

Claims Drafting Workshop: Software/Computer Systems

AIPLA Patent Prosecution Basic
Training For New Lawyers

Friday, August 15, 2003

Arlington, VA

Raymond Millien

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

AGENDA

	Introduction of Facilitators and Course Participants	(9:00-9:15)
I.	Software and Patentable Subject Matter	(9:15-9:40)
II.	The Goals of Claims Drafting	(9:40-10:15)
	Break	(10:15-10:35)
III.	Software Patent Specifications: Tips for Supporting Claims	(10:35-11:00)
IV.	Software Method and Computer Program Product Claims	(11:00-11:20)
	Break out Session	(11:20-12:00)
	Lunch	(12:00-1:45)
	Break out Session - Continued	(1:45 - 2:20)
	Q&A	(2:20-2:40)
V.	Software System Claims	(2:40-3:15)
	Break	(3:15-3:35)
	Break out Session	(3:35-4:15)
	Q&A	(4:15-4:45)
	Conclusion and Wrap Up	(4:45-5:00)

TOPICS

- I. Software And Patentable Subject Matter
- II. The Goals of Claims Drafting
- III. Software patent Specifications: Tips For Supporting Your Claims
- IV. Software Method And Computer Program Product Claims
- V. Software System Claims

SOFTWARE AND PATENTABLE SUBJECT MATTER

- **Software =**
 - (a.k.a. “computer program” or “program”) is a collection of instructions (i.e., source code written in a specific language or object code), that is executed on a computer
 - Can be divided into two main types -- system software (e.g., operating systems and compilers) and application software (e.g., business software and engineering software)
 - Commonly used to refer to both the program text and the executing program

SOFTWARE AND PATENTABLE SUBJECT MATTER

- 35 U.S.C. § 101. - Inventions patentable:
 - Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor . . .
 - “[S]tatutory subject . . . includes[s] anything under the sun that is made by man.” *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

SOFTWARE AND PATENTABLE SUBJECT MATTER

- A machine is “a concrete thing, consisting of parts or of certain devices and combinations of devices.” *Burr v. Duryee*, 68 U.S. (1 Wall.) 531, 570 (1863).
- A manufacture is “the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties or combinations, whether by hand labor or by machinery.” *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980).
- A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. *In re Schrader*, 22 F.3d 290, 296 (Fed. Cir. 1994).

SOFTWARE AND PATENTABLE SUBJECT MATTER

- To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application within the technological arts.
- A process that merely manipulates an abstract idea or performs a purely mathematical algorithm is non-statutory despite the fact that it might inherently have some usefulness.
- A claim is limited to a practical application when the method, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something that is concrete, tangible and useful.

SOFTWARE AND PATENTABLE SUBJECT MATTER

- *State Street Bank & Trust Co. v. Signature Fin. Group Inc.*, 149 F. 3d 1368, 1373 (Fed. Cir. 1998):
- “[T]ransformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces ‘a useful, concrete and tangible result’ -- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.”

II. THE GOALS OF CLAIMS DRAFTING

A. General Goals

- Covering The Invention
- Claiming As Broadly As Possible
- Avoiding The Prior Art
- Eliminating Unnecessary Limitations
- Avoiding Indefiniteness Problems

THE GOALS OF CLAIMS DRAFTING

B. Form

- One sentence
- Begin with capital letter
- End with a period (with no other periods allowed except for abbreviations)
- Consist of three parts: Preamble, Transition and Body
- Form = [preamble] , [transition] : [element 1]; [element 2] ; and [element 3].

THE GOALS OF CLAIMS DRAFTING

C. Grammar

- Use indefinite articles (“a” or “an”) the first time an element is introduced
- Use “said” to refer back to previously introduced elements
- Use definite article (“the”) to refer back to other things or inherent properties

THE GOALS OF CLAIMS DRAFTING

D. Preamble

- Sets forth general technical environment of the claim
- Not part of claim limitation unless claim body refers back to preamble or draws any meaning from it.

