

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

2/19/2001 JBALINAH 00000018 134500 10016517
1 FC:201 370.00 CH
2 FC:202 42.00 CH
3 FC:203 54.00 CH
4 FC:204 140.00 CH

PTO-1556
(5/87)

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2001

Application or Docket Number

3125-4803

CLAIMS AS FILED - PART I

SMALL ENTITY
TYPE ☐

OR
OTHER THAN
SMALL ENTITY

RATE	FEE
BASIC FEE	370.00
X\$ 9=	50
X42=	02
+140=	
TOTAL	602

RATE	FEE
BASIC FEE	740.00
X\$18=	
X84=	
+280=	
TOTAL	

	(Column 1)	(Column 2)
TOTAL CLAIMS	16	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	24 minus 20= *	6
INDEPENDENT CLAIMS	4 minus 3= *	1
MULTIPLE DEPENDENT CLAIM PRESENT ☒		

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

SMALL ENTITY

OR
OTHER THAN
SMALL ENTITY

RATE	ADDI- TIONAL FEE
X\$ 9=	
X42=	
+140=	
TOTAL ADDIT. FEE	

RATE	ADDI- TIONAL FEE
X\$18=	
X84=	
+280=	
TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

RATE	ADDI- TIONAL FEE
X\$ 9=	
X42=	
+140=	
TOTAL ADDIT. FEE	

RATE	ADDI- TIONAL FEE
X\$18=	
X84=	
+280=	
TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

RATE	ADDI- TIONAL FEE
X\$ 9=	
X42=	
+140=	
TOTAL ADDIT. FEE	

RATE	ADDI- TIONAL FEE
X\$18=	
X84=	
+280=	
TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

BEST AVAILABLE COPY

CLAIMS ONLY							SERIAL NO.	FILING DATE					
							APPLICANT(S)						
CLAIMS													
	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT			*		*		*	
	IND.	DEP.	IND.	DEP.	IND.	DEP.		IND.	DEP.	IND.	DEP.	IND.	DEP.
1	1						51						
2	1						52						
3	1						53						
4	1						54						
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50							100						
TOTAL IND.	4						TOTAL IND.						
TOTAL DEP.	22						TOTAL DEP.						
TOTAL CLAIMS	26						TOTAL CLAIMS						

* MAY BE USED FOR ADDITIONAL CLAIMS OR ADMENDMENTS

12-17-01

HL

Docket No. 3125-4003



Express Mail No. EL606933355US

27123

PATENT TRADEMARK OFFICE

↑AFFIX CUSTOMER NO. LABEL ABOVE ↑

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY APPLICATION AND FEE TRANSMITTAL §(1.53(b))

Commissioner for Patents
Box Patent Application
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s) names and addresses: Keith R. McNally, San Diego, CA; WJ Kitchen, Rancho Santa Fe, CA; Ken Rogers, San Diego, CA; Paul Rubin, San Diego, CA

For: INFORMATION MANAGEMENT AND SYNCHRONOUS COMMUNICATIONS SYSTEM WITH MENU GENERATION, AND HANDWRITING AND VOICE MODIFICATION OF ORDERS

Enclosed Are:

- 30 page(s) of specification
- 1 page(s) of Abstract
- 5 page(s) of claims
- 8 sheets (Figs. 1-9) of ☒ Formal ☐ Informal drawings
- 8 page(s) of Declaration and Power of Attorney

- ☒ Unsigned
- ☐ Newly Executed
- ☐ Copy from prior application
- ☐ Deletion of inventors including Signed Statement under 37 C.F.R. §1.63(d)(2)

☒ **REQUEST AND CERTIFICATION UNDER 35 U.S.C. §122(b)(2)(B)(i) (form PTO/SB/35)**

As indicated on the attached Request and Certification, Applicant(s) certify that the invention disclosed in the attached application HAS NOT and WILL NOT be the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing. Applicant(s) therefore request(s) that the attached application NOT be published under 35 U.S.C. §122(b).

☐ Incorporation by Reference:

☐ The entire disclosure of the prior application, from which a copy of the combined Declaration and Power of Attorney is supplied herein, is considered as being part of the disclosure of the accompanying application and is incorporated herein by reference.

☐ Deletion of Inventors (37 C.F.R. §1.63(d) and §1.33(b))

Signed statement attached deleting inventor(s) named in the prior application serial no. _____, filed _____.

☐ Microfiche Computer Program (Appendix)

- ☐ page(s) of Sequence Listing
- ☐ computer readable disk containing Sequence Listing
- ☐ Statement under 37 C.F.R. §1.821(f) that computer and paper copies of the Sequence Listing are the same

☐ Assignment Papers (assignment cover sheet and assignment documents)

- ☐ A check in the amount of \$40.00 for recording the Assignment
- ☐ Charge the Assignment Recordation Fee to Deposit Account No. 13-4500, Order No. _____.
- ☐ Assignment Papers filed in the parent application Serial No. _____.

☐ Certification of chain of title pursuant to 37 C.F.R. §3.73(b)

☐ Priority is claimed under 35 U.S.C. §119 for:
Application No(s). _____, filed _____, in _____ (country).

☐ Certified Copy of Priority Document(s) [_____]

- ☐ filed herewith
- ☐ filed in application Serial No. _____, filed _____.

☐ English translation document(s) [_____]

- ☐ filed herewith
- ☐ filed in application Serial No. _____, filed _____.

☐ Priority is claimed under 35 U.S.C. §119(e) for:
Provisional Application No. _____, filed _____.

- ☐ Information Disclosure Statement
- ☐ Copy of [_____] cited references
- ☐ PTO Form-1449
- ☐ References cited in parent application Serial No. _____, filed _____.
- ☐ Related Case Statement under 37 C.F.R. §1.98(a)(2)(iii)
- ☐ A copy of related pending U.S. Application(s) Serial No(s): _____, filed _____, respectively, is attached hereto.
- ☐ A copy of related pending U.S. Application(s) entitled, _____, filed _____ to inventor(s) _____, respectively, is attached hereto.
- ☐ A copy of each related application(s) was submitted in parent application serial no. _____, filed _____.
- ☐ Preliminary Amendment
- ☒ Return receipt postcard (MPEP 503)
- ☒ This is a ☐ continuation ☐ divisional ☒ continuation-in-part of prior application serial no. 09/400,413, filed September 21, 1999, to which priority under 35 U.S.C. §120 is claimed.
- ☐ Cancel in this application original claims _____ of the parent application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ A Preliminary Amendment is enclosed. (Claims added by this Amendment have been properly numbered consecutively beginning with the number following the highest numbered original claim in the prior application).
- ☒ The status of the parent application is as follows:
- ☐ A Petition for Extension of Time and a Fee therefor has been or is being filed in the parent application to extend the term for action in the parent application until _____.
- ☐ A copy of the Petition for Extension of Time in the co-pending parent application is attached.
- ☒ No Petition for Extension of Time and Fee therefor are necessary in the co-pending parent application.
- ☐ Please abandon the parent application at a time while the parent application is pending or at a time when the petition for extension of time in that application is granted and while this application is pending has been granted a filing date, so as to make this application co-pending.
- ☐ Transfer the drawing(s) from the parent application to this application
- ☐ Amend the specification by inserting before the first line the sentence:
This is ☐ continuation ☐ divisional ☐ continuation-in-part of co-pending application Serial No. _____, filed _____.

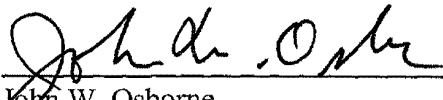
I. CALCULATION OF APPLICATION FEE				
	Number Filed	Number Extra	Rate	Basic Fee \$740.00/370.00
Total Claims*	26- 20 =	6x	\$18.00/ \$9.00	\$ 54.00
Independent Claims	4- 3 =	1x	\$84.00/ \$42.00	\$ 42.00
☒ Multiple Dependent Claims		If marked, add fee of \$280.00 (\$140.00)		\$ 140.00
* Reflects total number of claims for fee purposes, with multiple dependent claims being counted according to 37 C.F.R. §1.75(c)				
TOTAL:				\$ 606.00

- ☒ Small entity status is or has been claimed. Reduced fees under 37 C.F.R. §1.9 (f) paid herewith \$606.00.
- ☐ A check in the amount of \$_____ in payment of the application filing fees is attached.
- ☒ Charge fee to Deposit Account No. 13-4500, Order No. 3125-4003. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.
- ☒ The Commissioner is hereby authorized to charge any additional fees which may be required for filing this application pursuant to 37 CFR §1.16, **including all extension of time fees pursuant to 37 C.F.R. § 1.17 for maintaining copendency** with the parent application, or credit any overpayment to Deposit Account No. 13-4500, Order No. 3125-4003. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,
MORGAN & FINNEGAN, L.L.P.

Dated: November 1, 2001

By:


John W. Osborne
Registration No. 36,231

Correspondence Address:

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): McNally et al.

Group Art Unit: TBA

Serial No.: TBA

Examiner: TBA

Filed: Herewith

For: INFORMATION MANAGEMENT AND SYNCHRONOUS COMMUNICATIONS
SYSTEM WITH MENU GENERATION, AND HANDWRITING AND VOICE
MODIFICATION OF ORDERS

EXPRESS MAIL CERTIFICATE

Express Mail Label No.: EL606933355US

Date of Deposit: November 1, 2001

I hereby certify that the following attached paper(s) and/or fee

1. Utility Application and Fee Transmittal Form;
2. Combined Declaration and POA;
5. Patent Application (Specs. 29 pgs., Claims 5 pgs. Abstract 1 pg.)
6. Drawings (8 sheets - Figs. 1-9)
5. Return Receipt Postcard.

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to BOX CPA, Commissioner for Patents, Washington, D.C. 20231.

Jesus Raul Remedios

(Typed or printed name of person mailing papers(s) and/or fee)

(Signature of person mailing paper(s) and/or fee)

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UNITED STATES PATENT APPLICATION

For:

**INFORMATION MANAGEMENT AND SYNCHRONOUS COMMUNICATIONS
SYSTEM WITH MENU GENERATION, AND HANDWRITING AND VOICE
MODIFICATION OF ORDERS**

Inventors:

Keith R. McNALLY

**WJ KITCHEN
KEN ROGERS
PAUL RUBIN**

1 **UNITED STATES PATENT APPLICATION**

2
3 **OF: KEITH R. McNALLY**
4 **WJ KITCHEN**
5 **KEN ROGERS**
6 **PAUL RUBIN**
7

8
9 **FOR: INFORMATION MANAGEMENT AND SYNCHRONOUS**
10 **COMMUNICATIONS SYSTEM WITH MENU**
11 **GENERATION, AND HANDWRITING AND VOICE**
12 **MODIFICATION OF ORDERS**
13

14 The present application is a continuation-in-part of application Serial No.
15 09/400,413, filed September 21, 1999. The contents of application Serial No. 09/400,413 are
16 incorporated herein by reference.

