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Software and Business Method Patents: Present, Past and Future

[Some Recent Court Opinions;
Some Data about Issued Patents; and
A Proposal to Improve the System]

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I. INTRODUCTION

Let us consider a little of the **present**, **past** and **future** of software and business method patents:

A. **PRESENT**: We will look at a few recent decisions of the Federal Circuit (the court that hears all appeals in patent cases brought in the United States). On the day of the Institute, there may be newer cases worthy of our attention, but if not, we may discuss:

- two cases concern software patents:

1. Union Pacific (decided January 5, 2001): enablement and indefiniteness in the context of a software patent
2. Globetrotters (decided January 18, 2001): claim interpretation for software patents: the "structure" of a § 112 ¶ 6 "means-plus-function" claim element in which the function is performed by code

- and one case from a different technology that is nevertheless of great importance to anyone concerned with patents:

3. Festo: the Federal Circuit's in banc decision of November 29, 2000 which addressed the rules for prosecution history estoppel ("PHE"), a limitation on the doctrine of equivalents ("DOE"). That doctrine allows a patent owner to win infringement damages when the accused infringer's product or method does not come within the *literal* language of any of the patent claims.

B. **PAST**: A look at some historical data:

1. the number of **claims**, **length of prosecution** and number of **references** cited on patents in class 705. This is the class most often associated with "business method patents." It is the class for the hub-and-spoke patent in State Street Bank v. Signature (the case which put to rest the lore that "business methods" and "mathematical algorithm" were per se unpatentable), and it is one of two classes for amazon.com's "one click" patent (the preliminary injunction on which was overturned today, 2/14/01)
2. some comparisons of litigation and issuance rates for
   - class 705 and some other classes, and
   - patents with the word "software" and those without.

C. **FUTURE**: A proposal for improving the patent system as a whole by having an exponential, accumulating fee structure for the parts of a patent application that may make a patent unnecessarily cumbersome to evaluate, whether the evaluator is a Patent Examiner, a competitor (actual or potential), a licensee (actual or potential), a student of the technology, a judge, or anyone else (even the owner's outside counsel). Some data about a few patents discussed here is also provided.

II. THE PRESENT: SOME VERY RECENT CASES

The cases discussed here may be of interest to anyone thinking about
- obtaining
- enforcing
- challenging
- designing around

a software or business method patent.

A. Enablement and Indefiniteness: Union Pacific

Union Pacific Resources Co. v. Chesapeake Energy Corp., 236 F.3d 684, 57 USPQ2d 1293 (Fed. Cir. 2001) (Michel, Lourie, Rader)

1. THE DECISION

Union Pacific asserted that Chesapeake infringed the 5,311,951 patent which claimed a method to assist in drilling for oil and gas. The claims described steps performed by software, including the step of "comparing ... [borehole] characterizing information to [offset] information ... to determine the [borehead] location." (There were two slightly different independent claims; this paraphrase covers both.) The specification used the term "comparing" in only a few places, none of which buttoned down the meaning of the word nor explained how to make the comparison. The second of the two claims specifically referenced "rescaled" borehole information, and it appeared that the "comparison" contemplated in both claims required "rescaling." One of the inventors admitted that the "rescaling" program was kept as a trade secret. The appeals court therefore upheld two rulings of invalidity: (1) the patent did not **enable** a person of ordinary skill in the art to perform the method's "comparing" step, and (2) the claims were **indefinite** with regard to the word "comparing."