THE GOALS OF CLAIMS DRAFTING

E. Transition

- “Comprising:”
“Including:”
“Characterized by:”
“Containing”
- open; additional elements allowed
- “Consisting of:”
“Composed of:”
- closed, no additional elements allowed
- “Consisting essentially of:”
- partially closed, additional non-interfering/contributing elements are ok

THE GOALS OF CLAIMS DRAFTING

F. Body

- A list of elements/steps
- Each element/step should be separated by a line indentation (“paragraph”)
- Each element/step should be inter-connected
- Formulas and Equations are okay
- No mental steps (unless machine implemented)
- Cannot have a method step element in an apparatus claim
- Cannot have an apparatus element in a method claim

THE GOALS OF CLAIMS DRAFTING

G. Specific Drafting Goals:

- Be clear, unambiguous, concise and correct!
- Avoid unnecessary limitations
- Cover competitor with “deep pockets”

THE GOALS OF CLAIMS DRAFTING

G. Specific Drafting Goals

- Cover competitor with “deep pockets”

Try #1:

A method for making a telephone call, comprising the steps of:

- (1) picking up the receiver of a first telephone;
- (2) dialing a number on said first telephone;
- (3) transmitting a signal to a second telephone, said second telephone being identified by said number;
- (4) causing said second telephone to ring;
- (5) picking up the receiver of said second telephone; and
- (6) talking.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

THE GOALS OF CLAIMS DRAFTING

G. Specific Drafting Goals

- Cover competitor with “deep pockets”

Try #2:

A method for facilitating a telephone call between a first user and a second user comprising the steps of:

- (1) causing a dial tone to be heard through the receiver of a first telephone used by the first user;
- (2) receiving an input from said first telephone, said input indicative of a number for a second telephone;
- (3) transmitting a signal to said second telephone causing said second telephone to ring; and
- (4) facilitating communications between the second user on said second telephone and the first user on said first telephone.

III. SOFTWARE PATENT SPECIFICATIONS: TIPS FOR SUPPORTING YOUR CLAIMS

- Enablement: “For many computer-related inventions, it is not unusual for the claimed invention to involve more than one field of technology. For such inventions, the disclosure must satisfy the enablement standard for each aspect of the invention.” MPEP § 2106.02 (citations omitted).
- Disclosure must constitute more than a “sketchy explanation of flow diagrams or a bare group of program listings together with a reference to a . . . computer on which they might be run.” In re Knowlton, 481 F.2d 1357, 1367 (C.C.P.A. 1973).

SPECIFICATIONS: TIPS FOR SUPPORTING YOUR CLAIMS

- *Best Mode*: “As a general rule, where software constitutes part of a best mode of carrying out an invention, description of such a best mode is satisfied by a disclosure of the functions of the software”
Fonar Corp. v. General Elec. Co., 107 F.3d 1543, 1549 (Fed. Cir. 1997).
- *Include Source/Pseudo Code?*: Does specification delineate the best mode “in a manner sufficient to require only the application of routine skill to produce a workable digital computer[?]” In re Sherwood, 613 F.2d 809, 817 (C.C.P.A. 1980).

SPECIFICATIONS: TIPS FOR SUPPORTING YOUR CLAIMS

- *Written Description*: Aside from the specification's text, describe the claimed invention to show possession with structures, figures, diagrams and formulas
- Include a Flowchart that corresponds to every (Independent) method claimed
 - Include “Non-Standard” Screen or Window Shots

IV. SOFTWARE METHOD AND COMPUTER PROGRAM PRODUCT CLAIMS

Method Claims

Covers functionality of software (input, processing, and output):

A method for doing something comprising the steps of:

gerund step 1;

gerund step 2;

... ; and

gerund step n .

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

SOFTWARE METHOD CLAIMS

Method Claim Drafting:

Draft narrowest, most-detailed claim first

Then, delete “unnecessary” elements

- Ask: Can someone remove a limitation and still practice the invention?
- Move “unnecessary” elements to dependent claims

SOFTWARE METHOD CLAIMS

- “Interactive Internet Analysis Method,”
U.S. Patent No. 6,049,783
- ABSTRACT:

A client establishes and/or modifies an interactive account on a server via proprietary sorting and filtering and reporting criteria as a means for timely processing of online financial data and/or other business information to retrieve valuations, sorted lists, etc. The method involves establishing a link with a server preset and programmable with client criteria for investment or decision making, acquiring data, sorting, filtering, etc.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

