dewitt, NY) that was introduced last year at SCAN-TECH 94. The GEOscan was selected as the number-one New Product of that show (SCAN Nov 94).

But Sensis learned that it can be a long and expensive trip between winning awards and succeeding in the marketplace. GEOscan had to be sent back to engineering for redesign and "productization." It emerged at ID Expo as the BBC reader which, the company says, is now ready for the market. No BBCs have been sold yet.

The BBC is a unique, double-ended scanner that reads bar codes presented in relief pattern on any material. The pattern can be created by using molding, casting, etching, engraving, embossing, or milling. Color contrast is achieved by shining a laser light at an angle (from the bottom of the unit). A CCD camera (located at the top) reads the pattern caused by lights and darks.

Although this will be the second time around for this product, its innovative technology is still impressive.

This may be a "reach"....

....for a serious tie-in to automatic data capture, but a front-page story in the *Wall Street Journal* (4/6/95) about "Juan Peron's Hands" was too tempting to resist.

In 1987, thirteen years after the controversial Argentine dictator died, grave robbers slipped into the Peron family mausoleum. According to the *Journal*, the thieves "pried open the specially sealed coffin holding the general's embalmed corpse and surgically removed his hands."

No one ever offered a reasonable explanation for the motive of this desecration -- until now!

A new theory has surfaced, the *Journal* reported, that Peron -- who was always suspected of hiding enormous amounts of stolen money -- may have stashed all of his cash in a special safe or bank account that could be accessed only by him personally. The unalterable method of identification that could be used for such entry was Peron's hands.

An attorney connected to the ongoing investigation of the General's purloined extremities, has uncovered new "evidence" that a special kind of safe that was holding Peron's riches required a thumbprint or "hand-geometry" reader. "The US military," the *Journal* revealed, "has used hand-geometry readers [which]...probably could open such a device....Such safes, employed only by the most security-obsessed institutions or individuals, emit a flash of incandescent light measuring the shape of any hand attempting to open them."

That's a pretty weird scenario, but it provides us with a reasonable segue into a more down-to-earth automated signature verification system developed by the University of Kent (UK) and being offered for license by the British Technology Group (BTG). According to BTG, the system -- called Kappa -- is based on "high accuracy image analysis algorithms...[and] could be incorporated into many applications in the banking, retail and security industry for all forms of personal financial transactions and access control, where verification of identity is required."

Peter Hawkes, a consultant to BTG, recently told *SCAN*: "The general use of signature verification requires access to a large database so that the signature being written can be checked against the standard pattern in the database."

Hawkes speculated about further refinements to the Kappa system. "Access to such a database," he explained, "is not always practicable and BTG has managed to reduce the parameters of a signature into a small record. This database could easily be incorporated into a 2-D symbol and printed on a small membership or access card. Because the signature would be effectively 'encrypted' onto the card, the independent signature at the time of transaction would provide a very robust and reliable total system."

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