2. COMMENTS

a. Compare the Union Pacific patent to the Signature patent in the State Street case (5,193,056). It claim a data processing system for a "hub-and-spoke" mutual fund partnership. The well-known decision (State Street Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 47 U.S.P.Q.2D 1596 (Fed. Cir. 1998), cert. denied, 119 S. Ct. 851 (1999)) dealt only with § 101 (patentable subject matter) and not with any validity challenges, based on § 112 or otherwise. The Signature patent's claim 1 recites various "means for processing data" which must "allocate" various things among the funds. Unlike the Union Pacific patent, Signature's specification uses the operative verb (in this case, "allocate") quite often. Although the patent contains no algebraic formula expressing the way to perform that

allocation, there is a flowchart for it (Fig. 8). Prior to State Street applicants might have been reluctant to include algebraic formulae in their patents. Now, particularly after Union Pacific, they may be well advised to do so.

b. The patent in AT&T v. Excel, which also was initially attacked on § 101 grounds (AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 U.S.P.Q.2D 1447 (Fed. Cir. 1999), cert. denied, 120 S. Ct. 368 (1999), was later challenged successfully on the merits (AT&T Corp. v. Excel Communications, Inc., 1999 U.S. Dist. LEXIS 17871 (D.Del. Oct. 25, 1999). I have long said (and occasionally written - see PLI Handbooks G0-00F4 and G0-001W) that, when I first read one of the earlier decisions dealing with a § 101 defense, Arrhythmia Research Tech. v. Corazonix Corp., 958 F.2d 1053, 22 U.S.P.Q.2D 1033 (Fed. Cir. 1992), what jumped off the page at me was that the subtext to the accused infringer seemed to be: "If there is prior art to invalidate this patent, bring it forward; if not, stop whining." In light of Union Pacific (and Festo, see below), I would rephrase that to say, "If there is prior art or a § 112 defect to invalidate the patent on the merits, bring it forward; if not, stop whining."

B. Claim Interpretation of a "Means-plus-Function" Software Claim Element: Globetrotter

1. THE DECISION

Globetrotter Software, Inc. v. Elan Computer Group, Inc., __ F.3d ____, __ USPQ2d ____, 2001 U.S. App. LEXIS 662 (Fed. Cir. 2001) (Bryson, Plager, Dyk). Globetrotter's 5,390,297 patent is addressed to a "license management system" which gives a company the ability to control the number of concurrent copies of a licensed piece of software in use on its system. Globetrotter sued Elan for infringement and sought a preliminary injunction and the parties cross-moved for summary judgment on the issue of infringement. After a Markman hearing [named for Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed. Cir. 1995) (in banc), aff'd 517 U.S. 370, 134 L. Ed. 2d 577, 116 S. Ct. 1384 (1996)] to determine the correct interpretation of the claims, the District Court denied the preliminary injunction and granted Elan's motion for judgment of non-infringement of one of the claims in issue. The Federal Circuit affirmed the District Court's claim interpretation as well as its other rulings.

The claim at issue (independent claim 55) recited:

> "A license management system for limiting the number of copies of a given computer program that are permitted to run simultaneously on ... a network ... according to the number of licenses ... that are authorized ...; said system comprising:
>
> > license file means ... for storing at least one and up to a selectable authorized number of said licenses .... [emphasis added]

Accused infringer Elan argued that a "unique identification" ("UID") was necessary to the "storing" function and was part of the "structure" needed to perform the function. The parties agreed that the accused software did not "contain" a UID.

To interpret the "storing" part of the claim, the courts were governed by the provision of the patent statute declaring that a means-plus-function claim

> "shall be construed to cover the corresponding structure, materials, or acts described in the specification and equivalents thereof."

Globetrotter at *10-11, quoting 35 USC § 112 ¶ 6. The parties therefore focused their arguments on discerning the structure described in the patent specification with regard to the "storing" function. The "structure" was determined to be the "license file." The appeals court upheld the trial court's ruling that

> "[B]ecause a UID is assigned to each license file regardless of whether that license file contains any Licenses . . ., the UID assigned to and contained within the license file properly is considered to be a defining characteristic rather than merely a potential content of the license file."

Globetrotter at *13, emphasis mine.