17 **FIELD OF THE INVENTION**

18 This invention relates to an information management and synchronous
19 communications system and method for generation of computerized menus for restaurants and
20 other applications with specialized display and synchronous communications requirements
21 related to, for example, the use of equipment or software with non-PC-standard graphical
22 formats, display sizes and/or applications for use in remote data entry, information management
23 and synchronous communication between host computer, digital input device or remote pager
24 via standard hardwired connection, the internet, a wireless link, smart phone or the like.

25 **BACKGROUND OF THE INVENTION**

26 While computers have dramatically altered many aspects of modern life, pen and
27 paper have prevailed in the hospitality industry, e.g., for restaurant ordering, reservations and
28 wait-list management, because of their simplicity, ease of training and operational speed. For

1 example, ordering prepared foods has historically been done verbally, either directly to a waiter
2 or over the telephone, whereupon the placed order is recorded on paper by the recipient or
3 instantly filled.

4 Although not previously adapted for wide-scale use in the hospitality industry,
5 various forms of digital wireless communication devices are in common use, e.g., digital
6 wireless messengers and pagers. Also in common use are portable laptop and handheld devices.
7 However, user-friendly information management and communication capability not requiring
8 extensive computer expertise has not heretofore been available for use in everyday life such as
9 for restaurant ordering, reservations and wait-list management. Hundreds of millions of dollars
10 have been spent on personal digital assistant ("PDA") development seeking to produce a small,
11 light-weight and inexpensive device that could be adapted to such uses; yet none have yielded a
12 satisfactory solution.

13 One of the inherent shortcomings of PDA type devices is that, as they strive for
14 small size, low weight and low cost, they must compromise the size and clarity of the operator
15 display medium interface itself, which in most cases is one of a variety of LCD (liquid crystal
16 display) type devices. As the size of the display shrinks, the amount of information that may be
17 displayed at any one point or time is commensurately decreased, typically requiring multiple
18 screens and displays to display information to the operator. This reduces the overall utility of the
19 device. Additionally, the smaller display and keyboard results in a non-optimal operator
20 interface, which slows down operation and is thus unacceptable for the time criticality of
21 ordering, reservation and wait-list management and other similar applications. This necessitates
22 many design compromises which in the aggregate have resulted in limited acceptance of PDA
23 type devices in the restaurant and hospitality fields.

1 Many of the negatives prevalent in earlier devices have been eliminated, but, to
2 date, there is still no integrated solution to the ordering/waitlist/reservation problem discussed
3 above. With the advent of the Palm[®] and other handheld wireless devices, however, the efforts
4 to make such devices ubiquitous have begun to bear fruit at least in some areas, e.g., personal
5 calendars. However, substantial use of such devices in the restaurant and hospitality context has
6 not occurred to date. As discussed above, at least one of the reasons PDAs have not been
7 quickly assimilated into the restaurant and hospitality industries is that their small display sizes
8 are not readily amenable to display of menus as they are commonly printed on paper or displayed
9 on, e.g., large, color desktop computer screens. Another reason is that software for fully
10 realizing the potential for wireless handheld computing devices has not previously been
11 available. Such features would include fast and automatic synchronization between a central
12 database and multiple handheld devices, synchronization and communication between a World
13 Wide Web ("Web") server and multiple handheld devices, a well-defined application program
14 interface ("API") that enables third parties such as point of sale ("POS") companies, affinity
15 program companies and internet content providers to fully integrate with computerized
16 hospitality applications, real-time communication over the internet with direct connections or
17 regular modem dialup connections and support for batch processing that can be done periodically
18 throughout the day to keep multiple sites in synch with the central database. A single point of
19 entry for all hospitality applications to communicate with one another wirelessly has also
20 previously been unavailable. Such a single point of entry would work to keep all wireless
21 handheld devices and linked Web sites in synch with the backoffice server (central database) so
22 that the different components are in equilibrium at any given time and an overall consistency is
23 achieved. For example, a reservation made online would be automatically communicated to the

1 backoffice server and then synchronized with all the wireless handheld devices wirelessly.
2 Similarly, changes made on any of the wireless handheld devices would be reflected
3 instantaneously on the backoffice server, Web pages and the other handheld devices.

4 For the foregoing reasons, paper-based ordering, waitlist and reservations
5 management have persisted in the face of widespread computerization in practically all areas of
6 commerce. At most, computerization of these functions has been largely limited to fixed
7 computer solutions, i.e., desktop or mainframe, because of the problems heretofore faced in
8 configuring wireless handheld devices and maintaining database synchronization for such
9 applications. Specifically, the unavailability of any simple technique for creating restaurant
10 menus and the like for use in a limited display area wireless handheld device or that is
11 compatible with ordering over the internet has prevented widespread adoption of
12 computerization in the hospitality industry. Without a viable solution for this problem,
13 organizations have not made the efforts or investments to establish automated interfaces to
14 handheld and Web site menus and ordering options.

15 A principal object of the present invention is to provide an improved information
16 management and synchronous communications system and method which facilitates user-
17 friendly and efficient generation of computerized menus for restaurants and other applications
18 that utilize equipment with non-PC-standard graphical formats, display sizes and/or applications.

19 A further object of the present invention is to provide an improved information
20 management and synchronous communications system and method which provides for entry,
21 management and communication of information from the operator as well as to and from another
22 computer, Web page menu, remote digital device using a standard hardwired connection, the
23 internet or a wireless link.

1 A further object of the present invention is to provide an improved information
2 management and synchronous communications system which is small, affordable and
3 lightweight yet incorporates a user-friendly operator interface and displays menus in a readily
4 comprehensible format.

5 A further object of the present invention is to provide a synchronous information
6 management and communications system which enables automatic updating of both wireless and
7 internet menu systems when a new menu item is added, modified or deleted from any element of
8 the system.

9 SUMMARY OF THE INVENTION

10 The foregoing and other objects of the present invention are provided by a
11 synchronous information management and communications system and method optimized for
12 simplicity of operation which incorporates menu generation for creation of menus to be used
13 with wireless remote handheld computer and PDA devices, the internet or any application where
14 simple and efficient generation of menus is appropriate. The menu generation approach of the
15 present invention includes a desktop software application that enables the rapid creation and
16 building of a menu and provides a means to instantly download the menu configuration onto,
17 e.g., a handheld device or Web page and to seamlessly interface with standard point of sale
18 ("POS") systems to enable automatic database updates and communication exchanges when a
19 change or input occurs in any of the other system elements. To solve the above and other related
20 problems, an information management and communications system is provided which results in
21 a dramatic reduction in the amount of time, and hence cost, to generate and maintain
22 computerized menus for, e.g., restaurants and other related applications that utilize non-PC-
23 standard graphical formats, display sizes or applications.

1 The menu generation approach of the present invention has many advantages over
2 previous approaches in solving the problem of converting paper-based menus or Windows® PC-
3 based menu screens to small PDA-sized displays and Web pages. In one embodiment, the
4 present invention is a software tool for building a menu, optimizing the process of how the menu
5 can be downloaded to either a handheld device or Web page, and making manual or automatic
6 modifications to the menu after initial creation.

7 Manual modifications to the generated menus include handwritten screen captures
8 and/or voice recorded message captures coupled with the standard menus and modifiers
9 generated according to standard choices. Such manual modifications enable an extremely rapid
10 and intuitive interface to enhance operations and further optimize the overall operator interface.
11 This approach solves a long-standing, operational issue in restaurant/hotel/casino food/drink
12 ordering when customers want something unusual and not anticipated and available through
13 normal computerized selections. As seen in Figure 8, the operator screen on the hand-held can
14 capture handwritten information specific to a customers requests directly on the touch-sensitive
15 screen of the wireless computing device. This additional information can then be coupled with
16 the fixed menu and modifier information generated automatically from the hospitality
17 application software and the combined message can be sent to a restaurant point of sale (POS)
18 system, printer or/or display system. This unique operator interface enables universal languages
19 and an unlimited set of information to be manually communicated and exchanged. The resultant
20 combined message of one or more fixed indications selected from a menu of a device such as a
21 hand-held, and dynamic handwritten messages and/or data provides an even more powerful tool
22 than either modality used independently.

1 For example a restaurant server taking a drink order could select from a menu of
2 her hand-held device's screen "Iced Tea", and then manually write in the literal screen of her
3 hand-held "with lemon" as shown in Figure 8. The manually-written information could, for
4 example, be printed or displayed in front of a bartender preparing the drink order. The indication
5 "Iced Tea" as selected from a menu of the hand-held would also be presented to the bartender,
6 perhaps by printing and/or screen display. The server can also select any printer from within the
7 hospitality establishment directly from the operator interface on the screen of the hand-held and
8 have either the order or the receipt printed out where it is most convenient and efficient.

9 Similarly, a server taking a drink order could select from a menu of her hand-held
10 device's screen "Iced Tea", and then record the voice message "with lemon" using her hand-held
11 device integral microphone. The recorded information could, for example, be played on a
12 speaker attached to a computer, POS system, or the like located near the bartender or chef
13 preparing the order. The indication "Iced Tea" as selected from a menu of the hand-held would
14 also be presented to the bartender/chef, perhaps by printing and/or screen display. Both the literal
15 screen capture method and the voice recorded message method combine the power of automatic
16 fixed menu generation with the expanded flexibility to resolve operational issues that exist
17 throughout the hospitality market without this innovative solution. Additionally, in certain
18 embodiments, hand-writing and voice recognition technologies can be utilized to convert the
19 manual operator inputs into appropriate text messages which can be combined with the
20 computer generated menu options to convey the combined information to, for example, a
21 bartender or chef.

22 Similarly, hand-held devices can link the above innovations to individual
23 customers at specific tables through a graphical user interface on the hand-held screen that

1 assigns each customer a number within a table. For example, table 20 might have 6 customers (1-
2 6) and each customer has a different order, By enabling the linkage of the orders to specific
3 customer positions within the table and accessible from the hand-held screen, the servers can
4 easily track and link the specific orders to the specific customers.