FIG. 1

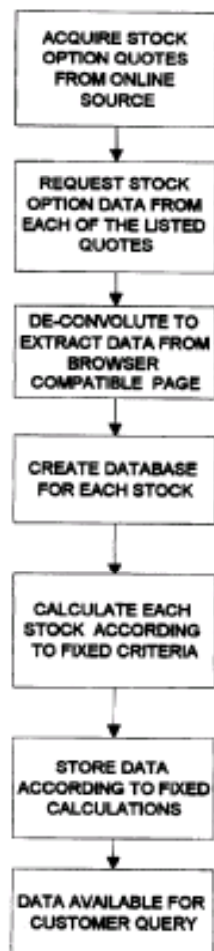
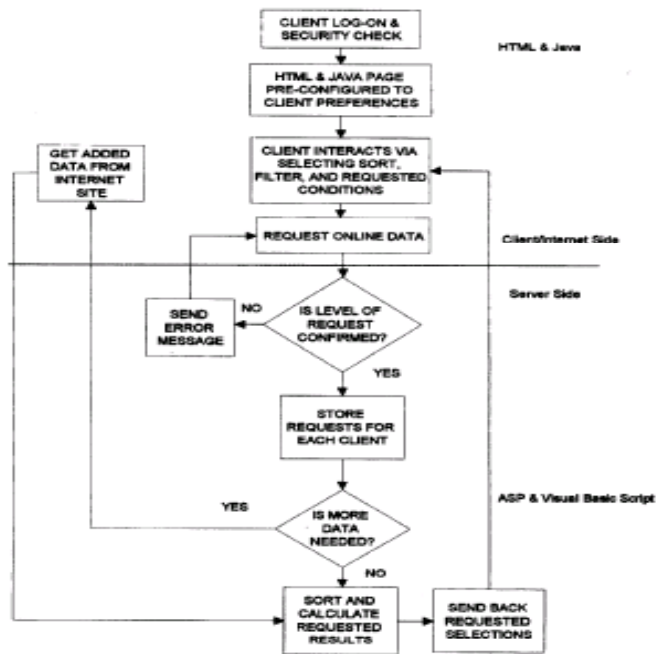


FIG 2.



U.S. PATENT NO. 6,049,783

1. A method for processing data within a server, with the steps:

(1) establishing a filtering and sorting system for a client within a separate account on an interactive server;

(2) setting and modifying upon request filtering and sorting and reporting parameters for each account;

(3) providing timely access to a source of data and/or data bases as a means for filtering and sorting data and retrieving valuations, or other client information, graph or report; and

(4) maintaining access to data and data bases for all accounts up to the level of service paid in full at the time of a request for service.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

U.S. PATENT NO. 6,049,783

4. The method of claim 1 where financial data is processed to provide valuations and sorted lists.
5. The method of claim 4 where the client criteria are selected from one or more: open interest, percent if called, percent if not called, in the money, out of the money, option month, spread between called and not called, minimum and maximum search criteria, price of stock, volume of the stock or option, volatility, or Black-Scholes value.

SOFTWARE METHOD CLAIMS

“Application Program Memory Management System,”

U.S. Patent No. 5,189,733 (Feb. 23, 1999)

ABSTRACT:

A computer system for executing application programs with limited available main memory capacity includes a main memory management system. The architecture of the stub vectors of a swappable code object and the protocol for referencing the stubs in active call frames reduces the overhead time of code object swapping. The stub vectors for a swappable code object are clustered together in memory; and each cluster comprises at least one entry stub and a return stub. A return stub vector is referenced in an active call frame only when its associated code object is not resident in main memory or when the code object has been placed on probation in contemplation of moving the object out of main memory. A number of the least recently used code objects are put on probation in anticipation of the need to swap code between main memory and bulk memory. A call for or a return to an object on probation serves to remove the object from probation.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