The appeals court determined that the patent specification showed that the UID was "an essential part of the structure" for the "storing" function, and that this was true for both the patent's embodiments, called "license transfer" and "license pool," both of which Globetrotter maintained were covered by claim 55. (At *14). The court made particular note of the fact that "there is no indication in the description that either embodiment ... could perform the function of storing licenses without a UID." (at *15).

2. COMMENTS

a. The Problem with Markman Hearings

The patent, according to the court, did not contemplate having a "license management system" without a UID, but the software of the accused infringer did not have one. What did it have instead? Perhaps, if the courts had allowed themselves to learn this, they would have understood the technology better, and might have ended up with a different understanding of the "structure" [subroutines, "data," code?] needed to perform the "storing" function in the claimed invention. But the courts are admonished by Markman not to find out such things, because claims are to be interpreted in light only of the patent and its prosecution, and with blinders on against so-called extrinsic matters. Yet those matters -- the accused device, or a piece of prior art not considered by the Examiner -- are precisely the information that has led the parties to dispute the meaning of the claim in the first place. They provide the essential context of the dispute. I (and others, including, for example, Senior Judge Avern Cohn, Eastern District of Michigan) have called this aspect of Markman: "**claim interpretation in a vacuum.**" It seems inherently flawed.

Markman hearings encourage two other odd mindsets:

- "**claim interpretation in a freeze-frame**" -- the myth that a claim, or even a particular phrase in a claim, can be interpreted once and forever after is then understood, when of course a later accused infringer may have a different device, or uncover different prior art, that renders the claim, as previous interpreted, in need of further interpretation. But under the rules of "claim interpretation in a vacuum," the subsequent court would be prevented from learning why the first interpretation was insufficient.
- "**claim interpretation no matter what**" -- the myth that all language in all patents has meaning, when in fact sometimes any meaning that may have been intended (giving the drafter the benefit of the doubt there) is no longer discernible.

b. "Structure" and § 112 ¶ 6 and Software

What I like about Globetrotters is that neither court expressed any discomfort with the fact that the "license file" was in fact a concept in the software, which came to life (as it were) when the program was run, but which otherwise was not a "structure" in the sense of a pre-existing physical object in three dimensions.

And, without a moment's hesitation, the courts analyzed the question of "structure" for § 112 ¶ 6 purposes by considering the "structures" created by the software's code. As someone who learned Fortran during the Johnson administration, this makes perfect sense to me. I am pleased that the courts (and the parties) thought so, too.

3. THE DOCTRINE OF EQUIVALENTS AND PROSECUTION HISTORY ESTOPPEL AFTER FESTO

The decision in Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 234 F.3d 558, 56 USPQ2d 1865 (in banc) (Fed.Cir. 2000) will be more than 3 months old by the time of the Institute, but a few comments may still be of interest:

a. "NO range of equivalents"

(1) The most controversial part of the decision, both within the court and without, is the determination that when a claim element is amended during prosecution in a way that creates "prosecution history estoppel," that element is not entitled to any range of equivalents under the doctrine of equivalents. (Eight judges agreed to this proposition and 4 --Michel, Rader, Linn and Newman -- did not.) Of course, if the claim element is in means-plus-function form, it "reads on" [is literally infringed by] means that perform the same function so long as they employ the same "structure, material or acts" as are disclosed in the patent specification, or "equivalents" of them.

(2) Festo could change the number and way claims are drafter. Under Festo, is an applicant who drafts three claims

1. The combination of A, B and C.
2. Claim 1 + D
3. The combination of A, B C and D.

better off than the one who submits only the first two? Assume that the Examiner's first Office Action states that claim 2 would be allowable in dependent form (and claim 3 is allowable).

b. "Patentability" is not just "prior art"

A less controversial part of the opinion affirms that amendments made in response to § 112 rejections can create prosecution history estoppel because they, too, come under the category the

Supreme Court enunciated as "a substantial reason related to patentability" in Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 33, 137 L. Ed. 2d 146, 117 S. Ct. 1040 (1997). Festo, 234 F.3d at 566.