5 The use of wireless handheld devices in the restaurant and hospitality industry is
6 becoming increasingly pervasive as restaurant owners and managers become more aware of the
7 benefits. With the proper wireless handheld system in place, restaurants can experience
8 increased table turns from improved server productivity and shorter order taking and check
9 paying times. Restaurants and POS companies seeking to provide a wireless handheld interface
10 to their desktop-based POS systems or a Web page equivalent face several challenges. These
11 challenges include building a menu using their existing database and transferring the menu onto
12 handheld devices or Web pages that will interface with servers wirelessly or to
13 restaurants/customers over the internet. The menu generation approach of the present invention
14 is the first coherent solution available to accomplish these objectives easily and allows one
15 development effort to produce both the handheld and Web page formats, link them with the
16 existing POS systems, and thus provides a way to turn a complicated, time-consuming task into a
17 simple process.

18 The information management and synchronous communications system of the
19 present invention features include fast synchronization between a central database and multiple
20 handheld devices, synchronization and communication between a Web server and multiple
21 handheld devices, a well-defined API that enables third parties such as POS companies, affinity
22 program companies and internet content providers to fully integrate with computerized
23 hospitality applications, real-time communication over the internet with direct connections or

1 regular modem dialup connections and support for batch processing that can be done periodically
2 throughout the day to keep multiple sites in synch with the central database.

3 The communication module also provides a single point of entry for all hospitality
4 applications, e.g., reservations, frequent customer ticketing, wait lists, etc. to communicate with
5 one another wirelessly and over the Web. This communication module is a layer that sits on top
6 of any communication protocol and acts as an interface between hospitality applications and the
7 communication protocol and can be easily updated to work with a new communication protocol
8 without modifying the core hospitality applications. An exemplary system diagram of such a
9 communications systemic relationship is shown in Figure 9 and serves as an example of the
10 power of the synchronization element of the invention through a common, linked solution. A
11 single point of entry works to keep all wireless handheld devices and linked web sites in synch
12 with the backoffice server applications so that the different components are in equilibrium at any
13 given time and an overall consistency is achieved. For example, a reservation made online can
14 be automatically communicated to the backoffice server and then synchronized with all the
15 wireless handheld devices wirelessly. Similarly, changes made on any of the wireless handheld
16 devices are reflected instantaneously on the backoffice server Web pages and the other handheld
17 devices.

18 **BRIEF DESCRIPTION OF THE DRAWINGS**

19 The foregoing features and advantages of the present invention can be appreciated
20 more fully from the following description, with references to the accompanying drawings in
21 which:

1 FIG. 1 is a schematic representation of a window displayed on a computer display
2 screen which shows a hierarchical tree menu, modifier window and sub-modifier window in
3 conformity with a preferred embodiment of the present invention.

4 FIG. 2 is a schematic representation of a modifier dialog box in conformity with a
5 preferred embodiment of the present invention.

6 FIG. 3 is a schematic representation of a menu category dialog box in conformity
7 with a preferred embodiment of the present invention.

8 FIG. 4 is a schematic representation of a menu item dialog box in conformity with
9 a preferred embodiment of the present invention.

10 FIG. 5 is a schematic representation of a display customization dialog box in
11 conformity with a preferred embodiment of the present invention.

12 FIG. 6 is a schematic representation of a communications control window in
13 conformity with a preferred embodiment of the present invention.

14 FIG. 7 is a schematic representation of a point of sale interface on a wireless
15 handheld device for use in displaying page menus created in conformity with a preferred
16 embodiment of the present invention.

17 FIG. 8 is an example of a literal, hand-written screen according to embodiments
18 of the present invention.

19 FIG. 9 is an exemplary system diagram relating to embodiments of the present
20 invention.

21 **DETAILED DESCRIPTION OF THE INVENTION**

22 Most personal computers today run under an operating system that provides a
23 graphical user interface ("GUI") for accessing user applications. A GUI is used in the preferred

1 embodiment of the present invention. Through an interface of windows, pull-down menus, and
2 toolbars, GUI operating systems have simplified PCs and have rendered computer technology
3 more user friendly by eliminating the need to memorize keyboard entry sequences. In addition,
4 GUIs allow users to manipulate their data as they would physical entities. For example, a
5 window can represent a file and the contents of the window can represent the records of the file.
6 The window can be opened, closed, or set aside on a desktop as if it were an actual object. The
7 records of the file can be created, deleted, modified and arranged in a drag-and-drop fashion as if
8 they also were physical objects. The most common GUI operating systems that provide this
9 “object-oriented” environment for personal computers are Microsoft Windows® systems,
10 including Windows CE® for handheld wireless devices and the like. Generally, a particular
11 application program presents information to a user through a window of a GUI by drawing
12 images, graphics or text within the window region. The user, in turn, communicates with the
13 application by “pointing” at graphical objects in the window with a pointer that is controlled by a
14 hand-operated pointing device, such as a mouse, or by pressing keys on a keyboard.

15 The use of menus is conventional in GUIs for software applications. Menus are
16 typically utilized to provide end users of applications with available choices or processing
17 options while using the applications. For example, in a typical desktop or interactive application,
18 selection of a “file” from a menu bar may cause display of a context menu which provides “file”
19 options. File options can have additional subordinate or child options associated with them. If a
20 file option having subordinate options is selected, the child options are displayed in context in a
21 child menu or submenu proximate to the selected parent option. One or more of the child
22 options provided in the child menu may have further subordinate options. Thus, such a menu
23 system comprises cascading sets of menus which are displayable in context to show the

1 parent/child relationships between options of the context menu. A menu system of this type is
2 incorporated into the preferred embodiment of the invention.

3 The preferred embodiment of the present invention uses typical hardware
4 elements in the form of a computer workstation, operating system and application software
5 elements which configure the hardware elements for operation in accordance with the present
6 invention. A typical workstation platform includes hardware such as a central processing unit
7 ("CPU"), e.g., a Pentium® microprocessor, RAM, ROM, hard drive storage in which are stored
8 various system and application programs and data used within the workstation, modem, display
9 screen, keyboard, mouse and optional removable storage devices such as floppy drive or a CD
10 ROM drive. The workstation hardware is configured by software including an operating system,
11 e.g., Windows® 95, 98, NT or CE, networking software (including internet browsing software)
12 and application software components. The preferred embodiment also encompasses a typical file
13 server platform including hardware such as a CPU, e.g., Pentium® microprocessor, RAM, ROM,
14 hard drive, modem, and optional removable storage devices, e.g., floppy or CD ROM drive. The
15 server hardware is configured by software including an operating system, e.g., Windows® 95, 98,
16 NT or CE, networking software (including Web server software) and database software.

17 A computer workstation for use in the preferred embodiment also includes a GUI.
18 As is conventional, the GUI is configured to present a graphical display on the display screen
19 arranged to resemble a single desktop. Execution of an application program involves one or
20 more user interface objects represented by windows and icons. Typically, there may be several
21 windows and icons simultaneously present on the desktop and displaying information that is
22 generated by different applications.

1 The window environment is generally part of the operating system software that
2 includes a collection of utility programs for controlling the operation of the computer system.
3 The computer system, in turn, interacts with application programs to provide higher level
4 functionality, including a direct interface with the user. Specifically, the application programs
5 make use of operating system functions by issuing task commands to the operating system which
6 then performs the requested task. For example, an application program may request that the
7 operating system display certain information on a window for presentation to the user.

8 An aspect of the preferred embodiment of the information management and
9 communications system of the invention is shown in FIG. 1. FIG. 1 shows an example of the
10 GUI provided by the operating system of the preferred embodiment of the present invention.
11 With reference to FIG. 1, the preferred embodiment includes an intuitive GUI 1 from which to
12 build a menu on a desktop or other computer. A hierarchical tree structure 2 is used to show the
13 different relationships between the menu categories 3 (e.g., soups, salads, appetizers, entrees,
14 deserts, etc.), menu items 4 (e.g., green salad, chicken caesar salad, etc.), menu modifiers 5 (e.g.,
15 dressing, meat temperature, condiments, etc.) and menu sub-modifiers 6 (e.g., Italian, French,
16 ranch, bleu cheese, etc.).

17 The procedure followed in configuring a menu on the desktop PC and then
18 downloading the menu configuration onto the POS interface on the handheld device in
19 conformance with the preferred embodiment is as follows.

20 The menu configuration application is launched by clicking on the appropriate
21 icon on the desktop display screen. FIG. 1 will then be displayed. There are three windows on
22 the screen shown in FIG. 1. The left window is the menu tree 7, also called the tree view. The
23 top right window is the Modifiers window 8 and the bottom right window is the Sub-Modifiers

1 window 9. The Sub-Modifiers window lists the sub-modifiers that correspond to the modifier
2 that is selected. The views on the right are referred to as list views. There are several ways of
3 invoking a command, including using the menu options; using the context menu (right mouse
4 click); using the keyboard or using the toolbar icons. For example, if it is desired to add a
5 category to the menu, the following four options are available: (1) clicking on Edit, Add
6 Category; (2) right mouse clicking on Menu, then clicking on Add Category; (3) highlighting
7 Menu, then typing Ctrl + T or (4) clicking on the Add Category icon on the toolbar. To add an
8 item to a category, the following options are available: (1) highlighting the category to which it
9 is desired to add an item and then clicking on Edit > Add Item; (2) right mouse clicking on the
10 desired category and then clicking on Add Item; (3) highlighting the desired category, then
11 typing Ctrl + N or (4) clicking on the Add icon on the toolbar.

12 When building a menu, it should be kept in mind that the menu items are stored
13 using a tree metaphor similar to how files are stored on a PC with folders and subfolders. The
14 menu structure is similar to the Windows® File Explorer in the way the items are organized
15 hierarchically. Below is an example of how an item may be configured:

```
16      Menu
17      >>  Entrees
18          >>  Red Meat
19              >>  NY Strip
20                  >>  Vegetables
21                      >>  Tomato
22                      >>  Lettuce
23                      Meat Temperature
24                      >>  Medium Rare
```

26 In the above example, Menu is the root. Entrees is a menu category. Red Meat is an Entree
27 category. NY Strip is a modifier. Vegetable is a modifier. Meat Temperature is a modifier.
28 Medium Rare is a sub-modifier of Meat Temperature.

1 The steps taken in building a menu are as follows:

- 2 1. Add Modifiers;
- 3 2. Add Sub-Modifiers and link them to the Modifiers;
- 4 3. Create Menu categories;
- 5 4. Add menu items to the categories;
- 6 5. Assign Modifiers to the menu items;
- 7 6. Preview the menu on the POS emulator on the desktop PC;
- 8 7. Download the menu database to the handheld device.