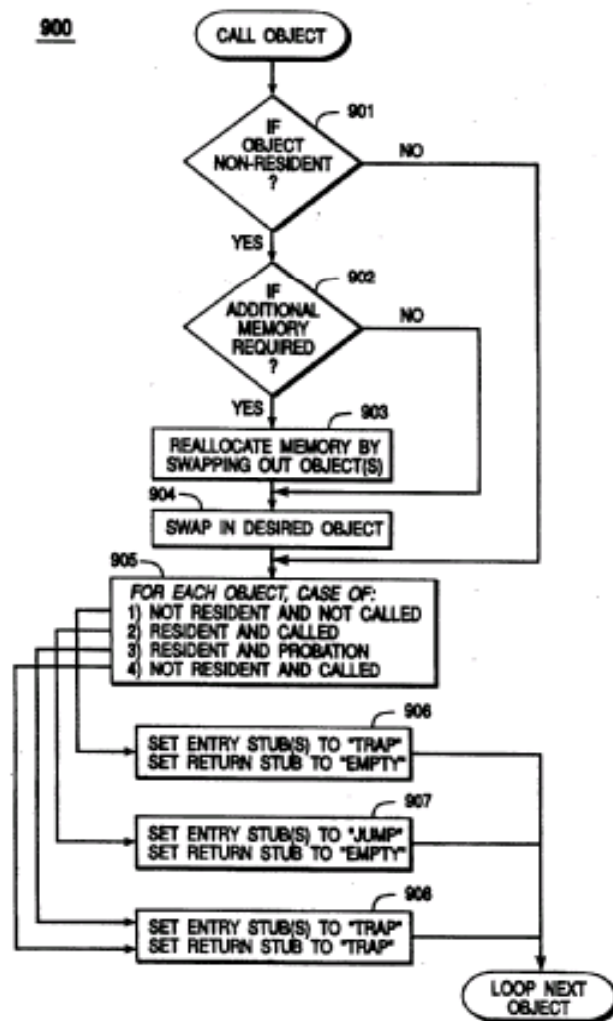


FIG. 9

U.S. Patent No. 5,189,733 (Feb. 23, 1999)

1. In a computer system having a main memory and a secondary memory for storing objects not present in the main memory, a method for execution of an application program in a limited memory space, said program including at least one code object capable of removal from the main memory during program execution, the method comprising:
 - (a) allocating space in main memory for an entry stub for accessing a code object which is required to be resident in the main memory;
 - (b) if a code object is resident at a location in the main memory, storing as the entry stub a vector to the code object at the location;
 - (c) if a code object is not resident at a location in the main memory, storing as the entry stub an instruction executable by the computer upon any calls to the code object; and
 - (d) processing each call to a code object by at least referencing the entry stub, whereby a call to the code object results in execution of the instruction by the computer when the code object is not resident.

U.S. Patent No. 5,189,733 (Feb. 23, 1999)

2. The method of claim 1, further comprising:
allocating space at a plurality of contiguous locations in main memory for a plurality of entry stubs, each for referencing at least one entry point of a code object which has been called.

SOFTWARE CPP CLAIMS

Computer Program Product (CPP) Claims:

- Unlike method claims, which require a potential infringer to actually perform the steps recited in the claim to directly infringe, computer program product claims read on a computer program stored in a tangible medium (e.g., floppy disks, compact discs, hard drives, etc.).
- A party selling or distributing products on, for example, a CD-ROM disc would directly infringe such a claim giving the patentee a simpler infringement factual inquiry and a concrete target for injunctive relief.
- Derived from *In re Beauregard*, 53 F.3d 1583 (Fed. Cir. 1995), which led to the PTO's Examination Guidelines for Computer-Related Inventions (now MPEP § 2106).

SOFTWARE CPP CLAIMS

- **Format:**

- A computer program product comprising a computer usable medium having control logic stored therein for causing a computer to do something, said control logic comprising :
 - computer readable program code means for causing the computer to <do step 1>;
 - ... ; and
 - computer readable program code means for causing the computer to <do step n>.

SOFTWARE CPP CLAIMS

- Claim body can parallel method claims
- Gerund form of verb (method claims) are replaced with infinitive form (in CPP claims)
- Good practice to include diagram of standard computer and corresponding text defining “computer program product”

“Object-Oriented System, Method And Article Of Manufacture For A Client-Server Session Web Access In An Interprise Computing Framework System,” U.S. Patent No. 6,052,711

- **ABSTRACT:**

An interprise computing manager in which an application is composed of a client (front end) program which communicates utilizing a network with a server (back end) program. The system includes software for a client computer, a server computer and a network for connecting the client computer to the server computer which utilize an execution framework code segment configured to couple the server computer and the client computer via the network, by a plurality of client computer code segments resident on the server, each for transmission over the network to a client computer to initiate coupling; and a plurality of server computer code segments resident on the server which execute on the server in response to initiation of coupling via the network with a particular client utilizing the transmitted client computer code segment for communicating via a particular communication protocol.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