(1) In Warner-Jenkinson, the Supreme Court focused on the Patent Office's decision to enter the amendment and allow the claim as amended. ("Where no explanation is established, however, the court should presume that the PTO had a substantial reason related to patentability for including the limiting element added by amendment. In those circumstances, prosecution history estoppel would bar the application of the doctrine equivalents as to that element.")[1]

By contrast, in Festo, the focus is on the applicant's reason for making the amendment: "a narrowing amendment made for any reason related to the statutory requirements for a patent will give rise to prosecution history estoppel with respect to the amended claim element." 234 F.3d at 566.

(2) Neither Festo (nor Warner-Jenkinson) gave an example of a claim amendment for a NOT substantial reason related to patentability. Nor has any commentator of which I am aware come up with one. (An article by Charles Robert Lewis written before Festo comes closest. (*Close Only Counts in Horseshoes, Hand Grenades, and ... Patents?: The Supreme Court Upholds the Each-Element Test of the Doctrine of Equivalents and "Clarifies" the Role of*

1. Note, however, that the Supreme Court's decision does not speak in terms of entering the amendment and allowing the claim; instead it speaks of the PTO "limiting the element by amendment." This may reflect a lack of certainty about how the process actually works. Similarly, the Supreme Court makes several references to how the Patent Office considers the doctrine of equivalents, when in fact that is an infringement concept. When the Court says things like, "This is especially true where, as here, the PTO may have relied upon a flexible rule of estoppel when deciding whether to ask for a change in the first place," 520 US at 32, patent lawyers may demur: the PTO does not "ask for a change" nor does it have any reason to be concerned about a "rule of [prosecution history] estoppel," flexible or otherwise. Its mission is concerned with whether the application complies with the requirements for entitlement to a patent: validity, not infringement. The two concepts are often confused by beginning patent students (and first-time inventors and others new to the patent law world), so perhaps it is no surprise that the current members of the Court wrote imprecisely in this, their second patent case on the merits. (The first was Markman; every other previous patent case since the Federal Circuit was created had involved procedure, jurisdiction, or specific statutory provisions and did not require the Court to delve into a patent's claims, specification and file history, in order to analyze basic principles of patent law.) But such imprecision in turn gives a flavor of biblical exegesis to some of the analysis engaged in by judges and commentators concerning the language of Warner-Jenkinson. Whether or not the Supreme Court was right about the forest, its understanding of the trees seems to have been shaky.

Prosecution History Estoppel in Warner-Jenkinson Co. v. Hilton Davis Chemical Co., 76 N.C.L. REV. 1936 (1998)). Lewis grapples with whether § 112 amendments will be included under Warner-Jenkinson. He suggests that the phrase "substantially related to patentability" (emphasis mine) "create[s] a hierarchy among those amendments necessary to meet the requirements of 112" (76 N.C.L. REV. at 1967) and that a "clarifying amendment" such as was mentioned in dicta in Hubbell v United States, 179 U.S. 77 (1900) would be outside the rules of Warner-Jenkinson. An applicant rarely "clarifies" a claim by amendment when to do so has only an insubstantial effect on the claim's "patentability." And it is probably even more rare that such an amendment would give rise to a prosecution history estoppel defense to a charge of infringement under the DOE.[2]

III. THE PAST: SOME DATA

A. Survey of Class 705, 1990-2000

These data were collected last June from the LEXIS database. To make the data manipulation easier, only patents issued in the month of May were surveyed. The total sample size was 277 patents. The number of patents issued in the month of May, in the whole year, and in 1/12 of the whole year are as follows:

Year	May	Total	Tot/12	Year	May	Total	Tot/12
1990:	12	85	7	1996:	17	167	14
1991:	3	88	7	1997:	15	198	17
1992:	9	101	8	1998:	35	469	39
1993:	8	167	14	1999:	37	833	69
1994:	12	165	14	2000:	123	1006	84
1995:	6	94	8				