9
10 To add modifiers, a user clicks on the inside of the Modifiers window, then (1)
11 clicks on Edit>Add Modifier; (2) Presses Ctrl + N; (3) right mouse clicks in the Modifiers
12 window, then clicks on Add Modifiers or (4) clicks on the Add icon from the toolbar. If a menu
13 is being built from scratch, the procedure is to enter the Long Name, Short Name, Code and
14 Price in the Modifier dialog box 10 shown in FIG. 2. The Long Name is the full descriptive
15 name of the item. The Short Name is the abbreviated name that will be displayed on the
16 handheld device. The Code is the numeric or alphanumeric code for the item. If there is an
17 existing database, the existing database can be browsed and menu items retrieved from the
18 database. Clicking on the Browse button will bring up the existing database of menu items. The
19 item to be added is then selected and "OK" is clicked. The fields will then be filled with the
20 information from the database. Clicking on OK again will add the item as a modifier. To delete
21 a modifier, the modifier is selected and the Delete key pressed on the keyboard. To edit a
22 modifier, either the modifier is double clicked or the Enter key is pressed.

23 Sub-modifiers represent the last level of modifiers that can be assigned to a menu
24 tree. To add sub-modifiers, the modifier to which sub-modifiers are to be assigned is selected.
25 Then, the focus is set on the sub-modifier window by clicking inside the Sub-Modifier window
26 as follows: (1) clicking on Edit>Add Sub-Modifier; (2) pressing Ctrl + N; (3) right mouse

1 clicking in the Sub-Modifiers window, then clicking on Add Sub-Modifiers or (4) clicking on the
2 Add icon from the toolbar. If a menu is being built from scratch, the procedure is to enter the
3 Long Name, Short Name, Code and Price in a Sub-Modifier dialog box similar to the Modifier
4 dialog box shown in FIG. 2. As with modifiers, the Long Name is the full descriptive name of
5 the item. The Short Name is the abbreviated name that will be displayed on the handheld device.
6 The Code is the numeric or alphanumeric code for the item. As before, if there is an existing
7 database, the existing database can be browsed and menu items retrieved from the database.
8 Clicking on the Browse button will bring up the existing database of menu items. The item to be
9 added is then selected and OK clicked. The fields will then be filled with the information from
10 the database. Clicking on OK again will add the item as a sub-modifier. To delete a sub-
11 modifier, the sub-modifier is selected and the Delete key depressed on the keyboard. To edit a
12 sub-modifier, either the sub-modifier is double clicked or the Enter key is pressed.

13 Menu categories are created from the root. Some examples of categories are
14 Appetizers, Soups, Salads, Entrees, Desserts, etc. The first step is to click on Menu in the menu
15 tree window. Categories are added by (1) clicking on the Add Category icon from the toolbar;
16 (2) clicking on Edit > Add Category or (3) pressing Ctrl + T. As shown in FIG. 3, Menu
17 Category dialog box 11 then appears in which to enter the Long and Short names for the menu
18 category.

19 To add menu items to categories, the menu category which is being built is
20 clicked. For example, if items are being added to Appetizers, the Appetizers branch is clicked
21 on. Then the Edit > Add Item is clicked on or Ctrl + N pressed. As before, if a menu is being
22 built from scratch, the procedure is to enter the Long Name, Short Name, Code, Prep Time,
23 Recipe and Price into the Menu Item dialog box 12 shown in FIG. 4. The Long Name is the full

1 descriptive name of the item. The Short Name is the abbreviated name that will be displayed on
2 the handheld device. The Code is the numeric or alphanumeric code for the item. Prep Time is
3 the time it takes to prepare the meal and Recipe would include preparation methods and
4 ingredients that are used in the preparation of the item. If there is an existing database, the
5 existing database can be browsed and menu items retrieved from the database. Clicking on the
6 Browse button will bring up the existing database of menu items. The item to be added is then
7 selected and OK is clicked. The fields will then be filled with the information from the database.
8 Clicking on OK again will add the item to the category.

9 Once the menu items have been entered, it may be desired to assign some
10 modifiers to the menu items. For example, it may be desired to assign meat temperature to a
11 steak order. To accomplish this, first the modifier to be assigned is selected, then the menu item
12 on the tree view that is to be assigned the modifier is clicked on and then Edit > Assign Modifier
13 is clicked on. Or, the modifier can simply be dragged and dropped onto the menu item to link
14 them. A dialog box is then displayed asking if this modifier is a required modifier. If it is a
15 required modifier, the display icon will be red but if it is a non-required modifier the display icon
16 will be green. As many modifiers as are applicable can be assigned. If any changes are made to
17 the modifiers, those changes will be automatically reflected throughout the menu tree.

18 Once the modifiers have been entered, it may be desired to assign sub-modifiers
19 to the modifiers items. For example, it may be desired to add Honey Mustard as a sub-modifier
20 to Dressing. To accomplish this, first the modifier to be assigned a sub-modifier is selected, then
21 the sub-modifier window is clicked on, then Edit > Add Sub Modifier is clicked on, Ctrl+N
22 entered or the Add icon from the toolbar is clicked on. Or, the sub-modifier can simply be
23 dragged and dropped onto the modifier to link them.

1 When the menu has been completely configured, it can be previewed on a POS
2 emulator on the desktop to verify that the menu is correctly configured before downloading it to
3 the handheld device. To preview, File > Preview Database is clicked on or the Preview Database
4 icon from the toolbar is clicked on. The handheld POS emulator on the desktop can then be run.
5 If the configuration is deemed acceptable, the handheld device is connected to the desktop PC to
6 ensure that a connection has been established; the POS application on the handheld device is
7 exited and File > Download Database is clicked on or the Download Database icon from the
8 toolbar is clicked on. If there is an existing menu database on the handheld device, the system
9 will ask if the existing database should be replaced. Yes is clicked if existing database
10 replacement is desired.

11 A database function enables the creation of, e.g., a breakfast menu, lunch menu
12 and dinner menu and downloading them to a handheld device. Functions available are (1)
13 creating a new database; (2) opening an existing database; (3) saving a database under a different
14 name. To access these functions, File is clicked on the menu bar.

15 The preferred embodiment encompasses customized layout, views and fonts. To
16 set the focus on the view it is desired to change, click inside the desired window. The main
17 customizing dialog box is accessed by clicking on View > Customize View. A dialog box 13, as
18 shown in FIG. 5, will be displayed including tabs that allow the following options: selection of
19 Columns to display in the list view by choosing and arranging the fields to display in the
20 Modifiers and Sub-Modifiers windows; formatting Columns by specifying the column widths
21 and justification; selecting Filter allows restricting the list to display only the items that meet
22 certain criteria. For example, display of modifiers with codes between 500 and 550. Selecting
23 Sort allows sorting the modifiers or sub-modifiers according to any of the available fields such as

1 Name, Code or Price. Selecting Style facilitates choice of font type, style, size, etc. To change
2 the font in a particular window, click on View > Fonts or right mouse click in the desired
3 window and then click on Fonts. To change the size of the windows, drag the borders of the
4 windows to expand or contract the size of the windows. To change the column widths, simply
5 drag the edge of the column headers to increase or decrease the column widths.

6 A communications control program monitors and routes all communications to
7 the appropriate devices. It continuously monitors the wireless network access point and all other
8 devices connected to the network such as pagers, remote devices, internet Web links and POS
9 software. Any message received is decoded by the software, and then routed to the appropriate
10 device. No user action is needed during operation of the software once the application has been
11 launched. To launch the communications control module, a Wireless Traffic icon is clicked on
12 the desktop PC. When the program loads, the screen shown in FIG. 6 appears. Messages
13 received are logged in the window 14 shown in FIG. 6 with a time stamp. The messages are also
14 logged to a file on the hard drive. This provides a mechanism to monitor all traffic across the
15 network (possibly useful for troubleshooting, or maintenance, but not necessary for normal
16 operation). The program may be minimized so the screen is not displayed on the desktop, but it
17 must be running for proper communications to exist between all devices on the network.

18 As stated, the preferred embodiment of the present invention includes the use of
19 and compatibility with GUI technology. A drag-and-drop approach is used for organizing the
20 tree structure 2 in the generated menu. Drag-and-drop is also used for assigning modifiers
21 (modifiers can be dragged from the modifiers window 5 and dropped onto the menu item 4 for
22 assignment). In-cell editing results in fast editing of items in building the menus. Customizable
23 fonts enable users to change font types, style and size. Customizable layouts enable users to

1 resize windows, change icons and display preferences. The inventive approach provides for
2 fully persistent storage between sessions, even if a session is improperly or abruptly terminated.
3 Font and the tree state (i.e., which nodes are expanded/collapsed) are stored between sessions.
4 Layout for modifiers and sub-modifiers list views (filter, columns, formatting, font, etc.) are
5 stored between sessions. The last database used is likewise stored between sessions. Splitter
6 views allow the user to see different views at the same time. Each view is displayed on its own
7 section of the screen. Views can be resized via the keyboard or a mouse by simply dragging the
8 splitter in the middle.

9 An automated function is provided to import existing POS databases into the
10 inventive menu generation system and, as discussed above with respect to the detailed example
11 of how to use the preferred embodiment, an automated download procedure is provided to
12 transfer the desktop database onto a handheld device and/or Web page. Also as discussed, the
13 preferred embodiment facilitates preview of the handheld device or Web page version of the
14 POS menu on the desktop before downloading and configuration. Customizable desktop menu
15 generation is contemplated, as discussed above, in the form of customizable fonts, columns,
16 layouts, etc. The inventive approach also includes templates for common modifiers that can be
17 assigned to similar menu items. The preferred embodiment also supports multiple databases,
18 thus providing for the creation and storing of different menu databases on handheld devices such
19 as breakfast, lunch or dinner menus. The user can then select the appropriate database to reflect
20 the time of day.

21 FIG. 7 is a schematic representation of a point of sale interface 15 for use in
22 displaying a page-type menu 16 created using the inventive menu generation approach. As can
23 be seen from FIG. 7, the page menu is displayed in a catalogue-like point-and-click format

1 whereas the master menu, FIG. 1, is displayed as a hierarchical tree structure. Thus, a person
2 with little expertise can "page through" to complete a transaction with the POS interface and
3 avoid having to review the entire menu of FIG. 1 to place an order. A PDA or Web page format
4 could appear like FIG. 7 or the display could be configured for particular requirements since
5 fully customizable menu generation and display are contemplated.

6 The POS interface on the handheld device supports pricing in the database or
7 querying prices from the POS server. The POS device also can be customized with respect to
8 "look and feel" for the particular version. As can be seen in FIG. 7, the POS interface provides
9 for billing, status and payment with respect to orders. A myriad of options can be provided
10 depending on the application.