U.S. Patent No. 6,052,711

19. A computer program embodied on a computer-readable medium for enabling a distributed computer system, comprising:
- (a) a client computer code segment for residence on a client computer node and including an user interface;
 - (b) a server computer code segment for residence on a server computer node coupled to the client computer node;
 - (c) a code segment to enable a network connecting the plurality of client computers to the plurality of server computers; (d) a code segment which executes a client computer application on a client computer which gathers information about the client computer and contacts a server computer using the network;
 - (e) a code segment which authenticates the client computer and initiates a server computer code segment responsible for communicating with the client computer; and
 - (f) a code segment which transmits a client computer code segment for execution at the client computer to facilitate communication between the client computer and the server computer.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

V. SOFTWARE SYSTEM CLAIMS

System Claims:

Covers environment (hardware, etc.) where software executes on and/or interacts with:

A system for *doing something* comprising:

element 1;

element 2;

... ; and

element n.

SOFTWARE SYSTEM CLAIMS

Pure list of elements, without description of inter-operability in light of executing software, is pointless!

Means-Plus-Function Claims:

- Ask yourself, “What am I covering here?”
- Are computer program product claims more appropriate?

“Accelerating Web Access by Predicting User Action,” U.S. Patent No. 6,055,569

ABSTRACT:

A smart browser working in conjunction with a HTTP server that selectively downloads WWW pages into the browser's memory cache. The determination of which pages to download is a function of a probability weight assigned to each link on a Web page. By evaluating that weight to a predetermined browser criteria, only those pages most probably to be downloaded are stored in the browser's memory cache. The download is done in the background while the browser user is viewing the current Web page on the monitor.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

U.S. Patent No. 6,055,569

9. A system that predicts, in a computer network, what information is to be next downloaded from a server, the system comprising:
 - a client user's computer, a server computer, a networked link between said client computer and said server computer;
 - the client computer with the capability to obtain and display information stored on the server computer;
 - the server computer storing information in the form of pages which in turn contain links to other pages of information; said links having a probability factor, encoded within, that said links will be downloaded;
 - said client user's computer enabled to interpret said probability factor;
 - said client user's computer also enabled to match said probability factor to a predetermined criteria residing in said client user's computer; and
 - said client user's computer then downloading said information prior to being selected by user, into the browser cache of said client user's computer.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

U.S. Patent No. 6,055,569

10. The system in claim 9 further comprising:
 - the client user's computer enabled by a browser to be able to read HTML or XML formatted Web pages;
 - the server using HTTP protocol;
 - the links using a URL address to point to another Web page, site or object;
 - the probability assigned to each link to be in the form of a key word encoded into said link;
 - the browser enabled to interpret said probability factor and match said probability factor against a predetermined criteria.

“Data Processing System For Hub And Spoke Financial Services Configuration,” U.S. Patent No. 5,193,056

ABSTRACT:

A data processing system is provided for monitoring and recording the information flow and data, and making all calculations, necessary for maintaining a partnership portfolio and partner fund (Hub and Spoke) financial services configuration. In particular, the data processing system makes a daily allocation of assets of two or more funds (Spokes) that are invested in a portfolio (Hub). The data processing system determines the percentage share (allocation ratio) that each fund has in the portfolio, while taking into consideration daily changes both in the value of the portfolio's investment securities and in the amount of each fund's assets. The system also calculates each fund's total investments based on the concept of a book capital account, which enables determination of a true asset value of each fund and accurate calculation of allocation ratios between the funds.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

U.S. Patent No. 5,193,056

1. A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:
 - (a) computer processor means [a personal computer including a CPU] for processing data;
 - (b) storage means [a data disk] for storing data on a storage medium;
 - (c) first means [an arithmetic logic circuit configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;
 - (d) second means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a separate file] for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, [sic, funds'] assets and for allocating the percentage share that each fund holds in the portfolio;

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership

U.S. Patent No. 5,193,056

- (e) third means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
- (f) fourth means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and
- (g) fifth means [an arithmetic logic circuit configured to retrieve information from specific files, calculate that information on an aggregate basis and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

Piper Rudnick

Piper Rudnick LLP and related entities including an Illinois General Partnership