The "Tot/12" figure shows that the May number is neither systematically low nor systematically high relative to an "average" month. This gives some

2. I learned patent law from the early decisions of the Federal Circuit, many of which included commandments to "use words accurately" (my phrase though, not theirs). (For example, the Court noted that a trial court deciding on a challenge to a patent must rule the patent "not invalid," rather than "valid" (Panduit Corp. v. Dennison Manuf. Co., 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985), vacated and remanded on other grounds, 475 US 809 (1986)); or that "experimental use" negates "public use" rather than creating an "exception" to it (TP Labs., Inc. v. Professional Positioners, Inc., 724 F.2d 965, 220 USPQ 577 (Fed. Cir. 1984).) The phrase "substantial reason related to patentability" (emphasis mine), is troublesome because it suggests a distinction that may not exist and a duty to weigh, perhaps without (after Festo?) any use for the answer.

assurance that the May data provides a representative sample of patents generally. The data were all gathered in June 2000, except for the total number of patents in 2000, which was checked on 2/14/02.

1. Number of Claims in Class 705 Patents Issued in May, 1990-2000

Year(s)	Number of Patents in Sample	Number of Claims			
		Lowest	Average (note C1)	Median (note C2)	Highest
1990-93 (note C3)	32	2	12	16	48
1994-97 (note C3)	50	4	19	18	68
1998	35	3	28	19	160
1999	37	4	23	20	76
2000	123	1	26	20	111
1990-2000	277	1	23	20	160

NOTES

C1. As usual, the average is the sum of the claims in all the patents, divided by the number of patents.

C2. As usual, the median is the number of claims for the patent in the middle of a rank-ordered list (that is, a list of all the patents in order of their number of claims from least to most).

C3. In order to have a reasonable sample size, the data for the years 1990-1993 and for 1994-1997 were consolidated.

2. Length of Prosecution (in months) for Class 705 Patents Issued in May, 1990-2000

Year (# in sample)	Average	Lowest	25%ile	Median	75%ile	Highest	Allowed on 1st Appl.
1990-2 (24)	35	16	25	28	37	113	16/24 (67%)
1993-5 (26)	38	15	25	30	43	119	21/26 (81%)
1996 (17)	43	18	30	37	58	83	9/17 (53%)
1997 (15)	47	22	32	44	58	115	8/15 (53%)
1998 (35)	44	20	31	37	48	113	22/35 (63%)
1999 (37)	34	16	26	30	39	99	32/37 (87%)
2000 (123)	37	11	26	32	43	153	90/123 (73%)

3. Number of References Cited in Class 705 Patents Issued in May, 1990-2000

Year(s) (#)	Total	US Patents	Foreign Patents	Other References
1990-92 (24)	**11** [3, 31] {6, 17}	**8** [1, 25] {4, 12}	**1** [0, 6] {0, 2}	**2** [0, 0, 0, 3, 12]
1993-95 (26)	**15** [2, 58] {5, 20}	**9** [2, 42] {4, 12}	**1** [0, 22] {0, 1}	**4** [0, 25] {0, 6}
1996 (17)	**14** [4,42] {6, 19}	**11** [3, 39] {4, 13}	**1** [0, 6] {0,3}	**2** [0, 10] {0, 3}
1997 (15)	**16** [3, 64] {5,20}	**13** [2, 64] {4, 17}	**1** [0, 9] {0, 3}	**1** [0, 7] {0, 4}
1998 (35)	**14** [1, 30] {6, 21}	**11** [1, 29] {3, 16}	**0** [0, 4] {0, 0}	**3** [0, 15] {0, 6}
1999 (37)	**18** [0, 79] {8, 21}	**15** [0, 66] {6, 19}	**1** [0, 10] {0, 1}	**2** [0, 13] {0,4}
2000 (123)	**26** [0, 382] {9, 26}	**18** [0, 80] {6, 21}	**1** [0, 26] {0, 1}	**7** [0, 310] {0, 5}
All years (277)	**20**	**14**	**1**	**5**