11 Advanced database functions are provided in the preferred embodiment of the
12 invention, including an automated download process onto handheld devices and/or Web sites. In
13 the preferred embodiment, the menu generation system of the present invention uses an API
14 called ActiveX Data Objects ("ADO") for database access. ADO is useful in a variety of
15 settings. It is built on top of OLE DB and can be used to talk to databases and, in the future, any
16 data source with any OLE DB driver. Advanced querying is supported. The database can be
17 queried on virtually all fields. Queries can be built using SQL syntax for experienced users or
18 can be created using a query builder which guides users through the creating process. Advanced
19 error handling is supported. Errors occurring at run time can be trapped. A descriptive message
20 is displayed to alert the user and provide error information. However, the application does not
21 terminate when the errors happen. The source code is easy to maintain and modify, thus
22 allowing for on time delivery of customized versions of the software. The advanced database
23 functions produce well-designed databases that accommodate growth and scalability

1 The inventive menu generation approach provides a solution for the pervasive
2 connectivity and computerization needs of the restaurant and related markets. The inventive
3 solution includes automatic database management and synchronization, PDA and handheld
4 wireless operating system integration and optimization, wireless communications and internet
5 connectivity, user interface design, and graphics design.

6 In the preferred embodiment, the menu generation approach of the present
7 invention uses Windows CE[®] as the operating system for the handheld devices. Windows CE[®]
8 provides the benefits of a familiar Windows 95/98/NT[®] look and feel, built-in synchronization
9 between handheld devices, internet and desktop infrastructure, compatibility with Microsoft
10 Exchange[®], Microsoft Office 9[®] and TCP/IP quick access to information with instant-on feature.

11 Windows CE[®] provides a basic set of database and communication tools for
12 developer use. However, interfacing with these tools to provide application specific results can
13 be a complex task. In addition to the menu generation described above, a set of software
14 libraries described herein in conformance with the present invention not only enhances the basic
15 Windows CE[®] functionality by adding new features but also maximizes the full potential of
16 wireless handheld computing devices. Such features include fast synchronization between a
17 central database and multiple handheld devices, synchronization and communication between a
18 Web server and multiple handheld devices, a well-defined API that enables third parties such as
19 POS companies, affinity program companies and internet content providers to fully integrate
20 with computerized hospitality applications, real-time communication over the internet with direct
21 connections or regular modem dialup connections and support for batch processing that can be
22 done periodically throughout the day to keep multiple sites in synch with the central database.

1 The synchronous communications control module discussed above provides a
2 single point of entry for all hospitality applications to communicate with one another wirelessly
3 or over the Web. This communications module is a layer that sits on top of any communication
4 protocol and acts as an interface between hospitality applications and the communication
5 protocol. This layer can be easily updated to work with a new communication protocol without
6 having to modify the core hospitality applications. The single point of entry works to keep all
7 wireless handheld devices and linked Web sites in synch with the backoffice server (central
8 database) so that the different components are in equilibrium at any given time and an overall
9 consistency is achieved. For example, a reservation made online is automatically communicated
10 to the backoffice server which then synchronizes with all the wireless handheld devices
11 wirelessly. Similarly, changes made on any of the wireless handheld devices will be reflected
12 instantaneously on the backoffice server and the other handheld devices.

13 The software applications for performing the functions falling within the
14 described invention can be written in any commonly used computer language. The discrete
15 programming steps are commonly known and thus programming details are not necessary to a
16 full description of the invention.

17 A simple point-to-point wireless capability is contemplated which permits simple
18 digital messages to be sent from the wireless handheld devices to a receiver in a beeper and/or
19 valet parking base-station. The POS interface of FIG. 7 is representative of the display on a
20 typical wireless device used in conformity with the invention. A simple protocol is used to
21 acknowledge receipt of the message and thus simultaneous communication is not necessary,
22 which reduces the cost of the wireless link. The range of the wireless link is determined by the
23 characteristics of the radio transceiver. Adding a wireless link allows paging of beeper equipped

1 customers directly from the operator interface on the wireless handheld devices and
2 communication to and from various input/output transmitters and receivers to update the status
3 of the order, reservation or other information and thus further reduce the workload on the
4 operator and enable operations to proceed much faster. This link could also be hardwired or
5 otherwise implemented using any two-way messaging transport.

6 A further aspect of the invention is the use of the menus generated in accordance
7 with the described technique to place orders from wireless remote handheld devices or from
8 remote locations through the internet. The World Wide Web is a distributed hypermedia
9 computer system that uses the internet to facilitate global hypermedia communication using
10 specified protocols. One such protocol is the Hypertext Transfer Protocol ("HTTP"), which
11 facilitates communication of hypertext. Hypertext is the combination of information and links to
12 other information. In the context of the Web, hypertext is defined by the Hypertext Mark-up
13 Language ("HTML"). The links or hyperlinks in a HTML document reference the locations of
14 resources on the Web, such as other HTML documents. Another language used in creating
15 documents for use on the Worldwide Web, to display on computer screens, or to create speech
16 style sheets for use in, e.g., telephones, is the Extensible Mark-Up Language ("XML"). XML is
17 a "metalanguage", i.e., a language for describing languages which was developed to eliminate
18 the restrictions of HTML.

19 The Web is a client-server system. The HTML documents are stored on Web
20 server computers, typically in a hierarchical fashion with the root document being referred to as
21 the home page. The client specifies a HTML document or other source on the server by
22 transmitting a Uniform Resource Locator ("URL") which specifies the protocol to use, e.g.,
23 HTTP, the path to the server directory in which the resource is located, and filename of the

1 resource. Users retrieve the documents via client computers. The software running on the user's
2 client computer that enables the user to view HTML documents on the computer's video monitor
3 and enter selections using the computer's keyboard and mouse is known as a browser. The
4 browser typically includes a window in which the user may type a URL. A user may cause a
5 URL to be transmitted by typing it in the designated window on the browser or by maneuvering
6 the cursor to a position on the displayed document that corresponds to a hyperlink to a resource
7 and actuating the mouse button. The latter method is commonly referred to simply as "clicking
8 on the hot-spot" or "clicking on the hyperlink". The hyperlink methodology is contemplated for
9 use in accordance with the preferred embodiment to transmit orders via the internet.

10 Web server application software exists that enables a user to shop for and order
11 merchandise. Such systems are sometimes referred to as electronic merchandising systems or
12 virtual storefronts. Systems that enable a user to choose among several retailers' goods are
13 sometimes referred to as electronic malls. An electronic retailer's or electronic mall operator's
14 Web server provides HTML forms that include images and descriptions of merchandise. The
15 user may conventionally search for an item by entering a key word search query in a box on a
16 form. When a user selects an item, the server may provide a linked form that describes that item
17 in further detail. The user may also conventionally enter ordering information into boxes on the
18 form, such as the type and quantity of the item desired. The information entered by the user is
19 transmitted to the server. The user may select multiple items in this manner and then enter a
20 credit card number to pay for the purchases. The retailer processes the transaction and ships the
21 order to the customer. As can be appreciated, ordering merchandise can also be done from
22 menus. The generation of menus of items or merchandise for sale over the internet is readily
23 accomplished by the menu generation approach of the present invention.

1 Searching for items that the user is interested in purchasing is insufficient in prior
2 merchandising systems. Database management programs use index searching to facilitate rapid
3 searching of large amounts of data. The creator of the database may instruct the program to use
4 specified fields in the database as indexed or key fields. The program locates all terms in the
5 database that appear in the indexed fields and stores them in an index table. Each entry in the
6 index table includes a term and corresponding pointer to the location in the database where the
7 term is found. If a user initiates a search for a term that is present in the index table, the program
8 can locate the instances of that term in the database with exceptional speed. Users who are
9 familiar with the particular database they are searching will generally know which fields are
10 indexed and will know the format of the data in those fields. For example, a user of a database
11 containing the inventory of a bookstore may know that users can search for the names of authors
12 of books and that a user who wishes to do so should enter the author's last name first. A user
13 having such knowledge will therefore be able to search efficiently. Users of electronic
14 merchandising systems, however, are generally end-consumers who have no knowledge of a
15 merchant's database. If, as is very likely, such a user initiates a search for a term that is not
16 present in the index table, the program must sequentially search through all records in the
17 database. Sequential records are typically linked by pointers. Using pointers in this manner is
18 very demanding on server resources, resulting not only in an exceptionally slow search, but also
19 creating a bottleneck for other processes that the server may be executing. The menu generation
20 approach of the present invention can be used to create customized menus from a database that
21 includes every item of merchandise the vendor has for sale. In this manner, customers can scan
22 the generated menu much more readily than they could view the entire database and the

1 necessity of having familiarity with the database is eliminated as well, reducing the need for
2 resource intensive pointers.

3 While the preferred embodiment of the invention is for the generation of
4 restaurant menus and the like, the broad scope of the invention is far greater. For example,
5 menus generated in accordance with the invention can be used in the desktop computing
6 environment in association with the operating system or application programs. One such use is
7 to facilitate the creation of user personalized file structures for general desktop use. Another use
8 is to facilitate the location of customized menus from master menus for use in association with
9 application software to make the execution of the application software more efficient by, e.g.,
10 eliminating the necessity of querying or checking every tree branch in the master menu file
11 structure in response to user input or other criteria and to create handheld/PDA compatible
12 versions of the software.

13 While the preferred embodiment of the invention includes the selection of items
14 from a master menu wherein the master menu is displayed using a graphical user interface, it is
15 to be appreciated that any means for displaying the master menu to the user and generating
16 another menu in response to and comprised of the selections made is encompassed by the
17 contemplated invention. The invention encompasses the selection of nontextual symbols,
18 characters, icons and the like, in addition to text, from a hierarchical tree menu or the like for
19 generation of another menu comprised of such items.

20 It is also within the scope of the invention to generate menus automatically in
21 response to predetermined criteria. For example, in the restaurant menu generation embodiment,
22 a modified menu can be generated to comply with a particular specification or group of criteria
23 such as, e.g., "dinner", "low cholesterol", "low fat", "fish", "chicken", or "vegetarian". In this

embodiment, only items from the master menu that satisfy specified parameters will be included in the generated menu. The selection process could involve selection of master menu items based on tags or identifiers associated with the items or by checking every master menu item against a dictionary of items acceptable for inclusion in the modified menu. It should also be appreciated that the invention encompasses any combination of automatic and manual user selection of the items comprising the generated menu. For example, a user might specify criteria which would further control automatic selection or the user could manually select some items with automatic selection of others. The menu generation aspect of the invention is equally applicable to table-based, drive-thru, internet, telephone, wireless or other modes of customer order entry, as is the synchronous communications aspect of the invention.