Column 1: Year (Number of patents in sample)
Columns 2-5: **Average** [lowest, highest] {25%ile, 75%ile}

B. SURVEY OF ISSUED PATENTS IN FOUR CLASSES IN 2000-2001 (note L1)

(Litigation Rates (note L2) and Increase in Issuances)

Class 705: business methods, e.g. State St. [Signature's hub-and-spoke] and amazon.com one-click

Class	Date of Data Collection	# patents issued	# litigated	% litigated
705	2/6/00	3,186	53	1.7
	6/20/00	*3,644*	*65*	*1.8*
	2/5/01	**4,151**	**87**	**2.1**

Increase in issued patents - 1 year (2/6/00 to 2/5/01): ~1000 patents (30%)

Class 345: computer graphics processing -- e.g. Alappat, also second listed class for amazon.com

Class	Date of Data Collection	# patents issued	# litigated	% litigated
345	2/6/00	20,007	159	0.79
	6/20/00	*21,183*	*166*	0.78
	2/5/01	**23,053**	**186**	**0.80**

Increase in issued patents - 1 year (2/6/00 to 2/5/01): ~3000 patents (15%)

Class 318: electricity: motive power systems -- e.g. Kearns' windshield wipers

Class	Date of Data Collection	# patents issued	# litigated	% litigated
318	2/6/00	18,223	77	0.42
	6/20/00	*18,561*	*78*	*0.42*
	2/5/01	**19,100**	**88**	**0.46**

Increase in issued patents - 1 year (2/6/00 to 2/5/01): ~1000 patents (5%)

Class 435: chemistry: molecular biology and microbiology -- e.g. Genentech v. Amgen

Class	Date of Data Collection	# patents issued	# litigated	% litigated
435	2/6/00	43,624	288	0.66
	6/20/00	*45,602*	*290*	*0.63*
	2/5/01	**49,128**	**334**	**0.68**

Increase in issued patents - 1 year (2/6/00 to 2/5/01): ~5500 patents (13%)

NOTES

L1. These data update a similar table I prepared for a PLI conference in San Francisco, June 2000, see PLI Handbook G0-001W, page 123. The survey includes all patents on the LEXIS database, which goes back to 1971.

L2. Patents are counted as "litigated" if (1) a Notice of Litigation has been filed in accordance with 35 USC § 290, and (2) that notice has been recorded by LEXIS. The numbers are therefore dependent on the combined efforts of the courts, the PTO, and LEXIS. While the data show that many such notices are known to the LEXIS database, none had been recorded as of 2/5/01 for the *amazon.com* patent 5,960,411, or the *Signature* patent 5,193,056, to name only two. Thus the absolute numbers must be taken with a good pinch of salt. Presumably, however, the rate of failure to record notices of litigation is the same for all classes. Thus the relative numbers -- comparisons of the rates -- are likely to be reliable.

C. SURVEY OF LITIGATION RATES OF PATENTS WITH AND WITHOUT THE WORD "SOFTWARE"

	Total	#litigated*	%litigated
A. Patents issued between 1991 and 1995 (inclusive)			
"software"**	25,865	384	1.48
No "software"	472,137	2,913	0.62
All	498,001	3,297	0.66
B. Patents issued between 1996 and 2000 (inclusive)			
"software"	73,396	492	0.67
No "software"	613,911	2,029	0.33
All	687,387	2,521	0.37

NOTES

* See note L2 above concerning litigation data.

** "Software" patents are those that contain the word "software" somewhere. "No 'software'" patents are those that do not.

Data compiled 2/5/01.

IV. THE FUTURE: A SUGGESTION FOR MODIFYING THE STRUCTURE OF PATENT APPLICATION FEES

A. Introduction

My suggestion for improved examination and quality of patents -- across the board, not just for software and business methods -- is to change the initial application fee.

Under the current system, there are two base application fees: one for "small entities" and another, twice as large, for those we may call "large inventors." Currently those amounts are $355 and $710, respectively. The base fee entitles the applicant to file unlimited numbers of pages of specification, unlimited numbers of figures, and unlimited numbers of references (submitted on an Information Disclosure Statement). It also permits applicants to file up to 3 independent claims, and up to 20 total claims. Additional claims are charged on a per-claim basis, the 3rd and

the 33rd independent claim each costing $40 ($80 for large inventors), and the 21st and the 121st claim of any kind each costing $9 ($18 for a large inventor).

The problem with this fee structure is that it does not permit "small inventors," particularly those with "small" inventions -- inventions that can be described in a few pages and a few claims -- to pay a fee commensurate with the ease of examination for the PTO, and with the ease to the public of whatever uses it may choose to put the patent when issued. Likewise, the fee structure does not penalize applicants for unnecessarily voluminous applications, which burden the PTO and the public.

It seems obvious that, at least on average, shorter applications receive better examination than longer ones, and applications with fewer claims and shorter IDSs receive better examination than ones with more claims and longer IDSs. Rather than legislating cut-off values for pages, claims, etc., a system of exponentially increasing fees would encourage more thoughtful, or at least more concise, submissions.

I therefore have proposed that the application fee structure include an exponential, cumulative surcharge when the various components of an application exceed certain limits. The components that might be included are:

- the number of columns (when printed in standard PTO format) of in the specification,
- the number of figures,
- the number of references submitted on Information Disclosure Statements ("IDS"'s),
- the number of independent claims and
- the number of total claims.

Right now, the fee structure only counts claims, and then charges on a per-claim basis for excesses. Neither is enough.

Under my system:

a maximum number of items of each type could be filed "for free" (that is, with the initial application fee),

and

for each succeeding item above that number, the fee would double, and the total surcharge would be the accumulated sum for all items.

The maximum number of whatever (claims, IDS items, pages, figures) would be designed to be fair to the competing interests of:

- the applicant, who wants a specification that meets the statutory requirements, who wants to comply with the duty of candor, and who wants above all to obtain good coverage for the invention, that is, to convince the PTO to issue claims that will be valid and licensable/infringed,
- the examiner who has to examine the application
- later examiners reviewing the patent as potential prior art
- competitors and potential competitors, who must determine the costs and benefits of licensing, litigation and design-arounds
- students, researchers and developers wishing to learn from the patent, when it expires or before, who may not have identical interests with competitors
- the PTO hierarchy and the legal and judicial system (attorneys, judges, Board of Appeals members) who have to evaluate the application/issued patent

Furthermore, since almost every patent applicant/owner has to be concerned with other people's patents: both as prior art and as a potential source of infringement lawsuits or licensee's indemnification requests, applicants will benefit from a structure that encourages shorter applications!

B. The Formula

The surcharge for a particular component of the application under this scheme is easy to state and easy to apply.

- i designates which component is involved.
- N_i is the number of "free" items for the *i*th component. If the component is references in Information Disclosure Statements, $N_i = N_{IDS}$ might be 15. If the component is columns of specification, $N_i = N_{spec} = 20$. And so on.
- F_i is the fee for the first item over N_i. For example, if $N_{IDS} =$ 15, the surcharge for a 16th item, F_{IDS} might be \$10.

The <u>total</u> surcharge for excess items of the *i*th component is

$$\text{Surcharge}_i = [2^{\{\text{actual number submitted} - N_i\}} - 1] \times F_i.$$

C. **An Example**

Consider the number of references submitted on an IDS. Assume that the maximum number of references submittable with the base application fee is set at 15. An applicant who wishes to submit 16 references would pay an additional $10. The fee for each succeeding reference is double the amount of the preceding one. Thus, the 17th reference would cost an additional $20, the 18th an additional $40, and so forth.