The inventive concept encompasses the generation of a menu in any context known to those skilled in the art where an objective is to facilitate display of the menu so as to enable selection of items from that menu. The restaurant menu generation embodiment is but one example of a use for the inventive concept. Likewise, displaying menus generated in accordance with the invention on PDAs and Web pages to facilitate remote ordering are but a few examples of ways in which such a menu might be used in practice. Any display and transmission means known to those skilled in the art is equally usable with respect to menus generated in accordance with the claimed invention.

In the more general situation, menus can be generated in accordance with the present invention in a variety of situations. For example, the usable file structure for a particular data processing application can be dictated by the user or an application program prior to or during the execution of the application program. Efficiencies with respect to computational

1 speed and equipment, e.g., storage and processor, usage can thus be achieved along with the
2 facilitation of display of the generated menu.

3 While the best mode for carrying out the preferred embodiment of the invention
4 has been illustrated and described in detail, those familiar with the art to which the invention
5 relates will recognize various alternative designs and embodiments which fall within the spirit of
6 practicing the invention. The appended claims are intended to cover all those changes and
7 modifications falling within the true spirit and scope of the present invention.

That which is claimed is:

1. An information management and synchronous communications system for generating and transmitting menus comprising:

- a. a central processing unit,
- b. a data storage device connected to said central processing unit,
- c. an operating system including a graphical user interface,
- d. a first menu consisting of menu categories, said menu categories consisting of menu items, said first menu stored on said data storage device and displayable in a window of said graphical user interface in a hierarchical tree format,

- e. a modifier menu stored on said data storage device and displayable in a window of said graphical user interface,

- f. a sub-modifier menu stored on said data storage device and displayable in a window of said graphical user interface, and

- g. application software for generating a second menu from said first menu and transmitting said second menu to a wireless handheld computing device or Web page,

wherein the application software facilitates the generation of the second menu by allowing selection of categories and items from the first menu, addition of menu categories to the second menu, addition of menu items to the second menu and assignment of parameters to items in the second menu using the graphical user interface of said operating system, said parameters being selected from the modifier and sub-modifier menus, wherein said second menu is manually modified after generation.

2. An information management and synchronous communications system for generating menus comprising:

- a. a central processing unit,
- b. a data storage device connected to said central processing unit,

- c. an operating system including a graphical user interface,
- d. a first menu stored on said data storage device,
- e. application software for generating a second menu from said first menu,

wherein the application software facilitates the generation of the second menu by allowing selection of items from the first menu, addition of items to the second menu and assignment of parameters to items in the second menu using the graphical user interface of said operating system and wherein data comprising the second menu is synchronized between the data storage device connected to the central processing unit and at least one other computing device, wherein said second menu is manually modified by handwriting or voice recording after generation.

3. An information management and synchronous communications system for generating menus comprising:

- a. a microprocessor,
- b. a display device,
- c. a data and instruction input device,
- d. a data storage device for storing information and instructions entered through said data and instruction input means or information generated by said microprocessor,
- e. an operating system,
- f. a master menu stored on said data storage device for generating a modified menu, and
- g. application software,

wherein said microprocessor, operating system and application software are operative to display the master menu on the display device in response to instructions programmed into said

1 microprocessor, operating system, application software and information and instructions entered
2 through said data input device, and wherein said microprocessor, operating system and
3 application software are operative to create the modified menu from said master menu in
4 response to information and instructions entered through said data and instruction input device
5 and wherein data comprising the modified menu is synchronized between the data storage device
6 and at least one other computing device, wherein said modified menu is manually modified after
7 generation.

8 4. In a computer system having an input device, a storage device, a video display,
9 an operating system including a graphical user interface and application software, an information
10 management and synchronous communications method comprising the steps of:

- 11 a. outputting at least one window on the video display;
- 12 b. outputting a first menu in a window on the video display;
- 13 c. displaying a cursor on the video display;
- 14 d. selecting items from the first menu with the input device or the graphical user interface;
- 15 e. inserting the items selected from the first menu into a second menu, the second menu being output in a window;
- 16 f. optionally adding additional items not included in the first menu to the second menu using the input device or the graphical user interface;
- 17 g. storing the second menu on the storage device; and

18
19
20
21
22
23 synchronizing the data comprising the second menu between the storage device
24 and at least one other data storage medium, wherein the other data storage medium is connected
25 to or is part of a different computing device, and wherein said second menu is manually modified
26 after generation.
27

1 5. The information management and synchronous communications system of
2 claim 1, 2, or 3 wherein the manual modification involves handwriting capture.

3 6. The information management and synchronous communications system of
4 claim 1, 2, or 3 wherein the manual modification involves voice capture.

5 7. The method of claim 4 wherein the manual modification involves
6 handwriting capture.

7 8. The method of claim 4 wherein the manual modification involves voice
8 capture.

9 9. The system of claim 1 wherein the modified second menu can be
10 selectively printed on any printer directly from the graphical user interface
11 of a hand-held device.

12 10. The system of claim 1 wherein the modified second menu can be linked to
13 a specific customer at a specific table directly from the graphical user
14 interface of a hand-held device.

15 11. The system of claim 2 or 3 wherein the modified second menu can be
16 selectively printed on any printer directly from the graphical user interface
17 of said other computing device.

18 12. The system of claim 2 or 3 wherein the modified second menu can be
19 linked to a specific customer at a specific table directly from the graphical
20 user interface of said other computing device.

21 13. The system of claim 5 wherein the handwriting capture involves
22 handwriting recognition and conversion to text.

1 14. The system of claim 6 wherein the voice capture involves voice
2 recognition and conversion to text.

3 15. The method of claim 7 wherein the handwriting capture involves
4 handwriting recognition and conversion to text.

5 16. The method of claim 8 wherein the voice capture involves voice
6 recognition and conversion to text

1 ABSTRACT

2 An information management and synchronous communications system and
3 method facilitates database equilibrium and synchronization with wired, wireless and Web-based
4 systems, user-friendly and efficient generation of computerized menus and reservations with
5 handwritten/voice modifications for restaurants and other applications that utilize equipment
6 with nonstandard graphical formats, display sizes and/or applications for use in remote data
7 entry, information management and communication with host computer, digital input device or
8 remote pager via standard hardwired connection, the internet, a wireless link, printer or the like.

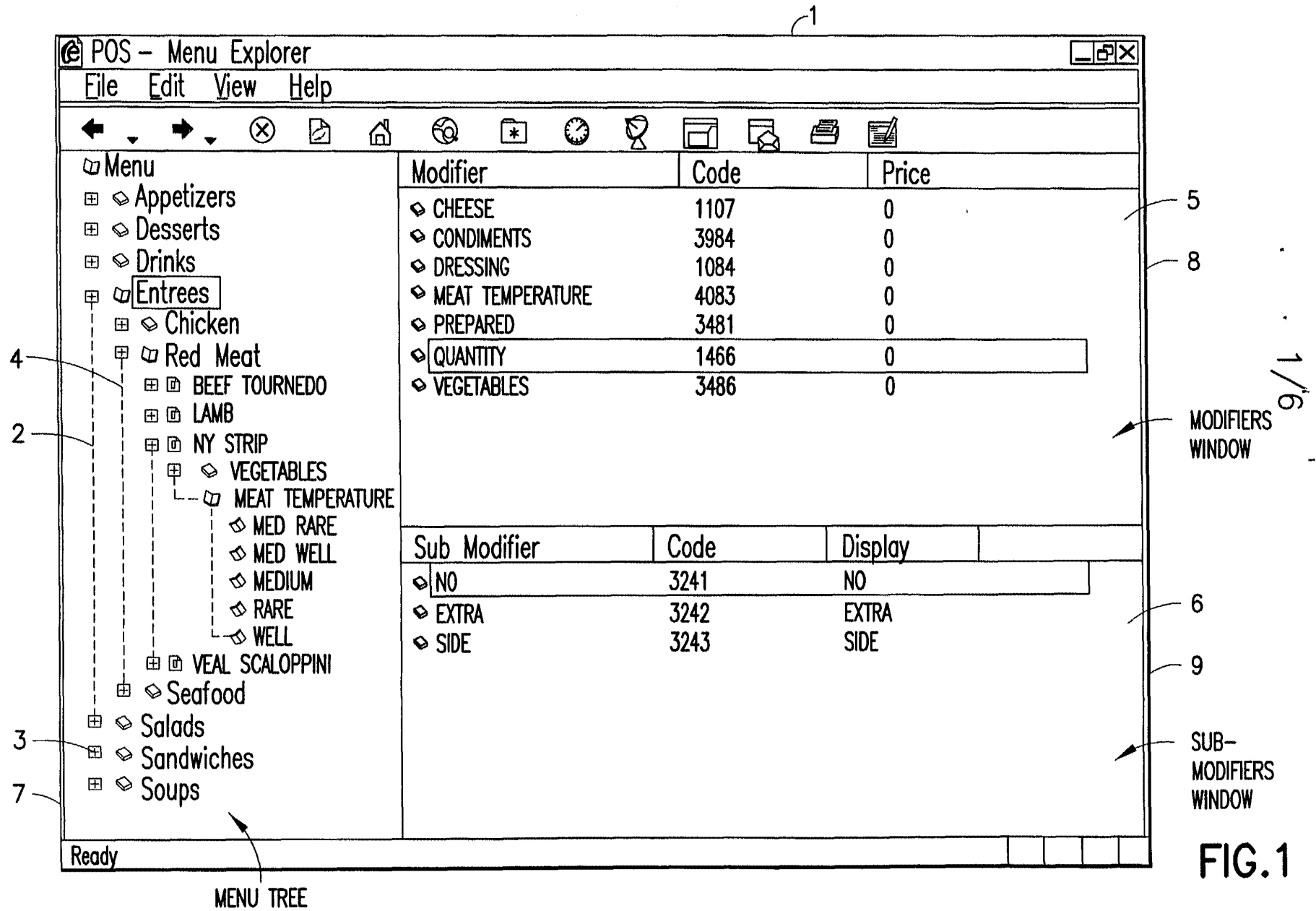
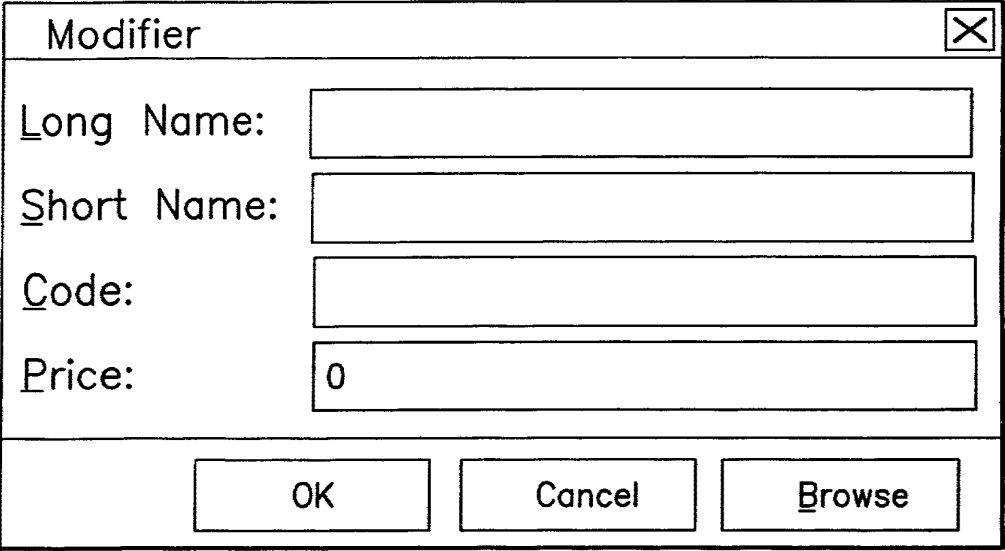