Thus a 20-item IDS would cost $(2^5\text{-}1) \times \$10 = \$310$, not a particularly large amount. A 25-item IDS, however, would cost $(2^{10}\text{-}1) \times \$10 = \$10{,}230$.

With this fee structure, lengthy IDS submissions, lengthy specifications, voluminous figures, huge numbers of claims, etc. etc. would be discouraged in a way that gave the applicant some latitude in deciding how much was enough.

D. **Comments**

1. Different technologies have different levels of complexity. Thus some groups of inventors may feel that a "one size fits all" scheme for numbers of pages in the specification or number of figures is unfair. The scheme accommodates this concern in several ways:
   a. The N_i's can be set quite generously. A survey of past patents in these "complicated" fields can be used to decide what is fair for all fields, complicated or not.
   b. The F_i's can be set low. If there is a concern that the N_i's are too low, that problem is offset by having a low F_i. If an N were 10, but many believed it should be 15, and the corresponding F were $1, then the surcharge for filing 15 instead of 10 would be $31 - a modest amount and less than the current cost of one more independent claim. On the other hand, the cost of filing 20 would be $1023, which does start to discourage lengthy submissions.
   c. To some extent, the complexity of the technology correlates to the wealth of the inventor and the expected value of the patent. "Small" inventors may be more likely to file on household or recreational devices; while high-tech corporations are more likely to file on complicated

machinery. Thus a system that (as in the example above) allows an applicant to file 5 more of whatever it is for only $310, has built in flexibility to charge the more complicated applications a fair, not a prohibitive, amount.

2. In order to discourage applicants (or their attorneys, their attorneys' malpractice insurers, litigants, judges, or juries) from confusing an N_i (a "free" maximum) with a "requirement," applicants might receive money back or a credit toward a later application if they kept below any of the maxima.

3. The IDS "free" maximum may be subject to concerns that Rule 56 or litigation strategy compels voluminous filings. However,
   a. Molins [Molins PLC v. Textron, 48 F.3d 1172, 33 USPQ2d 1823 (Fed. Cir. 1995)] and other cases indicates that burying important prior art in a huge list of references violates the duty of candor, and Rule 56(b) itself [37 CFR § 1.56] discourages the proffering of "cumulative" prior art.
   b. Patent attorneys and agents are paid to exercise judgment, and do so all the time. If just anyone could do the job by rote, the pay would be much lower.
   c. I have heard people say that a lengthy IDS submission is prima facie proof of invalidity. Neither Congress nor the courts may be inclined to say so, but perhaps a cumulative surcharge for lengthy filings is good insurance.

   Thus "the litigators made me do it" is a poor excuse for providing an IDS with triple-digit numbers of references.

E. Data About Some "Software" and "Business Method" Patents

Patent #	Case/Owner (subject) [class]	Total Pgs	Claims	Spec Cols	# Figs	Refs Cited		
						Total	US+Fn= all pats	Oth
5,193,056	State Street/Signature [705]	27	6	12	18	8	0+0=0	8
5,311,951	Union Pacific [175]	11	7	8	13	7	4+0=4	3
5,333,184	AT&T v. Excel	12	41	6	7	10	10+0=10	0
5,390,297	Globetrotter [395;364;380]	24	64	16	12	26	12=0=12	14
5,960,411	amazon.com [705;345]	19	26	9	12	31	12+7=19	12
6,119,099	priceline.com (upselling) [705]	35	182	13	17	102	66+2=68	34

Pgs = pages in the issued patent (available on the USPTO website in TIF format), excluding certificates of correction.
Spec Cols does not include claims. Columns rounded off to whole numbers
Number of figures are LEXIS's numbers
"References Cited" are those on the face of the patent. This includes those relied on by the Examiner as well as those submitted on an IDS. When the number of total references exceeds about 10, it is highly likely that it includes IDS items from the applicant.

* * *

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