FIG.1



A dialog box titled "Modifier" with a close button (X) in the top right corner. It contains four input fields: "Long Name:", "Short Name:", "Code:", and "Price:". The "Price:" field contains the value "0". At the bottom, there are three buttons: "OK", "Cancel", and "Browse". A reference number "10" is located to the right of the dialog box.

Modifier

Long Name:

Short Name:

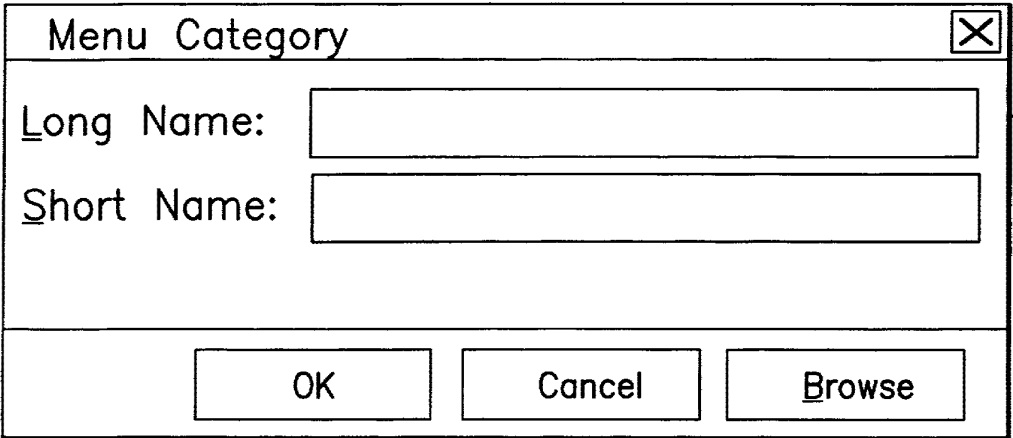
Code:

Price:

OK Cancel Browse

10

FIG.2



A dialog box titled "Menu Category" with a close button (X) in the top right corner. It contains two input fields: "Long Name:" and "Short Name:". At the bottom, there are three buttons: "OK", "Cancel", and "Browse". A reference number "11" is located to the right of the dialog box.

Menu Category

Long Name:

Short Name:

OK Cancel Browse

11

FIG.3

Menu Item

Long Name: Code:

Chicken Alaska 5612

Short Name: Price: Prep. Time:

ChxAls 12.95 12

Recipe

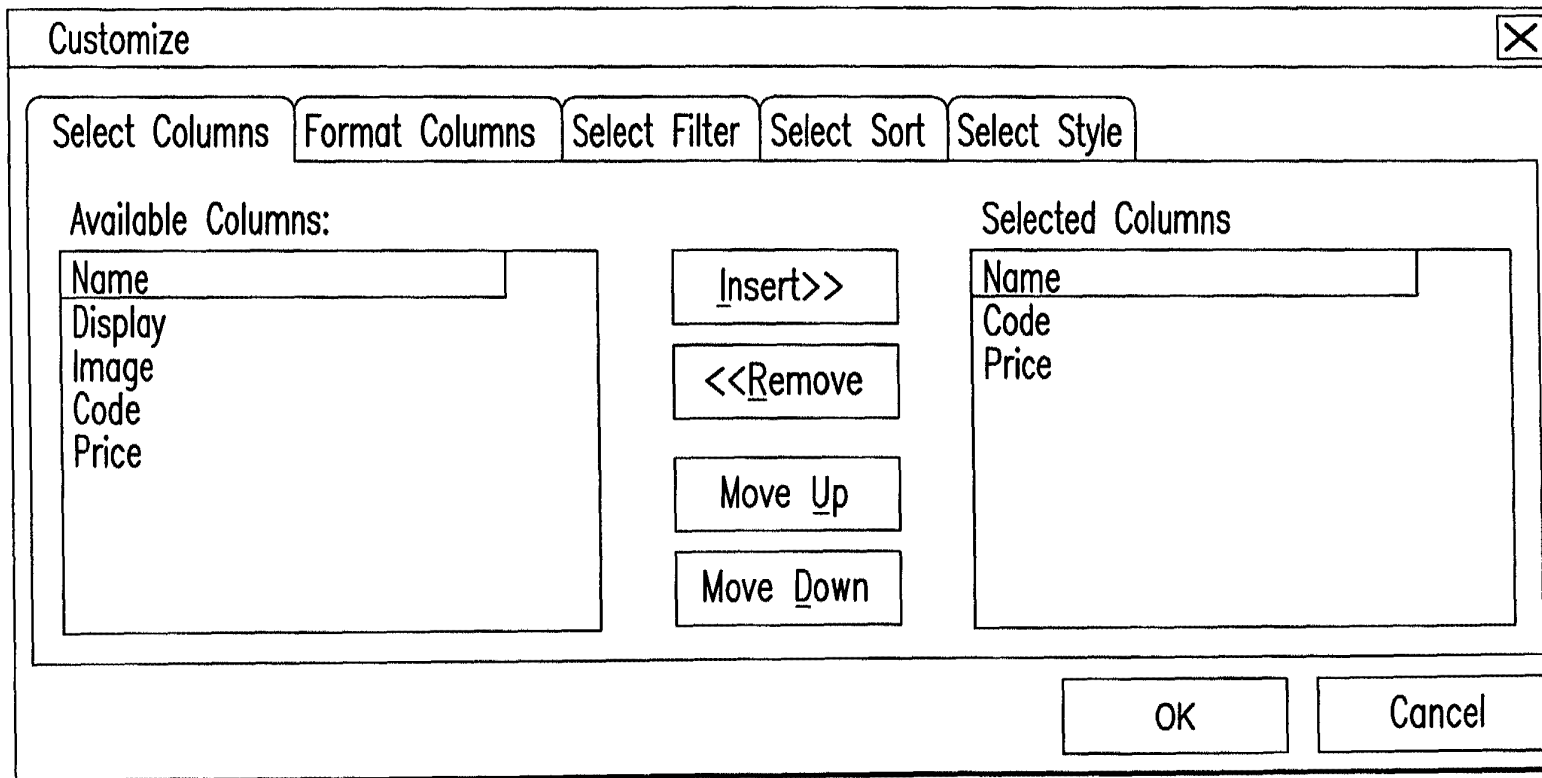
Flame broiled brandy marinated Tender Chicken Breast topped with a creamy cilantro sauce. Served with steamed broccoli, carrots and zucchini.

Spices include lemon pepper, paprika, ginger.

OK Cancel Browse

12

FIG.4



13

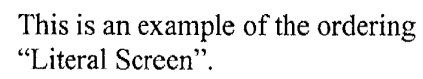
FIG.5



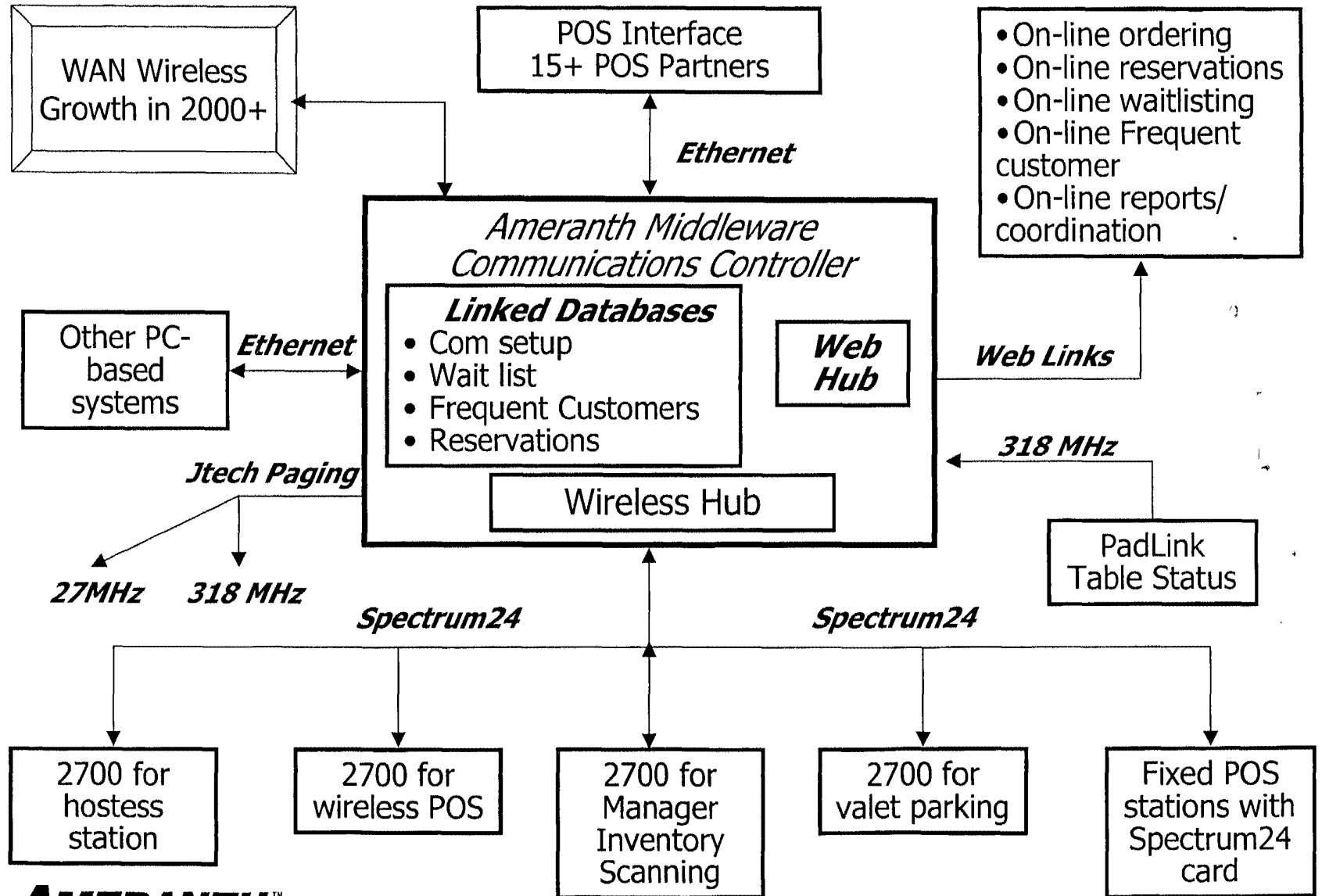
$$\frac{6}{9}$$

FIG.7

1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379</
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Ameranth 21st Century Communications Integration



AMERANTH™ FIG. 9
WIRELESS SYSTEMS SOLUTIONS

**COMBINED DECLARATION AND POWER OF ATTORNEY FOR
ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL,
DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**INFORMATION MANAGEMENT AND SYNCHRONOUS COMMUNICATIONS SYSTEM
WITH MENU GENERATION, AND HANDWRITING AND VOICE MODIFICATION OF
ORDERS**

the specification of which

- a. ☒ is attached hereto
- b. ☐ was filed on _____ as application Serial No. _____ and was amended on _____ (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

- c. ☐ was described and claimed in International Application No. _____ filed on _____ and as amended on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby specify the following as the correspondence address to which all communications about this application are to be directed:

SEND CORRESPONDENCE TO: John W. Osborne
MORGAN & FINNEGAN, L.L.P.
345 Park Avenue
New York, N.Y. 10154

DIRECT TELEPHONE CALLS TO: 212-415-8529

- ☐ I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or under § 365(b) of any foreign application(s) for patent or inventor's certificate or under § 365(a) of any PCT international application(s) designating at least one country other than the U.S. listed below and also have identified below such foreign application(s) for patent or inventor's certificate or such PCT international application(s) filed by me on the same subject matter having a filing date

within twelve (12) months before that of the application on which priority is claimed:

- ☐ The attached 35 U.S.C. § 119 claim for priority for the application(s) listed below forms a part of this declaration.

Country/PCT	Application Number	Date of filing (day, month, yr)	Date of issue (day, month, yr)	Priority Claimed
				☐ Y ☐ N
				☐ Y ☐ N
				☐ Y ☐ N

- ☐ I hereby claim the benefit under 35 U.S.C. § 119(e) of any U.S. provisional application(s) listed below.

Provisional Application No.	Date of filing (day, month, yr)

ADDITIONAL STATEMENTS FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART OR PCT INTERNATIONAL APPLICATION(S) DESIGNATING THE U.S.)

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s) or under § 365(c) of any PCT international application(s) designating the U.S. listed below.

09/400,413	September 21, 1999	Allowed
US/PCT Application Serial No.	Filing Date	Status (patented, pending, abandoned)/ U.S. application no. assigned (For PCT)

US/PCT Application Serial No.	Filing Date	Status (patented, pending, abandoned)/ U.S. application no. assigned (For PCT)
-------------------------------	-------------	--

- ☒ In this continuation-in-part application, insofar as the subject matter of any of the claims of this application is not disclosed in the above listed prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or Imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorneys and/or agents with full power of substitution and revocation, to prosecute this application, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith: John C. Vassil (Reg. No. 19,098), Alfred P. Ewert (Reg. No. 19,887), David H. Pfeffer (Reg. No. 19,825), Harry C. Marcus (Reg. No. 22,390), Robert E. Paulson (Reg. No. 21,046), Stephen R. Smith (Reg. No. 22,615), Kurt E. Richter (Reg. No. 24,052), J. Robert Dailey (Reg. No. 27,434), Eugene Moroz (Reg. No. 25,237), John F. Sweeney (Reg. No. 27,471), Arnold I. Rady (Reg. No. 26,601), Christopher A. Hughes (Reg. No. 26,914), William S. Feiler (Reg. No. 26,728), Joseph A. Calvaruso (Reg. No. 28,287), James W. Gould (Reg. No. 28,859), Richard C. Komson (Reg. No. 27,913), Israel Blum (Reg. No. 26,710), Bartholomew Verdirame (Reg. No. 28,483), Maria C.H. Lin (Reg. No. 29,323), Joseph A. DeGirolamo (Reg. No. 28,595), Michael P. Dougherty (Reg. No. 32,730), Seth J. Atlas (Reg. No. 32,454), Andrew M. Riddles (Reg. No. 31,657), Bruce D. DeRenzi (Reg. No. 33,676), Mark J. Abate (Reg. No. 32,527), John T. Gallagher (Reg. No. 35,516), Steven F. Meyer (Reg. No. 35,613) and Kenneth H. Sonnenfeld (Reg. No. 33,285), Tony V. Pezzano (Reg. No. 38,271), Andrea L. Wayda (Reg. 43,979), Walter G. Hanchuk (Reg. No. 35,179), John W. Osborne (Reg. No. 36,231), and Robert K. Goethals (Reg. No. 36,813) of Morgan & Finnegan, L.L.P. whose address is: 345 Park Avenue, New York, New York, 10154; and Michael S. Marcus (Reg. No. 31,727), John E. Hoel (Reg. No. 26,279), and Stanley B. Green (Reg. No. 24,351) of Morgan & Finnegan, L.L.P., whose address is 1775 Eye Street, Suite 400, Washington, D.C. 20006.

- ☐ I hereby authorize the U.S. attorneys and/or agents named hereinabove to accept and follow instructions from _____ as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and/or agents and me. In the event of a change in the person(s) from whom instructions may be taken I will so notify the U.S. attorneys and/or agents named hereinabove.

Full name of sole or first inventor:	<u>Keith R. McNally</u>	
Inventor's signature*	_____	_____
		Date
Residence:	5104 Seagrove Cove, San Diego, CA 92130	
Citizenship:	<u>U.S.</u>	
Post Office Address:		
Full name of second inventor:	<u>WJ Kitchen</u>	
Inventor's signature*	_____	_____
		Date
Residence:	Rancho Santa Fe, CA 92067	
Citizenship:	<u>U.S.</u>	
Post Office Address:	P.O. Box 675387, Rancho Santa Fe, CA 92067	

- ☒ ATTACHED IS ADDED PAGE TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR SIGNATURE BY THIRD AND SUBSEQUENT INVENTORS FORM.

Full name of third inventor:	<u>Ken Rogers</u>
Inventor's signature*	_____ Date _____
Residence:	<u>2801 Oceanfront Walk #M, San Diego, CA 92109</u>
Citizenship:	<u>U.S.</u>
Post Office Address:	

Full name of fourth inventor:	<u>Paul Rubin</u>
Inventor's signature*	_____ Date _____
Residence:	<u>9573 Vervain Street, San Diego CA 92129</u>
Citizenship:	<u>US</u>
Post Office Address:	

Full name of fifth inventor:	
Inventor's signature*	_____ Date _____
Residence:	
Citizenship:	
Post Office Address:	

Full name of sixth inventor:	
Inventor's signature*	_____ Date _____
Residence:	
Citizenship:	
Post Office Address:	

Full name of seventh inventor:	
Inventor's signature*	_____ Date _____
Residence:	
Citizenship:	
Post Office Address:	

Full name of eighth inventor

Inventor's signature* _____

_____ Date

Residence:

Citizenship:

Post Office Address:

Full name of ninth inventor:

Inventor's signature* _____

_____ Date

Residence:

Citizenship:

Post Office Address:

Full name of tenth inventor:

Inventor's signature* _____

_____ Date

Residence:

Citizenship:

Post Office Address:

Full name of eleventh inventor:

Inventor's signature* _____

_____ Date

Residence:

Citizenship:

Post Office Address:

*Before signing this declaration, each person signing must:

1. Review the declaration and verify the correctness of all information therein; and
2. Review the specification and the claims, including any amendments made to the claims.

After the declaration is signed, the specification and claims are not to be altered.

To the inventor(s):

The following are cited in or pertinent to the declaration attached to the accompanying application:

Title 37, Code of Federal Regulation, §1.56

Duty to disclose information material to patentability

- (a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:
- (1) prior art cited in search reports of a foreign patent office in a counterpart application, and
 - (2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

Title 35, U.S. Code § 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, subject to the conditions and requirements of this title.

Title 35 U.S. Code § 102

Conditions for patentability; novelty and loss of right to patent

A person shall be entitled to a patent unless --

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent,
- (b) the invention was patented or described in a printed publication in this or foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States, or
- (c) he has abandoned the invention, or
- (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent, or
- (f) he did not himself invent the subject matter sought to be patented, or
- (g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

Title 35, U.S. Code § 103

Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, 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. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Title 35, U.S. Code § 112 (in part)

Specification

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, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Title 35, U.S. Code, § 119

Benefit of earlier filing date in foreign country; right of priority

An application for patent for an invention filed in this country by any person who has, or whose legal representatives or assigns have, previously regularly filed an application for a patent for the same invention in a foreign country which affords similar privileges in the case of applications filed in the United States or to citizens of the United States, shall have the same effect as the same application would have if filed in this country on the date on which the application for patent for the same invention was first filed in such foreign country, if the application in this country is filed within twelve months from the earliest date on which such foreign application was filed; but no patent shall be granted on any application for patent for an invention which had been patented or described in a printed publication in any country more than one year before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country more than one year prior to such filing.

Title 35, U.S. Code, § 120

Benefit or earlier filing date in the United States

An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States, or as provided by section 363 of this title, which is filed by an inventor or inventors named in the previously filed application shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application or an application similarly entitled to the benefit of the filing date of the first application and if it contains or is amended to contain a specific reference to the earlier filed application.

Please read carefully before signing the Declaration attached to the accompanying Application.

If you have any questions, please contact Morgan & Finnegan, L.L.P.